

ภาคผนวก ค

เอกสารประกอบการปฏิบัติตาม
มาตรการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม

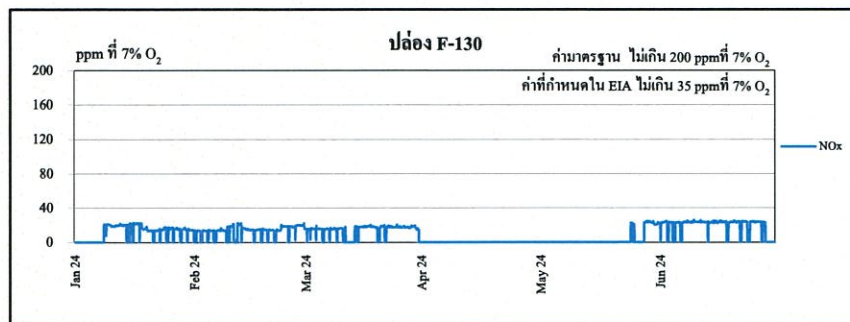
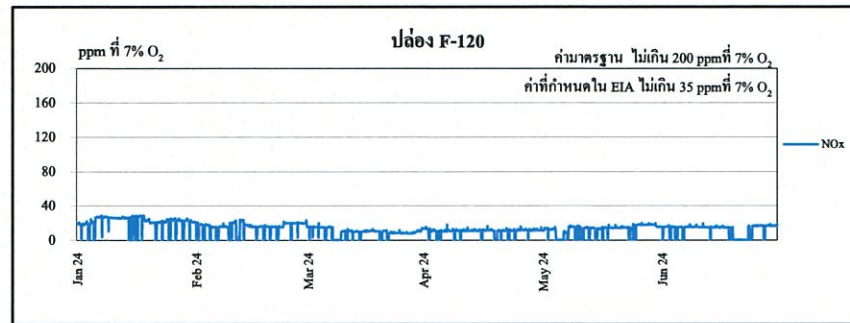
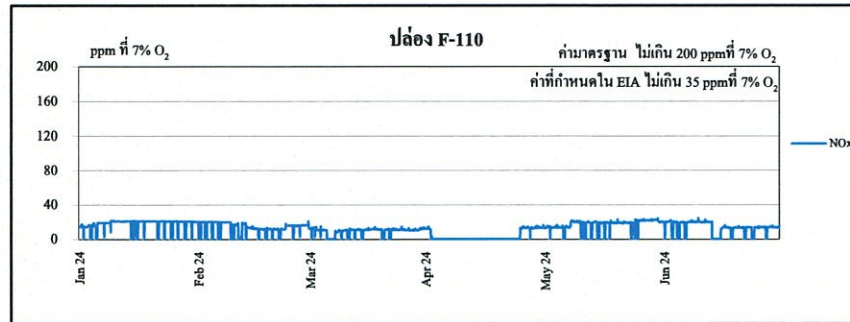
ภาคผนวก ก.1

ผลการตรวจวัด NO_x และ SO₂ ด้วย CEMs Online
ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

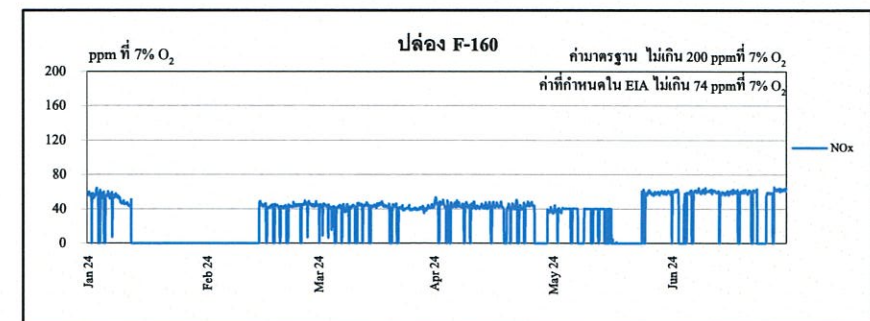
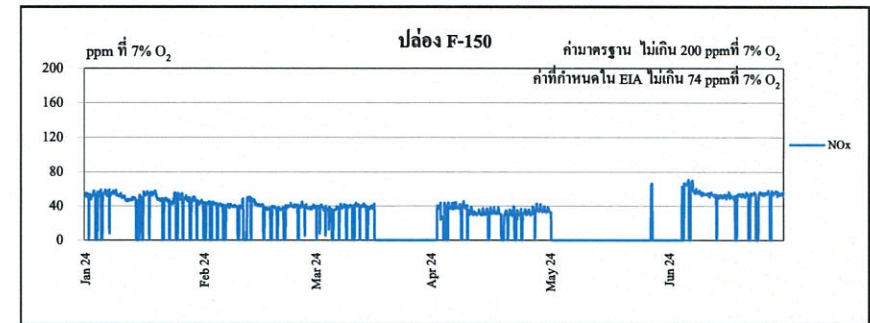
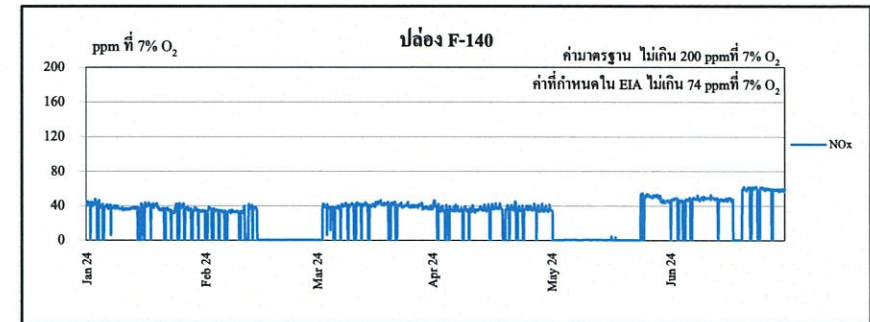


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

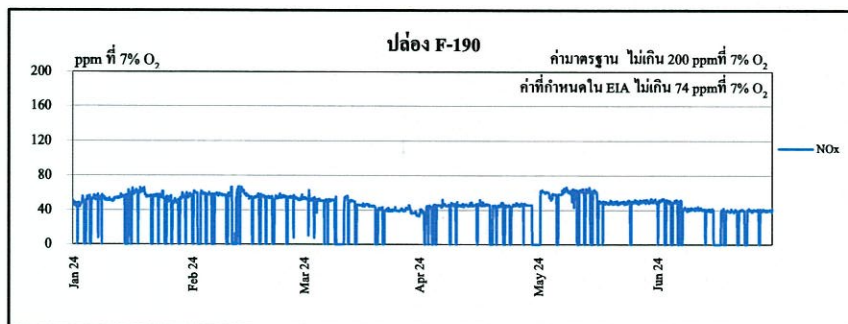
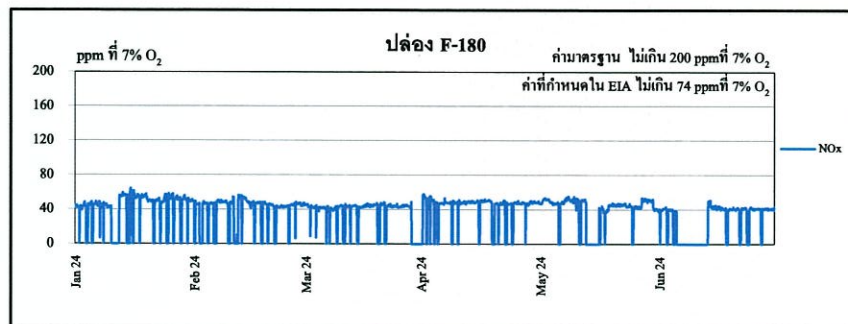
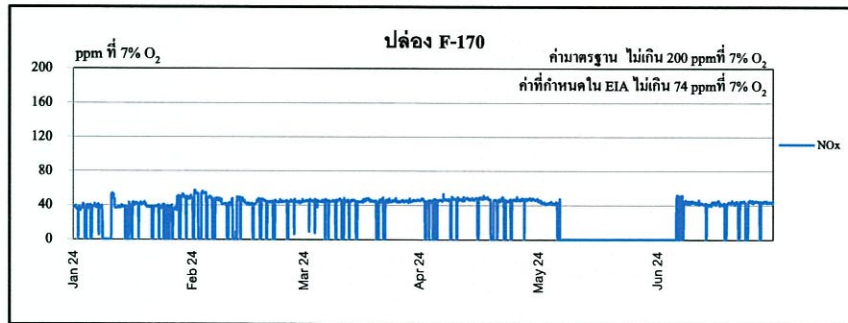


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

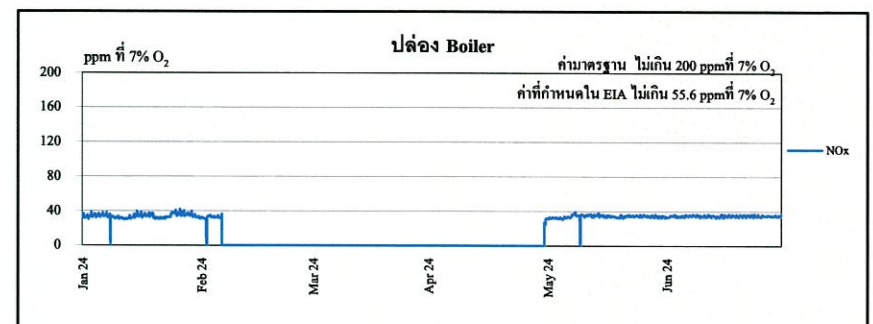
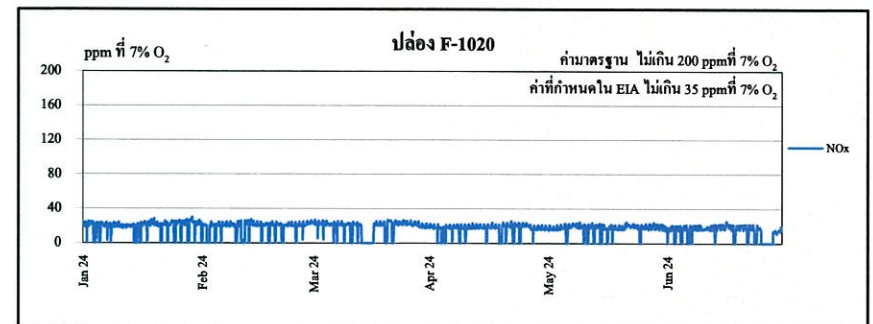
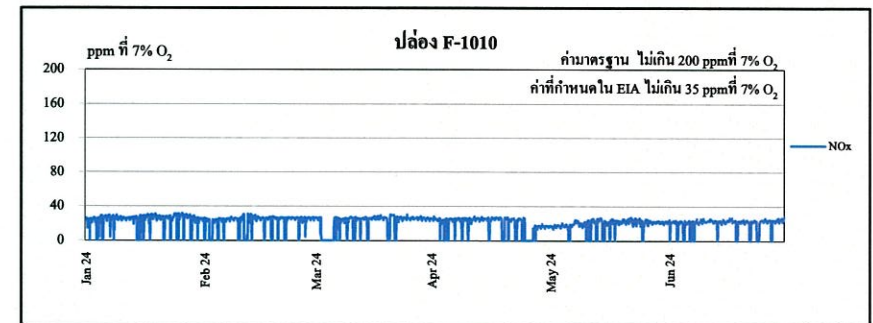


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

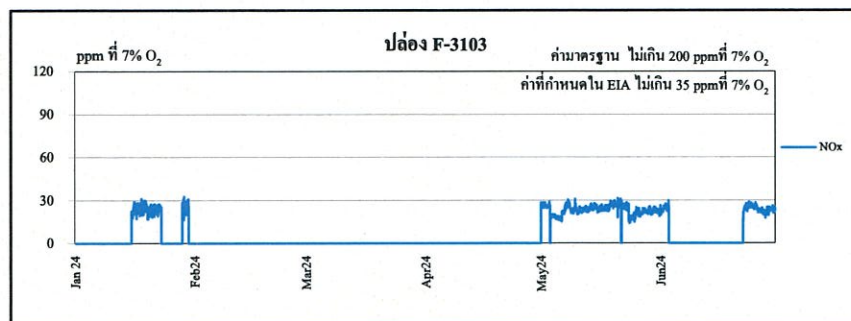
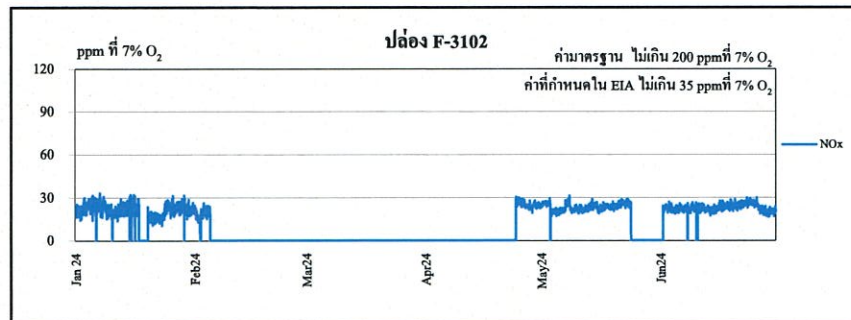
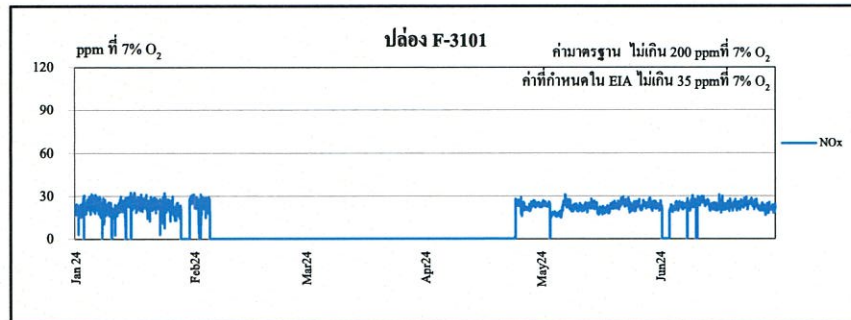


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

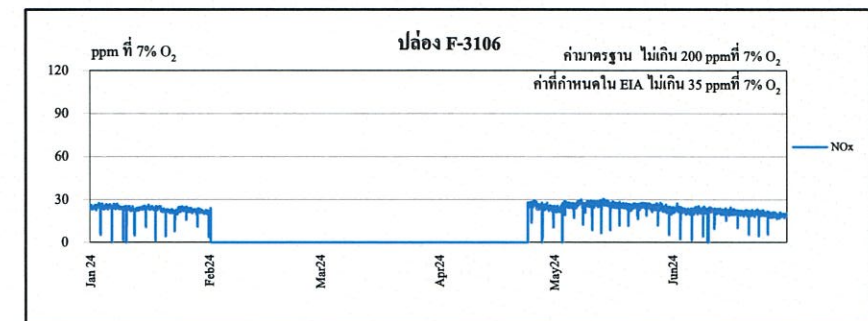
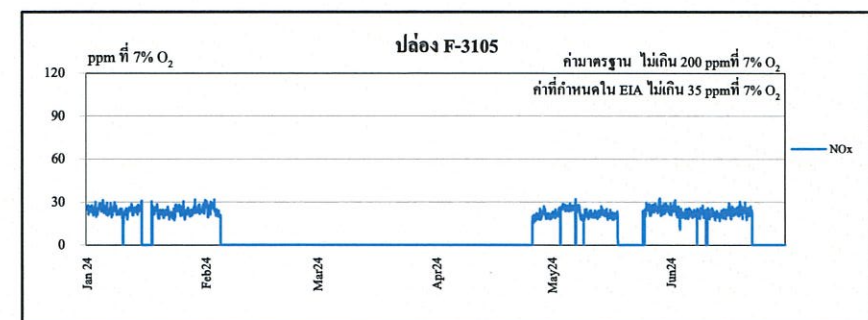
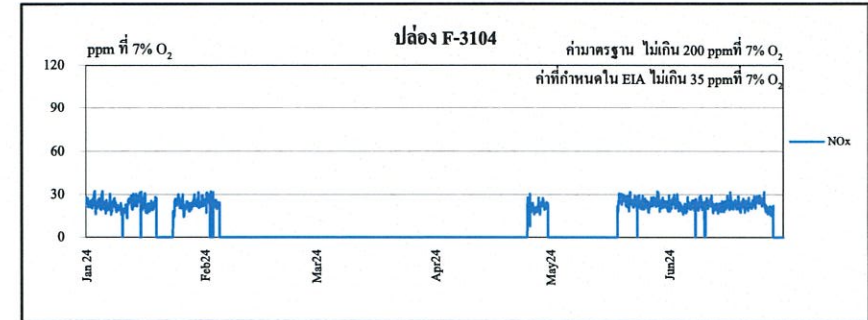


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

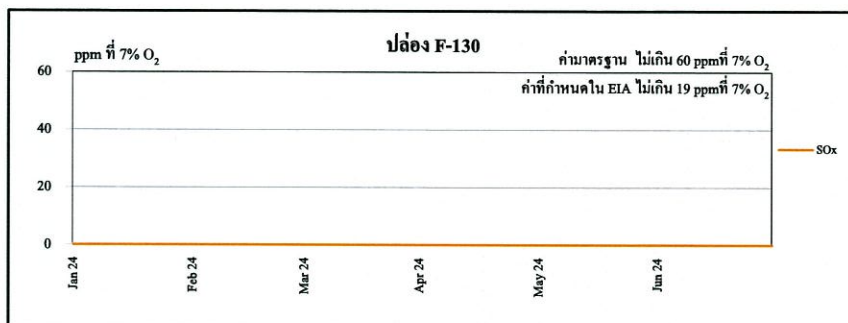
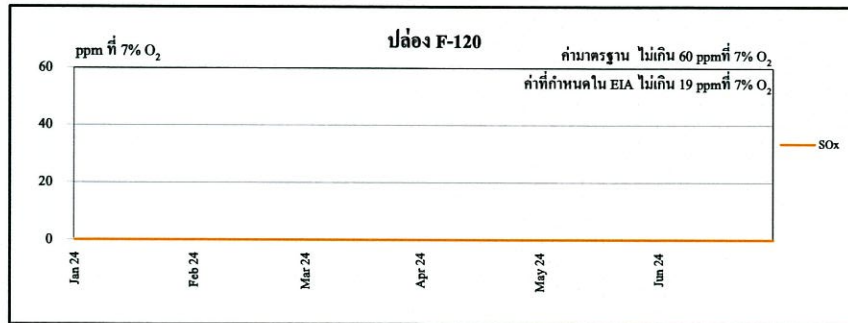
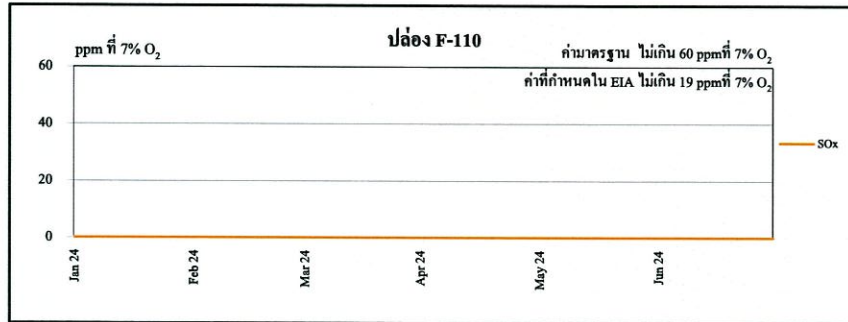


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

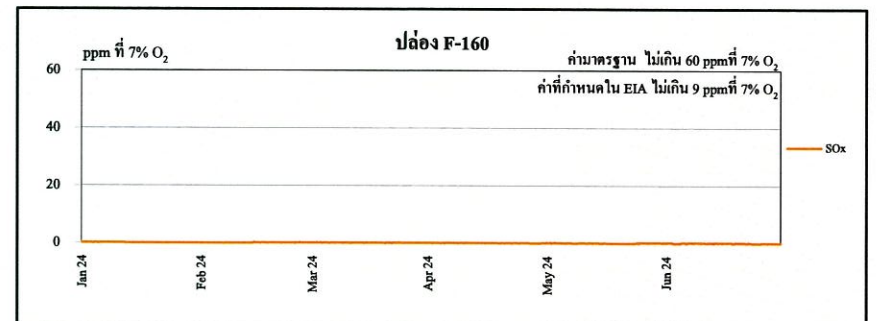
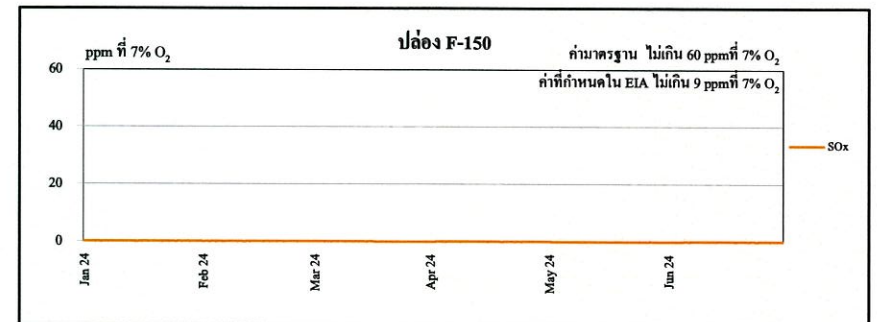
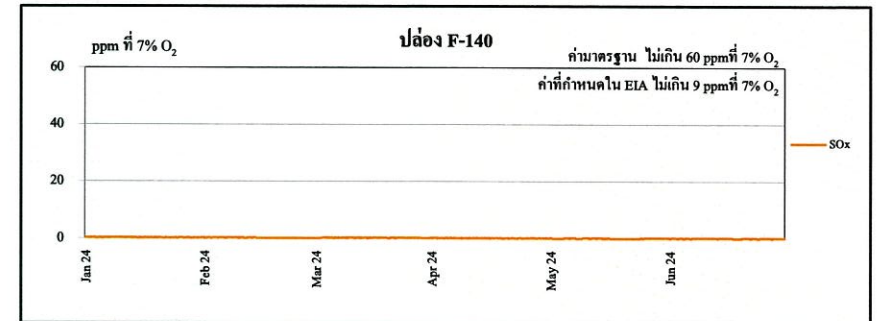


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

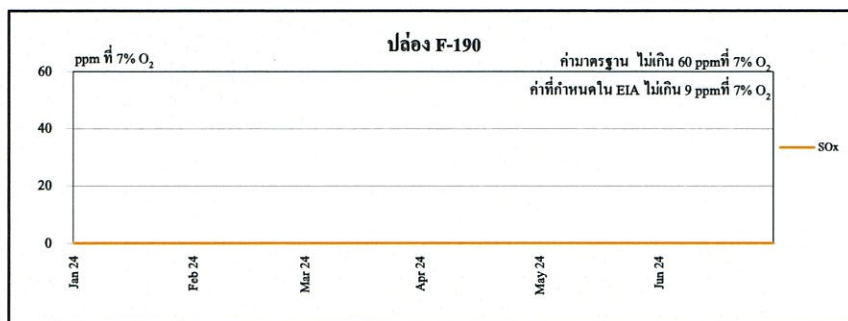
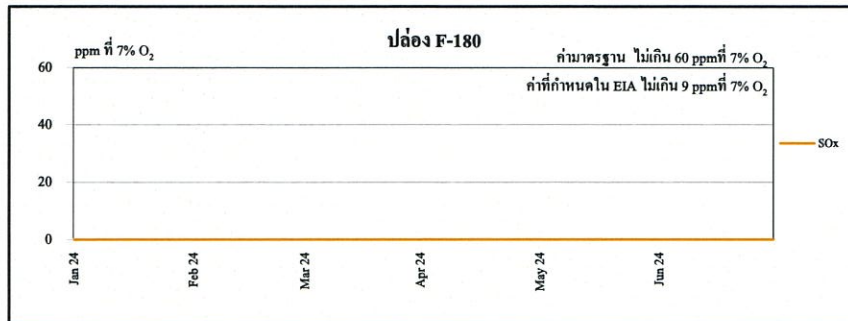
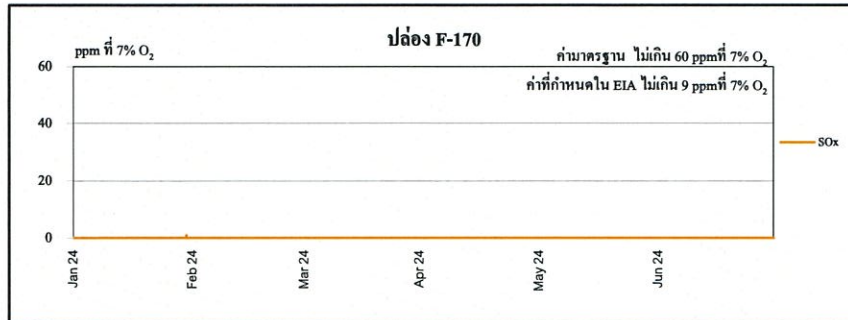


ที่มา : โครงการโรงผลิตสาร โอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

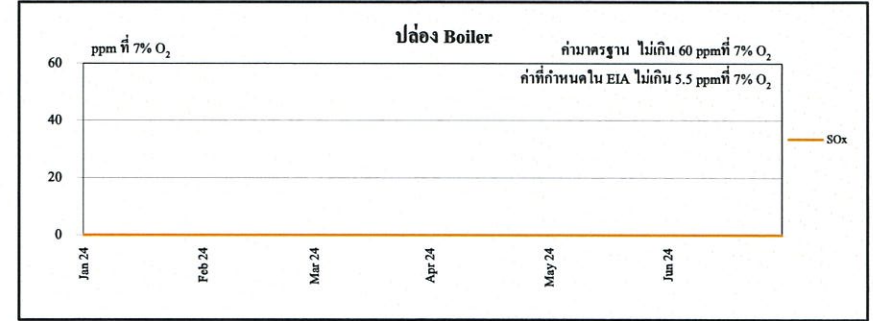
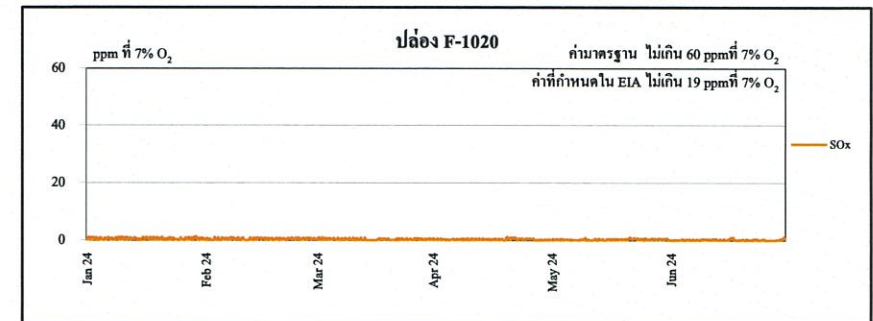
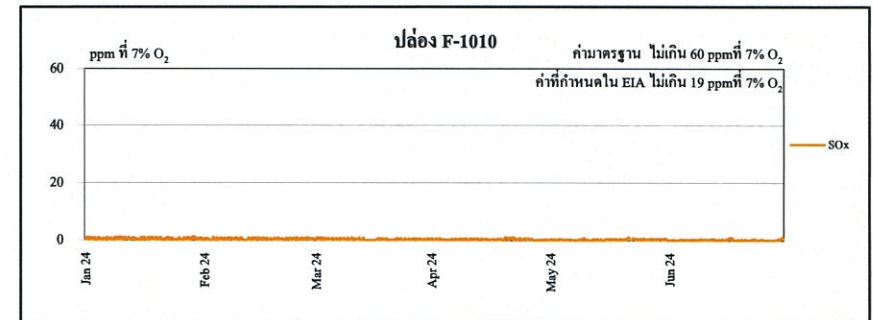


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

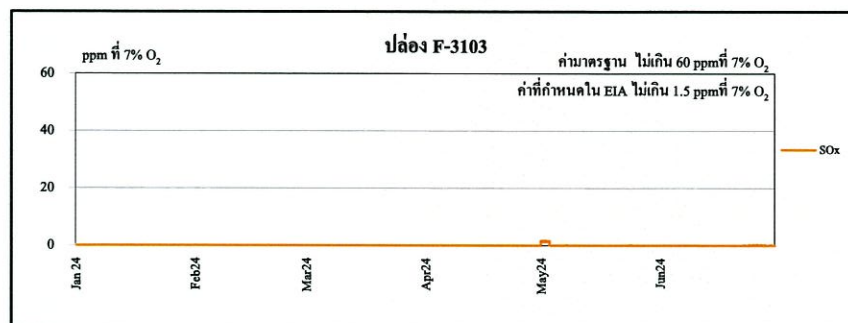
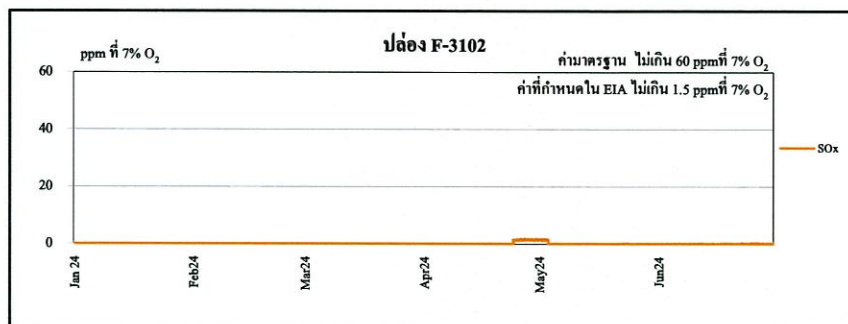
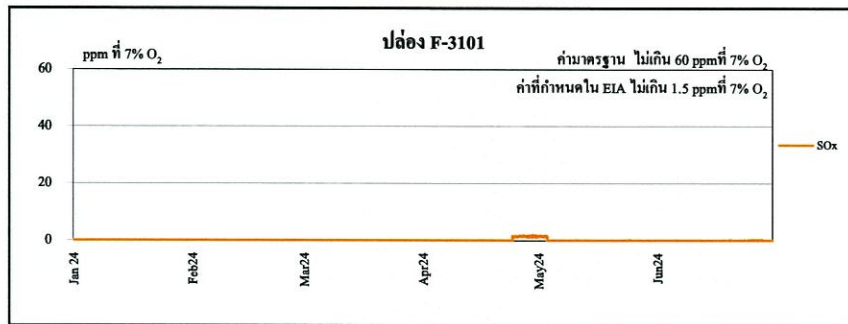


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567

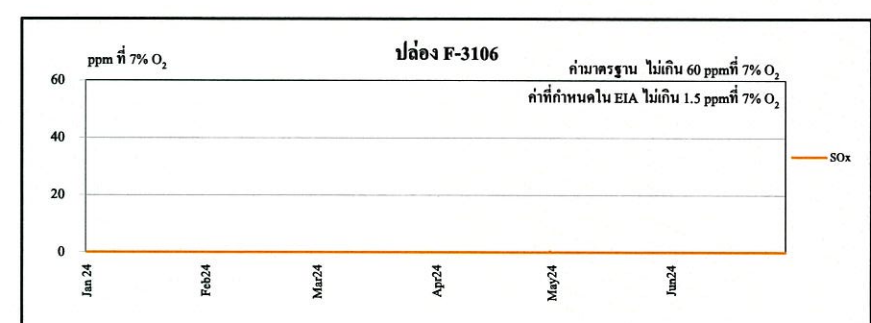
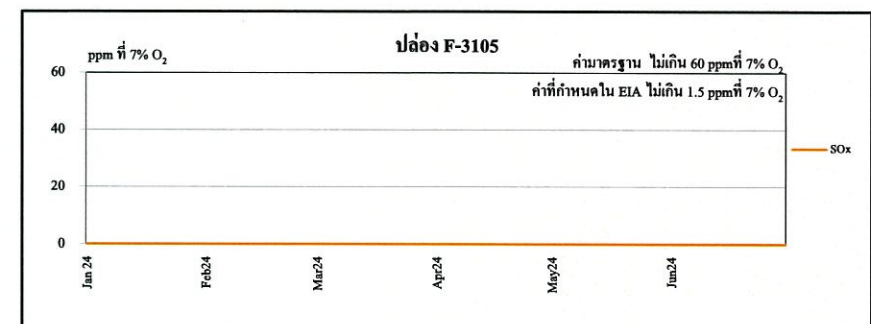
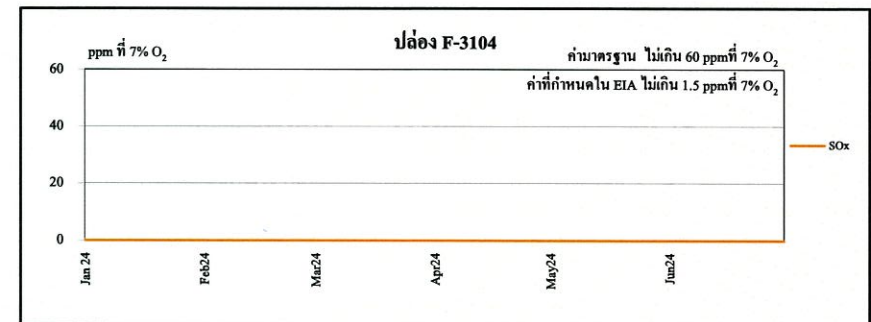


ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ผลการตรวจวัดค่าความเข้มข้นของก๊าซซัลเฟอร์ไดออกไซด์ (SO₂)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2567



ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ภาคผนวก ก.2

การตรวจสอบความถูกต้องของ CEMs ประจำปี พ.ศ.2566

รายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบ
คุณภาพอากาศจากปล่องแบบต่อเนื่อง
(Relative Accuracy Test Audit Report)

บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน)

สาขา 3 โรงโม่เฟินส์ 2

ประจำปี พ.ศ. 2566



right solutions.
right partner.

หนังสือรับรองการจัดทำรายงาน

วันที่ 4 ธันวาคม พ.ศ. 2566

หนังสือรับรองฉบับนี้ ขอรับรองว่า บริษัท เอนเนอจีส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เป็นผู้จัดทำ
รายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous
Emission Monitoring System: CEMS) บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโม่เฟินส์ 2
ตั้งอยู่ในนิคมอุตสาหกรรมมาบตาพุด อำเภอเมืองระยอง จังหวัดระยอง ประจำปี พ.ศ. 2566 โดยมีเจ้าหน้าที่ผู้ร่วม
ตรวจวัด และจัดทำรายงาน ดังนี้

ผู้จัดทำรายงาน	ลายมือชื่อ	ตำแหน่ง
นายศราวุธ ธีตราชนนท์		ผู้ควบคุมห้องปฏิบัติการวิเคราะห์
นายอัษฎิ นามบุรี		เจ้าหน้าที่เก็บตัวอย่าง
นายวรวิธ ทองฟู		เจ้าหน้าที่เก็บตัวอย่าง
นางสาววรรณิษา ขาดวันชัย		นักวิชาการสิ่งแวดล้อม

ขอแสดงความนับถือ

(นางสาวสุภาพพร จันทร์เปล่ง)

ผู้ช่วยผู้จัดการทั่วไปฝ่ายธุรกิจตรวจสอบคุณภาพสิ่งแวดล้อม
บริษัท เอนเนอจีส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

alsglobal.com



right solutions.
right partner.



right solutions.
right partner.

สารบัญ

หน้า

สารบัญ	i
สารบัญตาราง	ii
สารบัญภาพ	ii
รายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Relative Accuracy Test Audit Report)	
1. วัตถุประสงค์ (Purpose)	1
2. ขอบเขตการดำเนินงาน (Scope)	1
3. มาตรฐานอ้างอิง (Reference Work Procedure)	3
4. คำจำกัดความของการทดสอบ	3
5. วิธีการตรวจสอบความถูกต้อง (Procedure of Test)	4
6. อุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ	7
7. การสอบเทียบอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ (Equipment Performance Check)	8
8. ผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง	8
9. สรุปผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง	17

ภาคผนวก

ภาคผนวก ก	ใบรับรองผลการวิเคราะห์
ภาคผนวก ข	Raw Data
ภาคผนวก ค	Certificate Calibration Standard Gas
ภาคผนวก ง	Certificate Calibration Equipment
ภาคผนวก จ	เอกสารขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

alsglobal.com

11/11/2023



right solutions.
right partner.

สารบัญตาราง

หน้า

ตารางที่ 1 รายละเอียดการดำเนินงานตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศ จากปล่องแบบต่อเนื่อง	2
ตารางที่ 2 รายละเอียดวิธีการทดสอบอ้างอิง (RM)	4
ตารางที่ 3 The t-value	5
ตารางที่ 4 เกณฑ์ในการตรวจสอบความถูกต้องของระบบ CEMs (Acceptance Criteria)	6
ตารางที่ 5 รายละเอียดอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ	7
ตารางที่ 6 Summary of RA Test Results for CEMs	9

สารบัญภาพ

หน้า

ภาพที่ 1 แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง	18
--	----

alsglobal.com



right solutions.
right partner.

รายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Relative Accuracy Test Audit Report)

บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโม่หินที่ 2 ได้มอบหมายให้ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ดำเนินการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศ (Relative Accuracy Test Audit) จากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMS) จำนวน 3 พื้นที่ รวม 20 ปล่อง ได้แก่ บริเวณ Plant I-4/1 Furnace จำนวน 11 ปล่อง, บริเวณ Plant I-4/2 Furnace จำนวน 6 ปล่อง, Boiler จำนวน 1 ปล่อง และ บริเวณ BV Plant Furnace จำนวน 2 ปล่อง ประจำปี พ.ศ. 2566 โดยมีรายละเอียดดังต่อไปนี้

1. วัตถุประสงค์ (Purpose)

เพื่อตรวจสอบการทำงานของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMS) ว่ายังเป็นไปตามข้อกำหนดลักษณะเฉพาะของการทำงาน (Performance Specification 2, 3 และ 4) โดยการทดสอบ Relative Accuracy ตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix B

2. ขอบเขตการดำเนินงาน (Scope)

การดำเนินงานตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMS) บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโม่หินที่ 2 ประจำปี พ.ศ. 2566 ตามรายละเอียดการดำเนินงานได้ ดังตารางที่ 1

alsglobal.com



right solutions.
right partner.

3. มาตรฐานอ้างอิง (Reference Work Procedure)

การทดสอบ Relative Accuracy ตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix B ดังนี้

- PS-2: Specification and Test procedure for SO₂ and NO_x Continuous Emission Monitoring System in Stationary Sources
- PS-3: Specification and Test procedure for O₂ Continuous Emission Monitoring System in Stationary Sources
- PS-4: Specification and Test procedure for CO Continuous Emission Monitoring System in Stationary Sources

4. คำจำกัดความของการทดสอบ

- Continuous Emission Monitoring System (CEMs) หมายถึง ระบบการติดตามผลการตรวจวัดมลพิษทางอากาศจากอุตสาหกรรมอย่างต่อเนื่อง
- Reference Method (RM) หมายถึง วิธีการตรวจวัดคุณภาพอากาศจากปล่องแบบที่เป็นไปตามวิธีการอ้างอิงหรือได้รับการยอมรับ โดยในที่นี้เป็นไปตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix A -Test Method ขยาย US-EPA
- Relative Accuracy (RA) หมายถึง ค่าสัมประสิทธิ์ของความแตกต่างระหว่างค่าเฉลี่ยความเข้มข้นของก๊าซที่อ่านได้จากระบบตรวจวัดอัตโนมัติ (CEMs) กับค่าที่ได้จากวิธีอ้างอิง (Reference Method: RM) บวกด้วยร้อยละ 2.5 ของค่าสัมประสิทธิ์ความเชื่อมั่นในการทดสอบ (Confidence Coefficient: CC) ที่หารด้วยค่าเฉลี่ยของวิธีอ้างอิง (RM) หรือจากฐานการระบายก๊าซนั้นๆ
- Confidence Coefficient (CC) หมายถึง ค่าสัมประสิทธิ์ความเชื่อมั่น โดยในการคำนวณค่า RA จะใช้ค่าสัมประสิทธิ์ความเชื่อมั่น ที่มีควาผิดพลาดร้อยละ 2.5 แบบทางเดียว (One-Tailed)

alsglobal.com



right solutions.
right partner.

ตารางที่ 1 รายละเอียดการดำเนินงานตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

ปล่อง	เลขที่ตัวอย่าง	พารามิเตอร์	วันที่ตรวจวัด
ปล่อง F-110	22151118-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	24 ต.ค. 66
ปล่อง F-120	22151123-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	18 ก.ย. 66
ปล่อง F-130	22151124-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	19 ก.ย. 66
ปล่อง F-140	22151125-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	18 ก.ย. 66
ปล่อง F-150	22151126-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	17 ก.ย. 66
ปล่อง F-160	22151127-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	20 ก.ย. 66
ปล่อง F-170	22151128-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	20 ก.ย. 66
ปล่อง F-180	22151129-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	21 ก.ย. 66
ปล่อง F-190	22151130-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	13 ก.ย. 66
ปล่อง F-1010	22151135-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	25 ก.ย. 66
ปล่อง F-1020	22151139-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	27 ต.ค. 66
ปล่อง F-3101	22151145-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	13 ก.ย. 66
ปล่อง F-3102	22151147-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	14 ก.ย. 66
ปล่อง F-3103	22151149-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	12 ก.ย. 66
ปล่อง F-3104	22151151-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	22 ก.ย. 66
ปล่อง F-3105	22151153-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	12 ก.ย. 66
ปล่อง F-3106	22151155-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	15 ก.ย. 66
ปล่อง F-4301	22151157-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	26 ต.ค. 66
ปล่อง F-4302	22151945-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	25 ต.ค. 66
Boiler	23122560-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	9 พ.ย. 66

alsglobal.com



right solutions.
right partner.

5. วิธีการตรวจสอบความถูกต้อง (Procedure of Test)

วิธีการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่องอ้างอิงตาม Code of Federal Regulations 40 Part 60 Appendix B กำหนดไว้ดังนี้

5.1 Relative Accuracy Test (RA)

5.1.1 RA Test Condition: ต้องทำการทดสอบในขณะที่โรงงานเดินระบบมากกว่าร้อยละ 50 ของการห้ามปฏิบัติงาน และต้องรักษากำลัการไหลให้คงที่

5.1.2 Sampling Condition: โดยทำการเก็บตัวอย่างสุ่มอย่างน้อย 21 นาทีของแต่ละชุดของการเก็บ

5.1.3 Number of RM Test: จำนวนของการทดสอบ RM ทำการทดสอบ SO₂, NO_x, CO, และ O₂ อย่างน้อย 12 ชุดการทดสอบของ CEM แต่ละ unit

5.1.4 RM Test: วิธีการทดสอบอ้างอิง (RM) ในการทดสอบ SO₂, NO_x, CO, และ O₂ ให้ใช้วิธีการตรวจวัดอ้างอิงตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix A ดังตารางที่ 2

ตารางที่ 2 รายละเอียดวิธีการทดสอบอ้างอิง (RM)

พารามิเตอร์	วิธีการทดสอบอ้างอิง (RM)	เกณฑ์ในการยอมรับ
Oxide of Nitrogen	US-EPA Method 7E / 40 CFR Part 60 Appendix B Performance Specification Test 2 / 40 CFR Part 60 Appendix B	≤ 20 % Reference Method * ≤ 10 % Standard**
Sulfur Dioxide	US-EPA Method 6C / 40 CFR Part 60 Appendix B Performance Specification Test 2 / 40 CFR Part 60 Appendix B	≤ 20 % Reference Method * ≤ 10 % Standard**
Carbon Monoxide	US-EPA Method 10 / 40 CFR Part 60 Appendix B Performance Specification Test 4 / 40 CFR Part 60 Appendix B	≤ 10 % Reference Method * ≤ 5 % Standard**
Oxygen	US-EPA Method 3A / 40 CFR Part 60 Appendix B Performance Specification Test 3 / 40 CFR Part 60 Appendix B	≤ 1 % Reference Method *

5.1.5 Correlation of RM and CEM Data: เลือกข้อมูลที่ดีที่สุด 9 ชุด หรือมากกว่านั้นในการแปรผล โดยตัดค่าผลการทดสอบที่มีค่าสูง 3 อันดับแรกออก แต่ในรายงานจะต้องรายงานข้อมูลทั้งหมด รวมทั้งข้อมูลที่ได้คัดออกข้อมูลจากระบบ CEMS และจากวิธีการอ้างอิง (RM) จะต้องเป็นข้อมูลในเวลาที่เหมือนกัน

alsglobal.com



right solutions.
right partner.

5.1.6 Calculation: คำนวณค่า mean difference ระหว่างค่าที่ทดสอบได้จาก RM กับ CEM จากนั้น คำนวณค่า Standard deviation, ค่า Confidence coefficient และค่า Relative Accuracy ตามที่กำหนดดังนี้

- ผลการทดสอบทุกข้อมูลของ RM และ CEM จะต้องปรับไปใช้สภาวะเดียวกัน เช่น เป่าแห้งด้วยไนโตรเจน สภาวะแห้ง/เปียก (Dry / Wet Basis) ตามกำหนดของค่ามาตรฐานป้อนระบบ
- Arithmetic Mean (\bar{d}): คำนวณค่าเฉลี่ยของความแตกต่างทั้งหมด (1)

$$\bar{d} = \frac{1}{n} \sum_{i=1}^n d_i \quad \text{สมการ (1)}$$

เมื่อ n = จำนวนข้อมูลของแต่ละจุด

- Standard Deviation (Sd) คำนวณส่วนเบี่ยงเบนมาตรฐานจากสมการ (2)

$$S_d = \sqrt{\frac{\sum_{i=1}^n d_i^2 - \frac{(\sum_{i=1}^n d_i)^2}{n}}{n-1}} \quad \text{สมการ (2)}$$

- Confidence Coefficient (cc) คำนวณสัมประสิทธิ์ความเชื่อมั่นที่มีความผิดพลาดด้วย ๒๕.5 แบบทางเดียว (One-Tailed) ดังสมการ (3)

$$CC = t_{\alpha, n-1} \frac{S_d}{\sqrt{n}} \quad \text{สมการ (3)}$$

ค่า $t_{\alpha, n-1}$ ดูจากตารางที่ 3 The t-value

ตารางที่ 3 The t-value

n^*	$t_{0.05}$	n^*	$t_{0.05}$	n^*	$t_{0.05}$
2	12.706	7	2.447	12	2.201
3	4.303	8	2.306	13	2.179
4	3.182	9	2.306	14	2.160
5	2.776	10	2.262	15	2.145
6	2.571	11	2.228	16	2.131

alsglobal.com



right solutions.
right partner.

- Relative Accuracy (RA) คำนวณ ได้จากสมการ (4)

การทดสอบ Relative Accuracy เป็นการหาความสัมพันธ์ระหว่างผลการตรวจวัดด้วยวิธีอ้างอิง (Reference Method; RM) กับผลการตรวจวัดด้วยระบบ CEMS โดยใช้ข้อมูลอย่างน้อย 9 จุดจากข้อมูลทั้งหมด 12 จุด ดัง สมการ

$$RA = \frac{|\bar{d}| + |CC|}{RM} \times 100 \quad \text{สมการ (4)}$$

เมื่อ RA คือ Relative Accuracy

$|\bar{d}|$ คือ Absolute value of the mean differences

$|CC|$ คือ Absolute value of the mean confidence coefficient

RM คือ Average RM value

5.1.7 เกณฑ์การยอมรับในการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจาก ปล่องแบบต่อเนื่อง (CEMs) และดังตารางที่ 4

ตารางที่ 4 เกณฑ์ในการตรวจสอบความถูกต้องของระบบ CEMs (Acceptance Criteria)

พารามิเตอร์	เกณฑ์ในการยอมรับ	
	เมื่อเทียบกับ Reference Method	เมื่อเทียบกับค่ามาตรฐาน
Oxide of Nitrogen (PS-2)	$\leq 20\%$ Reference Method*	$\leq 10\%$ Standard**
Sulfur Dioxide (PS-2)	$\leq 20\%$ Reference Method *	$\leq 10\%$ Standard**
Carbon Monoxide (PS-4)	$\leq 10\%$ Reference Method *	$\leq 5\%$ Standard**
Oxygen (PS-3)	$\leq 1\%$ Reference Method *	-

หมายเหตุ : * สำหรับกรณีที่ค่าเฉลี่ยการเบี่ยงเบนค่าการทดสอบ มีค่ามากกว่า 50% ของค่ามาตรฐานการรายงานผล

** สำหรับกรณีที่ค่าเฉลี่ยการเบี่ยงเบนค่าการทดสอบ มีค่าน้อยกว่า 50% ของค่ามาตรฐานการรายงานผล

alsglobal.com



right solutions.
right partner.

6. อุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ

การทดสอบอ้างอิง (RM) บริษัท เอนแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ใช้เครื่องมือและ อุปกรณ์ต่างๆ รายละเอียดดังตารางที่ 5

ตารางที่ 5 รายละเอียดอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ

เครื่องมือ	ยี่ห้อ	รุ่น
Gas Conditioning	M&C	PSS-5
SO ₂ Analyzer	Teledyne API	100EH
NO _x + O ₂ Analyzer	Teledyne API	200EH
Sampling Probe	M&C	PSP6000-H
CO Analyzer	Teledyne API	300EM

อุปกรณ์สำหรับการสอบเทียบ (Calibration Gas) ประกอบด้วย

-Zero Air จะใช้ Nitrogen 99.999%

-Span Gas จะใช้ก๊าซมาตรฐาน EPA Protocol Standard Gas ที่ระดับความเข้มข้นต่างๆ ดังนี้

-Mid-Range Gas (Conc. 40 - 60% of the span)

-High-Range Gas (Conc. 80 - 100% of the span)

รายละเอียดใน Certificate Standard Gas แต่ละถังภาควิทยา ก

alsglobal.com



right solutions.
right partner.

7. การสอบเทียบอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ (Equipment Performance Check)

ขั้นตอนในการสอบเทียบก่อนและหลังตรวจวัดจะประกอบด้วย

7.1 การเตรียมการก่อนทำการตรวจวัด (Pretest Preparation) จะทำการติดตั้งอุปกรณ์ตรวจวัด และ Warm Up อย่างน้อย 3 ชั่วโมง

7.2 การสอบเทียบอุปกรณ์วิเคราะห์ (Analyzer Calibration) จะทำการสอบเทียบอุปกรณ์วิเคราะห์ 3 ระดับความเข้มข้น ได้แก่ Zero, Mid-Range, High-Range และทำการตรวจสอบความคลาดเคลื่อนของการ สอบเทียบอุปกรณ์วิเคราะห์ โดยทำ Zero, Span ทุกครั้งด้วยความเข้มข้นโดย Analyzer Calibration Error (Difference) จะต้องไม่เกิน $\pm 2\%$ Calibration gases span

7.3 การตรวจสอบความคลาดเคลื่อนของระบบตรวจวัด (Sampling System Bias Check) จะทำการ ตรวจสอบความคลาดเคลื่อนของระบบตรวจวัดที่ Zero และ Mid-Range โดย Sampling System Bias Error ไม่เกิน $\pm 5\%$ Calibration gases span

7.4 การตรวจสอบความคลาดเคลื่อนของระบบตรวจวัดก่อน-หลังการตรวจวิเคราะห์ (Sampling System Drift Check) หลังจากเสร็จสิ้นการตรวจวิเคราะห์ จะทำการตรวจสอบความคลาดเคลื่อนของระบบตรวจวัด โดย Sampling System Drift ก่อนและหลังการตรวจวิเคราะห์ ไม่เกิน $\pm 3\%$ Calibration gases span

8. ผลการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

จากการตรวจสอบการทำงานของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMS) บริเวณปล่องระบบาย บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโรงแป่นที่ 2 ประจำปี พ.ศ. 2566 ผลดังตารางที่ 6

alsglobal.com



right solutions.
right partner.

ตารางที่ 6 (ก) Summary of RA Test Results for CEMs

ยี่ห้อ	Brand	Model	Range				ชนิด การทดสอบ	หน่วย การวัด	RM By ALS	Difference	CC (%)	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)								
L42(Eumance)	Yokokawa (F-170)	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	25 n.d. 66	ppm	43.04	41.64	0.17	3.66	≤ 20 ^{1/2}	Pass
								ppm	0.04	0.00	0.04	0.56	≤ 10 ^{1/2}	Pass
								ppm	9.79	9.16	1.63	0.43	≤ 5 ^{1/2}	Pass
								%	2.47	2.54	-0.08	0.08	≤ 1	Pass
B-AT-1303 (F-140)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	21 n.d. 66	ppm	49.28	47.76	0.27	3.58	≤ 20 ^{1/2}	Pass
								ppm	0.09	0.00	0.09	0.01	≤ 10 ^{1/2}	Pass
								ppm	0.23	0.08	0.15	0.03	≤ 5 ^{1/2}	Pass
								%	2.96	2.93	0.03	0.03	≤ 1	Pass
B-AT-1303 (F-140)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	13 n.d. 66	ppm	50.15	49.64	0.50	1.89	≤ 20 ^{1/2}	Pass
								ppm	0.19	0.00	0.19	0.00	≤ 10 ^{1/2}	Pass
								ppm	0.59	0.07	0.52	0.08	≤ 5 ^{1/2}	Pass
								%	3.78	3.71	0.08	0.08	≤ 1	Pass

หมายเหตุ: ^{1/2} Compared with RM

^{2/2} Compared with Emission Standard

alsglobal.com

Page 4



right solutions.
right partner.

ตารางที่ 6 (ก) Summary of RA Test Results for CEMs

ยี่ห้อ	Brand	Model	Range				ชนิด การทดสอบ	หน่วย การวัด	RM By ALS	Difference	CC (%)	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)								
L42(Eumance)	ABB B-AT-10102/10103 (F-1310)	JUPAS 14	0-200	0-200	0-200	-	25 n.d. 66	ppm	25.99	25.51	0.48	5.22	≤ 20 ^{1/2}	Pass
								ppm	0.10	0.00	0.10	0.57	≤ 10 ^{1/2}	Pass
								ppm	1.02	3.85	-2.83	0.42	≤ 5 ^{1/2}	Pass
								ppm	24.57	25.13	-0.56	1.21	≤ 20 ^{1/2}	Pass
B-AT-10202/10203 (F-1020)	ABB	JUPAS 14	0-200	0-200	0-200	-	27 n.d. 66	ppm	0.09	0.02	0.07	0.09	≤ 10 ^{1/2}	Pass
								ppm	1.89	0.30	1.59	0.04	≤ 5 ^{1/2}	Pass

หมายเหตุ: ^{1/2} Compared with RM

^{2/2} Compared with Emission Standard

alsglobal.com

Page 4



right solutions.
right partner.

ตารางที่ 6 Summary of RA Test Results for CEMs

ยี่ห้อ	Brand	Model	Range				ชนิด การทดสอบ	หน่วย การวัด	RM By ALS	Difference	CC (%)	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)								
L42(Eumance)	Yokokawa (F-110)	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	24 n.d. 66	ppm	19.73	20.09	-0.36	3.29	≤ 20 ^{1/2}	Pass
								ppm	0.21	0.00	0.21	1.33	≤ 10 ^{1/2}	Pass
								ppm	0.99	0.16	0.83	0.13	≤ 5 ^{1/2}	Pass
								%	3.83	4.06	-0.23	0.23	≤ 1	Pass
B-AT-1203 (F-120)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	18 n.d. 66	ppm	15.73	16.67	-0.94	10.75	≤ 20 ^{1/2}	Pass
								ppm	0.03	0.00	0.03	0.18	≤ 10 ^{1/2}	Pass
								ppm	0.25	0.15	0.10	0.03	≤ 5 ^{1/2}	Pass
								%	2.41	2.61	-0.20	0.20	≤ 1	Pass
B-AT-1303 (F-130)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	19 n.d. 66	ppm	21.41	19.79	1.63	1.12	≤ 20 ^{1/2}	Pass
								ppm	0.09	0.00	0.09	0.51	≤ 10 ^{1/2}	Pass
								ppm	1.79	0.04	1.75	0.10	≤ 5 ^{1/2}	Pass
								%	3.05	2.66	0.39	0.39	≤ 1	Pass

หมายเหตุ: ^{1/2} Compared with RM

^{2/2} Compared with Emission Standard

alsglobal.com

Page 4



right solutions.
right partner.

ตารางที่ 6 (ก) Summary of RA Test Results for CEMs

ยี่ห้อ	Brand	Model	Range				ชนิด การทดสอบ	หน่วย การวัด	RM By ALS	Difference	CC (%)	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)								
L42(Eumance)	Yokokawa (F-140)	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	18 n.d. 66	ppm	48.06	47.82	0.27	1.33	≤ 20 ^{1/2}	Pass
								ppm	0.07	0.10	-0.03	0.35	≤ 10 ^{1/2}	Pass
								ppm	0.14	0.01	0.13	0.03	≤ 5 ^{1/2}	Pass
								%	2.62	2.23	-0.31	0.31	≤ 1	Pass
B-AT-1503 (F-150)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	19 n.d. 66	ppm	52.40	51.38	1.02	2.24	≤ 20 ^{1/2}	Pass
								ppm	0.08	0.10	-0.02	0.33	≤ 10 ^{1/2}	Pass
								ppm	0.04	0.01	0.04	0.02	≤ 5 ^{1/2}	Pass
								%	3.10	3.41	-0.32	0.32	≤ 1	Pass
B-AT-1603 (F-160)	Yokokawa	R600	0-100	0-200	0-200	0-21 (Paramagnetic)	20 n.d. 66	ppm	50.96	49.63	1.33	0.70	≤ 20 ^{1/2}	Pass
								ppm	0.06	0.10	0.05	0.62	≤ 10 ^{1/2}	Pass
								ppm	0.60	0.02	0.59	0.09	≤ 5 ^{1/2}	Pass
								%	2.98	3.09	-0.11	0.11	≤ 1	Pass

หมายเหตุ: ^{1/2} Compared with RM

^{2/2} Compared with Emission Standard

alsglobal.com

Page 4



right solutions.
right partner.

ตารางที่ 6 (ก) Summary of RA Test Results for CEMs

Unit	Brand	Model	Range				Unit Conversion	Parameter	RM By ALS	CEMs	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)									
B-AT-2011-05A (F-2301)	ABB	UPAS 14	0-25	0-100	0-2000	0-25	26 n.b. 66	NO _x	8.57	11.28	-2.71	0.12	5.15	≤ 10 ²	Pass
								SO ₂	0.17	0.00	0.17	0.03	1.09	≤ 10 ²	Pass
								CO	2.14	17.66	-15.52	0.13	2.27	≤ 5 ²	Pass
								O ₂	4.16	4.27	-0.12	-	0.12	≤ 1	Pass
B-AT-4301-05A (F-4302)	ABB	UPAS 14	0-25	0-100	0-2000	0-25	25 n.b. 66	NO _x	12.19	11.51	0.68	0.62	2.37	≤ 10 ²	Pass
								SO ₂	0.19	0.00	0.19	0.05	1.24	≤ 10 ²	Pass
								CO	2.83	17.31	-14.49	0.42	2.16	≤ 5 ²	Pass
								O ₂	6.80	7.06	-0.26	-	0.29	≤ 1	Pass

หมายเหตุ: 1. Compared with RM

2. Compared with Emission Standard

alsglobal.com

Page 5



right solutions.
right partner.

ตารางที่ 6 (ข) Summary of RA Test Results for CEMs

Unit	Brand	Model	Range				Unit Conversion	Parameter	RM By ALS	CEMs	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)									
B-AT-2011-05A (F-2301)	ABB	UPAS 14	0-25	0-100	0-2000	0-25	26 n.b. 66	NO _x	37.50	39.72	-2.22	0.33	6.80	≤ 20 ²	Pass
								SO ₂	0.21	0.01	0.20	0.01	3.82	≤ 10 ²	Pass
								CO	68.38	75.03	-6.65	1.83	1.23	≤ 5 ²	Pass
								O ₂	5.05	5.20	-0.16	-	0.16	≤ 1	Pass

หมายเหตุ: 1. Compared with RM

2. Compared with Emission Standard

alsglobal.com

Page 6



right solutions.
right partner.

ตารางที่ 6 (ก) Summary of RA Test Results for CEMs

Unit	Brand	Model	Range				Unit Conversion	Parameter	RM By ALS	CEMs	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)									
B-AT-2011-05A (F-2301)	ABB	UPAS 14	0-50	0-150	0-100	-	13 n.b. 66	NO _x	25.12	25.44	-0.32	0.06	5.09	≤ 20 ²	Pass
								SO ₂	0.03	0.00	0.03	0.00	2.06	≤ 10 ²	Pass
								CO	0.50	0.40	0.10	0.17	0.04	≤ 5 ²	Pass
								NO _x	27.59	25.13	2.46	0.69	11.42	≤ 20 ²	Pass
B-AT-4301-05A (F-4302)	ABB	UPAS 14	0-50	0-150	0-100	-	14 n.b. 66	NO _x	0.05	0.00	0.05	0.00	3.08	≤ 10 ²	Pass
								SO ₂	0.71	0.45	0.26	0.03	0.08	≤ 5 ²	Pass
								CO	31.18	28.47	2.71	0.47	10.19	≤ 20 ²	Pass
								NO _x	0.08	0.00	0.07	0.01	5.33	≤ 10 ²	Pass
B-AT-4301-05A (F-4303)	ABB	UPAS 14	0-50	0-150	0-100	-	12 n.b. 66	SO ₂	1.96	0.25	1.71	0.12	0.27	≤ 5 ²	Pass
								CO							

หมายเหตุ: 1. Compared with RM

2. Compared with Emission Standard

alsglobal.com

Page 7



right solutions.
right partner.

ตารางที่ 6 (ข) Summary of RA Test Results for CEMs

Unit	Brand	Model	Range				Unit Conversion	Parameter	RM By ALS	CEMs	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
			SO _x (ppm)	NO _x (ppm)	CO (ppm)	O ₂ (%mol)									
B-AT-2011-05A (F-2301)	ABB	UPAS 14	0-50	0-150	0-100	-	22 n.b. 66	NO _x	31.17	32.57	-1.41	0.58	6.38	≤ 20 ²	Pass
								SO ₂	0.07	0.00	0.07	0.01	4.88	≤ 10 ²	Pass
								CO	0.10	0.00	0.14	0.05	0.03	≤ 5 ²	Pass
								NO _x	32.83	28.99	3.84	0.40	13.80	≤ 20 ²	Pass
B-AT-4301-05A (F-4302)	ABB	UPAS 14	0-50	0-150	0-100	-	15 n.b. 66	NO _x	0.04	0.00	0.04	0.01	3.58	≤ 10 ²	Pass
								SO ₂	0.67	0.00	0.67	0.03	0.11	≤ 5 ²	Pass
								CO	26.28	27.59	-1.31	0.36	6.41	≤ 20 ²	Pass
								NO _x	0.07	0.00	0.07	0.00	4.53	≤ 10 ²	Pass
B-AT-4301-05A (F-4303)	ABB	UPAS 14	0-50	0-150	0-100	-	15 n.b. 66	SO ₂	0.64	0.00	0.64	0.02	0.10	≤ 5 ²	Pass
								CO							

หมายเหตุ: 1. Compared with RM

2. Compared with Emission Standard

alsglobal.com

Page 8



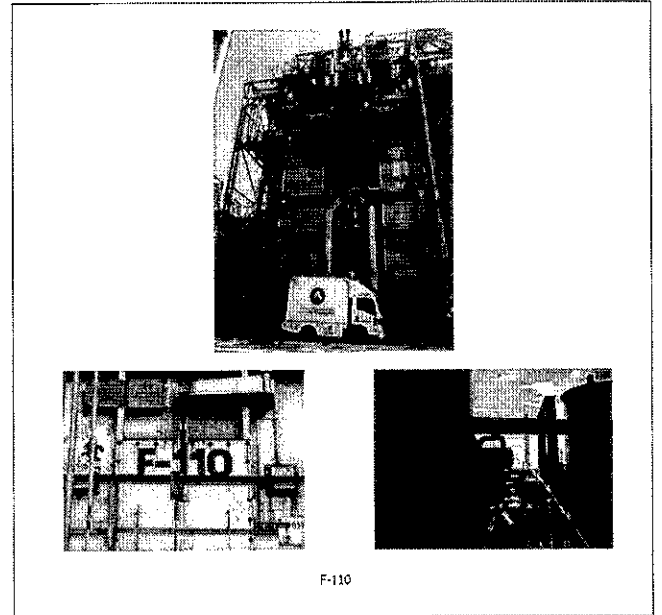
right solutions.
right partner.

9. สรุปผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

จากการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMS) บริเวณปล่องระบาย บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโพลีเอทิลีน 2 ประจำปี พ.ศ. 2566 พบว่า ค่า Relative Accuracy ของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (CEMs) มีค่าอยู่ในเกณฑ์ที่กำหนดตามเอกสาร Code of Federal Regulations 40 Part 60 Appendix B



right solutions.
right partner.



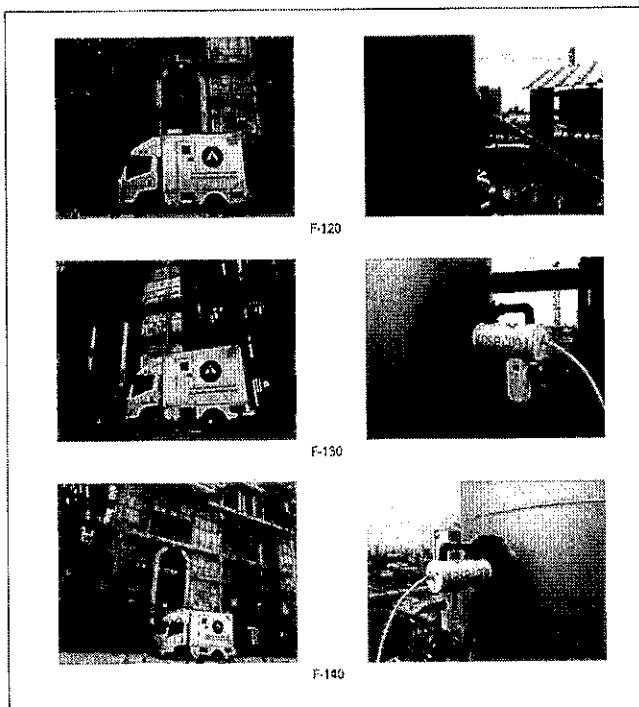
ภาพที่ 1 แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

alsglobal.com

alsglobal.com



right solutions.
right partner.

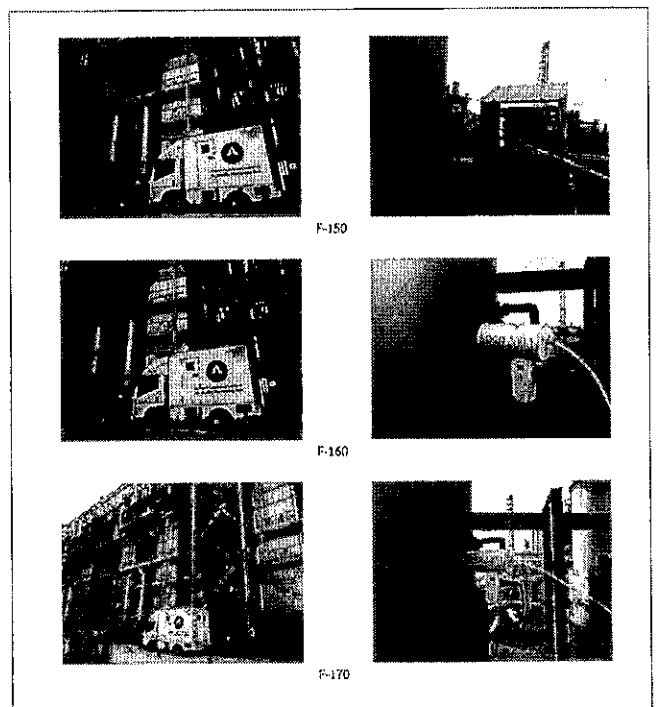


ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

alsglobal.com



right solutions.
right partner.

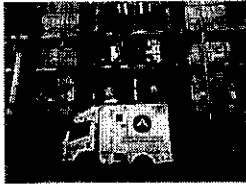


ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

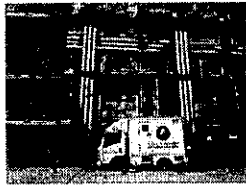
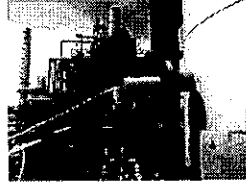
alsglobal.com



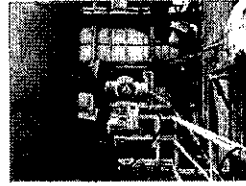
right solutions.
right partner.



F-180



F-190

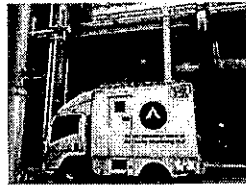


ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

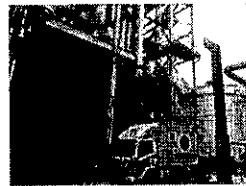
alglobal.com



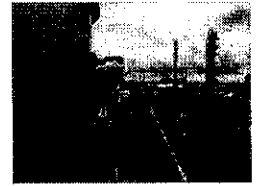
right solutions.
right partner.



F-1010



F-1020

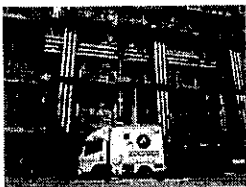


ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

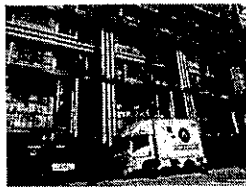
alglobal.com



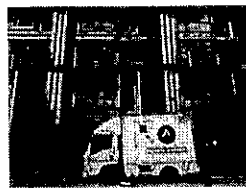
right solutions.
right partner.



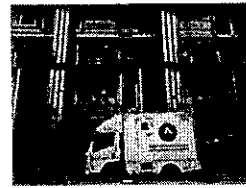
F-3101



F-3102



F-3103

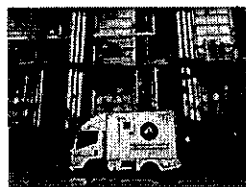


ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

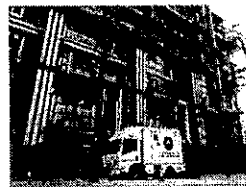
alglobal.com



right solutions.
right partner.



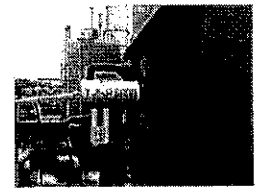
F-3104



F-3105



F-3106



ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

alglobal.com



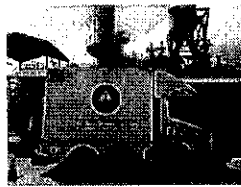
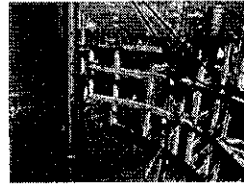
right solutions.
right partner



F-4301



F-4302



Boiler



ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

alsglobal.com

ภาคผนวก

ภาคผนวก ก ใบรับรองผลการวิเคราะห์
ภาคผนวก ข Raw Data
ภาคผนวก ค Certificate Calibration Standard Gas
ภาคผนวก ง Certificate Calibration Equipment
ภาคผนวก จ เอกสารขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tamboon Map Ta Phut, Amphoe Mueang, Rayong, Thailand 21150
P/O : S115-50-21-070
Project Name :
Project Location : RATA Plant 7-4

Lot ID: 22151118
Date Received : Oct 29, 2023
Date Reported : Oct 31, 2023
Report Number : 2202852-1

Page 2 of 4

Sample Number : 22151118-1
Sample Date : Oct 24, 2023
Sample Description : Emission from Stationary Source
Location : Plant 7-4/1 (Furnace) : F-110
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	24 Oct 23	11:10	11:30	25.87	24.18	21.35	19.71	-1.67
2*	24 Oct 23	11:31	11:51	25.73	24.22	21.23	19.73	-1.50
3*	24 Oct 23	11:52	12:12	25.53	24.15	21.03	19.67	-1.36
4	24 Oct 23	12:13	12:33	25.73	24.13	20.82	19.65	-1.17
5	24 Oct 23	12:34	12:54	24.91	24.34	20.57	19.82	-0.75
6	24 Oct 23	12:55	13:15	24.59	24.40	20.31	19.89	-0.43
7	24 Oct 23	13:16	13:36	24.18	24.35	19.97	19.82	-0.15
8	24 Oct 23	13:37	13:57	23.87	23.81	19.43	19.46	0.03
9	24 Oct 23	13:58	14:18	24.20	24.45	19.92	19.83	-0.09
10	24 Oct 23	14:19	14:39	24.33	24.42	19.90	19.71	-0.22
11	24 Oct 23	14:40	15:00	24.31	24.44	19.95	19.76	-0.19
12	24 Oct 23	15:01	15:21	24.26	24.33	19.95	19.69	-0.26
Average						20.09	19.73	-0.36
Confidence Coefficient (CC)								0.29
Relative Accuracy (Compared with RM) (%)								3.29
Relative Accuracy Criteria ¹⁾ (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a reject data

¹⁾ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 50 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

ภาคผนวก ก

ใบรับรองผลการวิเคราะห์

Technical Management

Wichan Chomchuan
Manager
วณิชาน ชุ่มชื่น
22151118-1-2023-05117

Approved by

สมชาย ชื่นชื่น
Assistant General Manager
สมชาย ชื่นชื่น 22151118-1-2023-05117

ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company
445/445-1, 445/445-2, 445/445-3, 445/445-4, 445/445-5, 445/445-6, 445/445-7, 445/445-8, 445/445-9, 445/445-10, 445/445-11, 445/445-12, 445/445-13, 445/445-14, 445/445-15, 445/445-16, 445/445-17, 445/445-18, 445/445-19, 445/445-20, 445/445-21, 445/445-22, 445/445-23, 445/445-24, 445/445-25, 445/445-26, 445/445-27, 445/445-28, 445/445-29, 445/445-30, 445/445-31, 445/445-32, 445/445-33, 445/445-34, 445/445-35, 445/445-36, 445/445-37, 445/445-38, 445/445-39, 445/445-40, 445/445-41, 445/445-42, 445/445-43, 445/445-44, 445/445-45, 445/445-46, 445/445-47, 445/445-48, 445/445-49, 445/445-50, 445/445-51, 445/445-52, 445/445-53, 445/445-54, 445/445-55, 445/445-56, 445/445-57, 445/445-58, 445/445-59, 445/445-60, 445/445-61, 445/445-62, 445/445-63, 445/445-64, 445/445-65, 445/445-66, 445/445-67, 445/445-68, 445/445-69, 445/445-70, 445/445-71, 445/445-72, 445/445-73, 445/445-74, 445/445-75, 445/445-76, 445/445-77, 445/445-78, 445/445-79, 445/445-80, 445/445-81, 445/445-82, 445/445-83, 445/445-84, 445/445-85, 445/445-86, 445/445-87, 445/445-88, 445/445-89, 445/445-90, 445/445-91, 445/445-92, 445/445-93, 445/445-94, 445/445-95, 445/445-96, 445/445-97, 445/445-98, 445/445-99, 445/445-100

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151118
Date Received : Oct 23, 2023
Date Reported : Oct 04, 2023
Report Number : 2522852-1

Sample Number : 22151118-1
Sampled Date : Oct 24, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-110
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	24 Oct 23	11:10	11:30	0.00	0.23	0.00	0.19	0.19
2	24 Oct 23	11:31	11:51	0.00	0.23	0.00	0.19	0.19
3	24 Oct 23	11:52	12:12	0.00	0.15	0.00	0.12	0.12
4	24 Oct 23	12:13	12:33	0.00	0.26	0.00	0.21	0.21
5	24 Oct 23	12:34	12:54	0.00	0.20	0.00	0.16	0.16
6	24 Oct 23	12:55	13:15	0.00	0.27	0.00	0.22	0.22
7*	24 Oct 23	13:16	13:36	0.00	0.41	0.00	0.33	0.33
8*	24 Oct 23	13:37	13:57	0.00	0.37	0.00	0.30	0.30
9	24 Oct 23	13:58	14:18	0.00	0.34	0.00	0.27	0.27
10	24 Oct 23	14:19	14:39	0.00	0.37	0.00	0.30	0.30
11*	24 Oct 23	14:40	15:00	0.00	0.38	0.00	0.30	0.30
12*	24 Oct 23	15:01	15:21	0.00	0.28	0.00	0.23	0.23
Average								0.21
Confidence Coefficient (CC)								0.04
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								1.33
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Oct 14)

RA Result is within Criteria

Technical Management : Wichan Choncharat
Manager
in (Signature) : 204-n-6113

Approved by : Saranyat Sitprong
Assistant General Manager
in (Signature) : 204-n-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151118
Date Received : Oct 27, 2023
Date Reported : Dec 04, 2023
Report Number : 2522852-1

Sample Number : 22151118-1
Sampled Date : Oct 24, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-110
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	24 Oct 23	11:10	11:30	4.08	3.85	-0.23
2	24 Oct 23	11:31	11:51	4.05	3.84	-0.21
3	24 Oct 23	11:52	12:12	4.04	3.84	-0.20
4	24 Oct 23	12:13	12:33	4.06	3.83	-0.23
5	24 Oct 23	12:34	12:54	4.07	3.83	-0.24
6	24 Oct 23	12:55	13:15	4.07	3.84	-0.23
7	24 Oct 23	13:16	13:36	4.07	3.82	-0.24
8	24 Oct 23	13:37	13:57	4.11	3.87	-0.25
9	24 Oct 23	13:58	14:18	4.01	3.76	-0.25
10*	24 Oct 23	14:19	14:39	3.93	3.68	-0.26
11*	24 Oct 23	14:40	15:00	3.96	3.71	-0.25
12*	24 Oct 23	15:01	15:21	4.00	3.72	-0.28
Average						-0.23
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.23
Relative Accuracy Criteria ¹⁾ (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Ussaree Harnburee

Technical Management : Wichan Choncharat
Manager
in (Signature) : 204-n-6113

Approved by : Saranyat Sitprong
Assistant General Manager
in (Signature) : 204-n-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151118
Date Received : Oct 27, 2023
Date Reported : Dec 04, 2023
Report Number : 2522852-1

Sample Number : 22151118-1
Sampled Date : Oct 24, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-110
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	24 Oct 23	11:10	11:30	0.19	1.16	0.16	0.94	0.76
2	24 Oct 23	11:31	11:51	0.19	1.13	0.16	0.92	0.76
3	24 Oct 23	11:52	12:12	0.19	1.17	0.15	0.95	0.90
4	24 Oct 23	12:13	12:33	0.19	1.15	0.16	0.93	0.78
5	24 Oct 23	12:34	12:54	0.20	1.18	0.16	0.96	0.80
6	24 Oct 23	12:55	13:15	0.19	1.24	0.16	1.01	0.86
7	24 Oct 23	13:16	13:36	0.20	1.28	0.16	1.04	0.88
8*	24 Oct 23	13:37	13:57	0.20	1.37	0.17	1.12	0.95
9*	24 Oct 23	13:58	14:18	0.20	1.34	0.16	1.09	0.93
10	24 Oct 23	14:19	14:39	0.20	1.33	0.17	1.07	0.91
11	24 Oct 23	14:40	15:00	0.19	1.34	0.16	1.09	0.93
12*	24 Oct 23	15:01	15:21	0.21	1.39	0.17	1.12	0.96
Average								0.83
Confidence Coefficient (CC)								0.05
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.13
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management : Wichan Choncharat
Manager
in (Signature) : 204-n-6113

Approved by : Saranyat Sitprong
Assistant General Manager
in (Signature) : 204-n-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151123
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522855-1

Sample Number : 22151123-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-120
Parameter : NO_x

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 23	10:40	11:00	18.53	31.03	14.66	16.83	-1.17
2	18 Sep 23	11:01	11:21	20.66	20.67	15.62	15.54	-0.08
3	18 Sep 23	11:22	11:42	21.25	20.66	16.10	15.53	-0.57
4	18 Sep 23	11:43	12:03	21.89	20.66	16.65	15.54	-1.11
5	18 Sep 23	12:04	12:24	22.44	20.67	17.11	15.77	-1.34
6	18 Sep 23	12:25	12:45	22.62	20.69	17.26	15.79	-1.48
7	18 Sep 23	12:46	13:06	22.71	21.01	17.24	15.70	-1.53
8	18 Sep 23	13:07	13:27	22.94	21.05	17.51	15.81	-1.70
9	18 Sep 23	13:28	13:48	23.32	21.26	17.81	15.97	-1.84
10*	18 Sep 23	13:49	14:09	23.44	21.35	17.89	16.03	-1.85
11*	18 Sep 23	14:10	14:30	23.69	21.39	18.15	16.06	-2.09
12*	18 Sep 23	14:31	14:51	23.80	21.55	18.20	16.18	-2.02
Average								-0.94
Confidence Coefficient (CC)								0.75
Relative Accuracy (Compared with RM) (%)								10.75
Relative Accuracy Criteria ¹⁾ (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of NO_x is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management : Wichan Choncharat
Manager
in (Signature) : 204-n-6113

Approved by : Saranyat Sitprong
Assistant General Manager
in (Signature) : 204-n-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Muang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151123
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522656-1

Sample Number : 22151123-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-120
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 23	10:40	11:00	0.09	0.03	0.06	0.02	0.02
2*	18 Sep 23	11:01	11:21	0.00	0.06	0.00	0.05	0.05
3*	18 Sep 23	11:22	11:42	0.00	0.09	0.00	0.07	0.07
4*	18 Sep 23	11:43	12:03	0.00	0.06	0.00	0.04	0.04
5	18 Sep 23	12:04	12:24	0.00	0.06	0.00	0.04	0.04
6	18 Sep 23	12:25	12:45	0.00	0.05	0.00	0.04	0.01
7	18 Sep 23	12:46	13:06	0.00	0.04	0.00	0.03	0.03
8	18 Sep 23	13:07	13:27	0.00	0.03	0.00	0.02	0.02
9	18 Sep 23	13:28	13:48	0.00	0.04	0.00	0.03	0.03
10	18 Sep 23	13:49	14:09	0.00	0.04	0.00	0.03	0.03
11	18 Sep 23	14:10	14:30	0.00	0.02	0.00	0.01	0.01
12	18 Sep 23	14:31	14:51	0.00	0.02	0.00	0.02	0.02
Average								0.03
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								0.16
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Client 1-4)
RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Muang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151123
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522656-1

Sample Number : 22151123-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-120
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 23	10:40	11:00	0.13	0.41	0.09	0.31	0.21
2*	18 Sep 23	11:01	11:21	0.17	0.62	0.13	0.45	0.33
3	18 Sep 23	11:22	11:42	0.18	0.15	0.14	0.11	-0.03
4	18 Sep 23	11:43	12:03	0.20	0.26	0.15	0.20	0.05
5	18 Sep 23	12:04	12:24	0.20	0.41	0.15	0.33	0.17
6*	18 Sep 23	12:25	12:45	0.20	0.72	0.15	0.54	0.38
7*	18 Sep 23	12:46	13:06	0.20	0.84	0.15	0.70	0.55
8	18 Sep 23	13:07	13:27	0.21	0.29	0.16	0.22	0.06
9	18 Sep 23	13:28	13:48	0.21	0.18	0.16	0.14	-0.02
10	18 Sep 23	13:49	14:09	0.22	0.32	0.17	0.24	0.07
11	18 Sep 23	14:10	14:30	0.22	0.45	0.17	0.34	0.17
12	18 Sep 23	14:31	14:51	0.21	0.52	0.16	0.39	0.23
Average								0.10
Confidence Coefficient (CC)								0.08
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.03
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (R.E. 2549)
RA Result is within Criteria

Technical Management :
Wichan Chaisriat
Manager
wtchaisriat@pttglobal.com

Approved by :
Saranyin Jitwong
Assistant General Manager
sritwong@pttglobal.com

Technical Management :
Wichan Chaisriat
Manager
wtchaisriat@pttglobal.com

Approved by :
Saranyin Jitwong
Assistant General Manager
sritwong@pttglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Muang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151123
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522656-1

Sample Number : 22151123-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-120
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	18 Sep 23	10:40	11:00	2.39	2.43	-0.05
2	18 Sep 23	11:01	11:21	2.51	2.41	-0.10
3	18 Sep 23	11:22	11:42	2.55	2.41	-0.15
4	18 Sep 23	11:43	12:03	2.63	2.41	-0.22
5	18 Sep 23	12:04	12:24	2.67	2.41	-0.26
6	18 Sep 23	12:25	12:45	2.69	2.41	-0.28
7	18 Sep 23	12:46	13:06	2.60	2.41	-0.29
8	18 Sep 23	13:07	13:27	2.69	2.40	-0.29
9*	18 Sep 23	13:28	13:48	2.70	2.40	-0.30
10	18 Sep 23	13:49	14:09	2.68	2.29	-0.29
11*	18 Sep 23	14:10	14:30	2.76	2.39	-0.37
12*	18 Sep 23	14:31	14:51	2.72	2.39	-0.33
Average						-0.20
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.20
Relative Accuracy Criteria ¹⁾ (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)
RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Muang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151124
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522656-1

Sample Number : 22151124-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-130
Parameter : NO_x

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	19 Sep 23	10:00	10:20	28.68	21.23	20.85	17.85	-1.38
2	19 Sep 23	10:21	10:41	27.08	26.78	20.79	20.87	0.50
3	19 Sep 23	10:42	11:02	26.43	27.39	20.24	21.31	1.06
4	19 Sep 23	11:03	11:23	26.72	27.91	20.35	21.82	1.67
5	19 Sep 23	11:24	11:44	25.52	27.74	19.39	21.02	2.23
6	19 Sep 23	11:45	12:05	25.21	27.77	18.95	21.46	2.51
7	19 Sep 23	12:06	12:26	24.56	27.54	18.53	21.39	2.85
8*	19 Sep 23	12:27	12:47	24.49	27.59	18.64	21.55	2.91
9*	19 Sep 23	12:48	13:08	23.58	27.04	17.60	20.64	3.25
10	19 Sep 23	13:09	13:29	24.75	27.66	18.53	21.34	2.81
11	19 Sep 23	13:30	13:50	25.51	28.52	19.25	22.05	2.78
12*	19 Sep 23	13:51	14:11	24.62	27.80	18.67	21.66	2.97
Average								1.63
Confidence Coefficient (CC)								1.12
Relative Accuracy (Compared with RM) (%)								12.35
Relative Accuracy Criteria ¹⁾ (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of NO_x is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)
RA Result is within Criteria

Technical Management :
Wichan Chaisriat
Manager
wtchaisriat@pttglobal.com

Approved by :
Saranyin Jitwong
Assistant General Manager
sritwong@pttglobal.com

Technical Management :
Wichan Chaisriat
Manager
wtchaisriat@pttglobal.com

Approved by :
Saranyin Jitwong
Assistant General Manager
sritwong@pttglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151124
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522857-1

Sample Number : 22151124-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-130
Parameter : SO₂

Page 2 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	19 Sep 23	10:00	10:20	0.00	0.12	0.00	0.10	0.10
2*	19 Sep 23	10:21	10:41	0.00	0.15	0.00	0.12	0.12
3	19 Sep 23	10:42	11:02	0.00	0.13	0.00	0.10	0.10
4	19 Sep 23	11:03	11:23	0.00	0.11	0.00	0.09	0.09
5*	19 Sep 23	11:24	11:44	0.00	0.14	0.00	0.11	0.11
6	19 Sep 23	11:45	12:05	0.00	0.13	0.00	0.09	0.09
7	19 Sep 23	12:06	12:26	0.00	0.11	0.00	0.08	0.08
8	19 Sep 23	12:27	12:47	0.00	0.12	0.00	0.09	0.09
9	19 Sep 23	12:48	13:08	0.00	0.12	0.00	0.09	0.09
10	19 Sep 23	13:09	13:29	0.00	0.12	0.00	0.09	0.09
11	19 Sep 23	13:30	13:50	0.00	0.13	0.00	0.10	0.10
12*	19 Sep 23	13:51	14:11	0.00	0.14	0.00	0.11	0.11
Average								0.09
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								0.51
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Oct/19-1/)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151124
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522857-1

Sample Number : 22151124-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-130
Parameter : CO

Page 2 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	19 Sep 23	10:00	10:20	0.15	2.64	0.12	2.22	2.10
2*	19 Sep 23	10:21	10:41	0.10	2.77	0.09	2.16	2.08
3	19 Sep 23	10:42	11:02	0.07	2.35	0.05	1.84	1.78
4*	19 Sep 23	11:03	11:23	0.07	2.73	0.05	2.14	2.09
5	19 Sep 23	11:24	11:44	0.06	2.23	0.04	1.74	1.69
6	19 Sep 23	11:45	12:05	0.05	2.49	0.04	1.93	1.89
7	19 Sep 23	12:06	12:26	0.05	2.39	0.04	1.85	1.81
8	19 Sep 23	12:27	12:47	0.05	1.96	0.04	1.53	1.50
9	19 Sep 23	12:48	13:08	0.05	2.12	0.04	1.64	1.60
10	19 Sep 23	13:09	13:29	0.05	2.29	0.04	1.77	1.73
11	19 Sep 23	13:30	13:50	0.05	2.41	0.03	1.85	1.87
12	19 Sep 23	13:51	14:11	0.05	2.48	0.04	1.93	1.89
Average								1.75
Confidence Coefficient (CC)								0.10
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.27
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management : Wichan Chomchit
Manager
wt50000001-204-w-6113

Approved by : Sirachit Sirachit
Assistant General Manager
wt50000001-204-w-4702

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Technical Management : Wichan Chomchit
Manager
wt50000001-204-w-6113

Approved by : Sirachit Sirachit
Assistant General Manager
wt50000001-204-w-4702

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151124
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522857-1

Sample Number : 22151124-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-130
Parameter : CO

Page 4 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	19 Sep 23	10:00	10:20	2.97	3.11	0.14
2	19 Sep 23	10:21	10:41	2.79	3.07	0.27
3	19 Sep 23	10:42	11:02	2.75	3.10	0.34
4	19 Sep 23	11:03	11:23	2.75	3.12	0.38
5	19 Sep 23	11:24	11:44	2.61	3.06	0.45
6	19 Sep 23	11:45	12:05	2.41	2.91	0.50
7*	19 Sep 23	12:06	12:26	2.48	3.00	0.52
8	19 Sep 23	12:27	12:47	2.65	3.11	0.46
9*	19 Sep 23	12:48	13:08	2.27	2.87	0.59
10*	19 Sep 23	13:09	13:29	2.34	2.89	0.55
11	19 Sep 23	13:30	13:50	2.41	2.92	0.50
12	19 Sep 23	13:51	14:11	2.58	3.05	0.47
Average						0.39
Confidence Coefficient (CC)						0.29
Relative Accuracy (Compared with Actual) (%)						1.33
Relative Accuracy Criteria ^{1/} (%)						≤ 3%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Wiroch Tongmoon

Technical Management : Wichan Chomchit
Manager
wt50000001-204-w-6113

Approved by : Sirachit Sirachit
Assistant General Manager
wt50000001-204-w-4702

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151125
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2522858-1

Sample Number : 22151125-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-140
Parameter : NO_x

Page 1 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	18 Sep 23	10:40	11:00	62.87	61.15	48.68	45.53	-2.14
2*	18 Sep 23	11:01	11:21	61.86	61.13	47.95	45.49	-1.46
3	18 Sep 23	11:22	11:42	60.87	61.05	47.01	45.25	-0.57
4	18 Sep 23	11:43	12:03	60.80	61.63	45.91	45.67	-0.24
5	18 Sep 23	12:04	12:24	61.25	62.29	47.30	47.28	-0.02
6	18 Sep 23	12:25	12:45	61.49	62.86	47.44	47.67	0.22
7	18 Sep 23	12:46	13:06	61.25	63.08	47.28	47.99	0.60
8	18 Sep 23	13:07	13:27	61.00	63.49	47.57	48.34	0.37
9	18 Sep 23	13:28	13:48	61.97	63.99	47.94	48.00	0.74
10*	18 Sep 23	13:49	14:09	62.24	64.30	48.05	48.61	0.79
11	18 Sep 23	14:10	14:30	63.45	65.35	49.13	49.75	0.62
12	18 Sep 23	14:31	14:51	63.63	65.08	49.36	49.75	0.75
Average								0.27
Confidence Coefficient (CC)								0.39
Relative Accuracy (Compared with RM) (%)								1.33
Relative Accuracy Criteria ^{1/} (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of NO_x is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management : Wichan Chomchit
Manager
wt50000001-204-w-6113

Approved by : Sirachit Sirachit
Assistant General Manager
wt50000001-204-w-4702

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tamboon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151125
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2532858-1

Sample Number : 22151125-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4 (Furnace) : F-140
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 23	10:40	11:00	0.12	0.10	0.09	0.07	-0.02
2*	18 Sep 23	11:01	11:21	0.12	0.09	0.10	0.06	-0.04
3	18 Sep 23	11:22	11:42	0.13	0.09	0.10	0.07	-0.03
4	18 Sep 23	11:43	12:03	0.13	0.12	0.10	0.09	-0.04
5	18 Sep 23	12:04	12:24	0.13	0.10	0.10	0.08	-0.02
6	18 Sep 23	12:25	12:45	0.13	0.09	0.10	0.07	-0.03
7*	18 Sep 23	12:46	13:06	0.13	0.08	0.10	0.06	-0.04
8	18 Sep 23	13:07	13:27	0.13	0.09	0.10	0.05	-0.03
9*	18 Sep 23	13:28	13:48	0.13	0.05	0.10	0.06	-0.04
10	18 Sep 23	13:49	14:09	0.13	0.06	0.10	0.05	-0.04
11	18 Sep 23	14:10	14:30	0.13	0.10	0.10	0.08	-0.02
12	18 Sep 23	14:31	14:51	0.13	0.11	0.10	0.06	-0.02
Average						0.10	0.07	-0.03
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)								0.35
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 8C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (OLEF I-4)

RA Result is within Criteria

Technical Management :
Wichan Choncharat
Manager
vin@alsglobal.com : 204-46113

Approved by :
Sirapach Jittaporn
Assistant General Manager
vin@alsglobal.com : 204-46122

Life Sciences : www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tamboon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151125
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2532858-1

Sample Number : 22151125-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4 (Furnace) : F-140
Parameter : O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	18 Sep 23	10:40	11:00	2.55	2.50	-0.31
2*	18 Sep 23	11:01	11:21	2.97	2.62	-0.34
3	18 Sep 23	11:22	11:42	2.90	2.59	-0.31
4*	18 Sep 23	11:43	12:03	2.88	2.55	-0.33
5*	18 Sep 23	12:04	12:24	2.90	2.96	-0.34
6	18 Sep 23	12:25	12:45	2.89	2.57	-0.32
7	18 Sep 23	12:46	13:06	2.89	2.59	-0.70
8	18 Sep 23	13:07	13:27	2.96	2.65	-0.32
9	18 Sep 23	13:28	13:48	2.93	2.63	-0.30
10	18 Sep 23	13:49	14:09	2.90	2.57	-0.32
11	18 Sep 23	14:10	14:30	2.95	2.64	-0.31
12	18 Sep 23	14:31	14:51	2.99	2.68	-0.30
Average				2.93	2.62	-0.31
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.31
Relative Accuracy Criteria ^{1/} (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)
RA Result is within Criteria

Sampled By : Worachai Tongphoo

Technical Management :
Wichan Choncharat
Manager
vin@alsglobal.com : 204-46113

Approved by :
Sirapach Jittaporn
Assistant General Manager
vin@alsglobal.com : 204-46122

Life Sciences : www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tamboon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151125
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2532858-1

Sample Number : 22151125-1
Sampled Date : Sep 18, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4 (Furnace) : F-140
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 23	10:40	11:00	0.02	0.02	0.01	0.02	0.00
2	18 Sep 23	11:01	11:21	0.02	0.03	0.01	0.02	0.01
3	18 Sep 23	11:22	11:42	0.02	0.11	0.02	0.08	0.07
4	18 Sep 23	11:43	12:03	0.02	0.14	0.02	0.11	0.09
5	18 Sep 23	12:04	12:24	0.01	0.18	0.01	0.14	0.13
6	18 Sep 23	12:25	12:45	0.01	0.24	0.01	0.15	0.17
7	18 Sep 23	12:46	13:06	0.02	0.29	0.01	0.22	0.20
8	18 Sep 23	13:07	13:27	0.02	0.33	0.01	0.25	0.24
9*	18 Sep 23	13:28	13:48	0.01	0.30	0.01	0.29	0.28
10*	18 Sep 23	13:49	14:09	0.01	0.41	0.00	0.31	0.31
11*	18 Sep 23	14:10	14:30	0.00	0.30	0.00	0.29	0.29
12	18 Sep 23	14:31	14:51	0.00	0.36	0.00	0.27	0.27
Average						0.01	0.14	0.13
Confidence Coefficient (CC)								0.07
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.03
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (R.I. 2549)

RA Result is within Criteria

Technical Management :
Wichan Choncharat
Manager
vin@alsglobal.com : 204-46113

Approved by :
Sirapach Jittaporn
Assistant General Manager
vin@alsglobal.com : 204-46122

Life Sciences : www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tamboon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151126
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2532859-1

Sample Number : 22151126-1
Sampled Date : Sep 19, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4 (Furnace) : F-150
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	19 Sep 23	10:00	10:20	64.43	65.55	51.27	52.00	0.73
2	19 Sep 23	10:21	10:41	63.92	66.03	50.90	51.57	0.64
3	19 Sep 23	10:42	11:02	65.03	67.56	54.91	55.95	1.05
4	19 Sep 23	11:03	11:23	65.07	68.54	52.55	53.67	1.13
5*	19 Sep 23	11:24	11:44	65.10	68.03	51.80	53.11	1.31
6	19 Sep 23	11:45	12:05	64.41	67.15	51.11	52.33	1.22
7	19 Sep 23	12:06	12:26	64.75	67.26	51.33	52.38	1.05
8	19 Sep 23	12:27	12:47	65.18	67.90	51.71	52.87	1.17
9	19 Sep 23	12:48	13:08	62.94	65.54	49.63	50.77	1.14
10	19 Sep 23	13:09	13:29	65.45	67.98	52.04	53.08	1.04
11*	19 Sep 23	13:30	13:50	65.66	66.55	52.33	53.66	1.35
12*	19 Sep 23	13:51	14:11	64.80	67.66	51.55	52.89	1.35
Average						51.38	52.40	1.02
Confidence Coefficient (CC)								0.15
Relative Accuracy (Compared with RM) (%)								2.34
Relative Accuracy Criteria ^{1/} (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)
RA Result is within Criteria

Technical Management :
Wichan Choncharat
Manager
vin@alsglobal.com : 204-46113

Approved by :
Sirapach Jittaporn
Assistant General Manager
vin@alsglobal.com : 204-46122

Life Sciences : www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Moo 10 Phat Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151127
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2572860-1

Sample Number : 22151127-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-160
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	20 Sep 23	10:35	10:55	0.13	0.10	0.10	0.09	-0.02
2	20 Sep 23	10:56	11:16	0.13	0.07	0.10	0.05	-0.05
3	20 Sep 23	11:17	11:37	0.13	0.10	0.10	0.08	-0.03
4	20 Sep 23	11:38	11:58	0.13	0.06	0.10	0.05	-0.05
5*	20 Sep 23	11:59	12:19	0.13	0.05	0.10	0.04	-0.06
6	20 Sep 23	12:20	12:40	0.13	0.05	0.10	0.04	-0.06
7	20 Sep 23	12:41	13:01	0.13	0.05	0.10	0.05	-0.05
8*	20 Sep 23	13:02	13:22	0.13	0.05	0.10	0.04	-0.05
9	20 Sep 23	13:23	13:43	0.13	0.06	0.10	0.05	-0.06
10	20 Sep 23	13:44	14:04	0.13	0.07	0.10	0.06	-0.05
11*	20 Sep 23	14:05	14:25	0.13	0.06	0.10	0.04	-0.06
12	20 Sep 23	14:26	14:46	0.13	0.07	0.10	0.06	-0.05
Average								-0.05
Confidence Coefficient (CC)								0.81
Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)								0.62
Relative Accuracy Criteria 1* (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method GC

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin 1-4).
RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Moo 10 Phat Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151127
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2572860-1

Sample Number : 22151127-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-160
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	20 Sep 23	10:35	10:55	0.02	0.78	0.01	0.60	0.59
2	20 Sep 23	10:56	11:16	0.02	0.73	0.01	0.57	0.56
3	20 Sep 23	11:17	11:37	0.02	0.72	0.02	0.57	0.55
4	20 Sep 23	11:38	11:58	0.02	0.77	0.02	0.50	0.52
5	20 Sep 23	11:59	12:19	0.02	0.78	0.02	0.50	0.59
6	20 Sep 23	12:20	12:40	0.02	0.79	0.02	0.51	0.59
7	20 Sep 23	12:41	13:01	0.02	0.82	0.02	0.53	0.62
8	20 Sep 23	13:02	13:22	0.02	0.82	0.01	0.51	0.59
9	20 Sep 23	13:23	13:43	0.03	0.80	0.02	0.52	0.50
10*	20 Sep 23	13:44	14:04	0.02	0.81	0.01	0.53	0.62
11*	20 Sep 23	14:05	14:25	0.02	0.82	0.01	0.54	0.62
12*	20 Sep 23	14:26	14:46	0.03	0.87	0.02	0.57	0.55
Average								0.59
Confidence Coefficient (CC)								0.82
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.09
Relative Accuracy Criteria 1* (Compared with Emission Standard)								≤ 9%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549).
RA Result is within Criteria

Technical Management : Wichan Choonchit
Wichan Choonchit
Manager
wchoonchit@pttgc.com-6113

Approved by : Saranyut Jirakorn
Saranyut Jirakorn
Assistant General Manager
sjarakorn@pttgc.com-4702

Technical Management : Wichan Choonchit
Wichan Choonchit
Manager
wchoonchit@pttgc.com-6113

Approved by : Saranyut Jirakorn
Saranyut Jirakorn
Assistant General Manager
sjarakorn@pttgc.com-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Moo 10 Phat Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151127
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2572860-1

Sample Number : 22151127-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-160
Parameter : O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1*	20 Sep 23	10:35	10:55	3.12	2.90	-0.13
2*	20 Sep 23	10:56	11:16	3.29	3.11	-0.13
3	20 Sep 23	11:17	11:37	3.28	3.16	-0.12
4	20 Sep 23	11:38	11:58	3.18	3.06	-0.12
5*	20 Sep 23	11:59	12:19	3.16	3.04	-0.13
6	20 Sep 23	12:20	12:40	3.09	2.99	-0.10
7	20 Sep 23	12:41	13:01	3.05	2.93	-0.12
8	20 Sep 23	13:02	13:22	3.11	2.99	-0.12
9	20 Sep 23	13:23	13:43	3.07	2.97	-0.11
10	20 Sep 23	13:44	14:04	3.06	2.95	-0.10
11	20 Sep 23	14:05	14:25	3.03	2.93	-0.10
12	20 Sep 23	14:26	14:46	2.96	2.85	-0.11
Average				3.09	2.98	-0.11
Confidence Coefficient (CC)						0.11
Relative Accuracy (Compared in Actual) (%)						3.1%
Relative Accuracy Criteria 11 (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3).
RA Result is within Criteria

Sampled By : Wiroch Tongpoo

Technical Management : Wichan Choonchit
Wichan Choonchit
Manager
wchoonchit@pttgc.com-6113

Approved by : Saranyut Jirakorn
Saranyut Jirakorn
Assistant General Manager
sjarakorn@pttgc.com-4702

Technical Management : Wichan Choonchit
Wichan Choonchit
Manager
wchoonchit@pttgc.com-6113

Approved by : Saranyut Jirakorn
Saranyut Jirakorn
Assistant General Manager
sjarakorn@pttgc.com-4702

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
S. Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Ansonae Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151128
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2527861-1

Sample Number : 22151128-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/L (Furnace) : F-170
Parameter : SO₂

Page 2 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	20 Sep 23	10:35	10:55	0.00	0.11	0.00	0.09	0.09
2*	20 Sep 23	10:56	11:16	0.00	0.10	0.00	0.09	0.09
3*	20 Sep 23	11:17	11:37	0.00	0.08	0.00	0.06	0.06
4	20 Sep 23	11:38	11:58	0.00	0.06	0.00	0.04	0.04
5	20 Sep 23	11:59	12:19	0.00	0.03	0.00	0.04	0.04
6	20 Sep 23	12:20	12:40	0.00	0.04	0.00	0.03	0.03
7	20 Sep 23	12:41	13:01	0.00	0.03	0.00	0.02	0.02
8	20 Sep 23	13:02	13:22	0.00	0.04	0.00	0.03	0.03
9	20 Sep 23	13:23	13:43	0.00	0.05	0.00	0.04	0.04
10	20 Sep 23	13:44	14:04	0.00	0.07	0.00	0.05	0.05
11	20 Sep 23	14:05	14:25	0.00	0.08	0.00	0.06	0.06
12	20 Sep 23	14:26	14:46	0.00	0.08	0.00	0.06	0.06
Average								0.01
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)								0.56
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 5C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Oct/14)

RA Result is within Criteria

Technical Management :
Wichan Choonharat
Manager
wch@alsglobal.com

Approved by :
Saranyut Sirinont
Assistant General Manager
ssr@alsglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
S. Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Ansonae Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151128
Date Received : Sep 21, 2023
Date Reported : Oct 05, 2023
Report Number : 2527862-1

Sample Number : 22151128-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/L (Furnace) : F-170
Parameter : O₂

Page 4 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	20 Sep 23	10:35	10:55	2.57	2.52	-0.05
2	20 Sep 23	10:56	11:16	2.61	2.53	-0.08
3*	20 Sep 23	11:17	11:37	2.63	2.53	-0.10
4	20 Sep 23	11:38	11:58	2.57	2.47	-0.09
5	20 Sep 23	11:59	12:19	2.58	2.51	-0.07
6*	20 Sep 23	12:20	12:40	2.59	2.49	-0.11
7	20 Sep 23	12:41	13:01	2.51	2.44	-0.07
8	20 Sep 23	13:02	13:22	2.51	2.44	-0.07
9	20 Sep 23	13:23	13:43	2.53	2.47	-0.06
10	20 Sep 23	13:44	14:04	2.50	2.40	-0.10
11	20 Sep 23	14:05	14:25	2.53	2.43	-0.10
12*	20 Sep 23	14:26	14:46	2.50	2.39	-0.11
Average						-
Confidence Coefficient (CC)						0.08
Relative Accuracy (Compared in Actual) (%)						0.08
Relative Accuracy Criteria ^{1/} (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Wichan Choonharat

Technical Management :
Wichan Choonharat
Manager
wch@alsglobal.com

Approved by :
Saranyut Sirinont
Assistant General Manager
ssr@alsglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
S. Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Ansonae Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151128
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2527861-1

Sample Number : 22151128-1
Sampled Date : Sep 20, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/L (Furnace) : F-170
Parameter : CO

Page 2 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	20 Sep 23	10:35	10:55	9.98	12.17	7.57	9.20	1.63
2	20 Sep 23	10:56	11:16	7.19	11.84	5.47	8.95	3.49
3*	20 Sep 23	11:17	11:37	7.71	13.54	5.87	10.55	4.66
4	20 Sep 23	11:38	11:58	9.61	14.45	7.29	10.66	3.39
5	20 Sep 23	11:59	12:19	14.22	16.83	16.79	12.72	1.93
6*	20 Sep 23	12:20	12:40	5.26	15.12	3.97	11.35	7.39
7*	20 Sep 23	12:41	13:01	6.10	12.74	4.61	9.59	4.98
8	20 Sep 23	13:02	13:22	16.47	15.09	12.45	11.36	-1.08
9	20 Sep 23	13:23	13:43	5.76	7.64	4.35	5.76	1.41
10	20 Sep 23	13:44	14:04	16.21	15.32	12.25	11.51	-0.74
11	20 Sep 23	14:05	14:25	11.50	13.05	8.70	9.82	1.12
12	20 Sep 23	14:26	14:46	6.00	10.79	4.58	8.10	3.51
Average								1.62
Confidence Coefficient (CC)								1.32
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.43
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 1D

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2000 (B.E. 2545)

RA Result is within Criteria

Technical Management :
Wichan Choonharat
Manager
wch@alsglobal.com

Approved by :
Saranyut Sirinont
Assistant General Manager
ssr@alsglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
S. Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Ansonae Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151129
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2527862-1

Sample Number : 22151129-1
Sampled Date : Sep 21, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/L (Furnace) : F-180
Parameter : H₂

Page 1 of 4

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	21 Sep 23	10:00	10:20	64.13	65.37	49.93	50.93	0.95
2	21 Sep 23	10:21	10:41	62.29	67.81	48.13	49.38	1.25
3	21 Sep 23	10:42	11:02	67.04	63.56	49.03	49.34	1.31
4	21 Sep 23	11:03	11:23	62.58	63.94	49.66	49.80	1.15
5	21 Sep 23	11:24	11:44	61.75	63.70	47.63	49.28	1.65
6	21 Sep 23	11:45	12:05	61.86	63.64	47.70	49.77	1.98
7	21 Sep 23	12:06	12:26	61.31	63.67	47.32	49.36	2.03
8	21 Sep 23	12:27	12:47	60.33	62.37	46.27	47.86	1.71
9	21 Sep 23	12:48	13:08	59.56	61.67	46.01	47.85	1.84
10*	21 Sep 23	13:09	13:29	58.83	61.36	45.37	47.54	2.18
11*	21 Sep 23	13:30	13:50	59.06	61.54	45.00	47.74	2.14
12*	21 Sep 23	13:51	14:11	59.11	61.74	45.76	47.93	2.17
Average								1.40
Confidence Coefficient (CC)								0.27
Relative Accuracy (Compared with RM) (%)								3.56
Relative Accuracy Criteria ^{1/} (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7D

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of H₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management :
Wichan Choonharat
Manager
wch@alsglobal.com

Approved by :
Saranyut Sirinont
Assistant General Manager
ssr@alsglobal.com

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151129
Date Received : Sep 21, 2023
Date Reported : Oct 05, 2023
Report Number : 2522852-1

Sample Number : 22151129-1
Sampled Date : Sep 21, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-180
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	21 Sep 23	10:00	10:20	0.00	0.19	0.00	0.15	0.15
2*	21 Sep 23	10:21	10:41	0.00	0.16	0.00	0.13	0.13
3	21 Sep 23	10:42	11:02	0.00	0.14	0.00	0.11	0.11
4*	21 Sep 23	11:03	11:23	0.00	0.15	0.00	0.12	0.12
5	21 Sep 23	11:24	11:44	0.00	0.13	0.00	0.10	0.10
6	21 Sep 23	11:45	12:05	0.00	0.13	0.00	0.10	0.10
7	21 Sep 23	12:06	12:25	0.00	0.12	0.00	0.10	0.10
8	21 Sep 23	12:27	12:47	0.00	0.12	0.00	0.09	0.09
9	21 Sep 23	12:48	13:08	0.00	0.10	0.00	0.08	0.08
10	21 Sep 23	13:09	13:29	0.00	0.10	0.00	0.08	0.08
11	21 Sep 23	13:30	13:50	0.00	0.09	0.00	0.07	0.07
12	21 Sep 23	13:51	14:11	0.00	0.10	0.00	0.06	0.08
Average								0.09
Confidence Coefficient (CC)								0.91
Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)								1.11
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Refin I-4)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151129
Date Received : Sep 21, 2023
Date Reported : Oct 05, 2023
Report Number : 2522852-1

Sample Number : 22151129-1
Sampled Date : Sep 21, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-180
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	21 Sep 23	10:00	10:20	0.11	0.06	0.08	0.05	-0.04
2	21 Sep 23	10:21	10:41	0.11	0.10	0.09	0.08	-0.03
3	21 Sep 23	10:42	11:02	0.11	0.10	0.09	0.15	0.06
4	21 Sep 23	11:03	11:23	0.11	0.27	0.08	0.21	0.13
5	21 Sep 23	11:24	11:44	0.11	0.33	0.08	0.26	0.17
6	21 Sep 23	11:45	12:05	0.10	0.37	0.08	0.29	0.21
7	21 Sep 23	12:06	12:25	0.11	0.41	0.08	0.31	0.23
8	21 Sep 23	12:27	12:47	0.11	0.45	0.08	0.35	0.26
9	21 Sep 23	12:48	13:08	0.11	0.49	0.08	0.38	0.30
10*	21 Sep 23	13:09	13:29	0.11	0.54	0.08	0.42	0.34
11*	21 Sep 23	13:30	13:50	0.10	0.57	0.08	0.44	0.36
12*	21 Sep 23	13:51	14:11	0.11	0.52	0.08	0.40	0.32
Average								0.15
Confidence Coefficient (CC)								0.69
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.83
Relative Accuracy Criteria ¹⁾ (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management : Wichan Choochawat
Wichan Choochawat
Manager
โทรศัพท์ : 2-204-6-6113

Approved by : Saranyu Jitwong
Saranyu Jitwong
Assistant General Manager
โทรศัพท์ : 2-204-6-4702

Technical Management : Wichan Choochawat
Wichan Choochawat
Manager
โทรศัพท์ : 2-204-6-6113

Approved by : Saranyu Jitwong
Saranyu Jitwong
Assistant General Manager
โทรศัพท์ : 2-204-6-4702



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151129
Date Received : Sep 21, 2023
Date Reported : Oct 05, 2023
Report Number : 2522852-1

Sample Number : 22151129-1
Sampled Date : Sep 21, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-180
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	21 Sep 23	10:00	10:20	3.06	3.06	0.00
2	21 Sep 23	10:21	10:41	2.91	2.94	0.03
3	21 Sep 23	10:42	11:02	2.92	2.99	0.05
4	21 Sep 23	11:03	11:23	3.01	3.05	0.03
5	21 Sep 23	11:24	11:44	2.88	2.91	0.03
6	21 Sep 23	11:45	12:05	2.91	2.95	0.04
7*	21 Sep 23	12:06	12:25	2.89	2.97	0.08
8	21 Sep 23	12:27	12:47	2.78	2.83	0.05
9	21 Sep 23	12:48	13:08	2.91	2.93	0.02
10*	21 Sep 23	13:09	13:29	2.87	2.95	0.08
11*	21 Sep 23	13:30	13:50	2.90	2.98	0.08
12	21 Sep 23	13:51	14:11	2.95	2.99	0.05
Average						0.03
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.03
Relative Accuracy Criteria ¹⁾ (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Saranyu Jitwong

Technical Management : Wichan Choochawat
Wichan Choochawat
Manager
โทรศัพท์ : 2-204-6-6113

Approved by : Saranyu Jitwong
Saranyu Jitwong
Assistant General Manager
โทรศัพท์ : 2-204-6-4702

Technical Management : Wichan Choochawat
Wichan Choochawat
Manager
โทรศัพท์ : 2-204-6-6113

Approved by : Saranyu Jitwong
Saranyu Jitwong
Assistant General Manager
โทรศัพท์ : 2-204-6-4702



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151130
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522854-1

Sample Number : 22151130-1
Sampled Date : Sep 15, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-180
Parameter : HCl

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 23	10:35	10:55	62.06	62.04	51.07	51.19	0.12
2	13 Sep 23	10:56	11:16	62.95	62.33	51.05	50.70	-0.34
3	13 Sep 23	11:17	11:37	61.83	61.50	50.94	50.05	0.89
4	13 Sep 23	11:38	11:58	61.73	62.16	49.51	50.51	0.61
5	13 Sep 23	11:59	12:19	61.53	61.55	49.73	49.99	0.27
6	13 Sep 23	12:20	12:40	60.41	60.84	48.81	49.90	0.57
7	13 Sep 23	12:41	13:01	60.39	60.89	48.74	49.39	0.65
8	13 Sep 23	13:02	13:22	60.09	61.05	49.00	50.03	1.03
9	13 Sep 23	13:23	13:43	60.08	61.73	48.44	50.04	1.60
10*	13 Sep 23	13:44	14:04	60.94	62.70	49.05	50.86	1.81
11*	13 Sep 23	14:05	14:25	60.00	62.45	48.44	50.65	2.21
12*	13 Sep 23	14:26	14:46	59.16	62.29	47.79	50.52	2.73
Average								0.50
Confidence Coefficient (CC)								0.45
Relative Accuracy (Compared with RM) (%)								1.59
Relative Accuracy Criteria ¹⁾ (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of HCl is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151130
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522854-1

Sample Number : 22151130-1
Sampled Date : Sep 15, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-180
Parameter : HCl

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 23	10:35	10:55	62.06	62.04	51.07	51.19	0.12
2	13 Sep 23	10:56	11:16	62.95	62.33	51.05	50.70	-0.34
3	13 Sep 23	11:17	11:37	61.83	61.50	50.94	50.05	0.89
4	13 Sep 23	11:38	11:58	61.73	62.16	49.51	50.51	0.61
5	13 Sep 23	11:59	12:19	61.53	61.55	49.73	49.99	0.27
6	13 Sep 23	12:20	12:40	60.41	60.84	48.81	49.90	0.57
7	13 Sep 23	12:41	13:01	60.39	60.89	48.74	49.39	0.65
8	13 Sep 23	13:02	13:22	60.09	61.05	49.00	50.03	1.03
9	13 Sep 23	13:23	13:43	60.08	61.73	48.44	50.04	1.60
10*	13 Sep 23	13:44	14:04	60.94	62.70	49.05	50.86	1.81
11*	13 Sep 23	14:05	14:25	60.00	62.45	48.44	50.65	2.21
12*	13 Sep 23	14:26	14:46	59.16	62.29	47.79	50.52	2.73
Average								0.50
Confidence Coefficient (CC)								0.45
Relative Accuracy (Compared with RM) (%)								1.59
Relative Accuracy Criteria ¹⁾ (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

¹⁾ Relative Accuracy Criteria of HCl is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151130
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 7522664-1

Sample Number : 22151130-1
Sampled Date : Sep 13, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-100
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	13 Sep 23	10:35	10:55	0.00	0.30	0.00	0.25	0.25
2*	13 Sep 23	10:56	11:16	0.00	0.29	0.00	0.24	0.24
3*	13 Sep 23	11:17	11:37	0.00	0.25	0.00	0.21	0.21
4	13 Sep 23	11:38	11:58	0.00	0.24	0.00	0.19	0.19
5	13 Sep 23	11:59	12:19	0.00	0.23	0.00	0.19	0.19
6	13 Sep 23	12:20	12:40	0.00	0.23	0.00	0.18	0.18
7	13 Sep 23	12:41	13:01	0.00	0.23	0.00	0.15	0.19
8	13 Sep 23	13:02	13:22	0.00	0.23	0.00	0.19	0.19
9	13 Sep 23	13:23	13:43	0.00	0.23	0.00	0.18	0.18
10	13 Sep 23	13:44	14:04	0.00	0.24	0.00	0.19	0.19
11	13 Sep 23	14:05	14:25	0.00	0.24	0.00	0.19	0.19
12	13 Sep 23	14:26	14:46	0.00	0.23	0.00	0.19	0.19
Average								0.19
Confidence Coefficient (CC)								0.00
Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)								2.13
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method GC

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Offsite 1-4)

RA Result is within Criteria

Technical Management :
Wichan Choochart
Manager
Wichan@alsglobe.com 7-204-n-6113

Approved by :
Sarawuth Jitwong
Assistant General Manager
Wichan@alsglobe.com 7-204-n-4702

104 Pongthasarak Rd., Phra Pradaeng District, Rayong Province, Thailand 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151130
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 7522664-1

Sample Number : 22151130-1
Sampled Date : Sep 13, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-100
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	13 Sep 23	10:35	10:55	3.74	3.81	0.07
2	13 Sep 23	10:56	11:16	3.75	3.81	0.05
3	13 Sep 23	11:17	11:37	3.73	3.79	0.07
4*	13 Sep 23	11:38	11:58	3.71	3.80	0.09
5	13 Sep 23	11:59	12:19	3.70	3.79	0.08
6	13 Sep 23	12:20	12:40	3.70	3.78	0.08
7	13 Sep 23	12:41	13:01	3.68	3.76	0.09
8	13 Sep 23	13:02	13:22	3.68	3.77	0.09
9*	13 Sep 23	13:23	13:43	3.66	3.75	0.09
10*	13 Sep 23	13:44	14:04	3.66	3.77	0.11
11	13 Sep 23	14:05	14:25	3.68	3.76	0.08
12	13 Sep 23	14:26	14:46	3.69	3.76	0.07
Average						0.08
Confidence Coefficient (CC)						0.08
Relative Accuracy (Compared in Actual) (%)						5.24
Relative Accuracy Criteria ^{1/} (%)						≤ 10%

Reference Method : US EPA Method 2A

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Worawit Tattaporn

Technical Management :
Wichan Choochart
Manager
Wichan@alsglobe.com 7-204-n-6113

Approved by :
Sarawuth Jitwong
Assistant General Manager
Wichan@alsglobe.com 7-204-n-4702

104 Pongthasarak Rd., Phra Pradaeng District, Rayong Province, Thailand 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151130
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 7522664-1

Sample Number : 22151130-1
Sampled Date : Sep 13, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-100
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 23	10:35	10:55	0.08	0.55	0.06	0.41	0.38
2	13 Sep 23	10:56	11:16	0.08	0.56	0.06	0.46	0.40
3	13 Sep 23	11:17	11:37	0.08	0.65	0.06	0.53	0.47
4	13 Sep 23	11:38	11:58	0.07	0.77	0.06	0.63	0.57
5*	13 Sep 23	11:59	12:19	0.08	0.83	0.06	0.68	0.62
6	13 Sep 23	12:20	12:40	0.09	0.85	0.07	0.69	0.61
7*	13 Sep 23	12:41	13:01	0.10	0.86	0.08	0.70	0.62
8	13 Sep 23	13:02	13:22	0.09	0.85	0.08	0.69	0.61
9*	13 Sep 23	13:23	13:43	0.08	0.86	0.08	0.69	0.62
10	13 Sep 23	13:44	14:04	0.10	0.81	0.08	0.66	0.57
11	13 Sep 23	14:05	14:25	0.11	0.76	0.09	0.62	0.53
12	13 Sep 23	14:26	14:46	0.11	0.75	0.09	0.51	0.53
Average								0.52
Confidence Coefficient (CC)								0.07
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.08
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2005 (A.E. 2549)

RA Result is within Criteria

Technical Management :
Wichan Choochart
Manager
Wichan@alsglobe.com 7-204-n-6113

Approved by :
Sarawuth Jitwong
Assistant General Manager
Wichan@alsglobe.com 7-204-n-4702

104 Pongthasarak Rd., Phra Pradaeng District, Rayong Province, Thailand 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151135
Date Received : Sep 26, 2023
Date Reported : Oct 05, 2023
Report Number : 7522671-1

Sample Number : 22151135-1
Sampled Date : Sep 25, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/1 (Furnace) : F-1010
Parameter : NO_x

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	25 Sep 23	10:30	10:50	30.10	30.13	25.71	25.74	0.03
2	25 Sep 23	10:51	11:11	29.52	30.30	25.72	25.89	0.67
3	25 Sep 23	11:12	11:32	28.66	30.21	24.47	25.80	1.32
4	25 Sep 23	11:33	11:53	28.46	30.00	24.54	25.66	1.21
5	25 Sep 23	11:54	12:14	27.88	29.67	23.87	25.40	1.53
6	25 Sep 23	12:15	12:35	28.46	30.36	24.31	25.91	1.63
7	25 Sep 23	12:36	12:56	30.90	31.03	26.22	26.41	0.19
8	25 Sep 23	12:57	13:17	31.95	31.21	27.15	26.62	-0.55
9	25 Sep 23	13:18	13:38	33.18	31.08	28.78	26.49	-1.80
10*	25 Sep 23	13:39	13:59	33.38	30.72	28.55	26.37	-2.28
11*	25 Sep 23	14:00	14:20	32.90	30.62	28.15	26.20	-1.95
12*	25 Sep 23	14:21	14:41	33.04	30.42	28.16	25.92	-2.23
Average								0.49
Confidence Coefficient (CC)								0.68
Relative Accuracy (Compared with RM) (%)								5.22
Relative Accuracy Criteria ^{1/} (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of NO_x is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management :
Wichan Choochart
Manager
Wichan@alsglobe.com 7-204-n-6113

Approved by :
Sarawuth Jitwong
Assistant General Manager
Wichan@alsglobe.com 7-204-n-4702

104 Pongthasarak Rd., Phra Pradaeng District, Rayong Province, Thailand 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151135
Date Received : Sep 25, 2023
Date Reported : Oct 05, 2023
Report Number : 2532871-1

Page 1 of 3

Sample Number : 22151135-1
Sampled Date : Sep 25, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-1010
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	25 Sep 23	10:30	10:50	0.00	0.13	0.00	0.11	0.11
2	25 Sep 23	10:54	11:11	0.00	0.09	0.00	0.07	0.07
3	25 Sep 23	11:12	11:32	0.00	0.10	0.00	0.08	0.08
4	25 Sep 23	11:33	11:53	0.00	0.12	0.00	0.11	0.11
5	25 Sep 23	11:54	12:14	0.00	0.12	0.00	0.11	0.11
6	25 Sep 23	12:15	12:35	0.00	0.12	0.00	0.10	0.10
7	25 Sep 23	12:36	12:56	0.00	0.13	0.00	0.11	0.11
8*	25 Sep 23	12:57	13:17	0.00	0.13	0.00	0.11	0.11
9*	25 Sep 23	13:18	13:38	0.00	0.13	0.00	0.11	0.11
10	25 Sep 23	13:39	13:59	0.00	0.13	0.00	0.11	0.11
11	25 Sep 23	14:00	14:20	0.00	0.12	0.00	0.10	0.10
12	25 Sep 23	14:21	14:41	0.00	0.12	0.00	0.10	0.10
Average						0.00	0.10	0.10
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								0.57
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method GC

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (EIR-1-4)

RA Result is within Criteria

Technical Management

Wichan Choonchit
Manager
โทรศัพท์มือถือ : 02-04-6113

Approved by

Sakulph Jitramont
Assistant General Manager
โทรศัพท์มือถือ : 02-04-6102

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151139
Date Received : Oct 27, 2023
Date Reported : Dec 01, 2023
Report Number : 2532871-1

Page 1 of 3

Sample Number : 22151139-1
Sampled Date : Oct 27, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-1010
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	27 Oct 23	10:10	10:30	28.39	24.59	28.20	24.51	-3.68
2*	27 Oct 23	10:31	10:51	28.80	24.69	28.56	24.49	-4.08
3*	27 Oct 23	10:52	11:12	28.59	25.17	28.70	24.92	-3.78
4	27 Oct 23	11:13	11:33	28.75	25.66	28.67	25.56	-3.08
5	27 Oct 23	11:34	11:54	27.78	25.66	27.73	25.81	-1.92
6	27 Oct 23	11:55	12:15	29.60	29.44	29.54	25.39	-4.15
7	27 Oct 23	12:16	12:36	26.40	24.92	26.31	24.04	-1.47
8	27 Oct 23	12:37	12:57	25.58	24.08	25.45	24.55	-0.90
9	27 Oct 23	12:58	13:18	24.78	24.53	24.66	24.41	-0.24
10	27 Oct 23	13:19	13:39	23.30	23.80	23.17	23.73	0.55
11	27 Oct 23	13:40	14:00	22.22	23.61	22.11	23.60	1.58
12	27 Oct 23	14:01	14:21	21.68	23.25	21.59	23.16	1.57
Average						25.13	24.57	-0.36
Confidence Coefficient (CC)								1.21
Relative Accuracy (Compared with RM) (%)								7.22
Relative Accuracy Criteria ** (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management

Wichan Choonchit
Manager
โทรศัพท์มือถือ : 02-04-6113

Approved by

Sakulph Jitramont
Assistant General Manager
โทรศัพท์มือถือ : 02-04-6102

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151135
Date Received : Sep 25, 2023
Date Reported : Oct 05, 2023
Report Number : 2532871-1

Page 2 of 3

Sample Number : 22151135-1
Sampled Date : Sep 25, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-1010
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	25 Sep 23	10:30	10:50	4.74	1.34	4.05	1.14	-2.91
2*	25 Sep 23	10:51	11:11	4.67	1.18	3.99	1.01	-2.58
3*	25 Sep 23	11:12	11:32	4.83	0.89	3.87	0.93	-3.62
4*	25 Sep 23	11:33	11:53	4.72	1.17	4.04	1.00	-3.04
5	25 Sep 23	11:54	12:14	4.68	1.26	4.01	1.08	-2.92
6	25 Sep 23	12:15	12:35	4.49	1.18	3.84	1.01	-2.83
7	25 Sep 23	12:36	12:56	4.49	1.13	3.82	0.96	-2.86
8	25 Sep 23	12:57	13:17	4.29	1.11	3.65	0.94	-2.70
9	25 Sep 23	13:18	13:38	4.48	1.16	3.82	0.99	-2.83
10	25 Sep 23	13:39	13:59	4.52	1.19	3.88	1.02	-2.86
11	25 Sep 23	14:00	14:20	4.31	1.18	3.69	1.01	-2.68
12	25 Sep 23	14:21	14:41	4.55	1.18	3.88	1.01	-2.87
Average						3.85	1.02	-2.83
Confidence Coefficient (CC)								0.06
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.12
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (RIE : 2519)

RA Result is within Criteria

Sampled By : Wisetkorn Teeraporn

Technical Management

Wichan Choonchit
Manager
โทรศัพท์มือถือ : 02-04-6113

Approved by

Sakulph Jitramont
Assistant General Manager
โทรศัพท์มือถือ : 02-04-6102

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151139
Date Received : Oct 27, 2023
Date Reported : Dec 01, 2023
Report Number : 2532871-1

Page 2 of 3

Sample Number : 22151139-1
Sampled Date : Oct 27, 2023
Sample Description : Emission from Stationary Source
Location : Plant I-4/1 (Furnace) : F-1010
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	27 Oct 23	10:10	10:30	0.00	0.22	0.00	0.22	0.22
2*	27 Oct 23	10:31	10:51	0.00	0.35	0.00	0.25	0.25
3*	27 Oct 23	10:52	11:12	0.00	0.35	0.00	0.35	0.35
4*	27 Oct 23	11:13	11:33	0.00	0.01	0.00	0.01	-0.01
5	27 Oct 23	11:34	11:54	0.00	0.03	0.00	0.03	0.03
6	27 Oct 23	11:55	12:15	0.00	0.11	0.00	0.11	0.11
7	27 Oct 23	12:16	12:36	0.00	0.19	0.00	0.19	0.19
8	27 Oct 23	12:37	12:57	0.00	0.14	0.00	0.13	0.13
9	27 Oct 23	12:58	13:18	0.00	0.10	0.00	0.10	0.10
10	27 Oct 23	13:19	13:39	0.02	0.06	0.02	0.06	0.04
11	27 Oct 23	13:40	14:00	0.19	0.01	0.18	0.01	-0.17
12*	27 Oct 23	14:01	14:21	0.25	0.00	0.25	0.00	-0.25
Average						0.02	0.09	0.07
Confidence Coefficient (CC)								0.09
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								0.85
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method GC

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (EIR-1-4)

RA Result is within Criteria

Technical Management

Wichan Choonchit
Manager
โทรศัพท์มือถือ : 02-04-6113

Approved by

Sakulph Jitramont
Assistant General Manager
โทรศัพท์มือถือ : 02-04-6102

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151139
Date Received : Oct 22, 2023
Date Reported : Oct 06, 2023
Report Number : 2522902-1

Sample Number	22151139-1
Sample Date	Oct 22, 2023
Sample Description	Emission from Stationary Source
Location	Plant I-4/2 (Furnace) : F-3101 (1)
Parameter	CO

Page 3 of 3

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	27 Oct 23	10:10	10:30	0.29	1.95	0.26	1.94	1.65
2*	27 Oct 23	10:31	10:51	0.27	1.93	0.26	1.93	1.66
3*	27 Oct 23	10:52	11:12	0.26	1.94	0.25	1.92	1.67
4*	27 Oct 23	11:13	11:33	0.22	1.88	0.22	1.88	1.65
5	27 Oct 23	11:34	11:54	0.30	1.92	0.30	1.92	1.62
6	27 Oct 23	11:55	12:15	0.34	1.91	0.33	1.91	1.57
7	27 Oct 23	12:16	12:36	0.32	1.92	0.32	1.92	1.50
8	27 Oct 23	12:37	12:57	0.25	1.90	0.24	1.89	1.65
9	27 Oct 23	12:58	13:18	0.20	1.91	0.20	1.90	1.61
10	27 Oct 23	13:19	13:39	0.21	1.87	0.21	1.85	1.55
11	27 Oct 23	13:40	14:00	0.21	1.84	0.20	1.83	1.53
12	27 Oct 23	14:01	14:21	0.34	1.86	0.34	1.85	1.51
Average								1.59
Confidence Coefficient (CC)								0.61
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.24
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussavon Namborn

Technical Management

Wichan Chommanat

Approved by

Siraporn Jittravit

Assistant General Manager

Assistant General Manager

โทรศัพท์มือถือ : 09-094-61113

โทรศัพท์มือถือ : 09-094-61102

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151145
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522902-1

Sample Number	22151145-1
Sample Date	Sep 15, 2023
Sample Description	Emission from Stationary Source
Location	Plant I-4/2 (Furnace) : F-3101 (1)
Parameter	SO2

Page 2 of 3

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 23	10:35	10:55	0.00	0.03	0.00	0.03	0.02
2	13 Sep 23	10:56	11:16	0.00	0.04	0.00	0.03	0.03
3	13 Sep 23	11:17	11:37	0.00	0.04	0.00	0.03	0.03
4*	13 Sep 23	11:38	11:58	0.00	0.05	0.00	0.04	0.04
5	13 Sep 23	11:59	12:19	0.00	0.03	0.00	0.03	0.03
6	13 Sep 23	12:20	12:40	0.00	0.04	0.00	0.03	0.03
7	13 Sep 23	12:41	13:01	0.00	0.03	0.00	0.02	0.02
8	13 Sep 23	13:02	13:22	0.00	0.04	0.00	0.03	0.00
9	13 Sep 23	13:23	13:43	0.00	0.04	0.00	0.03	0.03
10*	13 Sep 23	13:44	14:04	0.00	0.05	0.00	0.04	0.04
11	13 Sep 23	14:05	14:25	0.00	0.04	0.00	0.03	0.03
12*	13 Sep 23	14:26	14:46	0.00	0.04	0.00	0.04	0.03
Average								0.03
Confidence Coefficient (CC)								0.00
Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)								2.06
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Octin I-4)

RA Result is within Criteria

Technical Management

Wichan Chommanat

Approved by

Siraporn Jittravit

Assistant General Manager

Assistant General Manager

โทรศัพท์มือถือ : 09-094-61113

โทรศัพท์มือถือ : 09-094-61102

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151145
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522902-1

Sample Number	22151145-1
Sample Date	Sep 15, 2023
Sample Description	Emission from Stationary Source
Location	Plant I-4/2 (Furnace) : F-3101 (1)
Parameter	NOx

Page 1 of 3

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 23	10:35	10:55	32.52	31.07	28.22	26.97	-1.26
2*	13 Sep 23	10:56	11:16	33.85	31.48	29.46	27.39	-2.07
3*	13 Sep 23	11:17	11:37	33.45	31.13	29.07	27.05	-2.02
4*	13 Sep 23	11:38	11:58	33.29	31.35	29.07	27.30	-1.09
5	13 Sep 23	11:59	12:19	33.20	31.41	28.96	27.30	-1.56
6	13 Sep 23	12:20	12:40	31.36	30.04	26.97	25.87	-1.14
7	13 Sep 23	12:41	13:01	31.30	29.74	23.82	24.96	1.14
8	13 Sep 23	13:02	13:22	32.10	29.03	23.12	24.78	1.66
9	13 Sep 23	13:23	13:43	27.50	28.73	23.42	24.39	0.96
10	13 Sep 23	13:44	14:04	29.29	26.29	24.58	23.81	-0.68
11	13 Sep 23	14:05	14:25	30.05	28.25	25.44	23.92	-1.52
12	13 Sep 23	14:26	14:46	28.81	26.22	24.44	23.84	-0.59
Average								-0.32
Confidence Coefficient (CC)								0.96
Relative Accuracy (Compared with RM) (%)								5.09
Relative Accuracy Criteria ^{1/} (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management

Wichan Chommanat

Approved by

Siraporn Jittravit

Assistant General Manager

Assistant General Manager

โทรศัพท์มือถือ : 09-094-61113

โทรศัพท์มือถือ : 09-094-61102

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151145
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522902-1

Sample Number	22151145-1
Sample Date	Sep 15, 2023
Sample Description	Emission from Stationary Source
Location	Plant I-4/2 (Furnace) : F-3101 (1)
Parameter	CO

Page 1 of 3

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	13 Sep 23	10:35	10:55	0.42	1.26	0.36	1.09	0.73
2*	13 Sep 23	10:56	11:16	0.42	1.22	0.36	1.06	0.70
3	13 Sep 23	11:17	11:37	0.43	0.94	0.38	0.82	0.44
4	13 Sep 23	11:38	11:58	0.45	0.94	0.39	0.82	0.43
5*	13 Sep 23	11:59	12:19	0.48	1.24	0.42	1.08	0.66
6	13 Sep 23	12:20	12:40	0.47	0.75	0.40	0.71	-0.19
7	13 Sep 23	12:41	13:01	0.51	0.31	0.43	0.26	-0.17
8	13 Sep 23	13:02	13:22	0.51	0.47	0.43	0.40	-0.63
9	13 Sep 23	13:23	13:43	0.46	0.62	0.39	0.53	0.13
10	13 Sep 23	13:44	14:04	0.46	0.59	0.39	0.50	0.11
11	13 Sep 23	14:05	14:25	0.46	0.55	0.38	0.46	0.09
12	13 Sep 23	14:26	14:46	0.50	0.98	0.42	0.49	0.07
Average								0.10
Confidence Coefficient (CC)								0.17
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.04
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Wanchan Tongkum

Technical Management

Wichan Chommanat

Approved by

Siraporn Jittravit

Assistant General Manager

Assistant General Manager

โทรศัพท์มือถือ : 09-094-61113

โทรศัพท์มือถือ : 09-094-61102

Life Sciences
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151147
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522923-1

Sample Number : 22151147-1
Sampled Date : Sep 14, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3103 (2)
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	14 Sep 23	10:15	10:35	38.52	32.87	25.90	27.90	2.00
2	14 Sep 23	10:36	10:56	32.40	33.64	27.50	28.77	1.17
3	14 Sep 23	10:57	11:17	37.07	33.63	27.10	28.51	1.33
4	14 Sep 23	11:18	11:38	28.57	33.21	24.12	28.03	3.91
5*	14 Sep 23	11:39	11:59	26.69	33.12	22.47	27.89	5.42
6*	14 Sep 23	12:00	12:20	27.90	33.16	23.34	27.97	4.43
7	14 Sep 23	12:21	12:41	29.46	32.15	24.94	27.21	2.28
8	14 Sep 23	12:42	13:02	29.21	32.05	24.71	27.12	2.41
9	14 Sep 23	13:03	13:23	27.93	31.91	23.63	26.99	3.36
10*	14 Sep 23	13:24	13:44	26.49	32.09	22.37	27.10	4.73
11	14 Sep 23	13:45	14:05	28.75	32.16	24.24	27.11	2.87
12	14 Sep 23	14:06	14:26	28.38	31.76	23.85	26.69	2.84
Average						25.13	27.55	2.46
Confidence Coefficient (CC)								0.69
Relative Accuracy (Compared with RM) (%)								11.42
Relative Accuracy Criteria ** (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

** Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151147
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522923-1

Sample Number : 22151147-1
Sampled Date : Sep 14, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3103 (2)
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	14 Sep 23	10:15	10:35	0.00	0.10	0.00	0.08	0.08
2*	14 Sep 23	10:36	10:56	0.00	0.08	0.00	0.07	0.06
3	14 Sep 23	10:57	11:17	0.00	0.06	0.00	0.05	0.05
4	14 Sep 23	11:18	11:38	0.00	0.05	0.00	0.04	0.04
5	14 Sep 23	11:39	11:59	0.00	0.05	0.00	0.04	0.04
6	14 Sep 23	12:00	12:20	0.00	0.05	0.00	0.04	0.04
7	14 Sep 23	12:21	12:41	0.00	0.05	0.00	0.05	0.05
8	14 Sep 23	12:42	13:02	0.00	0.06	0.00	0.05	0.05
9	14 Sep 23	13:03	13:23	0.00	0.06	0.00	0.05	0.05
10	14 Sep 23	13:24	13:44	0.00	0.06	0.00	0.05	0.05
11	14 Sep 23	13:45	14:05	0.00	0.05	0.00	0.05	0.05
12*	14 Sep 23	14:06	14:26	0.00	0.06	0.00	0.05	0.05
Average							0.00	0.04
Confidence Coefficient (CC)								0.00
Relative Accuracy (Compared with Emission Standard) (%)								3.08
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

** Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with

Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Issue 1-1)

RA Result is within Criteria

Technical Management : Wichan Choochawat
Manager
โทรศัพท์ 09-204-46113

Approved by : Siraphak Jitranont
Assistant General Manager
โทรศัพท์ 09-204-4702

Technical Management : Wichan Choochawat
Manager
โทรศัพท์ 09-204-46113

Approved by : Siraphak Jitranont
Assistant General Manager
โทรศัพท์ 09-204-4702

Life Sciences www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151147
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2522923-1

Sample Number : 22151147-1
Sampled Date : Sep 14, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3102 (2)
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	14 Sep 23	10:15	10:35	0.52	1.14	0.44	0.92	0.53
2	14 Sep 23	10:36	10:56	0.55	0.74	0.46	0.63	0.16
3	14 Sep 23	10:57	11:17	0.51	0.81	0.43	0.69	0.26
4	14 Sep 23	11:18	11:38	0.58	0.89	0.49	0.75	0.26
5*	14 Sep 23	11:39	11:59	0.56	0.96	0.47	0.81	0.34
6	14 Sep 23	12:00	12:20	0.53	0.90	0.45	0.75	0.31
7	14 Sep 23	12:21	12:41	0.51	0.80	0.42	0.68	0.25
8	14 Sep 23	12:42	13:02	0.51	0.83	0.43	0.71	0.27
9	14 Sep 23	13:03	13:23	0.57	0.86	0.48	0.73	0.25
10	14 Sep 23	13:24	13:44	0.55	0.87	0.47	0.73	0.27
11	14 Sep 23	13:45	14:05	0.54	0.87	0.45	0.74	0.28
12*	14 Sep 23	14:06	14:26	0.51	0.94	0.43	0.79	0.36
Average						0.45	0.71	0.26
Confidence Coefficient (CC)								0.03
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.04
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

** Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with

Emission Standard from Notification of the Ministry of Industry 2650 (R.E. 2549)

RA Result is within Criteria

Sampled By : Siraphak Jitranont

Technical Management : Wichan Choochawat
Manager
โทรศัพท์ 09-204-46113

Approved by : Siraphak Jitranont
Assistant General Manager
โทรศัพท์ 09-204-4702

Technical Management : Wichan Choochawat
Manager
โทรศัพท์ 09-204-46113

Approved by : Siraphak Jitranont
Assistant General Manager
โทรศัพท์ 09-204-4702

Life Sciences www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151149
Date Received : Sep 15, 2023
Date Reported : Oct 03, 2023
Report Number : 2522923-1

Sample Number : 22151149-1
Sampled Date : Sep 12, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3103 (3)
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	12 Sep 23	11:45	12:05	32.20	37.18	27.22	31.43	4.21
2*	12 Sep 23	12:06	12:26	31.15	37.21	26.31	31.42	5.11
3	12 Sep 23	12:27	12:47	32.02	37.37	27.03	31.61	3.68
4	12 Sep 23	12:48	13:08	34.52	37.26	29.22	31.54	2.32
5	12 Sep 23	13:09	13:29	35.90	36.16	29.58	32.35	2.77
6	12 Sep 23	13:30	13:50	34.03	37.47	28.77	31.68	2.90
7	12 Sep 23	13:51	14:11	32.32	37.22	28.11	31.41	3.29
8*	12 Sep 23	14:12	14:32	32.45	35.98	27.45	31.27	3.83
9	12 Sep 23	14:33	14:53	33.65	36.81	28.39	31.28	2.89
10	12 Sep 23	14:54	15:14	33.01	35.06	27.97	30.56	2.59
11	12 Sep 23	15:15	15:35	32.52	35.00	27.48	30.13	2.65
12	12 Sep 23	15:36	15:56	33.86	35.61	28.57	30.04	1.48
Average						28.47	31.18	2.71
Confidence Coefficient (CC)								0.42
Relative Accuracy (Compared with RM) (%)								13.19
Relative Accuracy Criteria ** (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

** Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
8, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : PATA Plant 1-4

Lot ID: 22151151
Date Received : Sep 22, 2023
Date Reported : Oct 05, 2023
Report Number : 2227252-1

Sample Number : 22151151-1
Sampled Date : Sep 22, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3104 (1)
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	22 Sep 23	10:05	10:25	0.00	0.38	0.00	0.31	0.31
2	22 Sep 23	10:26	10:46	0.00	0.20	0.00	0.17	0.17
3	22 Sep 23	10:47	11:07	0.00	0.05	0.00	0.04	0.04
4	22 Sep 23	11:08	11:28	0.00	0.08	0.00	0.06	0.06
5	22 Sep 23	11:29	11:49	0.00	0.12	0.00	0.10	0.10
6	22 Sep 23	11:50	12:10	0.00	0.18	0.00	0.15	0.15
7	22 Sep 23	12:11	12:31	0.00	0.22	0.00	0.18	0.18
8	22 Sep 23	12:32	12:52	0.00	0.22	0.00	0.18	0.18
9*	22 Sep 23	12:53	13:13	0.00	0.29	0.00	0.24	0.24
10*	22 Sep 23	13:14	13:34	0.00	0.27	0.00	0.22	0.22
11*	22 Sep 23	13:35	13:55	0.00	0.33	0.00	0.27	0.27
12	22 Sep 23	13:56	14:16	0.00	0.23	0.00	0.19	0.19
Average					0.00	0.00	0.14	0.14
Confidence Coefficient (CC)								0.05
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.02
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 0%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)
RA Result is within Criteria

Sampled By : Worachai Tongsupom

Technical Management :
Worachai Tongsupom
Manager
โทรศัพท์ : 0-204-61113

Approved by :
Saranyut Jittanont
Assistant General Manager
โทรศัพท์ : 0-204-61102

Life Sciences :
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
8, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : PATA Plant 1-4

Lot ID: 22151153
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2227252-1

Sample Number : 22151153-1
Sampled Date : Sep 12, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3105 (2)
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	12 Sep 23	11:45	12:05	34.02	36.42	28.17	32.17	3.00
2	12 Sep 23	12:06	12:26	33.12	36.98	29.25	33.30	3.86
3	12 Sep 23	12:27	12:47	32.01	36.29	28.24	32.01	3.77
4	12 Sep 23	12:48	13:08	32.84	36.37	28.94	32.25	3.11
5	12 Sep 23	13:09	13:29	33.79	36.06	29.86	33.63	3.77
6	12 Sep 23	13:30	13:50	32.73	38.15	28.87	33.65	4.78
7	12 Sep 23	13:51	14:11	33.12	37.35	29.17	33.42	4.25
8	12 Sep 23	14:12	14:32	32.85	39.17	29.05	33.76	4.71
9*	12 Sep 23	14:33	14:53	31.91	38.01	28.26	33.78	5.43
10*	12 Sep 23	14:54	15:14	30.99	37.12	27.51	33.05	5.44
11	12 Sep 23	15:15	15:35	31.14	35.73	27.57	32.53	4.96
12*	12 Sep 23	15:36	15:56	30.92	37.16	27.31	32.83	5.51
Average						28.90	32.83	3.93
Confidence Coefficient (CC)								0.60
Relative Accuracy (Compared with RM) (%)								13.80
Relative Accuracy Criteria ** (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)
RA Result is within Criteria

Technical Management :
Worachai Tongsupom
Manager
โทรศัพท์ : 0-204-61113

Approved by :
Saranyut Jittanont
Assistant General Manager
โทรศัพท์ : 0-204-61102

Life Sciences :
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
8, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : PATA Plant 1-4

Lot ID: 22151153
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2227252-1

Sample Number : 22151153-1
Sampled Date : Sep 12, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3105 (2)
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	12 Sep 23	11:45	12:05	0.00	0.05	0.00	0.05	0.05
2	12 Sep 23	12:06	12:26	0.00	0.05	0.00	0.04	0.04
3	12 Sep 23	12:27	12:47	0.00	0.04	0.00	0.04	0.04
4	12 Sep 23	12:48	13:08	0.00	0.03	0.00	0.02	0.02
5	12 Sep 23	13:09	13:29	0.00	0.06	0.00	0.05	0.05
6	12 Sep 23	13:30	13:50	0.00	0.05	0.00	0.04	0.04
7	12 Sep 23	13:51	14:11	0.00	0.03	0.00	0.03	0.03
8*	12 Sep 23	14:12	14:32	0.00	0.09	0.00	0.08	0.08
9*	12 Sep 23	14:33	14:53	0.00	0.13	0.00	0.12	0.12
10*	12 Sep 23	14:54	15:14	0.00	0.09	0.00	0.08	0.08
11	12 Sep 23	15:15	15:35	0.00	0.08	0.00	0.07	0.07
12	12 Sep 23	15:36	15:56	0.00	0.05	0.00	0.05	0.05
Average						0.00	0.04	0.04
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)								3.56
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method GC

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Dilek 1-4)
RA Result is within Criteria

Technical Management :
Worachai Tongsupom
Manager
โทรศัพท์ : 0-204-61113

Approved by :
Saranyut Jittanont
Assistant General Manager
โทรศัพท์ : 0-204-61102

Life Sciences :
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
8, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : PATA Plant 1-4

Lot ID: 22151153
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2227252-1

Sample Number : 22151153-1
Sampled Date : Sep 12, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3105 (2)
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	12 Sep 23	11:45	12:05	0.00	0.53	0.00	0.45	0.46
2	12 Sep 23	12:06	12:26	0.00	0.62	0.00	0.55	0.55
3	12 Sep 23	12:27	12:47	0.00	0.72	0.00	0.64	0.64
4	12 Sep 23	12:48	13:08	0.00	0.77	0.00	0.68	0.68
5	12 Sep 23	13:09	13:29	0.00	0.81	0.00	0.72	0.72
6	12 Sep 23	13:30	13:50	0.00	0.86	0.00	0.76	0.76
7*	12 Sep 23	13:51	14:11	0.00	0.90	0.00	0.79	0.79
8	12 Sep 23	14:12	14:32	0.00	0.86	0.00	0.76	0.76
9	12 Sep 23	14:33	14:53	0.00	0.85	0.00	0.75	0.75
10*	12 Sep 23	14:54	15:14	0.00	0.86	0.00	0.77	0.77
11*	12 Sep 23	15:15	15:35	0.00	0.87	0.00	0.77	0.77
12	12 Sep 23	15:36	15:56	0.00	0.86	0.00	0.76	0.76
Average						0.00	0.67	0.67
Confidence Coefficient (CC)								0.68
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.11
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

* Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)
RA Result is within Criteria

Sampled By : Worachai Tongsupom

Technical Management :
Worachai Tongsupom
Manager
โทรศัพท์ : 0-204-61113

Approved by :
Saranyut Jittanont
Assistant General Manager
โทรศัพท์ : 0-204-61102

Life Sciences :
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151155
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2322950-1

Sample Number : 22151155-1
Sampled Date : Sep 15, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3106 (3)
Parameter : NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	15 Sep 23	10:35	10:55	32.50	30.37	27.39	25.59	-1.79
2*	15 Sep 23	10:56	11:10	33.56	30.55	29.12	25.61	-2.51
3*	15 Sep 23	11:17	11:37	33.56	30.69	28.15	25.74	-2.41
4	15 Sep 23	11:38	11:59	32.46	30.99	27.16	25.87	-1.28
5*	15 Sep 23	11:59	12:19	33.58	31.13	28.15	26.09	-2.06
6	15 Sep 23	12:20	12:40	33.21	31.26	27.85	26.20	-1.64
7	15 Sep 23	12:41	13:01	32.42	31.36	27.17	26.28	-0.89
8	15 Sep 23	13:02	13:22	33.54	31.49	28.15	26.39	-1.75
9	15 Sep 23	13:23	13:43	33.30	31.50	27.77	26.27	-1.51
10	15 Sep 23	13:44	14:04	31.97	31.68	26.71	26.47	-0.24
11	15 Sep 23	14:05	14:25	33.23	31.68	27.70	26.41	-1.29
12	15 Sep 23	14:26	14:46	34.25	32.57	28.44	27.01	-1.40
Average						27.59	26.28	-1.31
Confidence Coefficient (CC)								0.38
Relative Accuracy (Compared with RM) (%)								5.41
Relative Accuracy Criteria ^{1/} (Compared with RM)								± 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151155
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2322950-1

Sample Number : 22151155-1
Sampled Date : Sep 15, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3106 (3)
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Sep 23	10:35	10:55	0.00	0.10	0.00	0.09	0.09
2	15 Sep 23	10:56	11:10	0.00	0.08	0.00	0.07	0.07
3	15 Sep 23	11:17	11:37	0.00	0.08	0.00	0.06	0.06
4	15 Sep 23	11:38	11:58	0.00	0.08	0.00	0.06	0.06
5	15 Sep 23	11:59	12:19	0.00	0.08	0.00	0.07	0.07
6	15 Sep 23	12:20	12:40	0.00	0.08	0.00	0.07	0.07
7*	15 Sep 23	12:41	13:01	0.00	0.09	0.00	0.08	0.08
8	15 Sep 23	13:02	13:22	0.00	0.08	0.00	0.07	0.07
9	15 Sep 23	13:23	13:43	0.00	0.08	0.00	0.07	0.07
10	15 Sep 23	13:44	14:04	0.00	0.08	0.00	0.07	0.07
11	15 Sep 23	14:05	14:25	0.00	0.09	0.00	0.07	0.07
12*	15 Sep 23	14:26	14:46	0.00	0.09	0.00	0.07	0.07
Average								0.00
Confidence Coefficient (CC)								4.63
Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)								5.10
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								± 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with

Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Oct 1-4)

RA Result is within Criteria

Technical Management : Wichan Chomcharat
Manager
โทรศัพท์ : 0-204-6-6113

Approved by : Saranyut Sirirattakul
Assistant General Manager
โทรศัพท์ : 0-204-6-4702

Technical Management : Wichan Chomcharat
Manager
โทรศัพท์ : 0-204-6-6113

Approved by : Saranyut Sirirattakul
Assistant General Manager
โทรศัพท์ : 0-204-6-4702



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : S115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151155
Date Received : Sep 15, 2023
Date Reported : Oct 05, 2023
Report Number : 2322950-1

Sample Number : 22151155-1
Sampled Date : Sep 15, 2023
Sample Description : Emission from Stationary Source
Location : Plant 1-4/2 (Furnace) : F-3106 (3)
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Sep 23	10:35	10:55	0.00	0.04	0.00	0.79	0.79
2*	15 Sep 23	10:56	11:10	0.00	0.04	0.00	0.70	0.70
3	15 Sep 23	11:17	11:37	0.00	0.00	0.00	0.57	0.57
4	15 Sep 23	11:38	11:58	0.00	0.76	0.00	0.64	0.64
5	15 Sep 23	11:59	12:19	0.00	0.75	0.00	0.63	0.63
6*	15 Sep 23	12:20	12:40	0.00	0.01	0.00	0.68	0.68
7	15 Sep 23	12:41	13:01	0.00	0.79	0.00	0.66	0.66
8	15 Sep 23	13:02	13:22	0.00	0.80	0.00	0.67	0.67
9	15 Sep 23	13:23	13:43	0.00	0.77	0.00	0.65	0.65
10	15 Sep 23	13:44	14:04	0.00	0.77	0.00	0.65	0.65
11	15 Sep 23	14:05	14:25	0.00	0.76	0.00	0.63	0.63
12	15 Sep 23	14:26	14:46	0.00	0.76	0.00	0.63	0.63
Average						0.00	0.64	0.64
Confidence Coefficient (CC)								0.02
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.10
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								± 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with

Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled by : Witwadee Tengroon

Technical Management : Wichan Chomcharat
Manager
โทรศัพท์ : 0-204-6-6113

Approved by : Saranyut Sirirattakul
Assistant General Manager
โทรศัพท์ : 0-204-6-4702

Technical Management : Wichan Chomcharat
Manager
โทรศัพท์ : 0-204-6-6113

Approved by : Saranyut Sirirattakul
Assistant General Manager
โทรศัพท์ : 0-204-6-4702



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151157
Date Received : Oct 27, 2023
Date Reported : Dec 04, 2023
Report Number : 2522959-1

Page 2 of 4
Sample Number : 22151157-1
Sampled Date : Oct 26, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (I-4) : F-4301
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	26 Oct 23	10:15	10:35	0.00	0.34	0.00	0.28	0.28
2	26 Oct 23	10:38	10:56	0.00	0.25	0.00	0.21	0.21
3	26 Oct 23	10:57	11:17	0.00	0.25	0.00	0.21	0.21
4*	26 Oct 23	11:18	11:39	0.00	0.26	0.00	0.22	0.22
5	26 Oct 23	11:39	11:59	0.00	0.14	0.00	0.12	0.12
6	26 Oct 23	12:00	12:20	0.00	0.17	0.00	0.14	0.14
7*	26 Oct 23	12:21	12:41	0.00	0.28	0.00	0.24	0.24
8	26 Oct 23	12:42	13:02	0.00	0.13	0.00	0.11	0.11
9	26 Oct 23	13:03	13:23	0.00	0.17	0.00	0.14	0.14
10	26 Oct 23	13:24	13:44	0.00	0.25	0.00	0.21	0.21
11	26 Oct 23	13:45	14:05	0.00	0.24	0.00	0.20	0.20
12	26 Oct 23	14:06	14:26	0.00	0.26	0.00	0.21	0.21
Average								0.17
Confidence Coefficient (CC)								0.03
Relative Accuracy (Compared with Emission Standard : 1.0 ppm) (%)								1.08
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151157
Date Received : Oct 27, 2023
Date Reported : Dec 04, 2023
Report Number : 2522959-1

Page 2 of 4
Sample Number : 22151157-1
Sampled Date : Oct 26, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (I-4) : F-4301
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O ₂		Corrected Value at 7% O ₂		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	26 Oct 23	10:15	10:35	26.90	2.44	17.46	2.02	-15.43
2	26 Oct 23	10:38	10:56	21.14	2.45	17.73	2.04	-15.70
3	26 Oct 23	10:57	11:17	20.63	2.30	17.69	1.93	-15.76
4*	26 Oct 23	11:18	11:39	21.12	2.24	17.64	1.96	-13.88
5*	26 Oct 23	11:39	11:59	21.16	2.15	17.65	2.05	-15.80
6	26 Oct 23	12:00	12:20	21.09	2.18	17.78	2.15	-15.61
7	26 Oct 23	12:21	12:41	20.97	2.55	17.63	2.13	-15.51
8	26 Oct 23	12:42	13:02	20.97	2.62	17.57	2.10	-15.39
9	26 Oct 23	13:03	13:23	21.03	2.72	17.50	2.25	-15.27
10	26 Oct 23	13:24	13:44	21.21	2.76	17.63	2.28	-15.35
11	26 Oct 23	13:45	14:05	21.06	2.82	17.93	2.32	-15.61
12*	26 Oct 23	14:06	14:26	21.67	2.73	18.02	2.25	-15.77
Average								17.66
Confidence Coefficient (CC)								2.14
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.13
Relative Accuracy Criteria ^{1/} (Compared with Emission Standard)								≤ 2.27

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management : Wichan Choncharat
Wichan Choncharat
Manager
wchoncharat@204-A-5113

Approved by : Sirinuth Jitthiratt
Sirinuth Jitthiratt
Assistant General Manager
sritjittiratt@204-A-4702

Technical Management : Wichan Choncharat
Wichan Choncharat
Manager
wchoncharat@204-A-5113

Approved by : Sirinuth Jitthiratt
Sirinuth Jitthiratt
Assistant General Manager
sritjittiratt@204-A-4702

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant I-4

Lot ID: 22151157
Date Received : Oct 27, 2023
Date Reported : Dec 04, 2023
Report Number : 2522959-1

Page 2 of 4
Sample Number : 22151157-1
Sampled Date : Oct 26, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (I-4) : F-4301
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	26 Oct 23	10:15	10:35	4.24	4.12	-0.11
2*	26 Oct 23	10:36	10:56	4.33	4.17	-0.16
3	26 Oct 23	10:57	11:17	4.45	4.33	-0.12
4*	26 Oct 23	11:18	11:38	4.44	4.29	-0.15
5	26 Oct 23	11:39	11:59	4.42	4.20	-0.13
6*	26 Oct 23	12:00	12:20	4.44	4.30	-0.14
7	26 Oct 23	12:21	12:41	4.37	4.24	-0.13
8	26 Oct 23	12:42	13:02	4.31	4.18	-0.13
9	26 Oct 23	13:03	13:23	4.22	4.11	-0.11
10	26 Oct 23	13:24	13:44	4.18	4.05	-0.13
11	26 Oct 23	13:45	14:05	4.10	4.01	-0.09
12	26 Oct 23	14:06	14:26	4.10	4.08	-0.11
Average						-0.12
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.12
Relative Accuracy Criteria ^{1/} (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

^{1/} Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Unasree Namburee

Technical Management : Wichan Choncharat
Wichan Choncharat
Manager
wchoncharat@204-A-5113

Approved by : Sirinuth Jitthiratt
Sirinuth Jitthiratt
Assistant General Manager
sritjittiratt@204-A-4702

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151945
Date Received : Oct 23, 2023
Date Reported : Oct 04, 2023
Print Number : 2524934-1

Page 2 of 4

Sample Number : 22151945-1
Sampled Date : Oct 25, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (1-4) : F-4302
Parameter : SO₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	25 Oct 23	10:50	11:10	0.00	0.14	0.00	0.17	0.17
2	25 Oct 23	11:11	11:31	0.00	0.22	0.00	0.27	0.27
3	25 Oct 23	11:32	11:52	0.00	0.20	0.00	0.24	0.24
4*	25 Oct 23	11:53	12:13	0.00	0.35	0.00	0.41	0.41
5	25 Oct 23	12:14	12:34	0.00	0.11	0.00	0.12	0.12
6	25 Oct 23	12:35	12:55	0.00	0.16	0.00	0.16	0.16
7	25 Oct 23	12:56	13:16	0.00	0.14	0.00	0.13	0.13
8	25 Oct 23	13:17	13:37	0.00	0.14	0.00	0.14	0.14
9	25 Oct 23	13:38	13:58	0.00	0.19	0.00	0.17	0.17
10*	25 Oct 23	13:59	14:19	0.00	0.34	0.00	0.32	0.32
11*	25 Oct 23	14:20	14:40	0.00	0.41	0.00	0.38	0.38
12	25 Oct 23	14:41	15:01	0.00	0.29	0.00	0.29	0.29
Average						0.00	0.19	0.19
Confidence Coefficient (CC)								0.05
Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)								1.24
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of SO₂ is refer to 40 CFR Part 60 Appendix D : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Client 1-4)

RA Result is within Criteria

Technical Management : Wichan Chaisriat
Manager
m150500011-204-n-6113

Approved by : Saranyit Jitmont
Assistant General Manager
m150500011-204-n-4702

104 Ekkachai Road, Phra Pradaeng District, Rayong Province, Rayong 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151945
Date Received : Oct 23, 2023
Date Reported : Oct 04, 2023
Print Number : 2524934-1

Page 4 of 4

Sample Number : 22151945-1
Sampled Date : Oct 25, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (1-4) : F-4302
Parameter : O₂

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1*	25 Oct 23	10:50	11:10	9.83	9.46	-0.43
2*	25 Oct 23	11:11	11:31	9.92	9.38	-0.54
3*	25 Oct 23	11:32	11:52	9.80	9.37	-0.43
4	25 Oct 23	11:53	12:13	9.37	9.00	-0.37
5	25 Oct 23	12:14	12:34	7.81	7.54	-0.26
6	25 Oct 23	12:35	12:55	7.29	7.03	-0.26
7	25 Oct 23	12:56	13:16	6.78	6.51	-0.28
8	25 Oct 23	13:17	13:37	6.68	6.41	-0.27
9	25 Oct 23	13:38	13:58	6.27	6.04	-0.23
10	25 Oct 23	13:59	14:19	6.15	5.50	-0.66
11	25 Oct 23	14:20	14:40	6.52	6.17	-0.34
12	25 Oct 23	14:41	15:01	6.87	6.58	-0.29
Average				7.08	6.50	-0.59
Confidence Coefficient (CC)						0.29
Relative Accuracy (Compared in Actual) (%)						5.1%
Relative Accuracy Criteria ** (%)						≤ 10%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of O₂ is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled by : Unware Nambure

Technical Management : Wichan Chaisriat
Manager
m150500011-204-n-6113

Approved by : Saranyit Jitmont
Assistant General Manager
m150500011-204-n-4702

104 Ekkachai Road, Phra Pradaeng District, Rayong Province, Rayong 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22151945
Date Received : Oct 27, 2023
Date Reported : Oct 04, 2023
Print Number : 2524934-1

Page 3 of 4

Sample Number : 22151945-1
Sampled Date : Oct 25, 2023
Sample Description : Emission from Stationary Source
Location : BV Plant (1-4) : F-4302
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	25 Oct 23	10:50	11:10	14.00	1.99	17.65	2.40	-15.25
2	25 Oct 23	11:11	11:31	13.76	2.07	17.26	2.50	-14.76
3	25 Oct 23	11:32	11:52	13.61	2.18	17.05	2.62	-14.40
4	25 Oct 23	11:53	12:13	14.60	2.97	17.87	3.47	-14.40
5	25 Oct 23	12:14	12:34	20.85	8.21	22.13	8.55	-13.58
6	25 Oct 23	12:35	12:55	16.37	2.82	16.62	2.93	-13.79
7	25 Oct 23	12:56	13:16	16.34	1.75	15.99	1.70	-14.29
8	25 Oct 23	13:17	13:37	16.55	1.40	16.18	1.34	-14.84
9	25 Oct 23	13:38	13:58	17.15	1.31	16.29	1.22	-15.07
10	25 Oct 23	13:59	14:19	17.44	1.31	16.44	1.22	-15.22
11*	25 Oct 23	14:20	14:40	17.32	1.30	15.74	1.23	-15.51
12*	25 Oct 23	14:41	15:01	16.71	1.92	16.56	1.28	-15.27
Average						17.31	2.83	-14.49
Confidence Coefficient (CC)								0.42
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								2.15
Relative Accuracy Criteria ** (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix D : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 7006 (B.E. 2549)

RA Result is within Criteria

Technical Management : Wichan Chaisriat
Manager
m150500011-204-n-6113

Approved by : Saranyit Jitmont
Assistant General Manager
m150500011-204-n-4702

104 Ekkachai Road, Phra Pradaeng District, Rayong Province, Rayong 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
5, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 22122560
Date Received : Nov 09, 2023
Date Reported : Oct 04, 2023
Print Number : 2612692-1

Page 1 of 4

Sample Number : 22122560-1
Sampled Date : Nov 09, 2023
Sample Description : Emission from Stationary Source
Location : Boiler (2-4) : B-AT-2411 to 2414
Parameter : HCl

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	09 Nov 23	10:20	10:40	47.98	43.84	44.20	39.14	-5.06
2*	09 Nov 23	10:41	11:01	48.25	44.35	44.71	39.68	-5.03
3*	09 Nov 23	11:02	11:22	47.00	43.81	42.87	38.97	-3.90
4	09 Nov 23	11:23	11:43	45.41	44.09	41.10	39.41	-1.70
5	09 Nov 23	11:44	12:04	45.49	43.06	40.77	38.17	-2.60
6	09 Nov 23	12:05	12:25	45.50	41.83	40.71	37.86	-2.85
7	09 Nov 23	12:26	12:46	45.92	43.42	41.19	38.70	-2.49
8	09 Nov 23	12:47	13:07	40.18	43.50	41.42	39.13	-2.31
9	09 Nov 23	13:08	13:28	42.29	40.46	36.79	34.83	-1.96
10	09 Nov 23	13:29	13:49	44.74	42.47	39.67	37.13	-2.54
11	09 Nov 23	13:50	14:10	43.86	42.18	37.83	36.11	-1.73
12	09 Nov 23	14:11	14:31	43.93	42.23	37.99	36.16	-1.87
Average						39.72	37.50	-2.22
Confidence Coefficient (CC)								0.33
Relative Accuracy (Compared with RM) (%)								6.80
Relative Accuracy Criteria ** (%)								≤ 20%

Reference Method : US EPA Method 7E

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of HCl is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management : Wichan Chaisriat
Manager
m150500011-204-n-6113

Approved by : Saranyit Jitmont
Assistant General Manager
m150500011-204-n-4702

104 Ekkachai Road, Phra Pradaeng District, Rayong Province, Rayong 21150 Thailand
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 23122560
Date Received : Nov 09, 2023
Date Reported : Dec 04, 2023
Report Number : 23122560-1

Sample Number : 23122560-1
Sampled Date : Nov 09, 2023
Sample Description : Emission from Stationary Source
Location : Boiler (1-4) : B-AT-2411 to 2414
Parameter : SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RH (ppm)	CEMs (ppm)	RH (ppm)	
1	09 Nov 23	10:20	10:40	0.01	0.25	0.01	0.22	0.21
2*	09 Nov 23	10:41	11:01	0.01	0.29	0.01	0.26	0.25
3	09 Nov 23	11:02	11:22	0.01	0.24	0.01	0.21	0.21
4	09 Nov 23	11:23	11:43	0.01	0.22	0.01	0.20	0.19
5	09 Nov 23	11:44	12:04	0.01	0.23	0.01	0.21	0.20
6	09 Nov 23	12:05	12:25	0.01	0.25	0.01	0.22	0.22
7*	09 Nov 23	12:26	12:46	0.01	0.26	0.01	0.23	0.22
8*	09 Nov 23	12:47	13:07	0.01	0.29	0.01	0.26	0.25
9	09 Nov 23	13:08	13:28	0.01	0.25	0.01	0.21	0.21
10	09 Nov 23	13:29	13:49	0.01	0.22	0.00	0.20	0.19
11	09 Nov 23	13:50	14:10	0.01	0.24	0.00	0.20	0.20
12	09 Nov 23	14:11	14:31	0.01	0.24	0.00	0.21	0.20
Average						0.01	0.21	0.20
Confidence Coefficient (CC)								0.01
Relative Accuracy (Compared with Emission Standard : 5.5 ppm) (%)								3.62
Relative Accuracy Criteria ** (Compared with Emission Standard)								± 10%

Reference Method : US EPA Method 1C

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin 1-4)
RA Result is within Criteria

Technical Management

Wichan Chaisriat
Manager
wchaisriat@pttglobalchemical.com

Approved by

Supachai Jitwong
Assistant General Manager
sujitwong@pttglobalchemical.com

100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company
100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 23122560
Date Received : Nov 09, 2023
Date Reported : Dec 04, 2023
Report Number : 23122560-1

Sample Number : 23122560-1
Sampled Date : Nov 09, 2023
Sample Description : Emission from Stationary Source
Location : Boiler (1-4) : B-AT-2411 to 2414
Parameter : O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RH (%)	
1*	09 Nov 23	10:20	10:40	5.81	5.73	-0.49
2*	09 Nov 23	10:41	11:01	5.90	5.35	-0.54
3*	09 Nov 23	11:02	11:22	5.65	5.26	-0.40
4	09 Nov 23	11:23	11:43	5.55	5.35	-0.20
5	09 Nov 23	11:44	12:04	5.39	5.22	-0.17
6	09 Nov 23	12:05	12:25	5.23	5.18	-0.15
7	09 Nov 23	12:26	12:46	5.40	5.30	-0.10
8	09 Nov 23	12:47	13:07	5.41	5.30	-0.10
9	09 Nov 23	13:08	13:28	4.82	4.75	-0.17
10	09 Nov 23	13:29	13:49	5.22	5.00	-0.22
11	09 Nov 23	13:50	14:10	4.79	4.66	-0.12
12	09 Nov 23	14:11	14:31	4.82	4.67	-0.16
Average				5.20	5.05	-0.16
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.19
Relative Accuracy Criteria ** (%)						± 1%

Reference Method : US EPA Method 3A

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)
RA Result is within Criteria

Sampled By : Assistant Manager

Technical Management

Wichan Chaisriat
Manager
wchaisriat@pttglobalchemical.com

Approved by

Supachai Jitwong
Assistant General Manager
sujitwong@pttglobalchemical.com

100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company
100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 5115-10-21-070
Project Name :
Project Location : RATA Plant 1-4

Lot ID: 23122560
Date Received : Nov 09, 2023
Date Reported : Dec 04, 2023
Report Number : 23122560-1

Sample Number : 23122560-1
Sampled Date : Nov 09, 2023
Sample Description : Emission from Stationary Source
Location : Boiler (1-4) : B-AT-2411 to 2414
Parameter : CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RH (ppm)	CEMs (ppm)	RH (ppm)	
1	09 Nov 23	10:20	10:40	59.49	54.03	59.80	45.29	-4.51
2	09 Nov 23	10:41	11:01	55.88	51.17	51.50	45.74	-8.86
3*	09 Nov 23	11:02	11:22	66.65	55.01	60.80	46.90	-14.50
4*	09 Nov 23	11:23	11:43	72.90	67.10	65.99	51.03	-14.56
5	09 Nov 23	11:44	12:04	76.94	68.74	70.74	60.93	-9.81
6	09 Nov 23	12:05	12:25	80.27	72.97	71.66	64.50	-7.15
7	09 Nov 23	12:26	12:46	77.38	66.45	69.41	59.22	-10.19
8*	09 Nov 23	12:47	13:07	79.31	67.19	71.16	59.85	-11.31
9	09 Nov 23	13:08	13:28	106.23	102.35	92.40	88.11	-4.30
10	09 Nov 23	13:29	13:49	85.79	80.07	76.07	70.00	-6.07
11	09 Nov 23	13:50	14:10	110.17	102.52	95.03	87.75	-7.28
12	09 Nov 23	14:11	14:31	108.23	106.17	93.58	90.92	-2.66
Average						75.03	68.38	-6.65
Confidence Coefficient (CC)								1.63
Relative Accuracy (Compared with Emission Standard : 650 ppm) (%)								1.23
Relative Accuracy Criteria ** (Compared with Emission Standard)								± 5%

Reference Method : US EPA Method 1D

Remark : * Sample with * is a rejected data

** Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2004 (B.E. 2549)
RA Result is within Criteria

Technical Management

Wichan Chaisriat
Manager
wchaisriat@pttglobalchemical.com

Approved by

Supachai Jitwong
Assistant General Manager
sujitwong@pttglobalchemical.com

100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company
100 PTT Global Chemical Public Company Limited, 9, Map Ta Phut Industrial Estate 1-4 Road, Tambon Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
ALS Laboratory (Thailand) Co., Ltd. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ภาคผนวก ข

Raw Data



Date 24 Oct 23
Location Plant 1-4/1 (Finger) - P-110

Pulse No. 1		Time Base: 21 mm					Pulse No. 2		Time Base: 21 mm				
Date	Time	SW	MO	LO	GA	5/2	Date	Time	SW	MO	LO	GA	5/2
36/01/21	13:04	1.20	24.98	0.18	4.67	-	36/01/21	13:06	1.20	24.98	0.18	4.67	-
36/01/21	13:04	1.23	24.98	0.18	4.67	-	36/01/21	13:07	1.23	24.98	0.18	4.67	-
36/01/21	13:06	1.23	24.98	0.18	4.67	-	36/01/21	13:10	1.26	24.97	0.19	4.71	3.92
36/01/21	13:07	1.23	24.98	0.18	4.67	-	36/01/21	13:11	1.26	24.97	0.19	4.71	3.92
36/01/21	13:08	1.26	25.00	0.26	4.69	-	36/01/21	13:12	1.26	24.98	0.19	4.71	3.92
36/01/21	13:09	1.26	24.98	0.18	4.73	-	36/01/21	13:16	1.30	24.98	0.19	4.73	4.01
36/01/21	13:10	1.26	24.98	0.18	4.73	-	36/01/21	13:17	1.30	24.97	0.20	4.73	4.01
36/01/21	13:11	1.26	24.98	0.18	4.73	-	36/01/21	13:18	1.30	24.98	0.19	4.73	4.01
36/01/21	13:12	1.26	24.98	0.18	4.73	-	36/01/21	13:19	1.30	24.98	0.19	4.73	4.01
36/01/21	13:13	1.26	24.98	0.18	4.73	-	36/01/21	13:20	1.30	24.98	0.19	4.73	4.01
36/01/21	13:14	1.26	24.98	0.18	4.73	-	36/01/21	13:21	1.30	24.98	0.19	4.73	4.01
36/01/21	13:15	1.26	24.98	0.18	4.73	-	36/01/21	13:22	1.30	24.98	0.19	4.73	4.01
36/01/21	13:16	1.26	24.98	0.18	4.73	-	36/01/21	13:23	1.30	24.98	0.19	4.73	4.01
36/01/21	13:17	1.26	24.98	0.18	4.73	-	36/01/21	13:24	1.30	24.98	0.19	4.73	4.01
36/01/21	13:18	1.26	24.98	0.18	4.73	-	36/01/21	13:25	1.30	24.98	0.19	4.73	4.01
36/01/21	13:19	1.26	24.98	0.18	4.73	-	36/01/21	13:26	1.30	24.98	0.19	4.73	4.01
36/01/21	13:20	1.26	24.98	0.18	4.73	-	36/01/21	13:27	1.30	24.98	0.19	4.73	4.01
36/01/21	13:21	1.26	24.98	0.18	4.73	-	36/01/21	13:28	1.30	24.98	0.19	4.73	4.01
36/01/21	13:22	1.26	24.98	0.18	4.73	-	36/01/21	13:29	1.30	24.98	0.19	4.73	4.01
36/01/21	13:23	1.26	24.98	0.18	4.73	-	36/01/21	13:30	1.30	24.98	0.19	4.73	4.01
36/01/21	13:24	1.26	24.98	0.18	4.73	-	36/01/21	13:31	1.30	24.98	0.19	4.73	4.01
36/01/21	13:25	1.26	24.98	0.18	4.73	-	36/01/21	13:32	1.30	24.98	0.19	4.73	4.01
36/01/21	13:26	1.26	24.98	0.18	4.73	-	36/01/21	13:33	1.30	24.98	0.19	4.73	4.01
36/01/21	13:27	1.26	24.98	0.18	4.73	-	36/01/21	13:34	1.30	24.98	0.19	4.73	4.01
36/01/21	13:28	1.26	24.98	0.18	4.73	-	36/01/21	13:35	1.30	24.98	0.19	4.73	4.01
36/01/21	13:29	1.26	24.98	0.18	4.73	-	36/01/21	13:36	1.30	24.98	0.19	4.73	4.01
36/01/21	13:30	1.26	24.98	0.18	4.73	-	36/01/21	13:37	1.30	24.98	0.19	4.73	4.01
36/01/21	13:31	1.26	24.98	0.18	4.73	-	36/01/21	13:38	1.30	24.98	0.19	4.73	4.01
36/01/21	13:32	1.26	24.98	0.18	4.73	-	36/01/21	13:39	1.30	24.98	0.19	4.73	4.01
36/01/21	13:33	1.26	24.98	0.18	4.73	-	36/01/21	13:40	1.30	24.98	0.19	4.73	4.01
36/01/21	13:34	1.26	24.98	0.18	4.73	-	36/01/21	13:41	1.30	24.98	0.19	4.73	4.01
36/01/21	13:35	1.26	24.98	0.18	4.73	-	36/01/21	13:42	1.30	24.98	0.19	4.73	4.01
36/01/21	13:36	1.26	24.98	0.18	4.73	-	36/01/21	13:43	1.30	24.98	0.19	4.73	4.01
36/01/21	13:37	1.26	24.98	0.18	4.73	-	36/01/21	13:44	1.30	24.98	0.19	4.73	4.01
36/01/21	13:38	1.26	24.98	0.18	4.73	-	36/01/21	13:45	1.30	24.98	0.19	4.73	4.01
36/01/21	13:39	1.26	24.98	0.18	4.73	-	36/01/21	13:46	1.30	24.98	0.19	4.73	4.01
36/01/21	13:40	1.26	24.98	0.18	4.73	-	36/01/21	13:47	1.30	24.98	0.19	4.73	4.01
36/01/21	13:41	1.26	24.98	0.18	4.73	-	36/01/21	13:48	1.30	24.98	0.19	4.73	4.01
36/01/21	13:42	1.26	24.98	0.18	4.73	-	36/01/21	13:49	1.30	24.98	0.19	4.73	4.01
36/01/21	13:43	1.26	24.98	0.18	4.73	-	36/01/21	13:50	1.30	24.98	0.19	4.73	4.01
36/01/21	13:44	1.26	24.98	0.18	4.73	-	36/01/21	13:51	1.30	24.98	0.19	4.73	4.01
36/01/21	13:45	1.26	24.98	0.18	4.73	-	36/01/21	13:52	1.30	24.98	0.19	4.73	4.01
36/01/21	13:46	1.26	24.98	0.18	4.73	-	36/01/21	13:53	1.30	24.98	0.19	4.73	4.01
36/01/21	13:47	1.26	24.98	0.18	4.73	-	36/01/21	13:54	1.30	24.98	0.19	4.73	4.01
36/01/21	13:48	1.26	24.98	0.18	4.73	-	36/01/21	13:55	1.30	24.98	0.19	4.73	4.01
36/01/21	13:49	1.26	24.98	0.18	4.73	-	36/01/21	13:56	1.30	24.98	0.19	4.73	4.01
36/01/21	13:50	1.26	24.98	0.18	4.73	-	36/01/21	13:57	1.30	24.98	0.19	4.73	4.01
36/01/21	13:51	1.26	24.98	0.18	4.73	-	36/01/21	13:58	1.30	24.98	0.19	4.73	4.01
36/01/21	13:52	1.26	24.98	0.18	4.73	-	36/01/21	13:59	1.30	24.98	0.19	4.73	4.01
36/01/21	13:53	1.26	24.98	0.18	4.73	-	36/01/21	14:00	1.30	24.98	0.19	4.73	4.01
36/01/21	13:54	1.26	24.98	0.18	4.73	-	36/01/21	14:01	1.30	24.98	0.19	4.73	4.01
36/01/21	13:55	1.26	24.98	0.18	4.73	-	36/01/21	14:02	1.30	24.98	0.19	4.73	4.01
36/01/21	13:56	1.26	24.98	0.18	4.73	-	36/01/21	14:03	1.30	24.98	0.19	4.73	4.01
36/01/21	13:57	1.26	24.98	0.18	4.73	-	36/01/21	14:04	1.30	24.98	0.19	4.73	4.01
36/01/21	13:58	1.26	24.98	0.18	4.73	-	36/01/21	14:05	1.30	24.98	0.19	4.73	4.01
36/01/21	13:59	1.26	24.98	0.18	4.73	-	36/01/21	14:06	1.30	24.98	0.19	4.73	4.01
36/01/21	14:00	1.26	24.98	0.18	4.73	-	36/01/21	14:07	1.30	24.98	0.19	4.73	4.01
36/01/21	14:01	1.26	24.98	0.18	4.73	-	36/01/21	14:08	1.30	24.98	0.19	4.73	4.01
36/01/21	14:02	1.26	24.98	0.18	4.73	-	36/01/21	14:09	1.30	24.98	0.19	4.73	4.01
36/01/21	14:03	1.26	24.98	0.18	4.73	-	36/01/21	14:10	1.30	24.98	0.19	4.73	4.01
36/01/21	14:04	1.26	24.98	0.18	4.73	-	36/01/21	14:11	1.30	24.98	0.19	4.73	4.01
36/01/21	14:05	1.26	24.98	0.18	4.73	-	36/01/21	14:12	1.30	24.98	0.19	4.73	4.01
36/01/21	14:06	1.26	24.98	0.18	4.73	-	36/01/21	14:13	1.30	24.98	0.19	4.73	4.01
36/01/21	14:07	1.26	24.98	0.18	4.73	-	36/01/21	14:14	1.30	24.98	0.19	4.73	4.01
36/01/21	14:08	1.26	24.98	0.18	4.73	-	36/01/21	14:15	1.30	24.98	0.19	4.73	4.01
36/01/21	14:09	1.26	24.98	0.18	4.73	-	36/01/21	14:16	1.30	24.98	0.19	4.73	4.01
36/01/21	14:10	1.26	24.98	0.18	4.73	-	36/01/21	14:17	1.30	24.98	0.19	4.73	4.01
36/01/21	14:11	1.26	24.98	0.18	4.73	-	36/01/21	14:18	1.30	24.98	0.19	4.73	4.01
36/01/21	14:12	1.26	24.98	0.18	4.73	-	36/01/21	14:19	1.30	24.98	0.19	4.73	4.01
36/01/21	14:13	1.26	24.98	0.18	4.73	-	36/01/21	14:20	1.30	24.98	0.19	4.73	4.01
36/01/21	14:14	1.26	24.98	0.18	4.73	-	36/01/21	14:21	1.30	24.98	0.19	4.73	4.01
36/01/21	14:15	1.26	24.98	0.18	4.73	-	36/01/21	14:22	1.30	24.98	0.19	4.73	4.01
36/01/21	14:16	1.26	24.98	0.18	4.73	-	36/01/21	14:23	1.30	24.98	0.19	4.73	4.01
36/01/21	14:17	1.26	24.98	0.18	4.73	-	36/01/21	14:24	1.30	24.98	0.19	4.73	4.01
36/01/21	14:18	1.26	24.98	0.18	4.73	-	36/01/21	14:25	1.30	24.98	0.19	4.73	4.01
36/01/21	14:19	1.26	24.98	0.18	4.73	-	36/01/21	14:26	1.30	24.98	0.19	4.73	4.01
36/01/21	14:20	1.26	24.98	0.18	4.73	-	36/01/21	14:27	1.30	24.98	0.19	4.73	4.01
36/01/21	14:21	1.26	24.98	0.18	4.73	-	36/01/21	14:28	1.30	24.98	0.19	4.73	4.01
36/01/21	14:22	1.26	24.98	0.18	4.73	-	36/01/21	14:29	1.30	24.98	0.19	4.73	4.01
36/01/21	14:23	1.26	24.98	0.18	4.73	-	36/01/21	14:30	1.30	24.98	0.19	4.73	4.01
36/01/21	14:24	1.26	24.98	0.18	4.73	-	36/01/21	14:31	1.30	24.98	0.19	4.73	4.01
36/01/21	14:25	1.26	24.98	0.18	4.73	-	36/01/21	14:32	1.30	24.98	0.19	4.73	4.01
36/01/21	14:26	1.26	24.98	0.18	4.73	-	36/01/21	14:33	1.30	24.98	0.19	4.73	4.01
36/01/21	14:27	1.26	24.98	0.18	4.73	-	36/01/21	14:34	1.30	24.98	0.19	4.73	4.01
36/01/21	14:28	1.26	24.98	0.18	4.73	-	36/01/21	14:35	1.30	24.98	0.19	4.73	4.01
36/01/21	14:29	1.26	24.98	0.18	4.73	-	36/01/21	14:36	1.30	24.98	0.19	4.73	4.01
36/01/21	14:30	1.26	24.98	0.18	4.73	-	36/01/21	14:37	1.30	24.98	0.19	4.73	4.01
36/01/21	14:31	1.26	24.98	0.18	4.73	-	36/01/21	14:38	1.30	24.98	0.19	4.73	4.01
36/01/21	14:32	1.26	24.98	0.18	4.73	-	36/01/21	14:39	1.				



Date: 24 Oct 23
Location: Plant: 47 (Species): P-150

Age	5.15	5.25	5.35	5.45	5.55	Age	6.05	6.15	6.25	6.35	6.45	6.55	
Run 5	Time Base: 23.10					Run 6	Time Base: 23.10						
Event	Time	GR	PR	GR	PR	Event	Time	GR	PR	GR	PR	GR	
34.50.20	43.84	1.00	30.10	1.10	3.60	1.00	24.04.22	1.10	3.10	10.00	1.00	1.10	1.10
34.50.30	43.92	1.00	30.12	1.10	3.60	1.00	24.04.23	1.10	3.10	10.00	1.00	1.10	1.10
34.50.40	44.00	1.00	30.14	1.10	3.60	1.00	24.04.24	1.10	3.10	10.00	1.00	1.10	1.10
34.50.50	44.08	1.00	30.16	1.10	3.60	1.00	24.04.25	1.10	3.10	10.00	1.00	1.10	1.10
34.51.00	44.16	1.00	30.18	1.10	3.60	1.00	24.04.26	1.10	3.10	10.00	1.00	1.10	1.10
34.51.10	44.24	1.00	30.20	1.10	3.60	1.00	24.04.27	1.10	3.10	10.00	1.00	1.10	1.10
34.51.20	44.32	1.00	30.22	1.10	3.60	1.00	24.04.28	1.10	3.10	10.00	1.00	1.10	1.10
34.51.30	44.40	1.00	30.24	1.10	3.60	1.00	24.04.29	1.10	3.10	10.00	1.00	1.10	1.10
34.51.40	44.48	1.00	30.26	1.10	3.60	1.00	24.04.30	1.10	3.10	10.00	1.00	1.10	1.10
34.51.50	44.56	1.00	30.28	1.10	3.60	1.00	24.04.31	1.10	3.10	10.00	1.00	1.10	1.10
34.52.00	45.04	1.00	30.30	1.10	3.60	1.00	24.04.32	1.10	3.10	10.00	1.00	1.10	1.10
34.52.10	45.12	1.00	30.32	1.10	3.60	1.00	24.04.33	1.10	3.10	10.00	1.00	1.10	1.10
34.52.20	45.20	1.00	30.34	1.10	3.60	1.00	24.04.34	1.10	3.10	10.00	1.00	1.10	1.10
34.52.30	45.28	1.00	30.36	1.10	3.60	1.00	24.04.35	1.10	3.10	10.00	1.00	1.10	1.10
34.52.40	45.36	1.00	30.38	1.10	3.60	1.00	24.04.36	1.10	3.10	10.00	1.00	1.10	1.10
34.52.50	45.44	1.00	30.40	1.10	3.60	1.00	24.04.37	1.10	3.10	10.00	1.00	1.10	1.10
34.53.00	45.52	1.00	30.42	1.10	3.60	1.00	24.04.38	1.10	3.10	10.00	1.00	1.10	1.10
34.53.10	45.60	1.00	30.44	1.10	3.60	1.00	24.04.39	1.10	3.10	10.00	1.00	1.10	1.10
34.53.20	45.68	1.00	30.46	1.10	3.60	1.00	24.04.40	1.10	3.10	10.00	1.00	1.10	1.10
34.53.30	45.76	1.00	30.48	1.10	3.60	1.00	24.04.41	1.10	3.10	10.00	1.00	1.10	1.10
34.53.40	45.84	1.00	30.50	1.10	3.60	1.00	24.04.42	1.10	3.10	10.00	1.00	1.10	1.10
34.53.50	45.92	1.00	30.52	1.10	3.60	1.00	24.04.43	1.10	3.10	10.00	1.00	1.10	1.10
34.54.00	46.00	1.00	30.54	1.10	3.60	1.00	24.04.44	1.10	3.10	10.00	1.00	1.10	1.10
34.54.10	46.08	1.00	30.56	1.10	3.60	1.00	24.04.45	1.10	3.10	10.00	1.00	1.10	1.10
34.54.20	46.16	1.00	30.58	1.10	3.60	1.00	24.04.46	1.10	3.10	10.00	1.00	1.10	1.10
34.54.30	46.24	1.00	31.00	1.10	3.60	1.00	24.04.47	1.10	3.10	10.00	1.00	1.10	1.10
34.54.40	46.32	1.00	31.02	1.10	3.60	1.00	24.04.48	1.10	3.10	10.00	1.00	1.10	1.10
34.54.50	46.40	1.00	31.04	1.10	3.60	1.00	24.04.49	1.10	3.10	10.00	1.00	1.10	1.10
34.55.00	46.48	1.00	31.06	1.10	3.60	1.00	24.04.50	1.10	3.10	10.00	1.00	1.10	1.10
34.55.10	46.56	1.00	31.08	1.10	3.60	1.00	24.04.51	1.10	3.10	10.00	1.00	1.10	1.10
34.55.20	46.64	1.00	31.10	1.10	3.60	1.00	24.04.52	1.10	3.10	10.00	1.00	1.10	1.10
34.55.30	46.72	1.00	31.12	1.10	3.60	1.00	24.04.53	1.10	3.10	10.00	1.00	1.10	1.10
34.55.40	46.80	1.00	31.14	1.10	3.60	1.00	24.04.54	1.10	3.10	10.00	1.00	1.10	1.10
34.55.50	46.88	1.00	31.16	1.10	3.60	1.00	24.04.55	1.10	3.10	10.00	1.00	1.10	1.10
34.56.00	46.96	1.00	31.18	1.10	3.60	1.00	24.04.56	1.10	3.10	10.00	1.00	1.10	1.10
34.56.10	47.04	1.00	31.20	1.10	3.60	1.00	24.04.57	1.10	3.10	10.00	1.00	1.10	1.10
34.56.20	47.12	1.00	31.22	1.10	3.60	1.00	24.04.58	1.10	3.10	10.00	1.00	1.10	1.10
34.56.30	47.20	1.00	31.24	1.10	3.60	1.00	24.04.59	1.10	3.10	10.00	1.00	1.10	1.10
34.56.40	47.28	1.00	31.26	1.10	3.60	1.00	24.05.00	1.10	3.10	10.00	1.00	1.10	1.10
34.56.50	47.36	1.00	31.28	1.10	3.60	1.00	24.05.01	1.10	3.10	10.00	1.00	1.10	1.10
34.57.00	47.44	1.00	31.30	1.10	3.60	1.00	24.05.02	1.10	3.10	10.00	1.00	1.10	1.10
34.57.10	47.52	1.00	31.32	1.10	3.60	1.00	24.05.03	1.10	3.10	10.00	1.00	1.10	1.10
34.57.20	47.60	1.00	31.34	1.10	3.60	1.00	24.05.04	1.10	3.10	10.00	1.00	1.10	1.10
34.57.30	47.68	1.00	31.36	1.10	3.60	1.00	24.05.05	1.10	3.10	10.00	1.00	1.10	1.10
34.57.40	47.76	1.00	31.38	1.10	3.60	1.00	24.05.06	1.10	3.10	10.00	1.00	1.10	1.10
34.57.50	47.84	1.00	31.40	1.10	3.60	1.00	24.05.07	1.10	3.10	10.00	1.00	1.10	1.10
34.58.00	47.92	1.00	31.42	1.10	3.60	1.00	24.05.08	1.10	3.10	10.00	1.00	1.10	1.10
34.58.10	48.00	1.00	31.44	1.10	3.60	1.00	24.05.09	1.10	3.10	10.00	1.00	1.10	1.10
34.58.20	48.08	1.00	31.46	1.10	3.60	1.00	24.05.10	1.10	3.10	10.00	1.00	1.10	1.10
34.58.30	48.16	1.00	31.48	1.10	3.60	1.00	24.05.11	1.10	3.10	10.00	1.00	1.10	1.10
34.58.40	48.24	1.00	31.50	1.10	3.60	1.00	24.05.12	1.10	3.10	10.00	1.00	1.10	1.10
34.58.50	48.32	1.00	31.52	1.10	3.60	1.00	24.05.13	1.10	3.10	10.00	1.00	1.10	1.10
34.59.00	48.40	1.00	31.54	1.10	3.60	1.00	24.05.14	1.10	3.10	10.00	1.00	1.10	1.10
34.59.10	48.48	1.00	31.56	1.10	3.60	1.00	24.05.15	1.10	3.10	10.00	1.00	1.10	1.10
34.59.20	48.56	1.00	31.58	1.10	3.60	1.00	24.05.16	1.10	3.10	10.00	1.00	1.10	1.10
34.59.30	48.64	1.00	32.00	1.10	3.60	1.00	24.05.17	1.10	3.10	10.00	1.00	1.10	1.10
34.59.40	48.72	1.00	32.02	1.10	3.60	1.00	24.05.18	1.10	3.10	10.00	1.00	1.10	1.10
34.59.50	48.80	1.00	32.04	1.10	3.60	1.00	24.05.19	1.10	3.10	10.00	1.00	1.10	1.10
34.60.00	48.88	1.00	32.06	1.10	3.60	1.00	24.05.20	1.10	3.10	10.00	1.00	1.10	1.10
34.60.10	48.96	1.00	32.08	1.10	3.60	1.00	24.05.21	1.10	3.10	10.00	1.00	1.10	1.10
34.60.20	49.04	1.00	32.10	1.10	3.60	1.00	24.05.22	1.10	3.10	10.00	1.00	1.10	1.10
34.60.30	49.12	1.00	32.12	1.10	3.60	1.00	24.05.23	1.10	3.10	10.00	1.00	1.10	1.10
34.60.40	49.20	1.00	32.14	1.10	3.60	1.00	24.05.24	1.10	3.10	10.00	1.00	1.10	1.10
34.60.50	49.28	1.00	32.16	1.10	3.60	1.00	24.05.25	1.10	3.10	10.00	1.00	1.10	1.10
34.61.00	49.36	1.00	32.18	1.10	3.60	1.00	24.05.26	1.10	3.10	10.00	1.00	1.10	1.10
34.61.10	49.44	1.00	32.20	1.10	3.60	1.00	24.05.27	1.10	3.10	10.00	1.00	1.10	1.10
34.61.20	49.52	1.00	32.22	1.10	3.60	1.00	24.05.28	1.10	3.10	10.00	1.00	1.10	1.10
34.61.30	49.60	1.00	32.24	1.10	3.60	1.00	24.05.29	1.10	3.10	10.00	1.00	1.10	1.10
34.61.40	49.68	1.00	32.26	1.10	3.60	1.00	24.05.30	1.10	3.10	10.00	1.00	1.10	1.10
34.61.50	49.76	1.00	32.28	1.10	3.60	1.00	24.05.31	1.10	3.10	10.00	1.00	1.10	1.10
34.62.00	49.84	1.00	32.30	1.10	3.60	1.00	24.05.32	1.10	3.10	10.00	1.00	1.10	1.10
34.62.10	49.92	1.00	32.32	1.10	3.60	1.00	24.05.33	1.10	3.10	10.00	1.00	1.10	1.10
34.62.20	50.00	1.00	32.34	1.10	3.60	1.00	24.05.34	1.10	3.10	10.00	1.00	1.10	1.10
34.62.30	50.08	1.00	32.36	1.10	3.60	1.00	24.05.35	1.10	3.10	10.00	1.00	1.10	1.10
34.62.40	50.16	1.00	32.38	1.10	3.60	1.00	24.05.36	1.10	3.10	10.00	1.00	1.10	1.10
34.62.50	50.24	1.00	32.40	1.10	3.60	1.00	24.05.37	1.10	3.10	10.00	1.00	1.10	1.10
34.63.00	50.32	1.00	32.42	1.10	3.60	1.00	24.05.38	1.10	3.10	10.00	1.00	1.10	1.10
34.63.10	50.40	1.00	32.44	1.10	3.60	1.00	24.05.39	1.10	3.10	10.00	1.00	1.10	1.10
34.63.20	50.48	1.00	32.46	1.10	3.60	1.00	24.05.40	1.10	3.10	10.00	1.00	1.10	1.10
34.63.30	50.56	1.00	32.48	1.10	3.60	1.00	24.05.41	1.10	3.10	10.00	1.00	1.10	1.10
34.63.40	50.64	1.00	32.50	1.10	3.60	1.00	24.05.42	1.10	3.10	10.00	1.00	1.10	1.10
34.63.50	50.72	1.00	32.52	1.10	3.60	1.00	24.05.43	1.10	3.10	10.00	1.00	1.10	1.10
34.64.00	50.80	1.00	32.54	1.10	3.60	1.00	24.05.44	1.10	3.10	10.00	1.00	1.10	1.10
34.64.10	50.88	1.00	32.56	1.10	3.60	1.00	24.05.45	1.10	3.10	10.00	1.00	1.10	1.10
34.64.20	50.96	1.00	32.58	1.10	3.60	1.00	24.05.46	1.10	3.10	10.00	1.00	1.10	1.10
34.64.30	51.04	1.00	33.00	1.10	3.60	1.00	24.05.47	1.10	3.10	10.00	1.00	1.10	1.10
3													



Date 24 Oct 23
Location Plant 1-4.1 (Fertum); F-110

Run No. 15		Time Since 01:00						Time to 12		Time Since 21:00					
Date	Time	WGT	WGL	DO	CS	DO2	DO3	Date	Time	WGT	WGL	DO	CS	DO2	DO3
		gms	gms				%/g			gms	gms				%/g
19-11-13	14:45	1.00	34.30	0.13	3.90			20-11-13	19:01	0.99	32.91	0.18	4.00		
19-11-13	14:51	1.00	34.30	0.13	3.90			20-11-13	19:20	0.97	34.10	0.18	4.00		
19-11-13	15:02	1.00	34.30	0.18	4.00			20-11-13	19:30	1.00	34.70	0.32	3.80		
19-11-13	15:45	1.00	34.30	0.19	5.00			20-11-13	19:40	0.90	34.10	0.23	3.90		
19-11-13	16:04	1.00	34.30	0.20	5.00			20-11-13	19:50	0.98	34.20	0.22	4.00		
19-11-13	16:40	1.00	34.30	0.20	5.00			20-11-13	20:00	0.90	33.30	0.26	4.00		
19-11-13	16:45	1.00	34.30	0.20	5.00			20-11-13	20:10	0.90	34.61	0.26	4.00		
19-11-13	16:52	1.00	34.30	0.18	4.00			20-11-13	20:15	0.90	34.60	0.26	3.90		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	20:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.20	5.00			20-11-13	20:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	20:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	20:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	21:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	22:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	23:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	24:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	25:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	26:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	27:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	28:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	29:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	30:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	31:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:20	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:30	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:40	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	32:50	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	33:00	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	33:10	0.90	34.60	0.26	4.00		
19-11-13	16:57	1.00	34.30	0.18	4.00			20-11-13	33						



Date 24 Oct 23
Location Plant 1-4/1 (Furnace): P.110

[illegible]



Date 18 Sep 23
Location Mari 141 (Lumana) 6-130



Date: 19 Sep 23
Location: Plot 1-4' (furrow): E-136



Date 19 Sep 23
Location Plant 1-4's (Furnace) . F.13



Date 18 Sep 23
Location Plant 1-4's (Furnace) : F. 130



CEMs Data

Client Name		Date		Plant Name		Location		Plant L4/L1 (Formal) F-150	
PTT Global Chemical PCL		21 Sep 23		14					
Time Base: 21 min									
Run No: 1	Time	SO2	NOx	CO	CO2	CO2	CO2	CO2	CO2
21 Sep 23	10:00	607	61.54	0.15	1.34	-	-	-	-
21 Sep 23	10:05	617	62.02	0.16	1.34	-	-	-	-
21 Sep 23	10:10	606	61.04	0.15	1.34	-	-	-	-
21 Sep 23	10:15	605	60.92	0.15	1.34	-	-	-	-
21 Sep 23	10:20	604	60.80	0.15	1.34	-	-	-	-
21 Sep 23	10:25	603	60.68	0.15	1.34	-	-	-	-
21 Sep 23	10:30	602	60.56	0.15	1.34	-	-	-	-
21 Sep 23	10:35	601	60.44	0.15	1.34	-	-	-	-
21 Sep 23	10:40	600	60.32	0.15	1.34	-	-	-	-
21 Sep 23	10:45	599	60.20	0.15	1.34	-	-	-	-
21 Sep 23	10:50	598	60.08	0.15	1.34	-	-	-	-
21 Sep 23	10:55	597	59.96	0.15	1.34	-	-	-	-
21 Sep 23	11:00	596	59.84	0.15	1.34	-	-	-	-
21 Sep 23	11:05	595	59.72	0.15	1.34	-	-	-	-
21 Sep 23	11:10	594	59.60	0.15	1.34	-	-	-	-
21 Sep 23	11:15	593	59.48	0.15	1.34	-	-	-	-
21 Sep 23	11:20	592	59.36	0.15	1.34	-	-	-	-
21 Sep 23	11:25	591	59.24	0.15	1.34	-	-	-	-
21 Sep 23	11:30	590	59.12	0.15	1.34	-	-	-	-
21 Sep 23	11:35	589	59.00	0.15	1.34	-	-	-	-
21 Sep 23	11:40	588	58.88	0.15	1.34	-	-	-	-
21 Sep 23	11:45	587	58.76	0.15	1.34	-	-	-	-
21 Sep 23	11:50	586	58.64	0.15	1.34	-	-	-	-
21 Sep 23	11:55	585	58.52	0.15	1.34	-	-	-	-
21 Sep 23	12:00	584	58.40	0.15	1.34	-	-	-	-
21 Sep 23	12:05	583	58.28	0.15	1.34	-	-	-	-
21 Sep 23	12:10	582	58.16	0.15	1.34	-	-	-	-
21 Sep 23	12:15	581	58.04	0.15	1.34	-	-	-	-
21 Sep 23	12:20	580	57.92	0.15	1.34	-	-	-	-
21 Sep 23	12:25	579	57.80	0.15	1.34	-	-	-	-
21 Sep 23	12:30	578	57.68	0.15	1.34	-	-	-	-
21 Sep 23	12:35	577	57.56	0.15	1.34	-	-	-	-
21 Sep 23	12:40	576	57.44	0.15	1.34	-	-	-	-
21 Sep 23	12:45	575	57.32	0.15	1.34	-	-	-	-
21 Sep 23	12:50	574	57.20	0.15	1.34	-	-	-	-
21 Sep 23	12:55	573	57.08	0.15	1.34	-	-	-	-
21 Sep 23	13:00	572	56.96	0.15	1.34	-	-	-	-
21 Sep 23	13:05	571	56.84	0.15	1.34	-	-	-	-
21 Sep 23	13:10	570	56.72	0.15	1.34	-	-	-	-
21 Sep 23	13:15	569	56.60	0.15	1.34	-	-	-	-
21 Sep 23	13:20	568	56.48	0.15	1.34	-	-	-	-
21 Sep 23	13:25	567	56.36	0.15	1.34	-	-	-	-
21 Sep 23	13:30	566	56.24	0.15	1.34	-	-	-	-
21 Sep 23	13:35	565	56.12	0.15	1.34	-	-	-	-
21 Sep 23	13:40	564	56.00	0.15	1.34	-	-	-	-
21 Sep 23	13:45	563	55.88	0.15	1.34	-	-	-	-
21 Sep 23	13:50	562	55.76	0.15	1.34	-	-	-	-
21 Sep 23	13:55	561	55.64	0.15	1.34	-	-	-	-
21 Sep 23	14:00	560	55.52	0.15	1.34	-	-	-	-
21 Sep 23	14:05	559	55.40	0.15	1.34	-	-	-	-
21 Sep 23	14:10	558	55.28	0.15	1.34	-	-	-	-
21 Sep 23	14:15	557	55.16	0.15	1.34	-	-	-	-
21 Sep 23	14:20	556	55.04	0.15	1.34	-	-	-	-
21 Sep 23	14:25	555	54.92	0.15	1.34	-	-	-	-
21 Sep 23	14:30	554	54.80	0.15	1.34	-	-	-	-
21 Sep 23	14:35	553	54.68	0.15	1.34	-	-	-	-
21 Sep 23	14:40	552	54.56	0.15	1.34	-	-	-	-
21 Sep 23	14:45	551	54.44	0.15	1.34	-	-	-	-
21 Sep 23	14:50	550	54.32	0.15	1.34	-	-	-	-
21 Sep 23	14:55	549	54.20	0.15	1.34	-	-	-	-
21 Sep 23	15:00	548	54.08	0.15	1.34	-	-	-	-
21 Sep 23	15:05	547	53.96	0.15	1.34	-	-	-	-
21 Sep 23	15:10	546	53.84	0.15	1.34	-	-	-	-
21 Sep 23	15:15	545	53.72	0.15	1.34	-	-	-	-
21 Sep 23	15:20	544	53.60	0.15	1.34	-	-	-	-
21 Sep 23	15:25	543	53.48	0.15	1.34	-	-	-	-
21 Sep 23	15:30	542	53.36	0.15	1.34	-	-	-	-
21 Sep 23	15:35	541	53.24	0.15	1.34	-	-	-	-
21 Sep 23	15:40	540	53.12	0.15	1.34	-	-	-	-
21 Sep 23	15:45	539	53.00	0.15	1.34	-	-	-	-
21 Sep 23	15:50	538	52.88	0.15	1.34	-	-	-	-
21 Sep 23	15:55	537	52.76	0.15	1.34	-	-	-	-
21 Sep 23	16:00	536	52.64	0.15	1.34	-	-	-	-
21 Sep 23	16:05	535	52.52	0.15	1.34	-	-	-	-
21 Sep 23	16:10	534	52.40	0.15	1.34	-	-	-	-
21 Sep 23	16:15	533	52.28	0.15	1.34	-	-	-	-
21 Sep 23	16:20	532	52.16	0.15	1.34	-	-	-	-
21 Sep 23	16:25	531	52.04	0.15	1.34	-	-	-	-
21 Sep 23	16:30	530	51.92	0.15	1.34	-	-	-	-
21 Sep 23	16:35	529	51.80	0.15	1.34	-	-	-	-
21 Sep 23	16:40	528	51.68	0.15	1.34	-	-	-	-
21 Sep 23	16:45	527	51.56	0.15	1.34	-	-	-	-
21 Sep 23	16:50	526	51.44	0.15	1.34	-	-	-	-
21 Sep 23	16:55	525	51.32	0.15	1.34	-	-	-	-
21 Sep 23	17:00	524	51.20	0.15	1.34	-	-	-	-
21 Sep 23	17:05	523	51.08	0.15	1.34	-	-	-	-
21 Sep 23	17:10	522	50.96	0.15	1.34	-	-	-	-
21 Sep 23	17:15	521	50.84	0.15	1.34	-	-	-	-
21 Sep 23	17:20	520	50.72	0.15	1.34	-	-	-	-
21 Sep 23	17:25	519	50.60	0.15	1.34	-	-	-	-
21 Sep 23	17:30	518	50.48	0.15	1.34	-	-	-	-
21 Sep 23	17:35	517	50.36	0.15	1.34	-	-	-	-
21 Sep 23	17:40	516	50.24	0.15	1.34	-	-	-	-
21 Sep 23	17:45	515	50.12	0.15	1.34	-	-	-	-
21 Sep 23	17:50	514	50.00	0.15	1.34	-	-	-	-
21 Sep 23	17:55	513	49.88	0.15	1.34	-	-	-	-
21 Sep 23	18:00	512	49.76	0.15	1.34	-	-	-	-
21 Sep 23	18:05	511	49.64	0.15	1.34	-	-	-	-
21 Sep 23	18:10	510	49.52	0.15	1.34	-	-	-	-
21 Sep 23	18:15	509	49.40	0.15	1.34	-	-	-	-
21 Sep 23	18:20	508	49.28	0.15	1.34	-	-	-	-
21 Sep 23	18:25	507	49.16	0.15	1.34	-	-	-	-
21 Sep 23	18:30	506	49.04	0.15	1.34	-	-	-	-
21 Sep 23	18:35	505	48.92	0.15	1.34	-	-	-	-
21 Sep 23	18:40	504	48.80	0.15	1.34	-	-	-	-
21 Sep 23	18:45	503	48.68	0.15	1.34	-	-	-	-
21 Sep 23	18:50	502	48.56	0.15	1.34	-	-	-	-
21 Sep 23	18:55	501	48.44	0.15	1.34	-	-	-	-
21 Sep 23	19:00	500	48.32	0.15	1.34	-	-	-	-
21 Sep 23	19:05	499	48.20	0.15	1.34	-	-	-	-
21 Sep 23	19:10	498	48.08	0.15	1.34	-	-	-	-
21 Sep 23	19:15	497	47.96	0.15	1.34	-	-	-	-
21 Sep 23	19:20	496	47.84	0.15	1.34	-	-	-	-
21 Sep 23	19:25	495	47.72	0.15	1.34	-	-	-	-
21 Sep 23	19:30	494	47.60	0.15	1.34	-	-	-	-
21 Sep 23	19:35	493	47.48	0.15	1.34	-	-	-	-
21 Sep 23	19:40	492	47.36	0.15	1.34	-	-	-	-
21 Sep 23	19:45	491	47.24	0.15	1.34	-	-	-	-
21 Sep 23	19:50	490	47.12	0.15	1.34	-	-	-	-
21 Sep 23	19:55	489	47.00	0.15	1.34	-	-	-	-
21 Sep 23	20:00	488	46.88	0.15	1.34	-	-	-	-
21 Sep 23	20:05	487	46.76	0.15	1.34	-	-	-	-
21 Sep 23	20:10	486	46.64	0.15	1.34	-	-	-	-
21 Sep 23	20:15	485	46.52	0.15	1.34	-	-	-	-
21 Sep 23	20:20	484	46.40	0.15	1.34	-	-	-	-
21 Sep 23	20:25	483	46.28	0.15	1.34	-	-	-	-
21 Sep 23	20:30	482	46.16	0.15	1.34	-	-	-	-
21 Sep 23	20:35	481	46.04	0.15	1.34	-	-	-	-
21 Sep 23	20:40	480	45.92	0.15	1.34	-	-	-	-
21 Sep 23	20:45	479	45.80	0.15	1.34	-	-	-	-
21 Sep 23	20:50	478	45.68	0.15	1.34	-	-	-	-
21 Sep 23	20:55	477	45.56	0.15	1.34	-	-	-	-
21 Sep 23	21:00	476	45.44	0.15	1.34	-	-	-	-
21 Sep 23	21:05	475	45.32	0.15	1.34	-	-	-	-
21 Sep 23	21:10	474	45.20	0.15	1.34	-	-	-	-
21 Sep 23	21:15	473	45.08	0.15	1.34	-	-	-	-
21 Sep 23	21:20	472	44.96	0.15	1.34	-	-	-	-
21 Sep 23	21:25	471	44.84	0.15	1.34	-	-	-	-
21 Sep 23	21:30	470	44.72	0.15	1.34	-	-	-	-
21 Sep 23	21:35	469	44.60	0.15	1.34	-	-	-	-
21 Sep 23	21:40	468	44.48	0.15	1.34	-	-	-	-
21 Sep 23	21:45	467	44.36	0.15	1.34	-	-	-	-
21 Sep 23	21:50	466	44.24	0.15					



Page 1 Total Rows 1

2 Time Base: 25 ms

Run No: 3	Time Run: 21 min	Run No: 4	Time Run: 21 min
-----------	------------------	-----------	------------------

Page 1	Page 2	Page 3	Page 4	Page 5	Page 6	Page 7	Page 8	Page 9	Page 10
Page 1	Page 2	Page 3	Page 4	Page 5	Page 6	Page 7	Page 8	Page 9	Page 10

P_{10}	9.07	11.20	9.97	8.17	1	P_{11}	9.90	10.97	9.97	1.5	1
----------	------	-------	------	------	---	----------	------	-------	------	-----	---



100

No: 1 Time: 00:00

Time 0 to 21 mins

Run 3	0.21	12.0%	0.03	2.01	0.07	Run 4	0.23	12.0%	0.04	2.07	0.07
Run 5	Time Base: 21 min					Run 6	Time Base: 21 min				

Run Size: 6 Temp Data: 23 sec Run Size: 4 Time Name: 23 min

avg	0.28	0.14	0.19	0.79	4.04	avg	0.28	0.14	0.19	0.79	4.04
-----	------	------	------	------	------	-----	------	------	------	------	------



Page 7 Time Base 1

Tree Mass: 26 m

Run No. 9	Time Base : 21 min	Run No. 10	Time Base : 21 min
-----------	--------------------	------------	--------------------

Run No: 11	Time Step: 21 min	Run No: 12	Time Step: 21 min
------------	-------------------	------------	-------------------

reg	0.14	0.15	0.11	0.20	0.1	reg	0.14	0.15	0.11	0.20	0.1
-----	------	------	------	------	-----	-----	------	------	------	------	-----



total PCL.

eq. Y Time Base:

The knee: 21 mm

Run No: 9	Time Taken: 21 sec	Run No: 10	Time Taken: 21 sec
-----------	--------------------	------------	--------------------

Run No: 54 Time Base: 25 min Run No: 12 Time Base: 21 min

Age	6.1	6.25	6.75	7.25	7.75	8.25	8.75	9.25	9.75	10.25	10.75	11.25	11.75	12.25	12.75	13.25	13.75	14.25	14.75	15.25	15.75	16.25	16.75	17.25	17.75	18.25	18.75	19.25	19.75	20.25	20.75	21.25	21.75	22.25	22.75	23.25	23.75	24.25	24.75	25.25	25.75	26.25	26.75	27.25	27.75	28.25	28.75	29.25	29.75	30.25	30.75	31.25	31.75	32.25	32.75	33.25	33.75	34.25	34.75	35.25	35.75	36.25	36.75	37.25	37.75	38.25	38.75	39.25	39.75	40.25	40.75	41.25	41.75	42.25	42.75	43.25	43.75	44.25	44.75	45.25	45.75	46.25	46.75	47.25	47.75	48.25	48.75	49.25	49.75	50.25	50.75	51.25	51.75	52.25	52.75	53.25	53.75	54.25	54.75	55.25	55.75	56.25	56.75	57.25	57.75	58.25	58.75	59.25	59.75	60.25	60.75	61.25	61.75	62.25	62.75	63.25	63.75	64.25	64.75	65.25	65.75	66.25	66.75	67.25	67.75	68.25	68.75	69.25	69.75	70.25	70.75	71.25	71.75	72.25	72.75	73.25	73.75	74.25	74.75	75.25	75.75	76.25	76.75	77.25	77.75	78.25	78.75	79.25	79.75	80.25	80.75	81.25	81.75	82.25	82.75	83.25	83.75	84.25	84.75	85.25	85.75	86.25	86.75	87.25	87.75	88.25	88.75	89.25	89.75	90.25	90.75	91.25	91.75	92.25	92.75	93.25	93.75	94.25	94.75	95.25	95.75	96.25	96.75	97.25	97.75	98.25	98.75	99.25	99.75	100.25	100.75	101.25	101.75	102.25	102.75	103.25	103.75	104.25	104.75	105.25	105.75	106.25	106.75	107.25	107.75	108.25	108.75	109.25	109.75	110.25	110.75	111.25	111.75	112.25	112.75	113.25	113.75	114.25	114.75	115.25	115.75	116.25	116.75	117.25	117.75	118.25	118.75	119.25	119.75	120.25	120.75	121.25	121.75	122.25	122.75	123.25	123.75	124.25	124.75	125.25	125.75	126.25	126.75	127.25	127.75	128.25	128.75	129.25	129.75	130.25	130.75	131.25	131.75	132.25	132.75	133.25	133.75	134.25	134.75	135.25	135.75	136.25	136.75	137.25	137.75	138.25	138.75	139.25	139.75	140.25	140.75	141.25	141.75	142.25	142.75	143.25	143.75	144.25	144.75	145.25	145.75	146.25	146.75	147.25	147.75	148.25	148.75	149.25	149.75	150.25	150.75	151.25	151.75	152.25	152.75	153.25	153.75	154.25	154.75	155.25	155.75	156.25	156.75	157.25	157.75	158.25	158.75	159.25	159.75	160.25	160.75	161.25	161.75	162.25	162.75	163.25	163.75	164.25	164.75	165.25	165.75	166.25	166.75	167.25	167.75	168.25	168.75	169.25	169.75	170.25	170.75	171.25	171.75	172.25	172.75	173.25	173.75	174.25	174.75	175.25	175.75	176.25	176.75	177.25	177.75	178.25	178.75	179.25	179.75	180.25	180.75	181.25	181.75	182.25	182.75	183.25	183.7
-----	-----	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	-------



CEM3 Data

Plant Name _____ I-6
=====

Location Plant 141 (Farago): F-1010

[illegible]

22

Print Name _____

Location Plant (41) {Suzaka} : F. 1016

Run No.	Time Base: 21.75m					Run No. 2					Time Base: 21.75m	
	Time	SW	HS	PS	WTS	Time	SW	HS	PS	WTS	Time	SW
20-06-27	15.54	6.16	14.99	1.24	6.1	20-06-27	12.15	6.11	23.86	1.27	6.42	6.32
20-06-28	15.54	6.16	14.99	1.24	6.1	20-06-28	12.15	6.11	23.86	1.27	6.42	6.32
20-06-29	15.54	6.16	14.99	1.24	6.1	20-06-29	12.15	6.11	23.86	1.27	6.42	6.32
20-06-30	15.54	6.16	14.99	1.24	6.1	20-06-30	12.15	6.11	23.86	1.27	6.42	6.32
20-07-01	15.54	6.16	14.99	1.24	6.1	20-07-01	12.15	6.11	23.86	1.27	6.42	6.32
20-07-02	15.54	6.16	14.99	1.24	6.1	20-07-02	12.15	6.11	23.86	1.27	6.42	6.32
20-07-03	15.54	6.16	14.99	1.24	6.1	20-07-03	12.15	6.11	23.86	1.27	6.42	6.32
20-07-04	15.54	6.16	14.99	1.24	6.1	20-07-04	12.15	6.11	23.86	1.27	6.42	6.32
20-07-05	15.54	6.16	14.99	1.24	6.1	20-07-05	12.15	6.11	23.86	1.27	6.42	6.32
20-07-06	15.54	6.16	14.99	1.24	6.1	20-07-06	12.15	6.11	23.86	1.27	6.42	6.32
20-07-07	15.54	6.16	14.99	1.24	6.1	20-07-07	12.15	6.11	23.86	1.27	6.42	6.32
20-07-08	15.54	6.16	14.99	1.24	6.1	20-07-08	12.15	6.11	23.86	1.27	6.42	6.32
20-07-09	15.54	6.16	14.99	1.24	6.1	20-07-09	12.15	6.11	23.86	1.27	6.42	6.32
20-07-10	15.54	6.16	14.99	1.24	6.1	20-07-10	12.15	6.11	23.86	1.27	6.42	6.32
20-07-11	15.54	6.16	14.99	1.24	6.1	20-07-11	12.15	6.11	23.86	1.27	6.42	6.32
20-07-12	15.54	6.16	14.99	1.24	6.1	20-07-12	12.15	6.11	23.86	1.27	6.42	6.32
20-07-13	15.54	6.16	14.99	1.24	6.1	20-07-13	12.15	6.11	23.86	1.27	6.42	6.32
20-07-14	15.54	6.16	14.99	1.24	6.1	20-07-14	12.15	6.11	23.86	1.27	6.42	6.32
20-07-15	15.54	6.16	14.99	1.24	6.1	20-07-15	12.15	6.11	23.86	1.27	6.42	6.32
20-07-16	15.54	6.16	14.99	1.24	6.1	20-07-16	12.15	6.11	23.86	1.27	6.42	6.32
20-07-17	15.54	6.16	14.99	1.24	6.1	20-07-17	12.15	6.11	23.86	1.27	6.42	6.32
20-07-18	15.54	6.16	14.99	1.24	6.1	20-07-18	12.15	6.11	23.86	1.27	6.42	6.32
20-07-19	15.54	6.16	14.99	1.24	6.1	20-07-19	12.15	6.11	23.86	1.27	6.42	6.32
20-07-20	15.54	6.16	14.99	1.24	6.1	20-07-20	12.15	6.11	23.86	1.27	6.42	6.32
20-07-21	15.54	6.16	14.99	1.24	6.1	20-07-21	12.15	6.11	23.86	1.27	6.42	6.32
20-07-22	15.54	6.16	14.99	1.24	6.1	20-07-22	12.15	6.11	23.86	1.27	6.42	6.32
20-07-23	15.54	6.16	14.99	1.24	6.1	20-07-23	12.15	6.11	23.86	1.27	6.42	6.32
20-07-24	15.54	6.16	14.99	1.24	6.1	20-07-24	12.15	6.11	23.86	1.27	6.42	6.32
20-07-25	15.54	6.16	14.99	1.24	6.1	20-07-25	12.15	6.11	23.86	1.27	6.42	6.32
20-07-26	15.54	6.16	14.99	1.24	6.1	20-07-26	12.15	6.11	23.86	1.27	6.42	6.32
20-07-27	15.54	6.16	14.99	1.24	6.1	20-07-27	12.15	6.11	23.86	1.27	6.42	6.32
20-07-28	15.54	6.16	14.99	1.24	6.1	20-07-28	12.15	6.11	23.86	1.27	6.42	6.32
20-07-29	15.54	6.16	14.99	1.24	6.1	20-07-29	12.15	6.11	23.86	1.27	6.42	6.32
20-07-30	15.54	6.16	14.99	1.24	6.1	20-07-30	12.15	6.11	23.86	1.27	6.42	6.32
20-07-31	15.54	6.16	14.99	1.24	6.1	20-07-31	12.15	6.11	23.86	1.27	6.42	6.32
20-08-01	15.54	6.16	14.99	1.24	6.1	20-08-01	12.15	6.11	23.86	1.27	6.42	6.32
20-08-02	15.54	6.16	14.99	1.24	6.1	20-08-02	12.15	6.11	23.86	1.27	6.42	6.32
20-08-03	15.54	6.16	14.99	1.24	6.1	20-08-03	12.15	6.11	23.86	1.27	6.42	6.32
20-08-04	15.54	6.16	14.99	1.24	6.1	20-08-04	12.15	6.11	23.86	1.27	6.42	6.32
20-08-05	15.54	6.16	14.99	1.24	6.1	20-08-05	12.15	6.11	23.86	1.27	6.42	6.32
20-08-06	15.54	6.16	14.99	1.24	6.1	20-08-06	12.15	6.11	23.86	1.27	6.42	6.32
20-08-07	15.54	6.16	14.99	1.24	6.1	20-08-07	12.15	6.11	23.86	1.27	6.42	6.32
20-08-08	15.54	6.16	14.99	1.24	6.1	20-08-08	12.15	6.11	23.86	1.27	6.42	6.32
20-08-09	15.54	6.16	14.99	1.24	6.1	20-08-09	12.15	6.11	23.86	1.27	6.42	6.32
20-08-10	15.54	6.16	14.99	1.24	6.1	20-08-10	12.15	6.11	23.86	1.27	6.42	6.32
20-08-11	15.54	6.16	14.99	1.24	6.1	20-08-11	12.15	6.11	23.86	1.27	6.42	6.32
20-08-12	15.54	6.16	14.99	1.24	6.1	20-08-12	12.15	6.11	23.86	1.27	6.42	6.32
20-08-13	15.54	6.16	14.99	1.24	6.1	20-08-13	12.15	6.11	23.86	1.27	6.42	6.32
20-08-14	15.54	6.16	14.99	1.24	6.1	20-08-14	12.15	6.11	23.86	1.27	6.42	6.32
20-08-15	15.54	6.16	14.99	1.24	6.1	20-08-15	12.15	6.11	23.86	1.27	6.42	6.32
20-08-16	15.54	6.16	14.99	1.24	6.1	20-08-16	12.15	6.11	23.86	1.27	6.42	6.32
20-08-17	15.54	6.16	14.99	1.24	6.1	20-08-17	12.15	6.11	23.86	1.27	6.42	6.32
20-08-18	15.54	6.16	14.99	1.24	6.1	20-08-18	12.15	6.11	23.86	1.27	6.42	6.32
20-08-19	15.54	6.16	14.99	1.24	6.1	20-08-19	12.15	6.11	23.86	1.27	6.42	6.32
20-08-20	15.54	6.16	14.99	1.24	6.1	20-08-20	12.15	6.11	23.86	1.27	6.42	6.32
20-08-21	15.54	6.16	14.99	1.24	6.1	20-08-21	12.15	6.11	23.86	1.27	6.42	6.32
20-08-22	15.54	6.16	14.99	1.24	6.1	20-08-22	12.15	6.11	23.86	1.27	6.42	6.32
20-08-23	15.54	6.16	14.99	1.24	6.1	20-08-23	12.15	6.11	23.86	1.27	6.42	6.32
20-08-24	15.54	6.16	14.99	1.24	6.1	20-08-24	12.15	6.11	23.86	1.27	6.42	6.32
20-08-25	15.54	6.16	14.99	1.24	6.1	20-08-25	12.15	6.11	23.86	1.27	6.42	6.32
20-08-26	15.54	6.16	14.99	1.24	6.1	20-08-26	12.15	6.11	23.86	1.27	6.42	6.32
20-08-27	15.54	6.16	14.99	1.24	6.1	20-08-27	12.15	6.11	23.86	1.27	6.42	6.32
20-08-28	15.54	6.16	14.99	1.24	6.1	20-08-28	12.15	6.11	23.86	1.27	6.42	6.32
20-08-29	15.54	6.16	14.99	1.24	6.1	20-08-29	12.15	6.11	23.86	1.27	6.42	6.32
20-08-30	15.54	6.16	14.99	1.24	6.1	20-08-30	12.15	6.11	23.86	1.27	6.42	6.32
20-08-31	15.54	6.16	14.99	1.24	6.1	20-08-31	12.15	6.11	23.86	1.27	6.42	6.32
20-09-01	15.54	6.16	14.99	1.24	6.1	20-09-01	12.15	6.11	23.86	1.27	6.42	6.32
20-09-02	15.54	6.16	14.99	1.24	6.1	20-09-02	12.15	6.11	23.86	1.27	6.42	6.32
20-09-03	15.54	6.16	14.99	1.24	6.1	20-09-03	12.15	6.11	23.86	1.27	6.42	6.32
20-09-04	15.54	6.16	14.99	1.24	6.1	20-09-04	12.15	6.11	23.86	1.27	6.42	6.32
20-09-05	15.54	6.16	14.99	1.24	6.1	20-09-05	12.15	6.11	23.86	1.27	6.42	6.32
20-09-06	15.54	6.16	14.99	1.24	6.1	20-09-06	12.15	6.11	23.86	1.27	6.42	6.32
20-09-07	15.54	6.16	14.99	1.24	6.1	20-09-07	12.15	6.11	23.86	1.27	6.42	6.32
20-09-08	15.54	6.16	14.99	1.24	6.1	20-09-08	12.15	6.11	23.86	1.27	6.42	6.32
20-09-09	15.54	6.16	14.99	1.24	6.1	20-09-09	12.15	6.11	23.86	1.27	6.42	6.32
20-09-10	15.54	6.16	14.99	1.24	6.1	20-09-10	12.15	6.11	23.86	1.27	6.42	6.32
20-09-11	15.54	6.16	14.99	1.24	6.1	20-09-11	12.15	6.11	23.86	1.27	6.42	6.32
20-09-12	15.54	6.16	14.99	1.24	6.1	20-09-12	12.15	6.11	23.86	1.27	6.42	6.32
20-09-13	15.54	6.16	14.99	1.24	6.1	20-09-13	12.15	6.11	23.86	1.27	6.42	6.32
20-09-14	15.54	6.16	14.99	1.24	6.1	20-09-14	12.15	6.11	23.86	1.27	6.42	6.32
20-09-15	15.54	6.16	14.99	1.24	6.1	20-09-15	12.15	6.11	23.86	1.27	6.42	6.32
20-09-16	15.54	6.16	14.99	1.24	6.1	20-09-16	12.15	6.11	23.86	1.27	6.42	6.32
20-09-17	15.54	6.16	14.99	1.24	6.1	20-09-17	12.15	6.11	23.86	1.27	6.42	6.32
20-09-18	15.54	6.16	14.99	1.24	6.1	20-09-18	12.15	6.11	23.86	1.27	6.42	6.32
20-09-19	15.54	6.16	14.99	1.24	6.1	20-09-19	12.15	6.11	23.86	1.27	6.42	6.32
20-09-20	15.54	6.16	14.99	1.24	6.1	20-09-20	12.15	6.11	23.86	1.27	6.42	6.32
20-09-21	15.54	6.16	14.99	1.24	6.1	20-09-21	12.15	6.11	23.86	1.27	6.42	6.32
20-09-22	15.54	6.16	14.99	1.24	6.1	20-09-22	12.15	6.11	23.86	1.27	6.42	6.32
20-09-23	15.54	6.16	14.99	1.24	6.1	20-09-23	12.15	6.11	23.86	1.27	6.42	6.32
20-09-24	15.54	6.16	14.99	1.24	6.1	20-09-24	12.15	6.11	23.86	1.27	6.42	6.32
20-09-25	15.54	6.16	14.99	1.24	6.1	20-09-25	12.15	6.11	23.86	1.27	6.42	6.32
20-09-26	15.54	6.16	14.99	1.24	6.1	20-09-26	12.15	6.11	23.86	1.27	6.42	6.32
20-09-27	15.54	6.16	14.99	1.24	6.1	20-09-27	12.15	6.11	23			

Age	Time (sec)
1	1.0
2	2.0
3	3.0
4	4.0
5	5.0
6	6.0
7	7.0
8	8.0
9	9.0
10	10.0
11	11.0
12	12.0
13	13.0
14	14.0
15	15.0
16	16.0
17	17.0
18	18.0
19	19.0
20	20.0
21	21.0
22	22.0
23	23.0
24	24.0
25	25.0
26	26.0
27	27.0
28	28.0
29	29.0
30	30.0
31	31.0
32	32.0
33	33.0
34	34.0
35	35.0
36	36.0
37	37.0
38	38.0
39	39.0
40	40.0
41	41.0
42	42.0
43	43.0
44	44.0
45	45.0
46	46.0
47	47.0
48	48.0
49	49.0
50	50.0
51	51.0
52	52.0
53	53.0
54	54.0
55	55.0
56	56.0
57	57.0
58	58.0
59	59.0
60	60.0
61	61.0
62	62.0
63	63.0
64	64.0
65	65.0
66	66.0
67	67.0
68	68.0
69	69.0
70	70.0
71	71.0
72	72.0
73	73.0
74	74.0
75	75.0
76	76.0
77	77.0
78	78.0
79	79.0
80	80.0
81	81.0
82	82.0
83	83.0
84	84.0
85	85.0
86	86.0
87	87.0
88	88.0
89	89.0
90	90.0
91	91.0
92	92.0
93	93.0
94	94.0
95	95.0
96	96.0
97	97.0
98	98.0
99	99.0
100	100.0

Term:

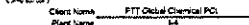
[illegible]

PCL

Type Base

Time Base

[illegible]



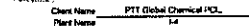
Client Name: PTT Global Chemical PCL
Plant Name: 14

Date 27
Location Field 101 (P)

Run #2		Time Span = 21 mcs				
Date	Time	5.00	1.50	0.00	0.00	CPU
27 OCT 83	09:49	0.00	0.00	0.00	0.00	0.00
27 OCT 83	09:52	1.00	0.00	0.00	0.00	0.00
27 OCT 83	09:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	10:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	11:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	12:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	13:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	14:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	15:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:12	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:15	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:18	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:20	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:22	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:25	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:28	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:30	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:32	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:35	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:38	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:40	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:42	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:45	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:48	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:50	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:52	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:55	0.00	0.00	0.00	0.00	0.00
27 OCT 83	16:58	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:00	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:02	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:05	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:08	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:10	0.00	0.00	0.00	0.00	0.00
27 OCT 83	17:12	0.00	0.00	0		

[illegible]

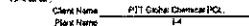
Run No. 6			Time Ratio: 21:21			
Case	Time	SE2	SE1	SE	SE2	SE1
2/24/78	1:10	0.96	1.20	0.91		
2/25/78	1:10	0.96	1.20	0.91		
2/26/78	1:10	1.00	1.00	0.90		
2/27/78	1:10	1.00	0.90	0.87		
2/28/78	1:10	0.97	0.97	0.87		
2/29/78	1:00	0.91	0.91	0.87		
2/30/78	1:00	0.92	0.94	0.90		
3/1/78	1:00	0.92	0.94	0.90		
3/2/78	1:00	0.92	0.94	0.90		
3/3/78	1:00	0.92	0.94	0.90		
3/4/78	1:00	0.92	0.94	0.90		
3/5/78	1:00	0.92	0.94	0.90		
3/6/78	1:00	0.92	0.94	0.90		
3/7/78	1:00	0.92	0.94	0.90		
3/8/78	1:00	0.92	0.94	0.90		
3/9/78	1:00	0.92	0.94	0.90		
3/10/78	1:00	0.92	0.94	0.90		
3/11/78	1:00	0.92	0.94	0.90		
3/12/78	1:00	0.92	0.94	0.90		
3/13/78	1:00	0.92	0.94	0.90		
3/14/78	1:00	0.92	0.94	0.90		
3/15/78	1:00	0.92	0.94	0.90		
3/16/78	1:00	0.92	0.94	0.90		
3/17/78	1:00	0.92	0.94	0.90		
3/18/78	1:00	0.92	0.94	0.90		
3/19/78	1:00	0.92	0.94	0.90		
3/20/78	1:00	0.92	0.94	0.90		
3/21/78	1:00	0.92	0.94	0.90		
3/22/78	1:00	0.92	0.94	0.90		
3/23/78	1:00	0.92	0.94	0.90		
3/24/78	1:00	0.92	0.94	0.90		
3/25/78	1:00	0.92	0.94	0.90		
3/26/78	1:00	0.92	0.94	0.90		
3/27/78	1:00	0.92	0.94	0.90		
3/28/78	1:00	0.92	0.94	0.90		
3/29/78	1:00	0.92	0.94	0.90		
3/30/78	1:00	0.92	0.94	0.90		
3/31/78	1:00	0.92	0.94	0.90		
4/1/78	1:00	0.92	0.94	0.90		
4/2/78	1:00	0.92	0.94	0.90		
4/3/78	1:00	0.92	0.94	0.90		
4/4/78	1:00	0.92	0.94	0.90		
4/5/78	1:00	0.92	0.94	0.90		
4/6/78	1:00	0.92	0.94	0.90		
4/7/78	1:00	0.92	0.94	0.90		
4/8/78	1:00	0.92	0.94	0.90		
4/9/78	1:00	0.92	0.94	0.90		
4/10/78	1:00	0.92	0.94	0.90		
4/11/78	1:00	0.92	0.94	0.90		
4/12/78	1:00	0.92	0.94	0.90		
4/13/78	1:00	0.92	0.94	0.90		
4/14/78	1:00	0.92	0.94	0.90		
4/15/78	1:00	0.92	0.94	0.90		
4/16/78	1:00	0.92	0.94	0.90		
4/17/78	1:00	0.92	0.94	0.90		
4/18/78	1:00	0.92	0.94	0.90		
4/19/78	1:00	0.92	0.94	0.90		
4/20						



Client Name PTT Global Chemical PCL
Plant Name 1-4

Date 27 Oct 1964
Location Plant 1-41 (Furnace)

Runs No.	Time (sec.) 7 min					
Time	Time	100	200	300	400	500
19 Oct 13	9:37	1:02	2:05	3:08	4:11	5:14
20 Oct 15	9:38	0:56	1:58	2:59	4:00	5:00
21 Oct 16	9:40	0:58	2:00	3:02	4:04	5:06
22 Oct 18	9:40	0:58	1:59	3:00	4:02	5:04
23 Oct 18	9:41	0:58	1:59	3:00	4:02	5:04
24 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
25 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
26 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
27 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
28 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
29 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
30 Oct 18	9:42	0:58	1:59	3:00	4:02	5:04
1 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
2 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
3 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
4 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
5 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
6 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
7 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
8 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
9 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
10 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
11 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
12 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
13 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
14 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
15 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
16 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
17 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
18 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
19 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
20 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
21 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
22 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
23 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
24 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
25 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
26 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
27 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
28 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
29 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
30 Nov 18	9:42	0:58	1:59	3:00	4:02	5:04
1 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
2 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
3 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
4 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
5 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
6 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
7 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
8 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
9 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
10 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
11 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
12 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
13 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
14 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
15 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
16 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
17 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
18 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
19 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
20 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
21 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
22 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
23 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
24 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
25 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
26 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
27 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
28 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
29 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
30 Dec 18	9:42	0:58	1:59	3:00	4:02	5:04
1 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
2 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
3 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
4 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
5 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
6 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
7 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
8 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
9 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
10 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
11 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
12 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
13 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
14 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
15 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
16 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
17 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
18 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
19 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
20 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
21 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
22 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
23 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
24 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
25 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
26 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
27 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
28 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
29 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
30 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
31 Jan 19	9:42	0:58	1:59	3:00	4:02	5:04
1 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
2 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
3 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
4 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
5 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
6 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
7 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
8 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
9 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
10 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
11 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
12 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
13 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
14 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
15 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
16 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
17 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
18 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
19 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
20 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
21 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
22 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
23 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
24 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
25 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
26 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
27 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
28 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
29 Feb 19	9:42	0:58	1:59	3:00	4:02	5:04
1 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
2 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
3 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
4 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
5 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
6 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
7 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
8 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
9 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
10 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
11 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
12 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
13 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
14 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
15 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
16 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
17 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
18 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
19 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
20 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
21 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
22 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
23 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
24 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
25 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
26 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
27 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
28 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
29 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
30 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
31 Mar 19	9:42	0:58	1:59	3:00	4:02	5:04
1 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
2 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
3 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
4 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
5 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
6 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
7 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
8 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
9 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
10 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
11 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
12 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
13 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
14 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
15 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04
16 Apr 19	9:42	0:58	1:59	3:00	4:02	5:04

[illegible][illegible]

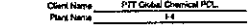
Client Name AJT Global Chemical PCL.
Plant Name LA

Date 27
Location Plant 1-4/1 (1

Run No.	Time Base: 21.00 ms					
Step	Time	W0	W1	OT	CA	WV%
		100%	100%	0%	0%	0%
21-00-08	12.01	0.07	2.02	1.96	0.50	0.46
21-00-09	12.02	0.08	2.01	1.96	0.50	0.46
21-00-10	12.03	0.07	2.01	1.96	0.50	0.46
21-00-11	12.04	0.07	2.01	1.96	0.50	0.46
21-00-12	12.05	0.07	2.01	1.96	0.50	0.46
21-00-13	12.06	0.07	2.01	1.96	0.50	0.46
21-00-14	12.07	0.07	2.01	1.96	0.50	0.46
21-00-15	12.08	0.07	2.01	1.96	0.50	0.46
21-00-16	12.09	0.07	2.01	1.96	0.50	0.46
21-00-17	12.10	0.07	2.01	1.96	0.50	0.46
21-00-18	12.11	0.07	2.01	1.96	0.50	0.46
21-00-19	12.12	0.07	2.01	1.96	0.50	0.46
21-00-20	12.13	0.07	2.01	1.96	0.50	0.46
21-00-21	12.14	0.07	2.01	1.96	0.50	0.46
21-00-22	12.15	0.07	2.01	1.96	0.50	0.46
21-00-23	12.16	0.07	2.01	1.96	0.50	0.46
21-00-24	12.17	0.07	2.01	1.96	0.50	0.46
21-00-25	12.18	0.07	2.01	1.96	0.50	0.46
21-00-26	12.19	0.07	2.01	1.96	0.50	0.46
21-00-27	12.20	0.07	2.01	1.96	0.50	0.46
21-00-28	12.21	0.07	2.01	1.96	0.50	0.46
21-00-29	12.22	0.07	2.01	1.96	0.50	0.46
21-00-30	12.23	0.07	2.01	1.96	0.50	0.46
21-00-31	12.24	0.07	2.01	1.96	0.50	0.46
21-00-32	12.25	0.07	2.01	1.96	0.50	0.46
21-00-33	12.26	0.07	2.01	1.96	0.50	0.46
21-00-34	12.27	0.07	2.01	1.96	0.50	0.46
21-00-35	12.28	0.07	2.01	1.96	0.50	0.46
21-00-36	12.29	0.07	2.01	1.96	0.50	0.46
21-00-37	12.30	0.07	2.01	1.96	0.50	0.46
21-00-38	12.31	0.07	2.01	1.96	0.50	0.46
21-00-39	12.32	0.07	2.01	1.96	0.50	0.46
21-00-40	12.33	0.07	2.01	1.96	0.50	0.46
21-00-41	12.34	0.07	2.01	1.96	0.50	0.46
21-00-42	12.35	0.07	2.01	1.96	0.50	0.46
21-00-43	12.36	0.07	2.01	1.96	0.50	0.46
21-00-44	12.37	0.07	2.01	1.96	0.50	0.46
21-00-45	12.38	0.07	2.01	1.96	0.50	0.46
21-00-46	12.39	0.07	2.01	1.96	0.50	0.46
21-00-47	12.40	0.07	2.01	1.96	0.50	0.46
21-00-48	12.41	0.07	2.01	1.96	0.50	0.46
21-00-49	12.42	0.07	2.01	1.96	0.50	0.46
21-00-50	12.43	0.07	2.01	1.96	0.50	0.46
21-00-51	12.44	0.07	2.01	1.96	0.50	0.46
21-00-52	12.45	0.07	2.01	1.96	0.50	0.46
21-00-53	12.46	0.07	2.01	1.96	0.50	0.46
21-00-54	12.47	0.07	2.01	1.96	0.50	0.46
21-00-55	12.48	0.07	2.01	1.96	0.50	0.46
21-00-56	12.49	0.07	2.01	1.96	0.50	0.46
21-00-57	12.50	0.07	2.01	1.96	0.50	0.46
21-00-58	12.51	0.07	2.01	1.96	0.50	0.46
21-00-59	12.52	0.07	2.01	1.96	0.50	0.46
21-00-60	12.53	0.07	2.01	1.96	0.50	0.46

Run Date		Time Series: 11/1/1998						
Day	Time	2002	2003	2004	2005	2006	2007	2008
25/04/25	19:18	4.01	33.36	1.46	6.88	6.48	6.48	6.48
25/04/25	19:19	4.01	33.36	1.46	6.88	6.48	6.48	6.48
25/04/25	19:18	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:19	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:20	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:21	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:22	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:23	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:24	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:25	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:26	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:27	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:28	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:29	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:30	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:31	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:32	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:33	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:34	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:35	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:36	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:37	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:38	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:39	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:40	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:41	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:42	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:43	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:44	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:45	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:46	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:47	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:48	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:49	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:50	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:51	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:52	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:53	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:54	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:55	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:56	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:57	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:58	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	19:59	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:00	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:01	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:02	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:03	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:04	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:05	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:06	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:07	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:08	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:09	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:10	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:11	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:12	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:13	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:14	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:15	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:16	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:17	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:18	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:19	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:20	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:21	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:22	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:23	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:24	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:25	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:26	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:27	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:28	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:29	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:30	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:31	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:32	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:33	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:34	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:35	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:36	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:37	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:38	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:39	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:40	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:41	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:42	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:43	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:44	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:45	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:46	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:47	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:48	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:49	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:50	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:51	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:52	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:53	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:54	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:55	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:56	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:57	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:58	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	20:59	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:00	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:01	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:02	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:03	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:04	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:05	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:06	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:07	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:08	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:09	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:10	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:11	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:12	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:13	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:14	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:15	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:16	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:17	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:18	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:19	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:20	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:21	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:22	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:23	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:24	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:25	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:26	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:27	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:28	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:29	6.00	65.11	1.73	8.61	8.61	8.61	8.61
25/04/25	21:30	6.00	65.11	1.73	8.61	8.61	8	

SLN No. 6	Year Plan 21 Nov					
	1966	1967	1967	1968	1969	1968
17/04/23	11.00	10.88	10.89	10.89	10.88	10.87
17/05/25	11.99	11.99	12.01	12.01	12.01	12.01
17/06/26	12.00	12.00	12.00	12.00	12.00	12.00
17/06/27	11.88	11.87	11.88	11.88	11.88	11.87
17/06/28	11.89	11.88	11.88	11.88	11.88	11.87
17/06/29	11.89	11.88	11.88	11.88	11.88	11.87
17/06/30	11.89	11.88	11.88	11.88	11.88	11.87
17/06/31	11.89	11.88	11.88	11.88	11.88	11.87
17/06/32	11.89	11.88	11.88	11.88	11.88	11.87
17/06/33	11.89	11.88	11.88	11.88	11.88	11.87
17/06/34	11.89	11.88	11.88	11.88	11.88	11.87
17/06/35	11.89	11.88	11.88	11.88	11.88	11.87
17/06/36	11.89	11.88	11.88	11.88	11.88	11.87
17/06/37	11.89	11.88	11.88	11.88	11.88	11.87
17/06/38	11.89	11.88	11.88	11.88	11.88	11.87
17/06/39	11.89	11.88	11.88	11.88	11.88	11.87
17/06/40	11.89	11.88	11.88	11.88	11.88	11.87
17/06/41	11.89	11.88	11.88	11.88	11.88	11.87
17/06/42	11.89	11.88	11.88	11.88	11.88	11.87
17/06/43	11.89	11.88	11.88	11.88	11.88	11.87
17/06/44	11.89	11.88	11.88	11.88	11.88	11.87
17/06/45	11.89	11.88	11.88	11.88	11.88	11.87
17/06/46	11.89	11.88	11.88	11.88	11.88	11.87
17/06/47	11.89	11.88	11.88	11.88	11.88	11.87
17/06/48	11.89	11.88	11.88	11.88	11.88	11.87
17/06/49	11.89	11.88	11.88	11.88	11.88	11.87
17/06/50	11.89	11.88	11.88	11.88	11.88	11.87
17/06/51	11.89	11.88	11.88	11.88	11.88	11.87
17/06/52	11.89	11.88	11.88	11.88	11.88	11.87
17/06/53	11.89	11.88	11.88	11.88	11.88	11.87
17/06/54	11.89	11.88	11.88	11.88	11.88	11.87
17/06/55	11.89	11.88	11.88	11.88	11.88	11.87
17/06/56	11.89	11.88	11.88	11.88	11.88	11.87
17/06/57	11.89	11.88	11.88	11.88	11.88	11.87
17/06/58	11.89	11.88	11.88	11.88	11.88	11.87
17/06/59	11.89	11.88	11.88	11.88	11.88	11.87
17/06/60	11.89	11.88	11.88	11.88	11.88	11.87
17/06/61	11.89	11.88	11.88	11.88	11.88	11.87
17/06/62	11.89	11.88	11.88	11.88	11.88	11.87
17/06/63	11.89	11.88	11.88	11.88	11.88	11.87
17/06/64	11.89	11.88	11.88	11.88	11.88	11.87
17/06/65	11.89	11.88	11.88	11.88	11.88	11.87
17/06/66	11.89	11.88	11.88	11.88	11.88	11.87
17/06/67	11.89	11.88	11.88	11.88	11.88	11.87
17/06/68	11.89	11.88	11.88	11.88	11.88	11.87
17/06/69	11.89	11.88	11.88	11.88	11.88	11.87
17/06/70	11.89	11.88	11.88	11.88	11.88	11.87
17/06/71	11.89	11.88	11.88	11.88	11.88	11.87
17/06/72	11.89	11.88	11.88	11.88	11.88	11.87
17/06/73	11.89	11.88	11.88	11.88	11.88	11.87
17/06/74	11.89	11.88	11.88	11.88	11.88	11.87
17/06/75	11.89	11.88	11.88	11.88	11.88	11.87
17/06/76	11.89	11.88	11.88	11.88	11.88	11.87
17/06/77	11.89	11.88	11.88	11.88	11.88	11.87
17/06/78	11.89	11.88	11.88	11.88	11.88	11.87
17/06/79	11.89	11.88	11.88	11.88	11.88	11.87
17/06/80	11.89	11.88	11.88	11.88	11.88	11.87
17/06/81	11.89	11.88	11.88	11.88	11.88	11.87
17/06/82	11.89	11.88	11.88	11.88	11.88	11.87
17/06/83	11.89	11.88	11.88	11.88	11.88	11.87
17/06/84	11.89	11.88	11.88	11.88	11.88	11.87
17/06/85	11.89	11.88	11.88	11.88	11.88	11.87
17/06/86	11.89	11.88	11.88	11.88	11.88	11.87
17/06/87	11.89	11.88	11.88	11.88	11.88	11.87
17/06/88	11.89	11.88	11.88	11.88	11.88	11.87
17/06/89	11.89	11.88	11.88	11.88	11.88	11.87
17/06/90	11.89	11.88	11.88	11.88	11.88	11.87
17/06/91	11.89	11.88	11.88	11.88	11.88	11.87
17/06/92	11.89	11.88	11.88	11.88	11.88	11.87
17/06/93	11.89	11.88	11.88	11.88	11.88	11.87
17/06/94	11.89	11.88	11.88	11.88	11.88	11.87
17/06/95	11.89	11.88	11.88	11.88	11.88	11.87
17/06/96	11.89	11.88	11.88	11.88	11.88	11.87
17/06/97	11.89	11.88	11.88	11.88	11.88	11.87
17/06/98	11.89	11.88	11.88	11.88	11.88	11.87
17/06/99	11.89	11.88	11.88	11.88	11.88	11.87
17/07/00	11.89	11.88	11.88	11.88	11.88	11.87
17/07/01	11.89	11.88	11.88	11.88	11.88	11.87
17/07/02	11.89	11.88	11.88	11.88	11.88	11.87
17/07/03	11.89	11.88	11.88	11.88	11.88	11.87
17/07/04	11.89	11.88	11.88	11.88	11.88	11.87
17/07/05	11.89	11.88	11.88	11.88	11.88	11.87
17/07/06	11.89	11.88	11.88	11.88	11.88	11.87
17/07/07	11.89	11.88	11.88	11.88	11.88	11.87
17/07/08	11.89	11.88	11.88	11.88	11.88	11.87
17/07/09	11.89	11.88	11.88	11.88	11.88	11.87
17/07/10	11.89	11.88	11.88	11.88	11.88	11.87
17/07/11	11.89	11.88	11.88	11.88	11.88	11.87
17/07/12	11.89	11.88	11.88	11.88	11.88	11.87
17/07/13	11.89	11.88	11.88	11.88	11.88	11.87
17/07/14	11.89	11.88	11.88	11.88	11.88	11.87
17/07/15	11.89	11.88	11.88	11.88	11.88	11.87
17/07/16	11.89	11.88	11.88	11.88	11.88	11.87
17/07/17	11.89	11.88	11.88	11.88	11.88	11.87
17/07/18	11.89	11.88	11.88	11.88	11.88	11.87
17/07/19	11.89	11.88	11.88	11.88	11.88	11.87
17/07/20	11.89	11.88	11.88	11.88	11.88	11.87
17/07/21	11.89	11.88	11.88	11.88	11.88	11.87
17/07/22	11.89	11.88	11.88	11.88	11.88	11.87
17/07/23	11.89	11.88	11.88	11.88	11.88	11.87
17/07/24	11.89	11.88	11.88	11.88	11.88	11.87
17/07/25	11.89	11.88	11.88	11.88	11.88	11.87
17/07/26	11.89	11.88	11.88	11.88	11.88	11.87
17/07/27	11.89	11.88	11.88	11.88	11.88	11.87
17/07/28	11.89	11.88	11.88	11.88	11.88	11.87
17/07/29	11.89	11.88	11.88	11.88	11.88	11.87
17/07/30	11.89	11.88	11.88	11.88	11.88	11.87
17/07/31	11.89	11.88	11.88	11.88	11.88	11.87
17/07/32	11.89	11.88	11.88	11.88	11.88	11.87
17/07/33	11.89	11.88	11.88	11.88	11.88	11.87
17/07/34	11.89	11.88	11.88	11.88	11.88	11.87
17/07/35	11.89	11.88	11.88	11.88	11.88	11.87
17/07/36	11.89	11.88	11.88	11.88	11.88	11.87
17/07/37	11.89	11.88	11.88	11.88	11.88	11.87
17/07/38	11.89	11.88	11.88	11.88	11.88	11.87
17/07/39	11.89	11.88	11.88	11.88	11.88	11.87
17/07/40	11.89	11.88	11.88	11.88	11.88	11.87
17/07/41	11.89	11.88	11.88	11.88	11.88	11.87
17/07/42	11.89	11.88	11.88	11.88	11.88	11.87
17/07/43	11.89	11.88	11.88	11.88	11.88	11.87
17/07/44	11.89	11.88	11.88	11.88	11.88	11.87
17/07/45	11.89	11.88	11.88	11.88	11.88	11.87
17/07/46	11.89	11.88	11.88	11.88	11.88	11.87
17/07/47	11.89	11.88	11.88	11.88	11.88	11.87
17/07/48	11.89	11.88	11.88	11.88	11.88	11.87
17/07/49	11.89	11.88	11.88	11.88	11.88	11.87
17/07/50	11.89	11.88	11.88	11.88	11.88	11.87
17/07/51	11.89	11.88	11.88	11.88	11.88	11.87
17/07/52	11.89	11.88	11.88	11.88	11.88	11.87
17/07/53	11.89	11.88	11.88	11.88	11.88	11.87
17/07/54	11.89	11.88	11.88	11.88	11.88	11.87
17/07/55	11.89	11.88	11.88	11.88	11.88	11.87
17/07/56	11.89	11.88	11.88	11.88	11.88	11.87
17/07/57	11.89	11.88	11.88	11.88	11.88	11.87
17/07/58	11.89	11.88	11.88	11.88	11.88	11.87
17/07/59	11.89	11.88	11.88	11.88	11.88	11.87
17/07/60	11.89	11.88	11.88	11.88	11.88	11.87
17/07/61	11.89	11.88	11.88	11.88	11.88	11.87
17/07/62	11.89	11.88	11.88	11.88	11.88	11.87
17/07/63	11.89	11.88	11.88	11.88	11.88	11.87
17/07/64	11.89	11.88	11.88	11.88	11.88	11.87
17/07/65	11.89	11.88	11.88	11.88	11.88	11.87
17/07/66	11.89	11.88	11.88	11.88	11.88	11.87
17/07/67	11.89	11.88	11.88	11.88	11.88	11.87
17/07/68	11.89	11.88	11.88	11.88	11.88	11.87
17/07/69	11.89	11.88	11.88	11.88	11.88	11.87
17/07/70	11.89	11.88	11.88	11.88	11.88	11.87
17/07/71	11.89	11.88	11.88	11.88	11.88	11.87
17/07/72	11.89	11.88	11.88	11.88	11.88	11.87
17/07/73	11.89	11.88	11.88	11.88	11.88	11.87
17/07/74	11.89	11.88	11.88	11.88	11.88	11.87
17/07/75	11.89	11.88	11.88	11.88	11.88	11.87
17/07/76	11.89	11.88	11.88	11.88	11.88	11.87
17/07/77	11.89	11.88	11.88	11.88	11.88	11.87
17/07/78	11.89	11.88	11.88	11.88	11.88	11.87
17/07/79	11.89	11.88	11.88	11.88	11.88	11.87
17/07/80	11.89	11.88	11.88	11.88	11.88	11.87
17/07/81	11.89	11.88	11.88	11.88	11.88	11.87
17/07/82	11.89	11.88	11.88	11.88	11.88	11.87
17/07/83	11.89	11.88	11.88	1		



Client Name: PIT Global Chemical PCL
Plant Name: 1-4

Date 27 Oct 2
Location Point 4-1 (Furnace)

Run No. 6		Time Test: 21 min					
Run	Time	500'	1 mi	OG	OG	%C	OG
27 Oct 52	12:37	6:24	10:42	1:00	1:00	100	6:24
27 Oct 52	13:38	6:16	10:32	1:01	1:01	99	6:16
27 Oct 52	14:26	6:10	10:32	1:01	1:01	98	6:10
27 Oct 52	15:26	6:04	10:32	1:01	1:01	97	6:04
27 Oct 52	16:21	6:01	10:40	1:01	1:01	98	6:01
27 Oct 52	17:22	5:58	10:29	1:00	1:00	98	5:58
27 Oct 52	18:22	5:54	10:43	1:01	1:01	97	5:54
27 Oct 52	19:44	5:46	1:13	2:00	1:00	96	5:46
27 Oct 52	20:46	5:40	1:08	2:00	1:00	96	5:40
27 Oct 52	21:47	5:34	1:07	2:00	1:00	96	5:34
27 Oct 52	22:47	5:27	1:07	2:00	1:00	96	5:27
27 Oct 52	23:48	5:19	1:07	2:00	1:00	96	5:19
27 Oct 52	24:49	5:12	1:07	2:00	1:00	96	5:12
27 Oct 52	25:50	5:06	1:07	2:00	1:00	96	5:06
27 Oct 52	26:51	5:00	1:07	2:00	1:00	96	5:00
27 Oct 52	27:52	4:53	1:07	2:00	1:00	96	4:53
27 Oct 52	28:53	4:47	1:07	2:00	1:00	96	4:47
27 Oct 52	29:54	4:40	1:07	2:00	1:00	96	4:40
27 Oct 52	30:55	4:34	1:07	2:00	1:00	96	4:34
27 Oct 52	31:56	4:28	1:07	2:00	1:00	96	4:28
27 Oct 52	32:57	4:22	1:07	2:00	1:00	96	4:22
27 Oct 52	33:58	4:16	1:07	2:00	1:00	96	4:16
27 Oct 52	34:59	4:10	1:07	2:00	1:00	96	4:10
27 Oct 52	35:59	4:04	1:07	2:00	1:00	96	4:04
27 Oct 52	36:59	3:58	1:07	2:00	1:00	96	3:58
27 Oct 52	37:59	3:52	1:07	2:00	1:00	96	3:52
27 Oct 52	38:59	3:46	1:07	2:00	1:00	96	3:46
27 Oct 52	39:59	3:40	1:07	2:00	1:00	96	3:40
27 Oct 52	40:59	3:34	1:07	2:00	1:00	96	3:34
27 Oct 52	41:59	3:28	1:07	2:00	1:00	96	3:28
27 Oct 52	42:59	3:22	1:07	2:00	1:00	96	3:22
27 Oct 52	43:59	3:16	1:07	2:00	1:00	96	3:16
27 Oct 52	44:59	3:10	1:07	2:00	1:00	96	3:10
27 Oct 52	45:59	3:04	1:07	2:00	1:00	96	3:04
27 Oct 52	46:59	2:58	1:07	2:00	1:00	96	2:58
27 Oct 52	47:59	2:52	1:07	2:00	1:00	96	2:52
27 Oct 52	48:59	2:46	1:07	2:00	1:00	96	2:46
27 Oct 52	49:59	2:40	1:07	2:00	1:00	96	2:40
27 Oct 52	50:59	2:34	1:07	2:00	1:00	96	2:34
27 Oct 52	51:59	2:28	1:07	2:00	1:00	96	2:28
27 Oct 52	52:59	2:22	1:07	2:00	1:00	96	2:22
27 Oct 52	53:59	2:16	1:07	2:00	1:00	96	2:16
27 Oct 52	54:59	2:10	1:07	2:00	1:00	96	2:10
27 Oct 52	55:59	2:04	1:07	2:00	1:00	96	2:04
27 Oct 52	56:59	1:58	1:07	2:00	1:00	96	1:58
27 Oct 52	57:59	1:52	1:07	2:00	1:00	96	1:52
27 Oct 52	58:59	1:46	1:07	2:00	1:00	96	1:46
27 Oct 52	59:59	1:40	1:07	2:00	1:00	96	1:40
27 Oct 52	60:59	1:34	1:07	2:00	1:00	96	1:34
27 Oct 52	61:59	1:28	1:07	2:00	1:00	96	1:28
27 Oct 52	62:59	1:22	1:07	2:00	1:00	96	1:22
27 Oct 52	63:59	1:16	1:07	2:00	1:00	96	1:16
27 Oct 52	64:59	1:10	1:07	2:00	1:00	96	1:10
27 Oct 52	65:59	1:04	1:07	2:00	1:00	96	1:04
27 Oct 52	66:59	0:58	1:07	2:00	1:00	96	0:58
27 Oct 52	67:59	0:52	1:07	2:00	1:00	96	0:52
27 Oct 52	68:59	0:46	1:07	2:00	1:00	96	0:46
27 Oct 52	69:59	0:40	1:07	2:00	1:00	96	0:40
27 Oct 52	70:59	0:34	1:07	2:00	1:00	96	0:34
27 Oct 52	71:59	0:28	1:07	2:00	1:00	96	0:28
27 Oct 52	72:59	0:22	1:07	2:00	1:00	96	0:22
27 Oct 52	73:59	0:16	1:07	2:00	1:00	96	0:16
27 Oct 52	74:59	0:10	1:07	2:00	1:00	96	0:10
27 Oct 52	75:59	0:04	1:07	2:00	1:00	96	0:04
27 Oct 52	76:59	0:00	1:07	2:00	1:00	96	0:00
Run	Time	5:23	2:04	2:00	1:02	96	5:23
Weg	OG	5:24	2:04	1:46	0:53	93.5	5:23

Date Run: 10		Time Base: 2.0 min					
Run	Time	BOU	MC	CO	CO	CO	CO
		ppm					
27 Oct 23	15.18	1.51	27.34	1.51	1.51	1.51	1.51
27 Oct 23	15.35	0.81	27.42	1.59	7.04	1.59	1.59
27 Oct 23	16.23	0.55	27.52	1.66	6.42	1.66	1.66
27 Oct 23	16.37	0.22	27.58	1.86	6.18	1.86	1.86
27 Oct 23	17.04	1.35	28.02	1.92	5.94	1.92	1.92
27 Oct 23	17.34	0.40	28.08	2.04	5.70	2.04	2.04
27 Oct 23	17.59	0.25	28.13	2.18	5.46	2.18	2.18
27 Oct 23	18.28	0.28	28.19	2.34	5.24	2.34	2.34
27 Oct 23	18.58	0.50	28.24	2.50	5.00	2.50	2.50
27 Oct 23	19.27	0.59	28.29	2.67	4.80	2.67	2.67
27 Oct 23	19.57	0.79	28.34	2.87	4.57	2.87	2.87
27 Oct 23	20.27	0.91	28.39	3.09	4.37	3.09	3.09
27 Oct 23	20.57	1.05	28.44	3.33	4.15	3.33	3.33
27 Oct 23	21.27	1.21	28.49	3.59	3.94	3.59	3.59
27 Oct 23	21.57	1.39	28.54	3.87	3.72	3.87	3.87
27 Oct 23	22.27	1.59	28.59	4.18	3.50	4.18	4.18
27 Oct 23	22.57	1.81	28.64	4.50	3.29	4.50	4.50
27 Oct 23	23.27	2.05	28.69	4.84	3.09	4.84	4.84
27 Oct 23	23.57	2.31	28.74	5.19	2.89	5.19	5.19
27 Oct 23	24.27	2.59	28.79	5.56	2.69	5.56	5.56
27 Oct 23	24.57	2.89	28.84	5.94	2.50	5.94	5.94
27 Oct 23	25.27	3.21	28.89	6.33	2.31	6.33	6.33
27 Oct 23	25.57	3.55	28.94	6.74	2.13	6.74	6.74
27 Oct 23	25.87	3.91	28.99	7.16	1.95	7.16	7.16
27 Oct 23	26.17	4.29	29.04	7.59	1.79	7.59	7.59
27 Oct 23	26.47	4.69	29.09	8.04	1.64	8.04	8.04
27 Oct 23	26.77	5.11	29.14	8.50	1.50	8.50	8.50
27 Oct 23	27.07	5.55	29.19	8.97	1.37	8.97	8.97
27 Oct 23	27.37	6.01	29.24	9.46	1.25	9.46	9.46
27 Oct 23	27.67	6.49	29.29	9.96	1.14	9.96	9.96
27 Oct 23	27.97	6.99	29.34	10.48	1.04	10.48	10.48
27 Oct 23	28.27	7.51	29.39	11.01	0.95	11.01	11.01
27 Oct 23	28.57	8.05	29.44	11.56	0.87	11.56	11.56
27 Oct 23	28.87	8.61	29.49	12.13	0.80	12.13	12.13
27 Oct 23	29.17	9.19	29.54	12.71	0.74	12.71	12.71
27 Oct 23	29.47	9.79	29.59	13.31	0.69	13.31	13.31
27 Oct 23	29.77	10.41	29.64	13.92	0.64	13.92	13.92
27 Oct 23	30.07	11.05	29.69	14.54	0.60	14.54	14.54
27 Oct 23	30.37	11.71	29.74	15.18	0.57	15.18	15.18
27 Oct 23	30.67	12.39	29.79	15.84	0.54	15.84	15.84
27 Oct 23	30.97	13.09	29.84	16.51	0.51	16.51	16.51
27 Oct 23	31.27	13.81	29.89	17.20	0.49	17.20	17.20
27 Oct 23	31.57	14.55	29.94	17.90	0.		
Max		0.15	28.18	0.91	7.08	6.18	
Min		0.00	27.88	1.52	0.00	0.00	

Date: Nov 12		Total Runs: 21.00 mi					
Run	Time	3CS	4CS	5C	6C	7C	8C
1st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
2nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
3rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
4th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
5th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
6th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
7th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
8th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
9th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
10th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
11th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
12th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
13th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
14th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
15th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
16th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
17th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
18th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
19th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
20th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
21st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
22nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
23rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
24th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
25th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
26th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
27th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
28th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
29th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
30th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
31st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
32nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
33rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
34th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
35th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
36th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
37th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
38th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
39th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
40th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
41st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
42nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
43rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
44th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
45th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
46th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
47th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
48th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
49th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
50th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
51st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
52nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
53rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
54th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
55th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
56th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
57th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
58th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
59th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
60th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
61st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
62nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
63rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
64th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
65th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
66th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
67th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
68th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
69th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
70th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
71st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
72nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
73rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
74th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
75th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
76th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
77th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
78th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
79th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
80th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
81st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
82nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
83rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
84th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
85th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
86th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
87th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
88th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
89th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
90th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
91st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
92nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
93rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
94th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
95th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
96th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
97th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
98th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
99th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
100th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
101st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
102nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
103rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
104th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
105th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
106th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
107th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
108th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
109th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
110th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
111st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
112nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
113rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
114th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
115th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
116th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
117th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
118th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
119th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
120th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
121st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
122nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
123rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
124th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
125th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
126th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
127th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
128th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
129th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
130th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
131st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
132nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
133rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
134th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
135th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
136th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
137th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
138th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
139th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
140th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
141st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
142nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
143rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
144th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
145th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
146th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
147th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
148th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
149th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
150th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
151st 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
152nd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
153rd 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
154th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0
155th 01:05.3	1:05.3	1.0	0.0	0.0	0.0	0.0	0.0</



100

Plant Name _____

Location: Field 147 (Furness) 1:3102 (2)

Run No. 3	Time Base: 171 ms	Run No. 4	Time Base: 21 ms
-----------	-------------------	-----------	------------------

Plan No: 6	Plan No: 6	Plan No: 6	Plan No: 6
------------	------------	------------	------------

1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393</
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--------



2. **Results**

Student Name _____

Time From _____

402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420					
Page No: 2						Time taken: 15 min						Page No: 4						Time taken: 15 min					

Aug	1998	43.5	7.71	4.95	8.11	Aug	1997	41.8	7.95	4.94	8.25
Roll: 1000 ft				Track Error: 0.1 m/s		Roll: 1000 ft		Track Error: 2.1 m/s			

P. 8	0.99	28.7	0.98	0.96	0.97	P. 9	0.98	32.15	0.94	4.17	0.75
------	------	------	------	------	------	------	------	-------	------	------	------



—

Fig. 2 Time

Time	Time
------	------

Run No. 9		Time Used: 27 min		Run No. 10		Time Used: 23 min	
Run	Time	Run	Time	Run	Time	Run	Time
1	0.00	1	0.00	1	0.00	1	0.00
2	0.00	2	0.00	2	0.00	2	0.00
3	0.00	3	0.00	3	0.00	3	0.00
4	0.00	4	0.00	4	0.00	4	0.00
5	0.00	5	0.00	5	0.00	5	0.00
6	0.00	6	0.00	6	0.00	6	0.00
7	0.00	7	0.00	7	0.00	7	0.00
8	0.00	8	0.00	8	0.00	8	0.00
9	0.00	9	0.00	9	0.00	9	0.00
10	0.00	10	0.00	10	0.00	10	0.00
11	0.00	11	0.00	11	0.00	11	0.00
12	0.00	12	0.00	12	0.00	12	0.00
13	0.00	13	0.00	13	0.00	13	0.00
14	0.00	14	0.00	14	0.00	14	0.00
15	0.00	15	0.00	15	0.00	15	0.00
16	0.00	16	0.00	16	0.00	16	0.00
17	0.00	17	0.00	17	0.00	17	0.00
18	0.00	18	0.00	18	0.00	18	0.00
19	0.00	19	0.00	19	0.00	19	0.00
20	0.00	20	0.00	20	0.00	20	0.00
21	0.00	21	0.00	21	0.00	21	0.00
22	0.00	22	0.00	22	0.00	22	0.00
23	0.00	23	0.00	23	0.00	23	0.00
24	0.00	24	0.00	24	0.00	24	0.00
25	0.00	25	0.00	25	0.00	25	0.00
26	0.00	26	0.00	26	0.00	26	0.00
27	0.00	27	0.00	27	0.00	27	0.00
28	0.00	28	0.00	28	0.00	28	0.00
29	0.00	29	0.00	29	0.00	29	0.00
30	0.00	30	0.00	30	0.00	30	0.00
31	0.00	31	0.00	31	0.00	31	0.00
32	0.00	32	0.00	32	0.00	32	0.00
33	0.00	33	0.00	33	0.00	33	0.00
34	0.00	34	0.00	34	0.00	34	0.00
35	0.00	35	0.00	35	0.00	35	0.00
36	0.00	36	0.00	36	0.00	36	0.00
37	0.00	37	0.00	37	0.00	37	0.00
38	0.00	38	0.00	38	0.00	38	0.00
39	0.00	39	0.00	39	0.00	39	0.00
40	0.00	40	0.00	40	0.00	40	0.00
41	0.00	41	0.00	41	0.00	41	0.00
42	0.00	42	0.00	42	0.00	42	0.00
43	0.00	43	0.00	43	0.00	43	0.00
44	0.00	44	0.00	44	0.00	44	0.00
45	0.00	45	0.00	45	0.00	45	0.00
46	0.00	46	0.00	46	0.00	46	0.00
47	0.00	47	0.00	47	0.00	47	0.00
48	0.00	48	0.00	48	0.00	48	0.00
49	0.00	49	0.00	49	0.00	49	0.00
50	0.00	50	0.00	50	0.00	50	0.00
51	0.00	51	0.00	51	0.00	51	0.00

Run No. 19 Time Base : 21 cm Max Vol : 2 Time Base : 21 cm

Journal of Management Inquiry 23(1) 3-17
© The Author(s) 2014
Reprints and permissions: sagepub.com/journalsPermissions.nav
DOI: 10.1177/1056492614528201
<http://jmi.sagepub.com>



POL. _____ D. _____

2

Time 20

Run No: 8	Time Step: 21 min	Run No: 10	Time Step: 21 min

Run No: 11	Total Base: 21 min	Run No: 12	Total Base: 21 min



No. 1 Year 19

Tema 02

Run No: 3	Time Run: 21 min	Run No: 4	Time Run: 21 min
-----------	------------------	-----------	------------------

Run No: 4	Time Taken: 21 min	Run No: 6	Time Taken: 21 min
-----------	--------------------	-----------	--------------------

[illegible]

2

No. 1 Trk No.

Time Re

[illegible]

	10.00	98.00	0.76	= 2.3	1.20		1.20	98.80	0.76	1.17	
Run No. 6	Time Base : 21.000					Run No. 7	Time Base : 21.000				

avg	204	31.5	274	432	621	avg	608	31.26	545	452	721
-----	-----	------	-----	-----	-----	-----	-----	-------	-----	-----	-----



Not a Tree Bar

Time (h)	Time (h)
----------	----------

Run No. 8		Time Run : 21 hrs		Run No. 10		Time Run : 21 hrs	

Run No. 11	Time Base: 21 May	Run No. 12	Time Base: 21 May
------------	-------------------	------------	-------------------

PC₂

Site	Temp (°C)	Humidity (%)	Wind Speed (m/s)	Wind Dir (°)	Pressure (hPa)	Cloud Cover (%)	Soil Temp (°C)	Soil Moisture (%)	Plant Growth (cm)	Plant Health
Site 1	25.5	65	1.2	135	1013.2	15	18.2	12.5	10.5	Good
Site 2	26.8	68	1.5	140	1013.5	18	19.5	13.2	11.2	Good
Site 3	27.1	70	1.8	145	1013.8	20	20.8	14.5	12.0	Good
Site 4	28.5	72	2.0	150	1014.0	22	22.0	15.8	12.8	Good
Site 5	29.2	75	2.2	155	1014.2	25	23.5	17.0	13.5	Good
Site 6	30.5	78	2.5	160	1014.5	28	25.0	18.5	14.2	Good
Site 7	31.8	80	2.8	165	1014.8	30	26.5	20.0	15.0	Good
Site 8	33.0	82	3.0	170	1015.0	32	28.0	21.5	15.8	Good
Site 9	34.5	85	3.2	175	1015.2	35	29.5	23.0	16.5	Good
Site 10	35.8	88	3.5	180	1015.5	38	31.0	24.5	17.2	Good
Site 11	37.0	90	3.8	185	1015.8	40	32.5	26.0	18.0	Good
Site 12	38.5	92	4.0	190	1016.0	42	34.0	27.5	18.8	Good
Site 13	39.8	95	4.2	195	1016.2	45	35.5	29.0	19.5	Good
Site 14	41.0	98	4.5	200	1016.5	48	37.0	30.5	20.2	Good
Site 15	42.5	100	4.8	205	1016.8	50	38.5	32.0	21.0	Good
Site 16	43.8	102	5.0	210	1017.0	52	40.0	33.5	21.8	Good
Site 17	45.0	105	5.2	215	1017.2	55	41.5	35.0	22.5	Good
Site 18	46.5	108	5.5	220	1017.5	58	43.0	36.5	23.2	Good
Site 19	47.8	110	5.8	225	1017.8	60	44.5	38.0	24.0	Good
Site 20	49.0	112	6.0	230	1018.0	62	46.0	39.5	24.8	Good
Site 21	50.5	115	6.2	235	1018.2	65	47.5	41.0	25.5	Good
Site 22	51.8	118	6.5	240	1018.5	68	49.0	42.5	26.2	Good
Site 23	53.0	120	6.8	245	1018.8	70	50.5	44.0	27.0	Good
Site 24	54.5	122	7.0	250	1019.0	72	52.0	45.5	27.8	Good
Site 25	55.8	125	7.2	255	1019.2	75	53.5	47.0	28.5	Good
Site 26	57.0	128	7.5	260	1019.5	78	55.0	48.5	29.2	Good
Site 27	58.5	130	7.8	265	1019.8	80	56.5	50.0	30.0	Good
Site 28	59.8	132	8.0	270	1020.0	82	58.0	51.5	30.8	Good
Site 29	61.0	135	8.2	275	1020.2	85	59.5	53.0	31.5	Good
Site 30	62.5	138	8.5	280	1020.5	88	61.0	54.5	32.2	Good
Site 31	63.8	140	8.8	285	1020.8	90	62.5	56.0	33.0	Good
Site 32	65.0	142	9.0	290	1021.0	92	64.0	57.5	33.8	Good
Site 33	66.5	145	9.2	295	1021.2	95	65.5	59.0	34.5	Good
Site 34	67.8	148	9.5	300	1021.5	98	67.0	60.5	35.2	Good
Site 35	69.0	150	9.8	305	1021.8	100	68.5	62.0	36.0	Good
Site 36	70.5	152	10.0	310	1022.0	102	70.0	63.5	36.8	

	Total E
1	100
2	100
3	100
4	100
5	100
6	100
7	100
8	100
9	100
10	100
11	100
12	100
13	100
14	100
15	100
16	100
17	100
18	100
19	100
20	100
21	100
22	100
23	100
24	100
25	100
26	100
27	100
28	100
29	100
30	100
31	100
32	100
33	100
34	100
35	100
36	100
37	100
38	100
39	100
40	100
41	100
42	100
43	100
44	100
45	100
46	100
47	100
48	100
49	100
50	100
51	100
52	100
53	100
54	100
55	100
56	100
57	100
58	100
59	100
60	100
61	100
62	100
63	100
64	100
65	100
66	100
67	100
68	100
69	100
70	100
71	100
72	100
73	100
74	100
75	100
76	100
77	100
78	100
79	100
80	100
81	100
82	100
83	100
84	100
85	100
86	100
87	100
88	100
89	100
90	100
91	100
92	100
93	100
94	100
95	100
96	100
97	100
98	100
99	100
100	100

Run No. 9	Time Base: 21 min	Run No. 10	Time Base: 21 min

Part No: 11	Time Taken: 21 min	Part No: 12	Time Taken: 21 min
-------------	--------------------	-------------	--------------------

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----



CEMs Data

Date: 26 Oct 21

[illegible]

Reference Method Data

Date 25 Oct 23

[illegible]

CEMs Data

Date 28 Oct 23
 Location BV Flax (1-4) F-430

[illegible]

Reference Method Data

Date 26 Oct 23
Location RV Plant (1-43) - P-4307

[illegible]



Page 1 of 1

Location US HWY 114

Plan No. 6							Plan No. 6						
Time Date: 21 Nov							Time Date: 21 Nov						
Date	Time	Alt	WV	NW	SE	SW	Date	Time	Alt	WV	NW	SE	SW
25 Oct 23	12:44	714	8.0	8.0	13.0	9.0	25 Oct 23	12:58	627	8.0	9.0	9.0	7.0
25 Oct 23	12:45	715	8.0	8.0	13.0	9.0	25 Oct 23	12:59	627	8.0	9.0	9.0	7.0
25 Oct 23	12:46	716	8.0	8.0	13.0	9.0	25 Oct 23	13:00	627	8.0	9.0	9.0	7.0
25 Oct 23	12:47	717	8.0	8.0	13.0	9.0	25 Oct 23	13:01	627	8.0	9.0	9.0	7.0
25 Oct 23	12:48	718	8.0	8.0	13.0	9.0	25 Oct 23	13:02	627	8.0	9.0	9.0	7.0
25 Oct 23	12:49	719	8.0	8.0	13.0	9.0	25 Oct 23	13:03	627	8.0	9.0	9.0	7.0
25 Oct 23	12:50	720	8.0	8.0	13.0	9.0	25 Oct 23	13:04	627	8.0	9.0	9.0	7.0
25 Oct 23	12:51	721	8.0	8.0	13.0	9.0	25 Oct 23	13:05	627	8.0	9.0	9.0	7.0
25 Oct 23	12:52	722	8.0	8.0	13.0	9.0	25 Oct 23	13:06	627	8.0	9.0	9.0	7.0
25 Oct 23	12:53	723	8.0	8.0	13.0	9.0	25 Oct 23	13:07	627	8.0	9.0	9.0	7.0
25 Oct 23	12:54	724	8.0	8.0	13.0	9.0	25 Oct 23	13:08	627	8.0	9.0	9.0	7.0
25 Oct 23	12:55	725	8.0	8.0	13.0	9.0	25 Oct 23	13:09	627	8.0	9.0	9.0	7.0
25 Oct 23	12:56	726	8.0	8.0	13.0	9.0	25 Oct 23	13:10	627	8.0	9.0	9.0	7.0
25 Oct 23	12:57	727	8.0	8.0	13.0	9.0	25 Oct 23	13:11	627	8.0	9.0	9.0	7.0
25 Oct 23	12:58	728	8.0	8.0	13.0	9.0	25 Oct 23	13:12	627	8.0	9.0	9.0	7.0
25 Oct 23	12:59	729	8.0	8.0	13.0	9.0	25 Oct 23	13:13	627	8.0	9.0	9.0	7.0
25 Oct 23	13:00	730	8.0	8.0	13.0	9.0	25 Oct 23	13:14	627	8.0	9.0	9.0	7.0
25 Oct 23	13:01	731	8.0	8.0	13.0	9.0	25 Oct 23	13:15	627	8.0	9.0	9.0	7.0
25 Oct 23	13:02	732	8.0	8.0	13.0	9.0	25 Oct 23	13:16	627	8.0	9.0	9.0	7.0
25 Oct 23	13:03	733	8.0	8.0	13.0	9.0	25 Oct 23	13:17	627	8.0	9.0	9.0	7.0
25 Oct 23	13:04	734	8.0	8.0	13.0	9.0	25 Oct 23	13:18	627	8.0	9.0	9.0	7.0
25 Oct 23	13:05	735	8.0	8.0	13.0	9.0	25 Oct 23	13:19	627	8.0	9.0	9.0	7.0
25 Oct 23	13:06	736	8.0	8.0	13.0	9.0	25 Oct 23	13:20	627	8.0	9.0	9.0	7.0
25 Oct 23	13:07	737	8.0	8.0	13.0	9.0	25 Oct 23	13:21	627	8.0	9.0	9.0	7.0
25 Oct 23	13:08	738	8.0	8.0	13.0	9.0	25 Oct 23	13:22	627	8.0	9.0	9.0	7.0
25 Oct 23	13:09	739	8.0	8.0	13.0	9.0	25 Oct 23	13:23	627	8.0	9.0	9.0	7.0
25 Oct 23	13:10	740	8.0	8.0	13.0	9.0	25 Oct 23	13:24	627	8.0	9.0	9.0	7.0
25 Oct 23	13:11	741	8.0	8.0	13.0	9.0	25 Oct 23	13:25	627	8.0	9.0	9.0	7.0
25 Oct 23	13:12	742	8.0	8.0	13.0	9.0	25 Oct 23	13:26	627	8.0	9.0	9.0	7.0
25 Oct 23	13:13	743	8.0	8.0	13.0	9.0	25 Oct 23	13:27	627	8.0	9.0	9.0	7.0
25 Oct 23	13:14	744	8.0	8.0	13.0	9.0	25 Oct 23	13:28	627	8.0	9.0	9.0	7.0
25 Oct 23	13:15	745	8.0	8.0	13.0	9.0	25 Oct 23	13:29	627	8.0	9.0	9.0	7.0
25 Oct 23	13:16	746	8.0	8.0	13.0	9.0	25 Oct 23	13:30	627	8.0	9.0	9.0	7.0
25 Oct 23	13:17	747	8.0	8.0	13.0	9.0	25 Oct 23	13:31	627	8.0	9.0	9.0	7.0
25 Oct 23	13:18	748	8.0	8.0	13.0	9.0	25 Oct 23	13:32	627	8.0	9.0	9.0	7.0
25 Oct 23	13:19	749	8.0	8.0	13.0	9.0	25 Oct 23	13:33	627	8.0	9.0	9.0	7.0
25 Oct 23	13:20	750	8.0	8.0	13.0	9.0	25 Oct 23	13:34	627	8.0	9.0	9.0	7.0
25 Oct 23	13:21	751	8.0	8.0	13.0	9.0	25 Oct 23	13:35	627	8.0	9.0	9.0	7.0
25 Oct 23	13:22	752	8.0	8.0	13.0	9.0	25 Oct 23	13:36	627	8.0	9.0	9.0	7.0
25 Oct 23	13:23	753	8.0	8.0	13.0	9.0	25 Oct 23	13:37	627	8.0	9.0	9.0	7.0
25 Oct 23	13:24	754	8.0	8.0	13.0	9.0	25 Oct 23	13:38	627	8.0	9.0	9.0	7.0
25 Oct 23	13:25	755	8.0	8.0	13.0	9.0	25 Oct 23	13:39	627	8.0	9.0	9.0	7.0
25 Oct 23	13:26	756	8.0	8.0	13.0	9.0	25 Oct 23	13:40	627	8.0	9.0	9.0	7.0
25 Oct 23	13:27	757	8.0	8.0	13.0	9.0	25 Oct 23	13:41	627	8.0	9.0	9.0	7.0
25 Oct 23	13:28	758	8.0	8.0	13.0	9.0	25 Oct 23	13:42	627	8.0	9.0	9.0	7.0
25 Oct 23	13:29	759	8.0	8.0	13.0	9.0	25 Oct 23	13:43	627	8.0	9.0	9.0	7.0
25 Oct 23	13:30	760	8.0	8.0	13.0	9.0	25 Oct 23	13:44	627	8.0	9.0	9.0	7.0
25 Oct 23	13:31	761	8.0	8.0	13.0	9.0	25 Oct 23	13:45	627	8.0	9.0	9.0	7.0
25 Oct 23	13:32	762	8.0	8.0	13.0	9.0	25 Oct 23	13:46	627	8.0	9.0	9.0	7.0
25 Oct 23	13:33	763	8.0	8.0	13.0	9.0	25 Oct 23	13:47	627	8.0	9.0	9.0	7.0
25 Oct 23	13:34	764	8.0	8.0	13.0	9.0	25 Oct 23	13:48	627	8.0	9.0	9.0	7.0
25 Oct 23	13:35	765	8.0	8.0	13.0	9.0	25 Oct 23	13:49	627	8.0	9.0	9.0	7.0
25 Oct 23	13:36	766	8.0	8.0	13.0	9.0	25 Oct 23	13:50	627	8.0	9.0	9.0	7.0
25 Oct 23	13:37	767	8.0	8.0	13.0	9.0	25 Oct 23	13:51	627	8.0	9.0	9.0	7.0
25 Oct 23	13:38	768	8.0	8.0	13.0	9.0	25 Oct 23	13:52	627	8.0	9.0	9.0	7.0
25 Oct 23	13:39	769	8.0	8.0	13.0	9.0	25 Oct 23	13:53	627	8.0	9.0	9.0	7.0
25 Oct 23	13:40	770	8.0	8.0	13.0	9.0	25 Oct 23	13:54	627	8.0	9.0	9.0	7.0
25 Oct 23	13:41	771	8.0	8.0	13.0	9.0	25 Oct 23	13:55	627	8.0	9.0	9.0	7.0
25 Oct 23	13:42	772	8.0	8.0	13.0	9.0	25 Oct 23	13:56	627	8.0	9.0	9.0	7.0
25 Oct 23	13:43	773	8.0	8.0	13.0	9.0	25 Oct 23	13:57	627	8.0	9.0	9.0	7.0
25 Oct 23	13:44	774	8.0	8.0	13.0	9.0	25 Oct 23	13:58	627	8.0	9.0	9.0	7.0
25 Oct 23	13:45	775	8.0	8.0	13.0	9.0	25 Oct 23	13:59	627	8.0	9.0	9.0	7.0
25 Oct 23	13:46	776	8.0	8.0	13.0	9.0	25 Oct 23	14:00	627	8.0	9.0	9.0	7.0
25 Oct 23	13:47	777	8.0	8.0	13.0	9.0	25 Oct 23	14:01	627	8.0	9.0	9.0	7.0
25 Oct 23	13:48	778	8.0	8.0	13.0	9.0	25 Oct 23	14:02	627	8.0	9.0	9.0	7.0
25 Oct 23	13:49	779	8.0	8.0	13.0	9.0	25 Oct 23	14:03	627	8.0	9.0	9.0	7.0
25 Oct 23	13:50	780	8.0	8.0	13.0	9.0	25 Oct 23	14:04	627	8.0	9.0	9.0	7.0
25 Oct 23	13:51	781	8.0	8.0	13.0	9.0	25 Oct 23	14:05	627	8.0	9.0	9.0	7.0
25 Oct 23	13:52	782	8.0	8.0	13.0	9.0	25 Oct 23	14:06	627	8.0	9.0	9.0	7.0
25 Oct 23	13:53	783	8.0	8.0	13.0	9.0	25 Oct 23	14:07	627	8.0	9.0	9.0	7.0
25 Oct 23	13:54	784	8.0	8.0	13.0	9.0	25 Oct 23	14:08	627	8.0	9.0	9.0	7.0
25 Oct 23	13:55	785	8.0	8.0	13.0	9.0	25 Oct 23	14:09	627	8.0	9.0	9.0	7.0
25 Oct 23	13:56	786	8.0	8.0	13.0	9.0	25 Oct 23	14:10	627	8.0	9.0	9.0	7.0
25 Oct 23	13:57	787	8.0	8.0	13.0	9.0	25 Oct 23	14:11	627	8.0	9.0	9.0	7.0
25 Oct 23	13:58	788	8.0	8.0	13.0	9.0	25 Oct 23	14:12	627	8.0	9.0	9.0	7.0
25 Oct 23	13:59	789	8.0	8.0	13.0	9.0	25 Oct 23	14:13	627	8.0	9.0	9.0	7.0
25 Oct 23	14:00	790	8.0	8.0	13.0	9.0	25 Oct 23	14:14	627	8.0	9.0	9.0	7.0
25 Oct 23	14:01	791	8.0	8.0	13.0	9.0	25 Oct 23	14:15	627	8.0	9.0	9.0	7.0
25 Oct 23	14:02	792	8.0	8.0	13.0	9.0	25 Oct 23	14:16	627	8.0	9.0	9.0	7.0
25 Oct 23	14:03	793	8.0	8.0	13.0	9.0	25 Oct 23	14:17	627	8.0	9.0	9.0	7.0
25 Oct 23	14:04	794	8.0	8.0	13.0	9.0	25 Oct 23	14:18	627	8.0	9.0	9.0	7.0
25 Oct 23	14:05	795	8.0	8.0	13.0	9.0	25 Oct 23	14:19	627	8.0	9.0	9.0	7.0
25 Oct 23	14:06	796	8.0	8.0	13.0	9.0	25 Oct 23	14:20	627	8.0	9.0	9.0	7.0
25 Oct 23	14:07	797	8.0	8.0	13.0	9.0	25 Oct 23	14:21	627	8.0	9.0	9.0	7.0
25 Oct 23	14:08	798	8.0	8.0	13.0	9.0	25 Oct 23	14:22	627	8.0	9.0	9.0	7.0
25 Oct 23	14:09	799	8.0	8.0	13.0	9.0	25 Oct 23	14:23	627	8.0	9.0	9.0	7.0
25 Oct 23	14:10	800	8.0	8.0	13.0	9.0	25 Oct 23	14:24	627	8.0	9.0	9.0	7.0
25 Oct 23	14:11	801	8.0	8.0	13.0	9.0	25 Oct 23	14:25	627	8.0	9.0	9.0	7.0
25 Oct 23	14:12	802	8.0	8.0	13.0	9.0	25 Oct 23	14:26	627	8.0	9.0	9.0	7.0
25 Oct 23	14:13	803	8.0	8.0	13.0	9.0	25 Oct 23	14:27	627	8.0	9.0	9.0	7.0
25 Oct 23	14:14	804	8.0	8.0	13.0	9.0	25 Oct 23	14:28	627	8.0	9.0	9.0	7.0
25 Oct 23	14:15	805	8.0	8.0	13.0	9.0	25 Oct 23	14:29	627	8.0	9.0	9.0	7.0
25 Oct 23	14:16	806	8.0	8.0	13.0	9.0	25 Oct 23	14:30	627	8.0	9.0	9.0	7.0
25 Oct 23	14:17	807	8.0	8.0	13.0	9.0	25 Oct 23	14:31	627	8.0	9.0	9.0	7.0
25 Oct 23	14:18	808	8.0	8.0	13.0	9.0	25 Oct 23	14:32	627	8.0	9.0	9.0	7.0
25 Oct 23	14:19	809	8.0	8.0	13.0	9.0	25 Oct 23	14:33	627	8.0	9.0	9.0	7.0
25 Oct 23	14:20	810	8.0										



100

Page Number 64

Location B'2 Stand (1-4)

[illegible]

Plane Name _____

Location BY Phone

Date: Run #11		Time Slot: 21 min										Run No: 10										Time Slot: 21 min											
Run	Time	BDI	MDI	CO	TD	CD	TD	CD	TD	CD	TD	Run	Time	BDI	MDI	CO	TD	CD	TD	CD	TD	Run	Time	BDI	MDI	CO	TD	CD	TD	CD	TD		
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th			1st	2nd	3rd	4th	5th	6th	7th	8th	9th			1st	2nd	3rd	4th	5th	6th	7th	8th	9th
25 Oct 21	18:00	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:41	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:22	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:01	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:42	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:23	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:02	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:43	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:24	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:03	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:44	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:25	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:04	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:45	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:26	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:05	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:46	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:27	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:06	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:47	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:28	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:07	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:48	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:29	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:08	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:49	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:30	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:09	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:50	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:31	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:10	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:51	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:32	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:11	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:52	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:33	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:12	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:53	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:34	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:13	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:54	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:35	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:14	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:55	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:36	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:15	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:56	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:37	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:16	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:57	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:38	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:17	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:58	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:39	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:18	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	18:59	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:40	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:19	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:00	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:41	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:20	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:01	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:42	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:21	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:02	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:43	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:22	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:03	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:44	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:23	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:04	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:45	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:24	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:05	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:46	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:25	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:06	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:47	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:26	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:07	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:48	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:27	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:08	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:49	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:28	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:09	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:50	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:29	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:10	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:51	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:30	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:11	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:52	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:31	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:12	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:53	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:32	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:13	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:54	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:33	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:14	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:55	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:34	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:15	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:56	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:35	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:16	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:57	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:36	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:17	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:58	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:37	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:18	0.00	0.00	0.00	0.00	16.70	0.0	0.0	0.0	0.0	25 Oct 21	19:59	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0
25 Oct 21	18:38	0.00	0.00	0.00	0.00	17.63	0.0	0.0	0.0	0.0	0.0	25 Oct 21	19:19	0.00	0.00																		



Page 2

Figure 1

[illegible]

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE
(THAILAND) LTD
Part Number: E04N18983HA0050
Cylinder Number: G04027222
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12022
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 160-402340012-1
Cylinder Volume: 247.2 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 680
Certification Date: Feb 09, 2022
Expiration Date: Feb 09, 2023

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 600/R-12/031, using the assay procedures listed. Analytical Metrology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volumetric basis unless otherwise noted.
Do Not Use This Cylinder Below 100 psig (i.e. 6.7 megapascals).

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	55.00 PPM	55.88 PPM	G1	+/- 1.6% NIST Traceable	02/02/2022, 02/09/2022
CARBON MONOXIDE	55.00 PPM	55.22 PPM	G1	+/- 0.6% NIST Traceable	02/02/2022
NITRIC OXIDE	55.00 PPM	55.88 PPM	G1	+/- 1.6% NIST Traceable	02/02/2022, 02/09/2022
SULFUR DIOXIDE	55.00 PPM	55.30 PPM	G1	+/- 0.8% NIST Traceable	02/02/2022, 02/09/2022
NITROGEN	Balance				

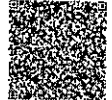
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No.	Concentration	Uncertainty	Expiration Date
NTRM	02010212	KAL004777	98.45 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Oct 16, 2024
NTRM	020610-15	C0733105	98.81 PPM NITRIC OXIDE/NITROGEN	+/- 0.6%	Oct 06, 2025
GMIS	12420100153	C0323707	4.007 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Sep 03, 2024
NTRM	11010419	KAL004813	96.6 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.6%	Jul 26, 2023

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 FTIR AUP2010245 CO	FTIR	Jan 05, 2022
Nicolet 6700 FTIR AUP2010245 NO	FTIR	Jan 12, 2022
Nicolet 6700 FTIR AUP2010245 NO2	FTIR	Jan 27, 2022
Nicolet 6700 FTIR AUP2010245 SO2	FTIR	Jan 20, 2022

Triad Data Available Upon Request

NOTES: Gross Weight: 49.4 Kg

Net Weight: 8.4 Kg



[Signature]
Approved for Release

ภาคผนวก ค

Certificate Calibration Standard Gas

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04N18983HA0023
Cylinder Number: M035053
Laboratory: 124 - Riverton (BAP) - NJ
PGVP Number: B52018
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 82-401016723-1
Cylinder Volume: 247.2 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 680
Certification Date: Feb 23, 2016
Expiration Date: Feb 23, 2016

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 600/R-12/031, using the assay procedures listed. Analytical Metrology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volumetric basis unless otherwise noted.
Do Not Use This Cylinder Below 100 psig (i.e. 6.7 megapascals).

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	80.00 PPM	80.41 PPM	G1	+/- 1.0% NIST Traceable	02/18/2017, 02/06/2018
CARBON MONOXIDE	80.00 PPM	80.81 PPM	G1	+/- 0.7% NIST Traceable	02/18/2017
NITRIC OXIDE	80.00 PPM	80.39 PPM	G1	+/- 1.0% NIST Traceable	02/18/2017, 02/06/2018
SULFUR DIOXIDE	80.00 PPM	81.81 PPM	G1	+/- 1.2% NIST Traceable	02/18/2017, 02/06/2018
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No.	Concentration	Uncertainty	Expiration Date
NTRM	14602715	C0341315	49.89 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Feb 22, 2020
NTRM	123467	AP051000237	6.82 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.3%	Jun 03, 2017
NTRM	16300007	G0412504	50.43 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Jun 07, 2020
GMIS	0218201004	C0032358	4.875 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.8%	Mar 18, 2019
NTRM	14611025	C0121218	49.22 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.6%	Jun 07, 2020

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 APVW100391 CO	FTIR	Feb 05, 2018
Nicolet 6700 APVW100391 NO	FTIR	Feb 18, 2018
Nicolet 6700 APVW100391 NO2	FTIR	Feb 15, 2018
Nicolet 6700 APVW100391 SO2	FTIR	Feb 05, 2018

Triad Data Available Upon Request

NOTES: This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/031. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2000 and relate only to items identified on this certificate. All results are certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.



Approved for Release

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04N18983HA0002
Cylinder Number: N041508
Laboratory: 124 - Riverton (BAP) - NJ
PGVP Number: B52017
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 82-401016723-1
Cylinder Volume: 247.2 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 680
Certification Date: Nov 08, 2017
Expiration Date: Nov 08, 2026

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 600/R-12/031, using the assay procedures listed. Analytical Metrology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volumetric basis unless otherwise noted.
Do Not Use This Cylinder Below 100 psig (i.e. 6.7 megapascals).

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	80.00 PPM	79.41 PPM	G1	+/- 1.0% NIST Traceable	11/01/2017, 11/08/2017
CARBON MONOXIDE	80.00 PPM	79.81 PPM	G1	+/- 0.7% NIST Traceable	11/01/2017
NITRIC OXIDE	80.00 PPM	79.41 PPM	G1	+/- 1.0% NIST Traceable	11/01/2017, 11/08/2017
SULFUR DIOXIDE	80.00 PPM	83.04 PPM	G1	+/- 1.0% NIST Traceable	11/01/2017, 11/08/2017
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No.	Concentration	Uncertainty	Expiration Date
NTRM/eqs	1205235	C0306536	87.58 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	May 25, 2018
PRM	12307	AP051000237	6.82 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Jun 03, 2017
NTRM	13010402	KAL000271	97.6 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	May 04, 2019
GMIS	0310201004	C0002358	4.875 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.8%	Mar 18, 2019
NTRM	170094	C0484000	63.32 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.6%	Dec 07, 2022

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 APVW100391 CO	FTIR	Oct 00, 2017
Nicolet 6700 APVW100391 NO	FTIR	Oct 27, 2017
Nicolet 6700 APVW100391 NO2	FTIR	Oct 30, 2017
Nicolet 6700 APVW100391 SO2	FTIR	Nov 02, 2017

Triad Data Available Upon Request

NOTES: This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/031. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2000 and relate only to items identified on this certificate. All results are certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.



Approved for Release

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04N199E3HA0002
Cylinder Number: ND11218
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12021
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 180-402138465-1
Cylinder Volume: 247.2 Cubic Feet
Cylinder Pressure: 2215 PSIG
Valve Outlet: 660
Certification Date: Jul 15, 2021
Expiration Date: Jul 15, 2029

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Assay Date
NOX	80.00 PPM	81.35 PPM	G1	07/08/2021, 07/15/2021
CARBON MONOXIDE	80.00 PPM	75.73 PPM	G1	07/08/2021, 07/15/2021
NITRIC OXIDE	80.00 PPM	81.85 PPM	G1	07/08/2021, 07/15/2021
SULFUR DIOXIDE	80.00 PPM	79.92 PPM	G1	07/08/2021, 07/15/2021
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	11010130	KAL004536	97.31 PPM CARBON MONOXIDE/NITROGEN	Oct 04, 2022
PRM	12386	D685025	9.91 PPM AIR/NITROGEN DIOXIDE	Feb 20, 2020
NTRM	200610-50	C0733428	98.61 PPM NITRIC OXIDE/NITROGEN	Oct 09, 2025
GMS	124206889	C0323707	4.023 PPM NITROGEN DIOXIDE/NITROGEN	Aug 15, 2021
NTRM	16010224	KAL003638	97.59 PPM SULFUR DIOXIDE/NITROGEN	Dec 23, 2021

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet IS50 FTIR AUP2010245 CO	FTIR	Jun 24, 2021
Nicolet IS50 FTIR AUP2010245 NO	FTIR	Jul 01, 2021
Nicolet IS50 FTIR AUP2010245 NO2	FTIR	Jun 30, 2021
Nicolet IS50 FTIR AUP2010245 SO2	FTIR	Jul 09, 2021

Triad Data Available Upon Request

NOTES:
Gross Weight: 48.0 Kg
Net Weight: 7.8 Kg

Page 1 of 180-402138465-1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04N199E3HA0066
Cylinder Number: ND12115
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12021
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 180-402138454-1
Cylinder Volume: 247.2 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 660
Certification Date: Jul 15, 2021
Expiration Date: Jul 15, 2029

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Assay Date
NOX	55.00 PPM	55.16 PPM	G1	07/08/2021, 07/15/2021
CARBON MONOXIDE	55.00 PPM	54.22 PPM	G1	07/08/2021, 07/15/2021
NITRIC OXIDE	55.00 PPM	56.18 PPM	G1	07/08/2021, 07/15/2021
SULFUR DIOXIDE	55.00 PPM	55.55 PPM	G1	07/08/2021, 07/15/2021
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	11010130	KAL004536	97.31 PPM CARBON MONOXIDE/NITROGEN	Oct 04, 2022
PRM	12386	D685025	9.91 PPM AIR/NITROGEN DIOXIDE	Feb 20, 2020
NTRM	200610-50	C0733428	98.61 PPM NITRIC OXIDE/NITROGEN	Oct 09, 2025
GMS	124206889	C0323707	4.023 PPM NITROGEN DIOXIDE/NITROGEN	Aug 15, 2021
NTRM	16010224	KAL003638	97.59 PPM SULFUR DIOXIDE/NITROGEN	Dec 23, 2021

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet IS50 FTIR AUP2010245 CO	FTIR	Jun 24, 2021
Nicolet IS50 FTIR AUP2010245 NO	FTIR	Jul 01, 2021
Nicolet IS50 FTIR AUP2010245 NO2	FTIR	Jun 30, 2021
Nicolet IS50 FTIR AUP2010245 SO2	FTIR	Jul 09, 2021

Triad Data Available Upon Request

NOTES:
Gross Weight: 47.9 Kg
Net Weight: 7.8 Kg

Page 1 of 180-402138454-1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04N199E3HA0021
Cylinder Number: ND11221
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12021
Gas Code: CO,NO,NOX,SO2,BALN
Reference Number: 180-402138468-1
Cylinder Volume: 247.2 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 660
Certification Date: Jul 15, 2021
Expiration Date: Jul 15, 2029

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Assay Date
NOX	150.0 PPM	152.6 PPM	G1	07/08/2021, 07/15/2021
CARBON MONOXIDE	150.0 PPM	150.0 PPM	G1	07/08/2021, 07/15/2021
NITRIC OXIDE	150.0 PPM	152.9 PPM	G1	07/08/2021, 07/15/2021
SULFUR DIOXIDE	150.0 PPM	152.5 PPM	G1	07/08/2021, 07/15/2021
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	150103-29	KAL004559	970.0 PPM CARBON MONOXIDE/NITROGEN	Dec 21, 2025
PRM	12386	D685025	9.91 PPM AIR/NITROGEN DIOXIDE	Feb 20, 2020
NTRM	13010312	KAL003469	243.4 PPM NITRIC OXIDE/NITROGEN	May 04, 2025
GMS	124206889	C0323707	4.023 PPM NITROGEN DIOXIDE/NITROGEN	Aug 15, 2021
NTRM	16010234	AAL073327	255.3 PPM SULFUR DIOXIDE/NITROGEN	Apr 25, 2022

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet IS50 FTIR AUP2010245 CO	FTIR	Jun 24, 2021
Nicolet IS50 FTIR AUP2010245 NO	FTIR	Jul 01, 2021
Nicolet IS50 FTIR AUP2010245 NO2	FTIR	Jun 30, 2021
Nicolet IS50 FTIR AUP2010245 SO2	FTIR	Jul 09, 2021

Triad Data Available Upon Request

NOTES:
Gross Weight: 48.5 Kg
Net Weight: 8.5 Kg

Page 1 of 180-402138468-1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE
(THAILAND) LTD
Part Number: E02N192E3HA0000
Cylinder Number: GN0027033
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12022
Gas Code: O2,BALN
Reference Number: 180-402240009-1
Cylinder Volume: 248.4 CF
Cylinder Pressure: 2214 PSIG
Valve Outlet: 660
Certification Date: Feb 10, 2022
Expiration Date: Feb 10, 2030

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Assay Date
OXYGEN	8.000 %	7.975 %	G1	02/10/2022
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	15010535	K022176	8.867 % OXYGEN/NITROGEN	Apr 19, 2022

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Jan 27, 2022

Triad Data Available Upon Request

NOTES: Gross Weight: 48.3 Kg
Net Weight: 8.1 Kg

Page 1 of 180-402240009-1

CERTIFICATE OF ANALYSIS
Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE
(THAILAND) LTD
Part Number: E02N184E3HA0001
Cylinder Number: GN0027207
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12022
Gas Code: O2,BALN
Reference Number: 160-402340010-1
Cylinder Volume: 249.8 CF
Cylinder Pressure: 2214 PSIG
Valve Outlet: 590
Certification Date: Feb 02, 2022
Expiration Date: Feb 02, 2030

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Date
OXYGEN	18.00 %	18.02 %	G1	+/- 0.4% NIST Traceable	02/02/2022
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010230	K005228	23.20 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2022
ANALYTICAL EQUIPMENT					
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration	
SIEMENS OXYMAT 6 - N1-W5-951 - O2		PARAMAGNETIC		Jan 27, 2022	

Triad Data Available Upon Request
NOTES: Gross Weight: 48.8 Kg
Net Weight: 8.2 Kg



Approved for Release

Page 1 of 160-402340010-1

CERTIFICATE OF ANALYSIS
Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE
(THAILAND) LTD
Part Number: E02N184E3HA0001
Cylinder Number: GN0027207
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12022
Gas Code: O2,BALN
Reference Number: 160-402340010-1
Cylinder Volume: 249.8 CF
Cylinder Pressure: 2214 PSIG
Valve Outlet: 590
Certification Date: Feb 02, 2022
Expiration Date: Feb 02, 2030

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Date
OXYGEN	18.00 %	18.04 %	G1	+/- 0.4% NIST Traceable	02/02/2022
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010230	K005228	23.20 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2022
ANALYTICAL EQUIPMENT					
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration	
SIEMENS OXYMAT 6 - N1-W5-951 - O2		PARAMAGNETIC		Jan 27, 2022	

Triad Data Available Upon Request
NOTES: Gross Weight: 48.8 Kg
Net Weight: 8.2 Kg



Approved for Release

Page 1 of 160-402340010-1

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number: E02N184E15A0797
Cylinder Number: CC740041
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12020
Gas Code: O2,BALN
Reference Number: 160-401848144-1
Cylinder Volume: 145.8 CF
Cylinder Pressure: 2015 PSIG
Valve Outlet: 590
Certification Date: Nov 11, 2020
Expiration Date: Nov 11, 2028

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Date
OXYGEN	18.00 %	18.17 %	G1	+/- 0.3% NIST Traceable	11/11/2020
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	18090503	CC109542	23.204 % OXYGEN/NITROGEN	+/- 0.2%	Dec 24, 2021
ANALYTICAL EQUIPMENT					
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration	
SIEMENS OXYMAT 6 - N1-W5-951 - O2		PARAMAGNETIC		Oct 26, 2020	

Triad Data Available Upon Request
NOTES: Gross Weight: 27.8 Kg
Net Weight: 4.7 Kg



Approved for Release

Page 1 of 160-401848144-1

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number: E02N182E3HA0000
Cylinder Number: GN0025083
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12020
Gas Code: O2,BALN
Reference Number: 160-401848144-1
Cylinder Volume: 248.4 CF
Cylinder Pressure: 2214 PSIG
Valve Outlet: 590
Certification Date: Nov 11, 2020
Expiration Date: Nov 11, 2028

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Date
OXYGEN	8.000 %	8.019 %	G1	+/- 0.3% NIST Traceable	11/11/2020
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	10010802	1003055	9.957 % OXYGEN/NITROGEN	+/- 0.3%	Apr 19, 2022
ANALYTICAL EQUIPMENT					
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration	
SIEMENS OXYMAT 6 - N1-W5-951 - O2		PARAMAGNETIC		Oct 26, 2020	

Triad Data Available Upon Request
NOTES: Gross Weight: 48.1 Kg
Net Weight: 8.2 Kg



Approved for Release

Page 1 of 160-401848



Lot No. 22151118-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-110
Date : 24 Oct 23 Test Operator : Ussaree N.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.04	0.05	0.04
Low-Level Gas	7.95	8.01	8.03	0.03
Span Gas	16.04	16.07	16.05	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.05	0.02
Low-Level Gas	55.88	55.35	55.98	0.15
Span Gas	162.90	162.38	162.52	0.07

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.07	0.01
Low-Level Gas	58.30	55.52	55.75	0.07
Span Gas	162.60	162.07	161.64	0.11

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 644
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.07	0.07	0.00
Low-Level Gas	55.22	54.74	54.81	0.04
Span Gas	156.00	155.71	155.38	0.17

Calibrated by

(Mr. Ussaree Namburee)
Environmental Field Scientist (4)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 26/6/19

ALS Laboratory Group

ภาคผนวก ง

Certificate Calibration Equipment



Lot No. 22151118-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-110
Date : 24 Oct 23 Test Operator : Ussaree N.O₂ ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.04	0.07	0.12	0.07	0.12	0.00
Upscale Gas	16.07	16.12	0.20	16.11	0.16	0.04

NO_x ANALYZER
Cylinder Conc. (ppm) : 162.90 Span (ppm) : 200

	NO _x Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.05	0.07	0.01	0.08	0.02	0.01
Upscale Gas	162.39	161.05	0.65	161.25	0.58	0.02

SO₂ ANALYZER
Cylinder Conc. (ppm) : 162.60 Span (ppm) : 200

	SO ₂ Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.05	0.08	0.01	0.06	0.01	0.00
Upscale Gas	162.07	160.10	0.58	160.43	0.62	0.17

CO ANALYZER
Cylinder Conc. (ppm) : 156.00 Span (ppm) : 200

	CO Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.07	0.08	0.01	0.08	0.01	0.00
Upscale Gas	155.71	154.10	0.81	154.90	0.86	0.05

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)



Lot No. 22151123-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-110
Date : 18 Sep 23 Test Operator : Worachit T.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 482
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.05	0.01	0.01	0.04
Low-Level Gas	8.02	8.04	8.06	0.02
Span Gas	16.02	16.03	16.19	0.29

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 482
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.05	0.03
Low-Level Gas	55.16	55.75	55.45	0.39
Span Gas	91.05	91.90	91.27	0.53

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 524
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.50	55.51	54.76	0.15
Span Gas	76.92	75.94	75.48	0.48

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 377
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.01	0.02
Low-Level Gas	54.22	54.06	53.89	0.16
Span Gas	79.73	79.77	79.43	0.34

CO₂ ANALYZER
Model : TELEDYNE API T300M Serial No. : 377
Span (%) : 25

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.99	0.00	0.00	0.00
Low-Level Gas	15.13	14.99	15.01	0.00
Span Gas	21.07	21.68	21.92	0.19

Calibrated by

(Mr. Worachit Tongkoon)
Environmental Field Scientist (2)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 30/01/19

ALS Laboratory Group

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 3-6-13

ALS Laboratory Group



Lot No. 22151123-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-120
Date : 18 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.16	0.03	0.12	0.04
Upscale Gas	16.03	16.09	0.24	16.11	0.32	0.08

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.11	0.09	0.18	0.16	0.07
Upscale Gas	81.80	81.07	0.73	80.85	0.95	0.24

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.84	79.13	0.81	78.89	1.06	0.25

CO ANALYZER : 78.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.00	0.03	0.00	0.03	0.00
Upscale Gas	78.77	78.69	1.08	78.71	1.06	0.02

CO₂ ANALYZER : 21.87 Span (%) : 25
Cylinder Conc. (%)

	CO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.00	0.00	0.04
Upscale Gas	21.86	21.83	0.52	21.86	0.40	0.12

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-08-104 REVISION NO. 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151124-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-130
Date : 19 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 482
Model : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	8.02	8.05	8.02	0.03
Span Gas	16.02	16.01	16.05	0.16

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 482
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	56.10	56.39	55.97	0.36
Span Gas	81.85	81.80	81.83	0.03

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 324
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.58	55.37	0.21
Span Gas	79.92	79.81	79.82	0.09

CO ANALYZER : TELEDYNE API T300M Serial No. : 377
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	54.22	54.20	54.39	0.19
Span Gas	79.73	79.69	79.56	0.13

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-08-104 REVISION NO. 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151124-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-130
Date : 19 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	16.01	16.09	0.32	16.07	0.24	0.08

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.05	0.05	0.07	0.07	0.02
Upscale Gas	81.80	81.27	0.53	80.92	0.88	0.35

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.91	79.35	0.56	79.44	0.47	0.09

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.69	79.50	0.19	79.47	0.22	0.03

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-08-104 REVISION NO. 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151125-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant I-4/1 (Furnace) : F-140
Date : 18 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	8.02	7.99	8.01	0.03
Span Gas	16.02	16.01	16.05	0.16

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.02	0.01
Low-Level Gas	56.16	56.02	55.76	0.24
Span Gas	81.85	81.83	81.56	0.27

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 553
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.53	55.20	0.33
Span Gas	79.92	79.00	78.64	0.26

CO ANALYZER : TELEDYNE API T300M Serial No. : 924
Model : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	54.22	54.18	54.58	0.10
Span Gas	79.73	79.72	79.29	0.43

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-08-104 REVISION NO. 1 ISSUE DATE: 30/6/19
ALS Laboratory Group



Lot No. 22151125-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-140
Date : 18 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 18.02 Span (%) : 25
Cylinder Conc. (ppm) : 81.85

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.03	0.03	0.12	0.04
Upscale Gas	16.01	16.06	0.20	16.09	0.32	0.12

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm) : 81.85

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.13	0.10	0.09	0.06	0.04
Upscale Gas	81.83	81.24	0.59	81.09	0.74	0.15

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm) : 79.92

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.90	79.44	0.46	79.28	0.62	0.16

CO ANALYZER : 78.73 Span (ppm) : 100
Cylinder Conc. (ppm) : 78.73

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.00	0.00	0.01
Upscale Gas	78.72	79.51	0.21	79.06	0.63	0.42

Calibrated by

Noranich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. : F-08-104 REVISION NO. : ISSUE DATE : 30/01/19

ALS Laboratory Group



Lot No. 22151126-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-150
Date : 19 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 991
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.03
Low-Level Gas	8.02	7.99	7.97	0.03
Span Gas	16.02	16.01	16.03	0.03

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 991
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.07	0.07
Low-Level Gas	56.18	56.09	55.80	0.28
Span Gas	81.85	81.84	81.38	0.28

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 853
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.58	55.61	0.03
Span Gas	79.92	79.95	79.82	0.13

CO ANALYZER : TELEDYNE API T300M Serial No. : 624
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.00	0.01
Low-Level Gas	54.22	53.66	54.04	0.16
Span Gas	78.73	78.69	78.57	0.12

Calibrated by

Noranich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. : F-08-104 REVISION NO. : ISSUE DATE : 30/01/19

ALS Laboratory Group



Lot No. 22151126-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-150
Date : 19 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 18.02 Span (%) : 25
Cylinder Conc. (ppm) : 81.85

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.04	0.01	0.00	0.04
Upscale Gas	16.01	16.10	0.36	16.05	0.16	0.20

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm) : 81.85

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.11	0.11	0.15	0.15	0.04
Upscale Gas	81.84	81.49	0.35	81.05	0.75	0.43

SO₂ ANALYZER : 78.92 Span (ppm) : 100
Cylinder Conc. (ppm) : 78.92

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	78.95	79.25	0.69	79.15	0.80	0.11

CO ANALYZER : 78.73 Span (ppm) : 100
Cylinder Conc. (ppm) : 78.73

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.01	0.00	0.01	0.01	0.01
Upscale Gas	78.69	78.10	0.59	78.27	0.42	0.17

Calibrated by

Noranich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. : F-08-104 REVISION NO. : ISSUE DATE : 30/01/19

ALS Laboratory Group



Lot No. 22151127-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-160
Date : 20 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	8.02	8.02	8.04	0.08
Span Gas	16.02	16.02	16.05	0.12

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.03
Low-Level Gas	56.18	56.04	55.70	0.05
Span Gas	81.85	81.82	80.86	0.64

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 324
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.07	54.85	0.22
Span Gas	79.92	79.64	79.83	0.11

CO ANALYZER : TELEDYNE API T300M Serial No. : 377
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.30	0.01	0.01
Low-Level Gas	54.22	53.70	54.02	0.25
Span Gas	78.73	78.77	79.65	0.12

Calibrated by

Noranich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. : F-08-104 REVISION NO. : ISSUE DATE : 30/01/19

ALS Laboratory Group



Lot No. 22151127-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-180
Date : 20 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 18.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	18.02	18.06	0.16	18.10	0.32	0.18

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.10	0.10	0.08	0.08	0.02
Upscale Gas	81.82	81.77	0.68	81.37	0.45	0.20

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.94	79.41	0.53	79.18	0.75	0.23

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.77	79.67	0.10	79.44	0.33	0.23

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: - ISSUE DATE: 30/06/19

ALS Laboratory Group



Lot No. 22151128-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-170
Date : 20 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.00	0.04
Low-Level Gas	8.02	8.00	8.03	0.12
Span Gas	18.02	18.01	18.03	0.08

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	58.16	58.18	58.97	0.13
Span Gas	61.85	61.88	61.78	0.10

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 553
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.42	55.38	0.04
Span Gas	79.92	79.84	79.79	0.05

CO ANALYZER : TELEDYNE API T300M Serial No. : 924
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.02
Low-Level Gas	54.22	54.25	54.17	0.08
Span Gas	79.73	79.74	79.65	0.09

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: - ISSUE DATE: 30/06/19

ALS Laboratory Group



Lot No. 22151128-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-170
Date : 20 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 18.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.01	0.00	0.01	0.00	0.00
Upscale Gas	18.01	18.07	0.24	18.05	0.16	0.08

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.13	0.13	0.17	0.17	0.04
Upscale Gas	81.85	80.97	0.91	80.87	1.01	0.10

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.84	78.77	1.07	79.04	0.80	0.27

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.00	0.01	0.00	0.01	0.00
Upscale Gas	79.74	79.79	0.04	79.48	0.26	0.22

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: - ISSUE DATE: 30/06/19

ALS Laboratory Group



Lot No. 22151129-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-180
Date : 21 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.08
Low-Level Gas	8.02	8.01	8.03	0.08
Span Gas	18.02	18.02	18.04	0.08

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 991
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.04	0.03
Low-Level Gas	58.16	58.35	58.95	0.40
Span Gas	61.65	61.61	61.73	0.06

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 553
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.53	55.57	55.28	0.31
Span Gas	79.92	79.90	79.82	0.09

CO ANALYZER : TELEDYNE API T300M Serial No. : 924
Model : Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	54.22	54.30	54.08	0.22
Span Gas	79.73	79.71	79.81	0.10

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: - ISSUE DATE: 30/06/19

ALS Laboratory Group



Lot No. 22151129-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-180
Date : 21 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Cylinder Conc. (ppm) : 18.02 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.04	0.04
Upscale Gas	18.02	18.05	0.12	18.08	0.24	0.12

NO_x ANALYZER
Cylinder Conc. (ppm) : 81.85 Span (ppm) : 100

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.09	0.08	0.14	0.13	0.05
Upscale Gas	81.81	81.11	0.70	81.32	0.49	0.21

SO₂ ANALYZER
Cylinder Conc. (ppm) : 79.92 Span (ppm) : 100

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.90	79.25	0.51	79.41	0.49	0.02

CO ANALYZER
Cylinder Conc. (ppm) : 79.73 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.71	79.53	0.08	79.55	0.18	0.08

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F 08-104 REVISION NO. 1 ISSUE DATE: 2006/9

ALS Laboratory Group



Lot No. 22151130-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-190
Date : 13 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 991
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	8.02	8.03	8.01	0.13
Span Gas	18.02	18.02	18.05	0.12

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 991
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.08	0.03
Low-Level Gas	55.18	55.11	55.98	0.13
Span Gas	81.85	81.78	81.47	0.32

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 553
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.50	55.36	0.14
Span Gas	79.92	79.88	79.54	0.35

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 924
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.04	0.03
Low-Level Gas	54.22	54.04	53.78	0.28
Span Gas	79.73	79.78	79.53	0.20

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F 08-104 REVISION NO. 1 ISSUE DATE: 2006/9

ALS Laboratory Group



Lot No. 22151130-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-190
Date : 13 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Cylinder Conc. (ppm) : 18.02 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.00	0.00	0.08
Upscale Gas	18.02	18.08	0.18	18.11	0.38	0.20

NO_x ANALYZER
Cylinder Conc. (ppm) : 81.85 Span (ppm) : 100

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.06	0.08	0.13	0.10	0.04
Upscale Gas	81.79	80.94	0.85	80.44	1.35	0.50

SO₂ ANALYZER
Cylinder Conc. (ppm) : 79.92 Span (ppm) : 100

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.89	78.38	1.51	78.21	1.68	0.17

CO ANALYZER
Cylinder Conc. (ppm) : 79.73 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.01	0.06	0.12	0.11	0.05
Upscale Gas	79.78	79.74	0.04	79.69	0.09	0.05

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F 08-104 REVISION NO. 1 ISSUE DATE: 2006/9

ALS Laboratory Group



Lot No. 22151135-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-1010
Date : 28 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 991
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.08
Low-Level Gas	8.02	8.01	8.03	0.08
Span Gas	18.02	18.02	18.04	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 991
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.04	0.03
Low-Level Gas	50.16	50.35	50.95	0.40
Span Gas	81.85	81.51	81.75	0.08

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 553
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.57	55.28	0.31
Span Gas	79.92	79.90	79.82	0.08

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 924
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	54.22	54.30	54.08	0.22
Span Gas	79.73	79.71	79.51	0.10

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F 08-104 REVISION NO. 1 ISSUE DATE: 2006/9

ALS Laboratory Group



Lot No. 22151135-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-1010
Date : 25 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%) :

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.04	0.04
Upscale Gas	16.02	16.05	0.12	16.08	0.24	0.12

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm) :

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.08	0.08	0.13	0.05	0.05
Upscale Gas	81.81	81.11	0.70	81.32	0.49	0.21

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm) :

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.90	79.39	0.51	79.41	0.49	0.02

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm) :

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.71	79.63	0.08	79.55	0.16	0.08

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 30/01/19

ALS Laboratory Group



Lot No. 22151139-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-1020
Date : 27 Oct 23 Test Operator : Usasree N.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 822
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.05	0.00
Low-Level Gas	7.98	7.96	8.03	0.18
Span Gas	16.04	16.08	16.07	0.04

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.04	0.01
Low-Level Gas	56.88	55.58	55.39	0.11
Span Gas	192.90	182.78	182.38	0.19

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 634
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.05	0.00
Low-Level Gas	55.30	55.78	55.88	0.04
Span Gas	182.80	182.31	182.00	0.13

CO ANALYZER : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.07	0.10	0.02
Low-Level Gas	59.22	60.02	64.80	0.11
Span Gas	180.00	155.83	155.36	0.23

Calibrated by

Usasree N.

(Mr. Usasree Namburee)

Environmental Field Scientist (4)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 30/01/19

ALS Laboratory Group



Lot No. 22151139-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/1 (Furnace) : F-1020
Date : 27 Oct 23 Test Operator : Usasree N.O₂ ANALYZER : 16.04 Span (%) : 25
Cylinder Conc. (%) :

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.06	0.04	0.08	0.12	0.08
Upscale Gas	16.06	16.10	0.10	16.12	0.24	0.08

NO_x ANALYZER : 162.90 Span (ppm) : 200
Cylinder Conc. (ppm) :

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.05	0.01	0.05	0.01	0.00
Upscale Gas	162.78	161.97	0.39	161.52	0.62	0.22

SO₂ ANALYZER : 162.60 Span (ppm) : 200
Cylinder Conc. (ppm) :

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.08	0.01	0.08	0.01	0.00
Upscale Gas	162.31	161.54	0.39	160.85	0.73	0.34

CO ANALYZER : 159.00 Span (ppm) : 200
Cylinder Conc. (ppm) :

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.67	0.68	0.01	0.68	0.01	0.00
Upscale Gas	155.83	154.38	0.73	153.69	1.12	0.39

Calibrated by

Usasree N.

(Mr. Usasree Namburee)

Environmental Field Scientist (4)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 30/01/19

ALS Laboratory Group



Lot No. 22151145-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/2 (Furnace) : F-3101 (1)
Date : 13 Sep 23 Test Operator : Worawich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.01	0.04
Low-Level Gas	8.07	8.05	8.03	0.08
Span Gas	16.02	16.03	16.05	0.08

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.07	0.02
Low-Level Gas	56.18	55.07	55.84	0.23
Span Gas	81.85	81.63	81.16	0.87

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 324
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.29	55.17	0.12
Span Gas	79.92	79.89	79.58	0.31

CO ANALYZER : TELEDYNE API T300M Serial No. : 377
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.60	0.65	0.67	0.02
Low-Level Gas	54.22	54.15	53.77	0.38
Span Gas	79.73	78.70	78.63	0.07

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. F-06-104 REVISION NO. 1 ISSUE DATE: 30/01/19

ALS Laboratory Group



Lot No. 22151145-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant I-4/2 (Furnace) : F-3101 (1)
Date : 13 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : 15.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.03	0.12	0.08
Upstate Gas	16.03	16.05	0.02	16.09	0.24	0.16

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.06	0.01	0.12	0.07	0.06
Upstate Gas	81.83	80.08	1.15	80.53	0.99	0.17

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upstate Gas	79.89	79.09	0.50	79.23	0.56	0.14

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.18	0.13	0.24	0.19	0.06
Upstate Gas	79.70	79.20	0.50	78.47	1.23	0.73

Calibrated by

Woranich T.

(Mr. Woranich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151147-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant I-4/2 (Furnace) : F-3102 (2)
Date : 14 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 991
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	8.02	8.03	7.95	0.16
Span Gas	16.02	16.01	16.04	0.12

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 991
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	55.16	55.55	56.42	0.23
Span Gas	81.85	82.04	81.82	0.22

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 553
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.54	55.54	0.30
Span Gas	79.92	79.96	79.68	0.30

CO ANALYZER : TELEDYNE API T300M Serial No. : 924
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	54.22	54.29	54.17	0.12
Span Gas	79.73	79.75	79.70	0.05

Calibrated by

Woranich T.

(Mr. Woranich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151147-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant I-4/2 (Furnace) : F-3102 (2)
Date : 14 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.04	0.16	0.12
Upstate Gas	16.01	16.10	0.30	16.05	0.28	0.08

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.08	0.09	0.05	0.05	0.03
Upstate Gas	82.04	81.28	0.76	81.19	0.85	0.09

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upstate Gas	79.86	78.66	0.32	79.51	0.47	0.15

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.14	0.14	0.25	0.25	0.11
Upstate Gas	79.75	79.99	0.24	78.84	0.00	0.15

Calibrated by

Woranich T.

(Mr. Woranich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: 1 ISSUE DATE: 30/6/19
ALS Laboratory Group

Lot No. 22151149-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant I-4/2 (Furnace) : F-3103 (3)
Date : 12 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	8.02	8.04	8.06	0.08
Span Gas	16.02	16.03	16.10	0.25

NO_x ANALYZER : TELEDYNE API T200H Serial No. : 482
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.05	0.03
Low-Level Gas	55.16	55.79	55.49	0.35
Span Gas	81.85	81.80	81.27	0.53

SO₂ ANALYZER : TELEDYNE API T100H Serial No. : 324
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.51	54.78	0.75
Span Gas	79.92	79.94	79.48	0.48

CO ANALYZER : TELEDYNE API T300M Serial No. : 377
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.01	0.02
Low-Level Gas	54.22	54.08	53.89	0.19
Span Gas	79.73	79.77	79.43	0.34

Calibrated by

Woranich T.

(Mr. Woranich Tongpoom)

Environmental Field Scientist (2)

FORM NO.: F-06-104 REVISION NO.: 1 ISSUE DATE: 30/6/19
ALS Laboratory Group



Lot No. 22151145-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Plant 1-4/2 (Furnace) : F-3103 (3)
Date : 22 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Cylinder Conc. (%) : 18.02 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.18	0.03	0.12	0.64
Upscale Gas	18.03	18.09	0.24	18.11	0.32	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 81.85 Span (ppm) : 100

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.11	0.08	0.16	0.10	0.07
Upscale Gas	81.80	81.07	0.73	80.85	0.95	0.22

SO₂ ANALYZER
Cylinder Conc. (ppm) : 78.82 Span (ppm) : 100

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	78.84	79.13	0.81	78.88	1.03	0.25

CO ANALYZER
Cylinder Conc. (ppm) : 79.73 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.24	0.21	0.32	0.29	0.08
Upscale Gas	79.77	78.59	1.08	78.71	1.06	0.02

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. P-06-104 REVISION NO. : ISSUE DATE: 3/06/19
ALS Laboratory Group

Lot No. 22151151-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant 1-4/2 (Furnace) : F-3104 (1)
Date : 22 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 891
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.81	0.02	0.04
Low-Level Gas	8.02	7.50	8.03	0.16
Span Gas	18.02	18.03	18.01	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 891
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.51	0.00	0.04
Low-Level Gas	60.16	60.45	60.27	0.18
Span Gas	81.85	81.80	81.68	0.17

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 503
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.57	55.75	0.13
Span Gas	78.82	78.89	78.91	0.02

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 824
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.02
Low-Level Gas	54.22	54.30	54.11	0.10
Span Gas	79.73	79.72	79.70	0.02

CO₂ ANALYZER
Model : TELEDYNE API T300M Serial No. : 824
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	15.03	15.06	14.99	0.04
Span Gas	21.97	21.97	21.95	0.04

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. P-06-104 REVISION NO. : ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 22151151-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Plant 1-4/2 (Furnace) : F-3104 (1)
Date : 22 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Cylinder Conc. (%) : 18.02 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.04	0.01	0.00	0.04
Upscale Gas	18.03	18.08	0.20	18.08	0.12	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 81.85 Span (ppm) : 100

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.12	0.11	0.14	0.13	0.02
Upscale Gas	81.80	80.94	0.88	81.23	0.57	0.29

SO₂ ANALYZER
Cylinder Conc. (ppm) : 78.82 Span (ppm) : 100

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	78.89	78.16	0.73	78.76	1.10	0.27

CO ANALYZER
Cylinder Conc. (ppm) : 79.73 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.00	0.01	0.02	0.01	0.02
Upscale Gas	79.72	79.57	0.15	79.59	0.04	0.11

CO₂ ANALYZER
Cylinder Conc. (%) : 21.97 Span (%) : 25

	CO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.01	0.04	0.00
Upscale Gas	21.97	21.79	0.72	21.84	0.52	0.20

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. P-06-104 REVISION NO. : ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 22151153-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Plant 1-4/2 (Furnace) : F-3105 (2)
Date : 22 Sep 23 Test Operator : Worawich T.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 891
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	8.02	7.09	8.01	0.08
Span Gas	18.02	18.01	18.05	0.16

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 891
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.01
Low-Level Gas	56.19	56.02	55.78	0.24
Span Gas	81.85	81.83	81.55	0.27

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 553
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.53	55.20	0.33
Span Gas	79.92	79.90	79.84	0.26

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 824
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	54.22	54.16	54.09	0.10
Span Gas	79.73	79.72	79.20	0.43

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (2)

FORM NO. P-06-104 REVISION NO. : ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 22151153-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/2 (Furnace) : F-3108 (2)
Date : 12 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.06	0.03	0.12	0.04
Upscale Gas	16.01	16.06	0.20	16.09	0.32	0.12

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.13	0.10	0.09	0.06	0.04
Upscale Gas	81.83	81.24	0.56	81.09	0.74	0.15

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.90	79.44	0.46	79.28	0.62	0.16

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.10	0.10	0.15	0.15	0.05
Upscale Gas	79.72	79.61	0.21	79.00	0.63	0.42

Calibrated by

Woranich T.

(Mr. Woranich Tongpoo)

Environmental Field Scientist (2)

FORM NO. : F-06-154 REVISION NO. : ISSUE DATE : 25/05/18

ALS Laboratory Group



Lot No. 22151155-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/2 (Furnace) : F-3108 (3)
Date : 15 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : 25 Serial No. : 891
Model : TELEDYNE API T200H
Span (%)

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	8.02	7.99	8.04	0.20
Span Gas	16.02	16.02	16.04	0.08

NO_x ANALYZER : 100 Serial No. : 991
Model : TELEDYNE API T200H
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	56.16	56.29	56.03	0.26
Span Gas	81.65	81.87	81.76	0.11

SO₂ ANALYZER : 100 Serial No. : 553
Model : TELEDYNE API T100H
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.55	55.61	55.58	0.03
Span Gas	79.92	79.98	79.04	0.14

CO ANALYZER : 100 Serial No. : 824
Model : TELEDYNE API T300M
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	54.22	54.16	54.05	0.11
Span Gas	79.73	79.69	79.63	0.06

Calibrated by

Woranich T.

(Mr. Woranich Tongpoo)

Environmental Field Scientist (2)

FORM NO. : F-06-154 REVISION NO. : ISSUE DATE : 25/05/18

ALS Laboratory Group



Lot No. 22151155-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : Plant 1-4/2 (Furnace) : F-3108 (3)
Date : 15 Sep 23 Test Operator : Woranich T.O₂ ANALYZER : 16.02 Span (%) : 25
Cylinder Conc. (%)

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.06	0.04	0.16	0.08
Upscale Gas	16.02	16.07	0.20	16.11	0.36	0.16

NO_x ANALYZER : 81.85 Span (ppm) : 100
Cylinder Conc. (ppm)

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.10	0.10	0.09	0.09	0.01
Upscale Gas	81.87	81.87	0.30	81.69	0.18	0.12

SO₂ ANALYZER : 79.92 Span (ppm) : 100
Cylinder Conc. (ppm)

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.88	78.85	1.10	79.04	0.94	0.16

CO ANALYZER : 79.73 Span (ppm) : 100
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.12	0.12	0.18	0.18	0.58
Upscale Gas	79.69	78.77	0.92	78.81	0.88	0.04

Calibrated by

Woranich T.

(Mr. Woranich Tongpoo)

Environmental Field Scientist (2)

FORM NO. : F-06-154 REVISION NO. : ISSUE DATE : 25/05/18

ALS Laboratory Group



Lot No. 22151157-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : BV Plant (1-4) : F-4301
Date : 26 Oct 23 Test Operator : Usasree N.O₂ ANALYZER : 25 Serial No. : 822
Model : TELEDYNE API T200H
Span (%)

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.05	0.09
Low-Level Gas	7.98	8.00	8.02	0.08
Span Gas	16.04	16.08	16.07	0.04

NO_x ANALYZER : 200 Serial No. : 922
Model : TELEDYNE API T200H
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.04	0.01
Low-Level Gas	55.66	55.62	55.43	0.08
Span Gas	162.90	163.22	162.45	0.39

SO₂ ANALYZER : 200 Serial No. : 534
Model : TELEDYNE API T100H
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.05	0.01
Low-Level Gas	56.30	55.88	55.54	0.17
Span Gas	162.60	162.16	161.93	0.11

CO ANALYZER : 200 Serial No. : 844
Model : TELEDYNE API T300M
Span (ppm)

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.07	0.01
Low-Level Gas	53.22	55.47	53.84	0.31
Span Gas	156.00	156.21	155.63	0.29

Calibrated by

(Mr. Usasree Namburee)

Environmental Field Scientist (4)

FORM NO. : F-06-154 REVISION NO. : ISSUE DATE : 25/05/18

ALS Laboratory Group



Lot No. 22151157-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : BV Plant (I-4) : F-4301
Date : 28 Oct 23 Test Operator : Ussanee N.O₂ ANALYZER
Cylinder Conc. (%) : 18.04 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.03	0.00	0.04	0.04	0.04
Upscale Gas	16.08	16.13	0.20	16.13	0.20	0.00

NO_x ANALYZER
Cylinder Conc. (ppm) : 162.90 Span (ppm) : 200

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.05	0.01	0.05	0.02	0.01
Upscale Gas	163.22	161.77	0.72	161.31	0.95	0.23

SO₂ ANALYZER
Cylinder Conc. (ppm) : 162.60 Span (ppm) : 200

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.05	0.01	0.05	0.01	0.00
Upscale Gas	162.16	161.15	0.60	160.72	0.72	0.22

CO ANALYZER
Cylinder Conc. (ppm) : 156.00 Span (ppm) : 200

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.08	0.01	0.08	0.02	0.01
Upscale Gas	156.21	154.58	0.81	153.93	1.14	0.33

Calibrated by

(Mr. Ussanee Namburee)

Environmental Field Scientist (4)

FORM NO. F 66-104 REVISION NO. - ISSUE DATE: 30/6/16

ALS Laboratory Group



Lot No. 22151945-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : BV Plant (I-4) : F-4302
Date : 25 Oct 23 Test Operator : Ussanee N.O₂ ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.03	0.00
Low-Level Gas	7.98	8.02	8.03	0.04
Span Gas	16.04	16.07	16.07	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.07	0.08	0.01
Low-Level Gas	53.88	56.12	55.43	0.34
Span Gas	162.90	163.05	162.59	0.25

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.05	0.00
Low-Level Gas	56.50	55.76	55.81	0.07
Span Gas	162.60	162.15	161.53	0.11

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.07	0.07	0.00
Low-Level Gas	65.22	64.85	64.73	0.06
Span Gas	156.00	155.74	155.28	0.23

Calibrated by

(Mr. Ussanee Namburee)

Environmental Field Scientist (4)

FORM NO. F 66-104 REVISION NO. - ISSUE DATE: 30/6/16

ALS Laboratory Group



Lot No. 22151945-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : BV Plant (I-4) : F-4302
Date : 25 Oct 23 Test Operator : Ussanee N.O₂ ANALYZER
Cylinder Conc. (%) : 18.04 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.03	0.00	0.04	0.04	0.04
Upscale Gas	16.07	16.12	0.20	16.13	0.24	0.04

NO_x ANALYZER
Cylinder Conc. (ppm) : 162.90 Span (ppm) : 200

	NO _x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.07	0.07	0.00	0.08	0.01	0.01
Upscale Gas	163.08	161.67	0.71	161.42	0.83	0.13

SO₂ ANALYZER
Cylinder Conc. (ppm) : 162.60 Span (ppm) : 200

	SO ₂ Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.08	0.02	0.06	0.02	0.01
Upscale Gas	162.16	160.30	0.93	160.43	0.86	0.06

CO ANALYZER
Cylinder Conc. (ppm) : 156.00 Span (ppm) : 200

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.07	0.08	0.01	0.08	0.01	0.00
Upscale Gas	155.74	154.10	0.82	153.66	0.94	0.12

Calibrated by

(Mr. Ussanee Namburee)

Environmental Field Scientist (4)

FORM NO. F 66-104 REVISION NO. - ISSUE DATE: 30/6/16

ALS Laboratory Group



Lot No. 22122500-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL Location : Boiler (I-4) : S-AT-2411 to 2414
Date : 09 Nov 23 Test Operator : Anuvut M.O₂ ANALYZER
Model : TELEDYNE API T603 Serial No. : 51
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.12	0.14	0.08
Low-Level Gas	8.02	8.23	8.15	0.32
Span Gas	16.17	15.66	16.22	1.32

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 482
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.16	0.11	0.65
Low-Level Gas	60.41	52.06	51.22	0.78
Span Gas	79.41	66.23	60.10	0.13

SO₂ ANALYZER
Model : TELEDYNE API T100H Serial No. : 324
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.11	0.16	0.65
Low-Level Gas	51.61	52.56	52.14	0.42
Span Gas	60.04	61.22	61.00	0.22

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 377
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.14	0.16	0.55
Low-Level Gas	63.31	51.00	51.65	0.66
Span Gas	79.51	63.67	61.00	0.33

Calibrated by

(Mr. Anuvut Nongpaib)
Environmental Field Scientist (2)

FORM NO. F 66-104 REVISION NO. - ISSUE DATE: 30/6/16

ALS Laboratory Group



Lot No. 23122560-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL Location : Boller (I-4) : B-AT-2411 to 2414
 Date : 09 Nov 23 Test Operator : Anurat M.

O₂ ANALYZER
 Cylinder Conc. (%) : 16.17 Span (%) : 25

	O ₂ Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.12	0.15	0.15	0.18	0.15	0.26	0.12	
Upscale Gas	15.89	16.00	0.44	16.12	0.92	0.46		

NO_x ANALYZER
 Cylinder Conc. (ppm) : 79.41 Span (ppm) : 100

	NO _x Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.15	0.11	0.05	0.07	0.09	0.04		
Upscale Gas	80.23	79.22	1.01	79.00	1.23	0.22		

SO₂ ANALYZER
 Cylinder Conc. (ppm) : 80.04 Span (ppm) : 100

	SO ₂ Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.11	0.00	0.11	0.00	0.11	0.00		
Upscale Gas	81.22	80.58	0.34	80.97	0.25	0.09		

CO ANALYZER
 Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.14	0.12	0.02	0.12	0.02	0.00		
Upscale Gas	80.67	79.95	0.69	79.50	1.11	0.42		

Calibrated by

(Mr. Anurat Mounpeli)

Environmental Field Scientist (2)

FORMING: F-04-104 REVISION NO.: 1 ISSUE DATE: 26/4/16
 ALS Laboratory Group

ภาคผนวก จ

เอกสารขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน



ที่ อก ๐๓๑๐(๑)/ ๑๐๖๕

กรมโรงงานอุตสาหกรรม
 ถนนพระรามที่ ๖ เขตราชเทวี
 กรุงเทพมหานคร ๑๐๕๐๐

๒๕ มกราคม ๒๕๖๕

เรื่อง ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
 เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด
 อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์เอกชน
 ลงวันที่ ๓๐ กรกฎาคม ๒๕๖๓

- สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
 ๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผ่น
 ๓. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๑๓ แผ่น

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุ
 หนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สตกที่ ๑๐๔
 ขอยุติพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร
 ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย)
 จำกัด ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

- ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑
 ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๖๖ ราย ตามสิ่งที่ส่งมาด้วย ๒
 ค. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย จำนวน ๕๙ รายการ น้ำเสีย
 จำนวน ๑๖๖ รายการ อากาศเสีย ๑๖ รายการ สิ่งปฏิกูลหรือวัสดุที่ไม่ได้จัดว่า จำนวน ๑๕ รายการ และดิน
 จำนวน ๑๖๕ รายการ รวมทั้งสิ้นจำนวน ๓๖๑ รายการ ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ กันยายน ๒๕๖๖ หากประสงค์จะต่ออายุหนังสือ
 ขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอ
 ต่อกรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นสุดของหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์
 เอกชน ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายศิริ จันทโรจน์)
 นักวิทยาศาสตร์ชำนาญการพิเศษ วิทยาการทางพิษวิทยา
 ผู้อำนวยการกองเคมีภัณฑ์และสิ่งแวดล้อม
 ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและพัฒนาสิ่งแวดล้อมโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๖๐๒ ๔๔๔๐ ๐ ๒๖๐๒ ๔๔๐๒

โทรสาร ๐ ๒๖๕๔ ๓๐๐๘ ๐ ๒๖๕๔ ๓๔๓๔

เอกสารแนบท้ายหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

เลขทะเบียน ๖-๒๐๔

ที่ อก ๐๓๑๐(๑)/

ลงวันที่ ๒๕ มกราคม ๒๕๖๕

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

๑) นางสาวสุภาพร จันทร์เปตัง

ทะเบียนเลขที่ ๖-๒๐๔-ก-๔๓๐๐

๒) นางสาวชัชชัย โจนารุกต์ ณ นคร

ทะเบียนเลขที่ ๖-๒๐๔-ก-๔๓๐๑

๓) นายศราวุธ จิตราพันธ์

ทะเบียนเลขที่ ๖-๒๐๔-ก-๔๓๐๒

๔) นางสาวกนกกร เอนก

ทะเบียนเลขที่ ๖-๒๐๔-ก-๖๓๑๑

๕) นายสุริยา สอนแก้ว

ทะเบียนเลขที่ ๖-๒๐๔-ก-๖๓๑๒

๖) นายวิชาญ จุลนาค

ทะเบียนเลขที่ ๖-๒๐๔-ก-๖๓๑๓

(นายศิริ จันทโรจน์)

นักวิทยาศาสตร์ชำนาญการพิเศษ วิทยาการทางพิษวิทยา
 ผู้อำนวยการกองเคมีภัณฑ์และสิ่งแวดล้อม
 ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

[illegible]

~ (นายสิระ จันทร์เจ็ด) ~
 นักวิทยาศาสตร์ชำนาญการพิเศษ วิชาการการแพทย์
 ผู้อำนวยการกองวิจัยและฝึกอบรมผลิตภัณฑ์โรงงาน

- ๓๐๗) นายสมหมาย หุบลรัตน์
- ๓๐๘) นายสุริยเดช กุญชรชัย
- ๓๐๙) นายสนั่น พันธ์คนี่
- ๓๑๐) นายปิยะวัฒน์ หะมะตะ
- ๓๑๑) นายพหังกร โสภะเขีย
- ๓๑๒) นายจักรพันธ์ คำคำ
- ๓๑๓) นายภาณุพงศ์ นามิพันธ์
- ๓๑๔) นางสมภา ภาทิพย์
- ๓๑๕) นายบุญวัน พูลศรี
- ๓๑๖) นายธีรศักดิ์ ทองอิน
- ๓๑๗) นายอนุชา พันธุะ
- ๓๑๘) นายอดิศักดิ์ เหมโม
- ๓๑๙) นายบุญเสริม วีส
- ๓๒๐) นายบัณฑิตวิทย์ เจริญ
- ๓๒๑) นายขวัญ คุ้ม
- ๓๒๒) นายสมณะวัน นาคะ
- ๓๒๓) นายสุทธพงศ์ วิริยะ
- ๓๒๔) นายชัยภูมิ คุ้ม
- ๓๒๕) นายสุทธิพร ศรีธรรม
- ๓๒๖) นายสมภากร เมือง
- ๓๒๗) นายวัชรวิทย์ สุตะ
- ๓๒๘) นางสาวนันทิยา วัชร
- ๓๒๙) นางสาวประภากรนัย วัชร
- ๓๓๐) นางสาวปัทมากร น
- ๓๓๑) นางสาววัชรวิทย์ น
- ๓๓๒) นางสาววัชรวิทย์ เปรม
- ๓๓๓) นางสาวศุภมาศ ทอง
- ๓๓๔) นางสาวธิดา จิตระ
- ๓๓๕) นางสาวนิพัทธ์ เล็ก
- ๓๓๖) นางสาวกัญญาภา
- ๓๓๗) นางสาวสุกฤษฎิ์ น
- ๓๓๘) นางสาวกัญญาภา
- ๓๓๙) นางสาวทิพย์นรี คำ
- ๓๔๐) นางสาวกัญญาภา
- ๓๔๑) นางสาวทิพย์นรี คำ
- ๓๔๒) นางสาวกัญญาภา
- ๓๔๓) นางสาวธิดาภา น
- ๓๔๔) นางสาวธิดา น
- ๓๔๕) นางสาวธิดา น

[illegible]

๑๕๖) นางสาวชุตติภรณ์...

ผู้เข้าร่วมโครงการฯ ได้แลกเปลี่ยนเรียนรู้เกี่ยวกับโครงการ

១០៥) បាណបត្យ...

นิตិยบทบรรณาธิการจำนวน ๑๐ ฉบับ โดยทางราชการ
ผู้ดำเนินการกองนี้ ได้เคยเสนอไปยังอธิบดีกรม
จัดพิมพ์และจำหน่ายหนังสือราชการแล้ว

ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๒๒ รายการ

น้ำดื่ม จำนวน 59 รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method ⁽⁴⁾
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method ⁽⁴⁾
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method ⁽⁴⁾
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
6	Barium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
7	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
8	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
9	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
10	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method ⁽⁴⁾ 2) 5-Day BOD Test, Membrane Electrode Method ⁽⁴⁾
12	Carbaryl	High-Performance Liquid Chromatographic Method ⁽⁴⁾
13	Carbofuran	High-Performance Liquid Chromatographic Method ⁽⁴⁾
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method ⁽⁴⁾ 2) Closed Reflux, Titrimetric Method ⁽⁴⁾
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
17	Chromium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾
18	Color	ADMI Weighted-Ordinate Spectrophotometric Method

(นางริกาญจน์ ชัยรสสุกิจ)

(ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบและ
มาตรฐานผลิตภัณฑ์)

19 Copper...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
20	Cyanide	Distillation, Colorimetric Method ⁽⁴⁾
21	2,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
22	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
23	2,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
24	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
25	2,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
26	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
33	Formaldehyde	Distillation, Colorimetric Method ⁽⁴⁾
34	Free Chlorine	1) DPD Ferrous Titrimetric Method ⁽⁴⁾ 2) Iodometric Method ⁽⁴⁾
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
36	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
37	Hexavalent Chromium	Filtration, Colorimetric Method ⁽⁴⁾
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method ⁽⁴⁾
39	Lead	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
40	Manganese	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass spectrometric Method ⁽⁴⁾
42	Methiocarb	High-Performance Liquid Chromatographic Method ⁽⁴⁾
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾

(นางริกาญจน์ ชัยรสสุกิจ)
(ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบและ
มาตรฐานผลิตภัณฑ์)

44 Methomyl...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
44	Methomyl	High-Performance Liquid Chromatographic Method ⁽⁴⁾
45	Nickel	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method ⁽⁴⁾ 2) Soxhlet Extraction Method ⁽⁴⁾
47	Oxamyl	High-Performance Liquid Chromatographic Method ⁽⁴⁾
48	Propoxur	High-Performance Liquid Chromatographic Method ⁽⁴⁾
49	pH	Electrometric Method ⁽⁴⁾
50	Phenols	1) Distillation, Chloroform Extraction Method ⁽⁴⁾ 2) Distillation, Direct Photometric Method ⁽⁴⁾
51	Selenium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
52	Sulfide	Iodometric Method ⁽⁴⁾
53	Temperature	Laboratory and Field Methods ⁽⁴⁾
54	Total Dissolved Solids	Dried at 180 °C ⁽⁴⁾
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method ⁽⁴⁾
56	Total Suspended Solids	Dried at 103-105 °C ⁽⁴⁾
57	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
58	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
59	Zinc	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾

น้ำดื่ม จำนวน 126 รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

(นางริกาญจน์ ชัยรสสุกิจ)
(ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบและ
มาตรฐานผลิตภัณฑ์)

3 Aldrin...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
5	Antimony	1) Digestion, Inductively Coupled Plasma Method ⁽³⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
8	Barium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
9	Benzo(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

Signature

18 Bis(2-ethylhexyl)phthalate...

(นางวิภากรรณ์ ชัยพรกุลวิไล)
ผู้ชำนาญการพิเศษ/หัวหน้างานวิเคราะห์ทดสอบพิษ
และสารอินทรีย์อันตราย

ลำดับที่	สารเคมี	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
22	Butyl Benzyl Phthalate	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
33	Chromium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾

Signature

34 Chromium (III)...

(นางวิภากรรณ์ ชัยพรกุลวิไล)
ผู้ชำนาญการพิเศษ/หัวหน้างานวิเคราะห์ทดสอบพิษ
และสารอินทรีย์อันตราย

ลำดับที่	สารเคมี	วิธีวิเคราะห์
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
35	Chromium (VI)	Colorimetric Method ⁽⁴⁾
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
37	Cyanide	Distillation, Colorimetric Method ⁽⁴⁾
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

Signature

51 cis-1,2-Dichloroethylene...

(นางวิภากรรณ์ ชัยพรกุลวิไล)
ผู้ชำนาญการพิเศษ/หัวหน้างานวิเคราะห์ทดสอบพิษ
และสารอินทรีย์อันตราย


ลำดับที่	สารเคมี	วิธีวิเคราะห์
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
63	Di-n-Octyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

Signature

68 Fluorene...


(นางวิภากรรณ์ ชัยพรกุลวิไล)
ผู้ชำนาญการพิเศษ/หัวหน้างานวิเคราะห์ทดสอบพิษ
และสารอินทรีย์อันตราย

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
81	Lead	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
82	Manganese	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
83	Mercury	1) Cold Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾


 (นางสาวกัญจน์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์มลพิษทางอากาศ
 กรมควบคุมมลพิษ


84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
92	Nickel	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1260	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾


 (นางสาวกัญจน์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์มลพิษทางอากาศ
 กรมควบคุมมลพิษ

97 Pentachlorophenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
98	pH	Electrometric Method ⁽⁴⁾
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
100	Phenol	1) Distillation, Direct Photometric Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
102	Selenium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
103	Silver	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
109	TPH (C ₅ -C ₉)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,24)
110	TPH (C ₁₀ -C ₁₃)	Solvent Extraction, Gas Chromatographic Method ^(9,21)
111	TPH (C ₁₄ -C ₁₇)	Solvent Extraction, Gas Chromatographic Method ^(9,21)
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾



 (นางสาวกัญจน์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์มลพิษทางอากาศ
 กรมควบคุมมลพิษ

114 1,1,2-Trichloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
120	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
121	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
122	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
123	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
124	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
126	Zinc	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾


ภาคผนวก (ต่อตาราง) จำนวน 16 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	Isokinetic, Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
2	Arsenic	Isokinetic, Digestion, Inductively Coupled Plasma Method ⁽⁴⁾


 (นางสาวกัญจน์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์มลพิษทางอากาศ
 กรมควบคุมมลพิษ

3 Carbon Monoxide...


ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
3	Carbon Monoxide	1) Sampling Bag Non-Dispersive Infrared Method ⁽³⁾ 2) Non-Dispersive Infrared Method ⁽³⁾ 3) Instrumental Analyzer Method ⁽³⁾
4	Chlorine	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
5	Copper	Isokinetic, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
6	Dioxins	Isokinetic Sampling, Analysis by ISO/IEC 17025 Accredited Laboratory or Analysis by Department of Industrial Works Registered Laboratory (Dioxins/Furans Analysis Approved) ⁽²⁾
7	Hydrogen Chloride	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
8	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ⁽⁵⁾
9	Lead	Isokinetic, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
10	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁵⁾ 2) Isokinetic, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
11	Opacity	Ringelmann's Method ⁽²⁾
12	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method ⁽⁵⁾ 2) Chemiluminescence Method ⁽⁵⁾ 3) Instrumental Analyzer Method ⁽⁵⁾
13	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method ⁽⁵⁾ 2) UV-Fluorescence Method ⁽⁵⁾ 3) Instrumental Analyzer Method ⁽⁵⁾
14	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ⁽⁵⁾
15	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method ⁽⁵⁾
16	Xylene	Absorption Sampling, Gas Chromatographic Method ⁽⁵⁾


 (นางสาวณัฏฐ์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานสิ่งแวดล้อมทางอากาศและเสียง
 กรมควบคุมมลพิษ

สิ่งปลูกถ่าย...


สิ่งปลูกถ่ายที่ยังคงอยู่ในพื้นที่แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25) 2) Soxhlet Extraction, Gas Chromatographic Method ^(1,5,25) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(23,31)
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)


 (นางสาวณัฏฐ์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานสิ่งแวดล้อมทางอากาศและเสียง
 กรมควบคุมมลพิษ


6 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25) 2) Soxhlet Extraction, Gas Chromatographic Method ^(1,5,25) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(23,31)
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1,6,15,17) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1,6,15,17) 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,15,17) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,15,17)
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method ^(1,6,17) 2) Alkaline Digestion, Colorimetric Method ^(1,6,17)


 (นางสาวณัฏฐ์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานสิ่งแวดล้อมทางอากาศและเสียง
 กรมควบคุมมลพิษ

11 Cobalt...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,15)
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25) 2) Soxhlet Extraction, Gas Chromatographic Method ^(1,5,25) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(23,31)
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25) 2) Soxhlet Extraction, Gas Chromatographic Method ^(1,5,25) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(23,31)
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25) 2) Soxhlet Extraction, Gas Chromatographic Method ^(1,5,25) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(23,31)
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,5,25)


 (นางสาวณัฏฐ์ อัครสกุลวิไล)
 ผู้อำนวยการศูนย์มาตรฐานสิ่งแวดล้อมทางอากาศและเสียง
 กรมควบคุมมลพิษ

2) Soxhlet...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽³⁾ 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽³⁾
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽³⁾
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽³⁾
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾ 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁷⁾⁽¹⁵⁾
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽³⁾
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁰⁾

วิธีแปล
(นางสาวกัญจน์ อัครกุลสุโข)
ผู้อำนวยการศูนย์ปฏิบัติการวิเคราะห์และทดสอบ
ศูนย์ปฏิบัติการวิเคราะห์และทดสอบ

2) Waste Extraction...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
23	Methoxychlor	2) Waste Extraction, Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method ⁽¹⁾⁽⁴⁾⁽⁹⁾ 3) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽¹⁾⁽⁴⁾⁽²⁰⁾ 4) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁾⁽⁸⁾ 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method ⁽¹⁾⁽⁹⁾ 6) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽²⁰⁾ 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽²¹⁾
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽²¹⁾
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾ 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁷⁾⁽¹⁵⁾
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾ 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁷⁾⁽¹⁵⁾

วิธีแปล
(นางสาวกัญจน์ อัครกุลสุโข)
ผู้อำนวยการศูนย์ปฏิบัติการวิเคราะห์และทดสอบ
ศูนย์ปฏิบัติการวิเคราะห์และทดสอบ

27 Polychlorinated...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,3-Dichlorobiphenyl - 2,2',5-Trichlorobiphenyl - 2,4',5-Trichlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3',3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽²¹⁾

วิธีแปล
(นางสาวกัญจน์ อัครกุลสุโข)
ผู้อำนวยการศูนย์ปฏิบัติการวิเคราะห์และทดสอบ
ศูนย์ปฏิบัติการวิเคราะห์และทดสอบ

28 Pentachlorophenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
28	Pentachlorophenol	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽²¹⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽²¹⁾
29	pH	Electrometric Method ⁽²⁹⁾⁽³⁰⁾
30	Selenium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾ 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁷⁾⁽¹⁵⁾
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾ 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁷⁾⁽¹⁵⁾
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽²¹⁾ 2) Soxhlet Extraction, Gas Chromatographic Method ⁽¹⁾⁽²⁾⁽²¹⁾ 3) Automated Soxhlet Extraction, Gas Chromatographic Method ⁽²⁾⁽²¹⁾
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽¹⁾⁽⁴⁾⁽¹⁵⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁵⁾

วิธีแปล
(นางสาวกัญจน์ อัครกุลสุโข)
ผู้อำนวยการศูนย์ปฏิบัติการวิเคราะห์และทดสอบ
ศูนย์ปฏิบัติการวิเคราะห์และทดสอบ

4) Digestion...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
35	Zinc	4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,14) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(2,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,15) 3) Digestion, Inductively Coupled Plasma Method ^(7,15) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,14)

ดิน จำนวน 125 ตัวอย่าง

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Acenaphthene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
4	Anthracene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
5	Antimony	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
8	Barium	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)

9 Benz(a)anthracene...
(นางวิภาญ์ อัครกุลกิจ)
ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
9	Benz(a)anthracene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
11	Benzo(b)fluoranthene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
12	Benzo(k)fluoranthene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
13	Benzoic acid	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
14	Benzo(a)pyrene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
15	Benzog,h,iperylene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)
17	Bis(2-chloroethyl)ether	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
18	Bis(2-ethylhexyl)phthalate	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
20	Bromofom	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
21	Butanol	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
22	Butyl Benzyl Phthalate	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)
24	Carbazole	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)

26 Carbon tetrachloride...
(นางวิภาญ์ อัครกุลกิจ)
ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
28	p-Chloroaniline	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
32	2-Chlorophenol	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
33	Chromium	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,15)
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,15,17) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,15,17)
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^(1,17)
36	Chrysene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
37	Cyanide	Extraction, Distillation, Colorimetric Method ^(2,27,28)
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
39	DDD	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)

40 DDE...
(นางวิภาญ์ อัครกุลกิจ)
ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
40	DDE	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
41	DDT	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
42	Dibenz(a,h)anthracene	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
43	Di-n-Butyl Phthalate	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
47	3,3-Dichlorobenzidine	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
53	2,4-Dichlorophenol	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(25,31)
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,24)

57 Dieldrin...
(นางวิภาญ์ อัครกุลกิจ)
ผู้อำนวยการศูนย์บริการวิเคราะห์ทดสอบ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
58	Diethyl Phthalate	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
59	2,4-Dimethylphenol	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
60	2,4-Dinitrophenol	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
61	2,4-Dinitrotoluene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
62	2,6-Dinitrotoluene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
63	Di-n-Octyl Phthalate	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
67	Fluoranthene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
68	Fluorene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
70	Heptachlor Epoxide	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)

71 Hexachlorobenzene...
(นางสาวกัญจน์ ชีวสกุลกิจ)
ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทางเคมี

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
73	n-Hexane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
74	α-HCH	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
75	β-HCH	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
76	γ-HCH	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
77	Hexachlorocyclopentadiene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
78	Hexachloroethane	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
79	Indeno(1,2,3-cd)pyrene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
80	Isophorone	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
81	Lead	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,16)
82	Manganese	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,16)
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁸⁾

2) Thermal...
(นางสาวกัญจน์ ชีวสกุลกิจ)
ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทางเคมี


ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry ⁽¹⁷⁾ 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽¹⁹⁾
85	Methoxychlor	Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method ^(12,24) 1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
88	2-methylphenol	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
89	2-Methylnaphthalene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(14,24)
91	Naphthalene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
92	Nickel	1) Digestion, Inductively Coupled Plasma Method ^(7,15) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,16)
93	Nitrobenzene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
94	N-Nitrosodiphenylamine	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
95	N-Nitrosodi-n-propylamine	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 2) Automated Soxhlet Extraction, Gas Chromatographic Method ^(25,31)

- Aroclor 1242...
(นางสาวกัญจน์ ชีวสกุลกิจ)
ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทางเคมี

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
	- Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3',4,6'-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6'-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5'-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6'-Heptachlorobiphenyl - 2,2',3,4',5,5',6'-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl	
97	Pentachlorophenol	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
98	Phenanthrene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
99	Phenol	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)
100	Pyrene	Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(25,31)

101 Selenium...
(นางสาวกัญจน์ ชีวสกุลกิจ)
ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทางเคมี

ลำดับที่	สารเคมี	วิธีวิเคราะห์
101	Selenium	1) Digestion, Inductively Coupled Plasma Method ^(7,18) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(14,16)
102	Silver	1) Digestion, Inductively Coupled Plasma Method ^(7,14) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(14,14)
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic Method ^(14,28) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(23,31)
108	TPH (C ₇ -C ₉)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
109	TPH (C ₁₀ -C ₁₂)	1) Solvent Extraction, Gas Chromatographic Method ^(11,21) 2) Automated Soxhlet Extraction, Gas Chromatographic Method ^(11,31)
110	TPH (C ₁₃ -C ₁₅)	1) Solvent Extraction, Gas Chromatographic Method ^(11,21) 2) Automated Soxhlet Extraction, Gas Chromatographic Method ^(11,31)
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,28)
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
115	2,4,5-Trichlorophenol	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(23,31)



 (นางจิราจรณ์ จิตคุมกর্ণ)
 ผู้อำนวยการกองมาตรฐานวิธีการวิเคราะห์และทดสอบ

116 2,4,6-Trichlorophenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
116	2,4,6-Trichlorophenol	Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(23,31)
117	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method ^(7,18) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(14,14)
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
121	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
122	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
123	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(14,24)
125	Zinc	1) Digestion, Inductively Coupled Plasma Method ^(7,18) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(14,14)

เอกสารอ้างอิง

- กรมทรัพยากรทางทะเลและชายฝั่ง. ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม. พ.ศ. 2548. เรื่อง การกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว. ราชกิจจานุเบกษา. 25 มกราคม 2549. เล่มที่ 123 ตอนพิเศษ 114.
- กรมทรัพยากรทางทะเลและชายฝั่ง. ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม. พ.ศ. 2549. เรื่อง กำหนดค่าปริมาณและค่าดัชนีชี้แจงปนเปื้อนในอากาศที่ระดับความสูงจากพื้นดินของห้องน้ำในลักษณะเป็นเชื้อเพลิง. ราชกิจจานุเบกษา. 4 ธันวาคม 2549. เล่มที่ 123 ตอนพิเศษ 125.
- สมาคมวิศวกรรมสิ่งแวดล้อมแห่งประเทศไทย. คู่มือวิเคราะห์น้ำเสีย. พิมพ์ครั้งที่ 4. กรุงเทพฯ: เรือนแก้วการพิมพ์, 2547.
- APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 23rd ed. Washington, DC: APHA, 2017.
- United States Environmental Protection Agency. Standards of Performance for New Stationary Sources. 40 CFR 60. Appendix A, 2019.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SW-846, 1997.


 (นางจิราจรณ์ จิตคุมกর্ণ)
 ผู้อำนวยการกองมาตรฐานวิธีการวิเคราะห์และทดสอบ

7. United States...

7. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Acid Digestion of Sludges and Sediments and Soils. SW-846 Method 3050B, 1996.

8. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Alkaline Digestion for Hexavalent Chromium. SW-846 Method 3060A, 1996.

9. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Separatory Funnel Liquid-Liquid Extraction. SW-846 Method 3061C, 1996.

10. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Soxhlet Extraction. SW-846 Method 3540C, 1996.

11. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Microscale Solvent Extraction (MSE). SW-846 Method 3570, 2002.

12. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Volatile Organic Compounds (VOCs) in Various Sample Matrices Using Equilibrium Headspace Analysis. SW-846 Method 5021A, 2014.

13. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Purge-and-Trap for Aqueous Samples. SW-846 Method 5030B, 1996.

14. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples. SW-846 Method 5035, 1996.


15. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma- Atomic Emission Spectrometry. SW-846 Method 6010B, 1996.

16. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-Mass Spectrometry. SW-846 Method 6020A, 2007.

17. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Chromium, Hexavalent (Colorimetric). SW-846 Method 7196A, 1992.

18. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique). SW-846 Method 7471B, 2007.

19. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry. SW-846 Method 7473, 2007


 (นางจิราจรณ์ จิตคุมกর্ণ)
 ผู้อำนวยการกองมาตรฐานวิธีการวิเคราะห์และทดสอบ

20. United States...

20. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Sediment and Tissue Sample by Atomic Fluorescence Spectrometry. SW-846 Method 7474, 2007.

21. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Nonhalogenated Organics Using GC/FID. SW-846 Method 8015B, 1996.

22. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Organochlorine Pesticides by Gas Chromatography. SW-846 Method 8081B, 2007.

23. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Polychlorinated Biphenyls (PCBs) by Gas Chromatography. SW-846 Method 8082, 1996.

24. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). SW-846 Method 8260D, 2018.

25. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). SW-846 Method 8270E, 2018.

26. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Total and Amenable Cyanide: Distillation SW-846 Method 9010B, 1996.


27. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide Extraction Procedure for Solids and Oil. SW-846 Method 9013A, 1996.

28. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide in Waters and Extracts Using Titrimetric and Manual Spectrophotometric Procedures. SW-846 Method 9014, 2014.

29. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. pH Electrometric Measurement. SW-846 Method 9040C, 2004.

30. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Soil and Waste pH. SW-846 Method 9045D, 2004.

31. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Automated Soxhlet Extraction. SW-846 Method 3541, 1994.


 (นางจิราจรณ์ จิตคุมกর্ণ)
 ผู้อำนวยการกองมาตรฐานวิธีการวิเคราะห์และทดสอบ

ที่ อภ ๐๓๓๐(๑)/ ๕๓๓ ๕



กรมโรงงานอุตสาหกรรม
ถนนพหลโยธินที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพมหานคร ๑๐๔๐๐

๑๕ มีนาคม ๒๕๖๖

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอนเนกเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขอปิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
เมื่อวันที่ ๔ กุมภาพันธ์ ๒๕๖๖

ตามที่สำนักงานคณะกรรมการอาหารและยา (อย.) ได้มีคำสั่งให้ปิดห้องปฏิบัติการวิเคราะห์เอกชน
เลขที่ ๖๖๔๔ สังกัดที่ ๑๐๔ ของพัฒนาการ ๕๐ ถนนพหลโยธิน แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์ ความสอดคล้องแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๔ ราย

- | | |
|---------------------------------|----------------------------|
| ๑) นายบวร สุขเจริญ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๐ |
| ๒) นายบุญชู นามวงศ์ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๑ |
| ๓) นายอรรถพล นิยมวิทย์พันธ์ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๒ |
| ๔) นางสาวพัชรีพร หงษ์ยง | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๓ |
| ๕) นางสาวภาณุมาศ สุวรรณศิริ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๔ |
| ๖) นางสาวศรวิมล อังศิริ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๕ |
| ๗) นายสมโภช วัฒนสาร | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๖ |
| ๘) นายอัครวิทย์ ปานะเสวี | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๗ |
| ๙) ว่าที่ร้อยตรีภาณุพงศ์ แสนศรี | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๘ |
| ๑๐) นายภูวนันท์ ภูศิริ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๙ |
| ๑๑) นายณัฐดนัย เชื้อทอง | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๐ |
| ๑๒) นางสาวภาณุมาศ กองคุณ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๑ |
| ๑๓) นางสาววิจิตร เบิกนาศ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๒ |
| ๑๔) นางสาวปัญญารัตน์ ศรีนิเทศ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๓ |
| ๑๕) นายศิริวัฒน์ พาวิน | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๔ |
| ๑๖) นางสาวกนกภรณ์ หู่ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๕ |
| ๑๗) นางสาวจิตติมา ประสงค์ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๖ |
| ๑๘) นางสาวจริยา วิริยะศิริธรรม | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๗ |
| ๑๙) นางสาวณัฏฐา ชอนอินทร์ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๓๘ |

๒. ให้เป็นเจ้าพนักงาน

๒. ให้เพิ่มเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ ราย

- | | |
|---------------------------------|----------------------------|
| ๑) นายภาณุวัฒน์ กิตติคุณาภิชาติ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๐๐๐๑ |
| ๒) นายภัทรพล สุวาทธรรม | ทะเบียนเลขที่ ๖-๒๐๔-๑-๐๐๐๒ |
| ๓) นายภาณุวัฒน์ เทือกชัยคำ | ทะเบียนเลขที่ ๖-๒๐๔-๑-๐๐๐๓ |
| ๔) นายศิริโชค หงษ์ประสม | ทะเบียนเลขที่ ๖-๒๐๔-๑-๐๐๐๔ |
| ๕) นายณัฐวุฒิ คำวง | ทะเบียนเลขที่ ๖-๒๐๔-๑-๐๐๐๕ |

อนึ่ง หนังสือฉบับนี้จะมีผลใช้บังคับตั้งแต่วันที่ ๒๕ มีนาคม ๒๕๖๖ เป็นต้นไป ทั้งนี้ สามารถยื่นคำขอ
ที่ อภ ๐๓๓๐(๑)/๑๐๖๔ ลงวันที่ ๒๕ มีนาคม ๒๕๖๖ คือในวันที่ ๒ กันยายน ๒๕๖๖ ทั้งนี้ สามารถยื่นคำขอ
ผ่านระบบอิเล็กทรอนิกส์ได้ทั้งนี้โปรดดูที่เว็บไซต์กรมโรงงานอุตสาหกรรม ตาม QR Codeท้ายหนังสือฉบับนี้

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

วิภา

(นางวิภา วัชรกุลกิจ)

อธิบดีกรมโรงงานอุตสาหกรรม
ผู้อำนวยการกองบริหารความปลอดภัยโรงงาน
ปฏิบัติการควบคุมและป้องกันมลพิษจากโรงงาน

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบและเตือนภัยมลพิษ
โทร. ๐ ๒๕๓๐ ๒๕๓๒ ถึง ๒๕๓๕
โทรสาร ๐ ๒๕๓๐ ๒๕๓๖ ถึง ๒๕๓๘
ไปรษณีย์อิเล็กทรอนิกส์ sarabangdw@mail.go.th



ที่ อภ ๐๓๓๐(๑)/ ๖๑๒ ๕



กรมโรงงานอุตสาหกรรม
ถนนพหลโยธินที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพมหานคร ๑๐๔๐๐

๒๓ มีนาคม ๒๕๖๖

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอนเนกเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขอปิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
เมื่อวันที่ ๑๐ มีนาคม ๒๕๖๖

ตามที่สำนักงานคณะกรรมการอาหารและยา (อย.) ได้มีคำสั่งให้ปิดห้องปฏิบัติการวิเคราะห์เอกชน
เลขที่ ๖๖๔๔ สังกัดที่ ๑๐๔ ของพัฒนาการ ๕๐ ถนนพหลโยธิน แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากรของห้องปฏิบัติการ
วิเคราะห์ ความสอดคล้องแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว เห็นสมควรเปลี่ยนแปลงเจ้าหน้าที่ประจำห้องปฏิบัติการ
วิเคราะห์ จากเดิม นางสาวภาณุมาศ มงคลศิริกุล ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๔ เป็น นางสาวณัฐดนัย
ทะเบียนเลขที่ ๖-๒๐๔-๑-๒๑๒๕

ทั้งนี้ หากท่านมีความประสงค์จะยื่นคำขอใดๆ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์
ได้ที่เว็บไซต์กรมโรงงานอุตสาหกรรม ตาม QR Code ท้ายหนังสือฉบับนี้

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

วิภา

(นายประจักษ์ คำวงศ์)
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติการควบคุมและป้องกันมลพิษจากโรงงาน

คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขอปิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน

แบบ ป.๑

คำขอ () ผู้รับใบอนุญาตประกอบกิจการโรงงาน

วันที่ ๑ เดือน สิงหาคม พ.ศ. ๒๕๖๖

() บริษัท/ห้างหุ้นส่วนจำกัด เอนเนกเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

คำขอเลขที่ 104 หมู่ที่ ๑ ตำบล/แขวง พัฒนาการ 40

ถนน พหลโยธิน ตำบล/แขวง พัฒนาการ

อำเภอ/เขต สุววิทยารักษ์ จังหวัด กรุงเทพมหานคร รหัสไปรษณีย์ 10250

โทรศัพท์ 02 760-3040 โทรสาร 02 760-3197

ได้ให้ทราบและยินยอมให้โรงงานอุตสาหกรรมว่าด้วยการขึ้นทะเบียนของห้องปฏิบัติการวิเคราะห์เอกชน พ.ศ. ๒๕๖๐ โดยตรงแล้วและยินยอม

ปฏิบัติตามระเบียบการประกอบกิจการ และได้แนบเอกสารต่าง ตามรายการเอกสารประกอบคำขอ (แบบ ป.๑) มาพร้อมนี้

รายการขอขึ้นทะเบียน

การดำเนินการ	รายละเอียด (รายการ)				
	นำขึ้นขึ้นทะเบียน	ปิด	ยกเลิก	สิ้นปฏิบัติการ/วิเทศน์ให้แล้ว	อื่น
() ขอขึ้นทะเบียนของห้องปฏิบัติการวิเคราะห์เอกชน					
() ต่ออายุของห้องปฏิบัติการวิเคราะห์เอกชน	59	126	16	35	125
() เปลี่ยนแปลงสารมลพิษที่วิเคราะห์ () เพิ่มสารมลพิษ () ยกเลิกสารมลพิษ	-	-	12	-	-
() เปลี่ยนแปลงบุคลากร () เพิ่มบุคลากร () ยกเลิกบุคลากร	จำนวน 38 ราย (รายละเอียดตาม แบบ ป.๑.1)	จำนวน 2 ราย (รายละเอียดตาม แบบ ป.๑.1)			
() ยกเลิกของห้องปฏิบัติการวิเคราะห์เอกชน					
() อื่นๆ โปรดระบุ					

จึงเรียนมาเพื่อโปรดพิจารณา

19/๓

(นายประจักษ์ คำวงศ์)

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน

ลงชื่อ

(นางทัศนีย์ เสนาบุตร)

ผู้อำนวยการกองบริหารความปลอดภัย

ปทุมธานี (ถ้ามี)

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบและเตือนภัยมลพิษ

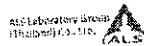
โทร. ๐ ๒๕๓๐ ๒๕๓๒ ถึง ๒๕๓๕

โทรสาร ๐ ๒๕๓๐ ๒๕๓๖ ถึง ๒๕๓๘

ไปรษณีย์อิเล็กทรอนิกส์ sarabangdw@mail.go.th



โปรดดูที่เว็บไซต์กรมโรงงานอุตสาหกรรม





📍 **ALS Bangkok (Head Office)**

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khret Suan Luang,
Bangkok 10250

📍 **ALS Rayong**

616/10 Moo 5, T. Maenamkoo, A. Pluakdaeng, Rayong 21140

📍 **ALS Songkhla**

114/1 Moo 8, Kamchanawanich Rd., T. Ban Phru, A. Hat Yai, Songkhla 90250

📍 **ALS Chiang Mai**

The Office Plus, 55 Moo 7, Hod-Chiang Mai Rd., T. Suthep, A. Muang, Chiang Mai 50200

📍 **ALS Nakhon Ratchasima**

CP Tower, Room no. NMA1-01, 3320/9 Mittraphap Rd., T. Nai-Muang, A. Muang,
Nakhon Ratchasima 30000

📍 **ALS Surat Thani**

130/325, Moo 10, T. Watpradoo, A. Muang Surat Thani, Surat Thani 84000

📍 **ALS Nongkhai**

1128/1 Moo 2, Tekai Rd., T. Nai-Muang, A. Muang Nongkhai, Nongkhai 43000

📍 **ALS Phuket**

Phuket Boat Lagoon (Park Plaza E) 20/121, Moo 2, Thepkasattri Rd., T. Koh Kaew, A. Muang Phuket,
Phuket 83000

✉ bangkok@alsglobal.com



ALS Line Official
ID: @alsthailand



ALS Facebook
Search: ALS Thailand

www.alsglobal.com

ภาคผนวก ค.3

แบบบันทึกปริมาณรถเข้า-ออก

รายงานยอดรถเข้าประตู G1 เดือน เมษายน		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-04-24	394	395
02-04-24	406	388
03-04-24	398	391
04-04-24	420	416
05-04-24	422	410
06-04-24	226	229
07-04-24	139	137
08-04-24	375	377
09-04-24	382	365
10-04-24	385	373
11-04-24	410	398
12-04-24	376	343
13-04-24	188	195
14-04-24	159	156
15-04-24	166	155
16-04-24	152	151
17-04-24	170	179
18-04-24	354	357
19-04-24	383	375
20-04-24	240	236
21-04-24	199	198
22-04-24	379	373
23-04-24	412	383
24-04-24	439	431
25-04-24	423	414
26-04-24	384	390
27-04-24	214	213
28-04-24	148	148
29-04-24	409	407
30-04-24	391	303

รายงานยอดรถเข้าประตู G1 เดือน พฤษภาคม		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-05-24	115	111
02-05-24	393	387
03-05-24	367	361
04-05-24	202	200
05-05-24	140	151
06-05-24	126	128
07-05-24	333	357
08-05-24	429	411
09-05-24	404	388
10-05-24	358	352
11-05-24	195	188
12-05-24	129	126
13-05-24	386	372
14-05-24	415	403
15-05-24	407	400
16-05-24	403	394
17-05-24	412	400
18-05-24	221	212
19-05-24	158	152
20-05-24	417	416
21-05-24	328	380
22-05-24	233	218
23-05-24	397	417
24-05-24	364	396
25-05-24	249	248
26-05-24	173	158
27-05-24	424	421
28-05-24	418	395
29-05-24	450	447
30-05-24	430	427
31-05-24	433	405

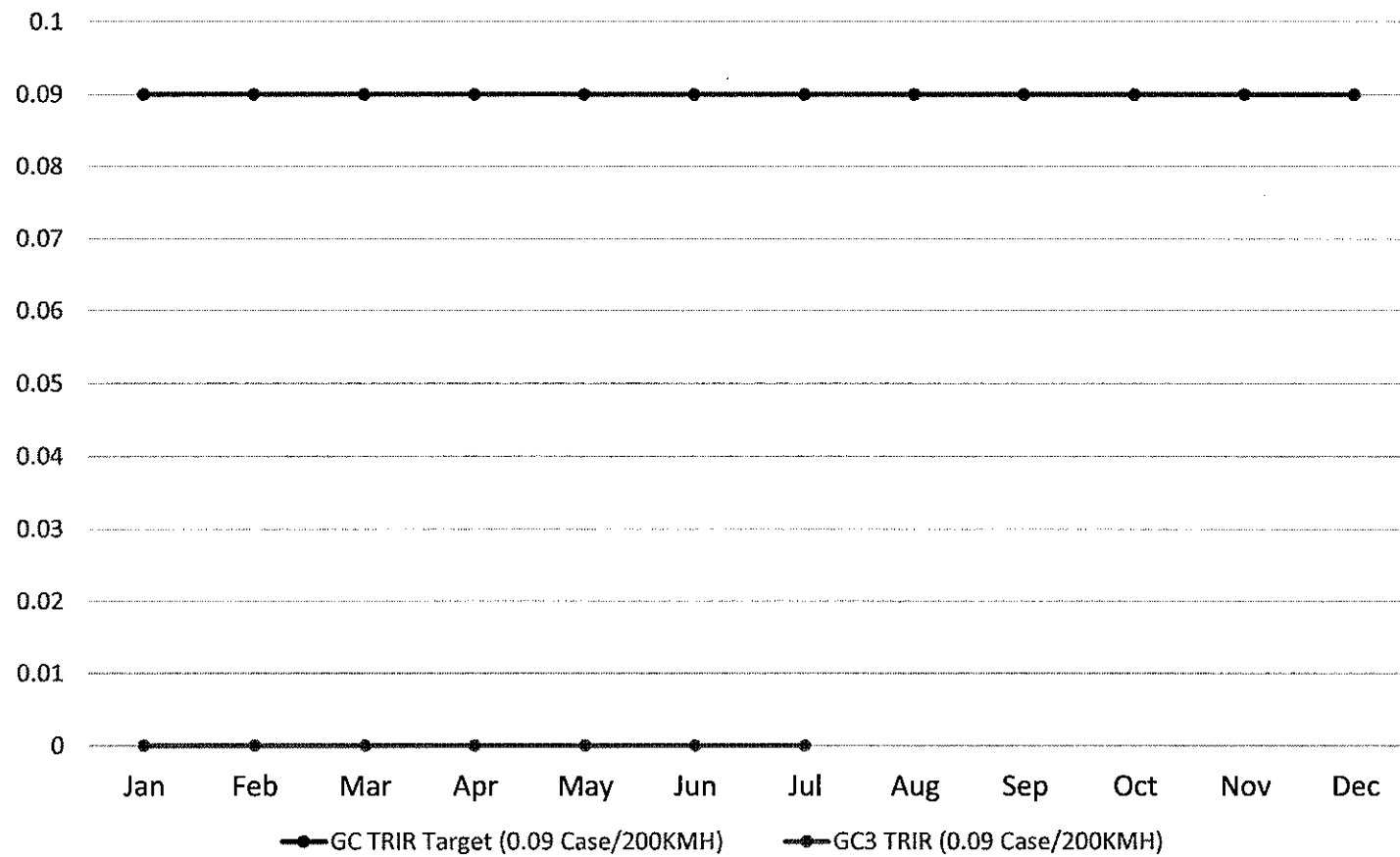
รายงานยอดรถเข้าประตู G1 เดือน มิถุนายน		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-06-24	237	221
02-06-24	158	158
03-06-24	139	147
04-06-24	395	387
05-06-24	396	397
06-06-24	424	411
07-06-24	394	374
08-06-24	169	160
09-06-24	110	102
10-06-24	371	355
11-06-24	382	367
12-06-24	328	304
13-06-24	377	365
14-06-24	391	369
15-06-24	191	191
16-06-24	140	138
17-06-24	370	373
18-06-24	403	384
19-06-24	406	380
20-06-24	404	391
21-06-24	404	394
22-06-24	146	96
23-06-24	134	134
24-06-24	422	414
25-06-24	432	418
26-06-24	416	414
27-06-24	426	402
28-06-24	404	387
29-06-24	200	187
30-06-24	119	117

ภาคผนวก ก.4

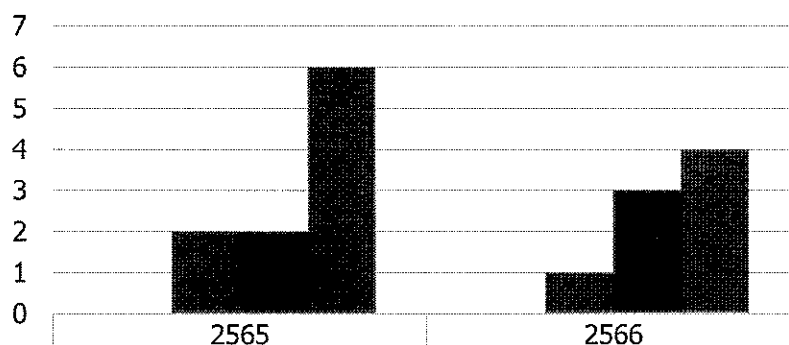
สถิติอุบัติเหตุ



Total Recordable Injury Rate (TRIR) PTTGC3 2024 (Jan-Jun)



สถิติการเกิดอุบัติเหตุ ปี 2565 - 2566



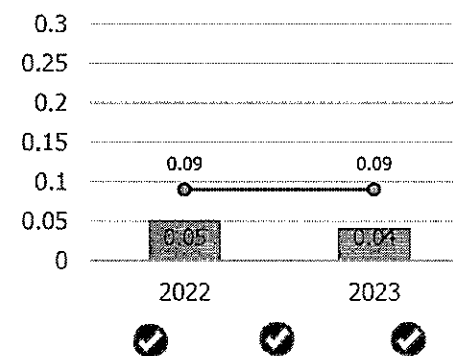
	2565	2566
อุบัติเหตุถึงขั้นหยุดงาน	0	0
อุบัติเหตุถึงขั้นรักษาพยาบาล	2	1
อุบัติเหตุขั้นปฐมพยาบาล	2	3
ทรัพย์สินเสียหาย	6	4

หมายเหตุ :

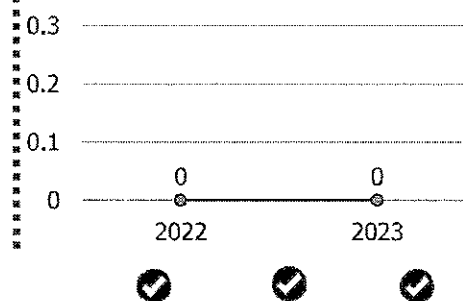
- ปี 2565 อุบัติเหตุขั้นรักษาพยาบาล : 1. ผู้รับเหมาได้รับบาดเจ็บที่เท้าขณะทำการตัดแบบเหล็ก
2. แผ่นปูพื้นนั่งร้านกระแทกนิ้วผู้รับเหมา
- ปี 2566 อุบัติเหตุขั้นรักษาพยาบาล : 1. ผู้รับเหมาถูก stud bolt หล่นกระแทกหมวกนิรภัย ได้รับบาดเจ็บที่ศีรษะ

OLE2

Target: TRIR 0.09 cases/200K M-hr.

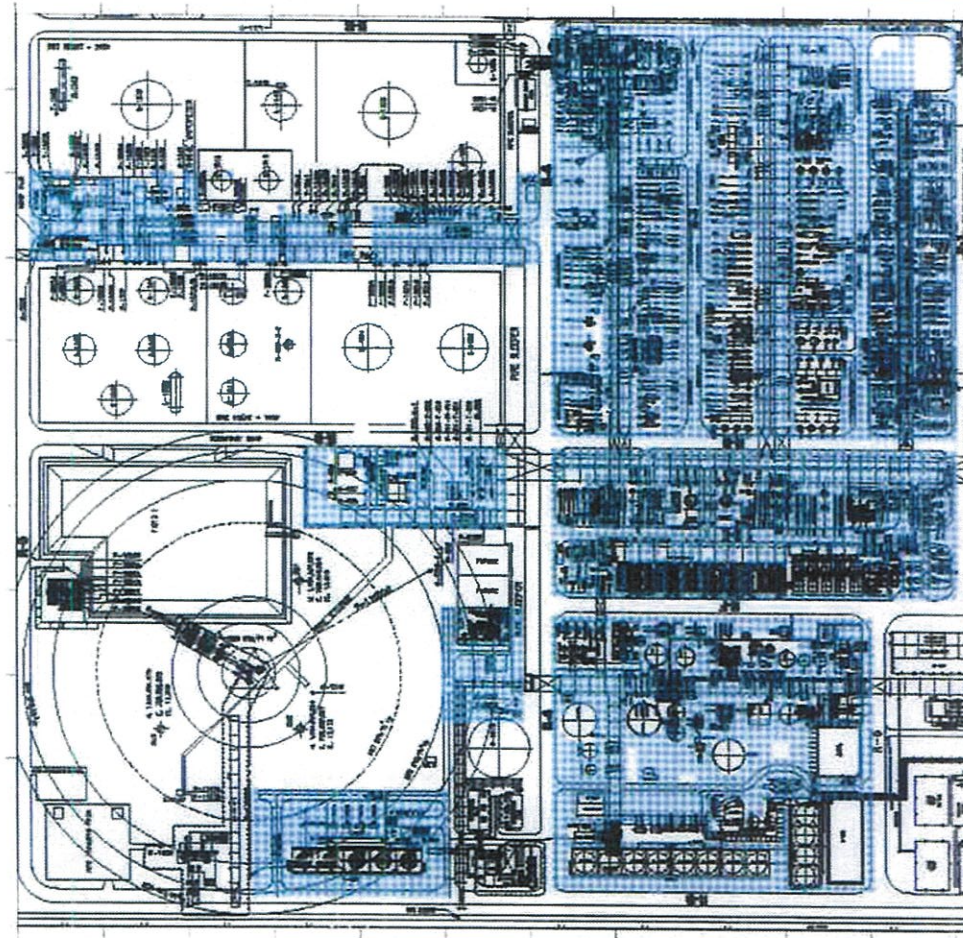


Target: PSE Tier1 = 0



ภาคผนวก ก.5

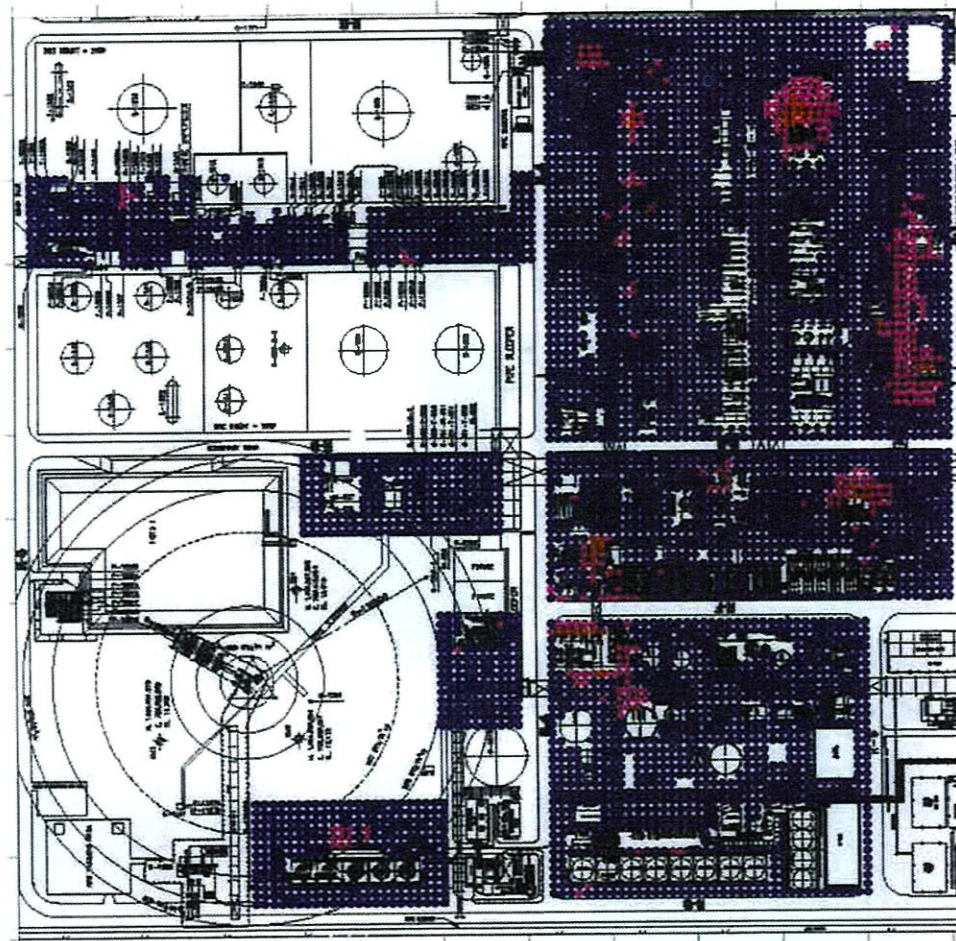
แผนผังแสดงเส้นเสียง (Noise Contour Map)



ตัวเลขใน ○ หมายถึง จุดตรวจวัดระดับเสียง

รูปที่ 1 ตำแหน่งการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) ประจำปี พ.ศ.2564
โครงการโรงผลิตสารไอโซฟีนส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3





ระดับเสียงต่ำสุด 60.7 เดซิเบลเอ

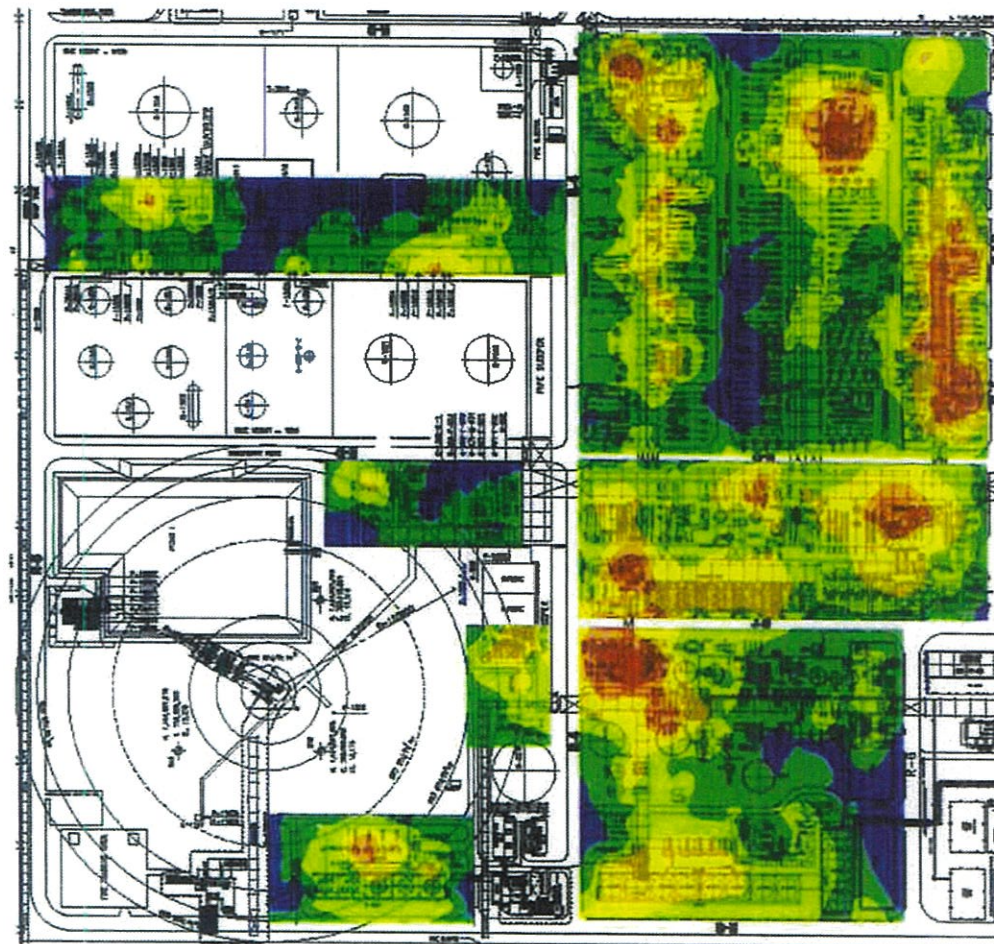
ระดับเสียงสูงสุด 92.7 เดซิเบลเอ

- ระดับเสียง <85 เดซิเบลเอ
- ระดับเสียง 85-90 เดซิเบลเอ
- ระดับเสียง >90 เดซิเบลเอ

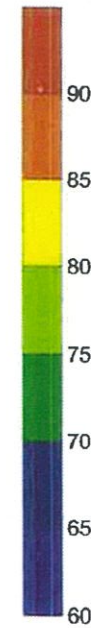
รูปที่ 3 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) ประจำปี พ.ศ.2564

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3





ระดับเสียง
(เดซิเบลเอ)

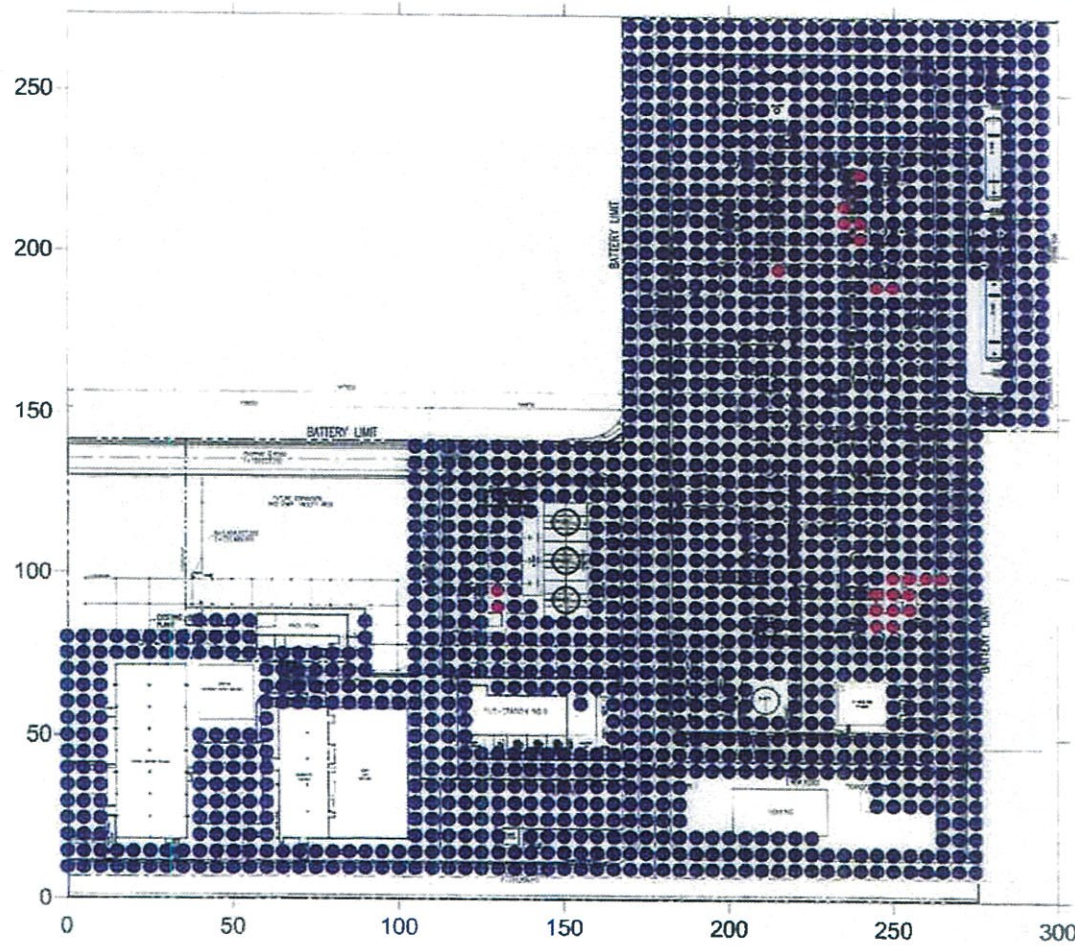


รูปที่ 3 แผนผังแสดงระดับเสียง (Noise Contour Map) ประจำปี พ.ศ.2564

โครงการโรงผลิตสารไอเลพีนส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3

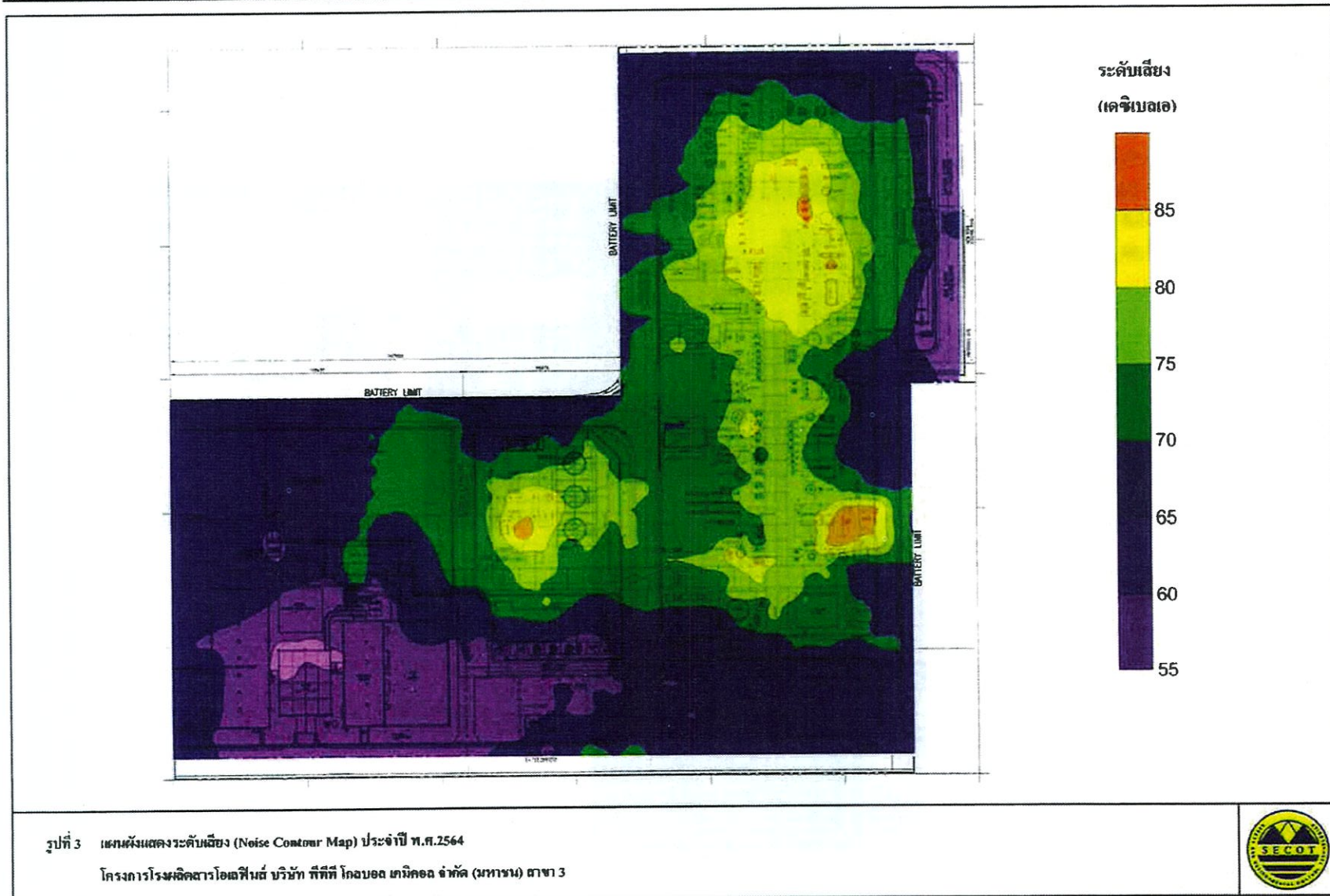






รูปที่ 2 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) ประจำปี พ.ศ.2564
โครงการโรงผลิตสารไอโอดีน บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3





ภาคผนวก ค.6

ข้อมูลสถิติการเจ็บป่วยของพนักงาน

Occ Health Statistic FA 2024								All
No	Disease	Jan	Feb	Mar	Apr	May	Jun	Staff GC
		Staff GC	Staff GC	Staff GC	Staff GC	Staff GC	Staff GC	
1	ระบบทางเดินหายใจ	67	76	68	67	51	51	380
2 (1)	ระบบกระดูก และกล้ามเนื้อ(ทั่วไป)	23	20	20	15	24	15	117
2 (2)	ระบบกระดูก และกล้ามเนื้อ(เกิดจากงาน)	0	0	0	0	0	0	0
3	ระบบทางเดินอาหาร	22	17	23	22	17	9	110
4	ระบบผิวหนัง	5	9	8	16	4	2	44
5	ระบบ ตา หู คอ จมูก	15	10	12	8	11	1	57
6	ระบบประสาท สมอง	7	4	7	6	8	11	43
7	ระบบต่อไรร่ท่อ	0	0	0	0	0	0	0
8	ระบบสืบพันธุ์	1	0	0	0	2	0	3
9	ระบบทางเดินปัสสาวะ	0	0	0	0	1	0	1
10	ระบบหัวใจและหลอดเลือด	0	0	0	1	0	0	1
11	อุบัติเหตุในบริษัท PTTGC2	0	0	0	0	1	0	1
12	ระบบภูมิคุ้มกัน / จิตเวช	0	0	0	0	0	0	0
13	อื่น ๆ เบิกยา ล้างแผลต่อเนื่อง	56	62	84	73	58	53	386
All		196	198	222	208	177	142	1143

ภาคผนวก ง

ใบรับรองผลการตรวจวัดคุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวัดคุณภาพอากาศในบรรยากาศ

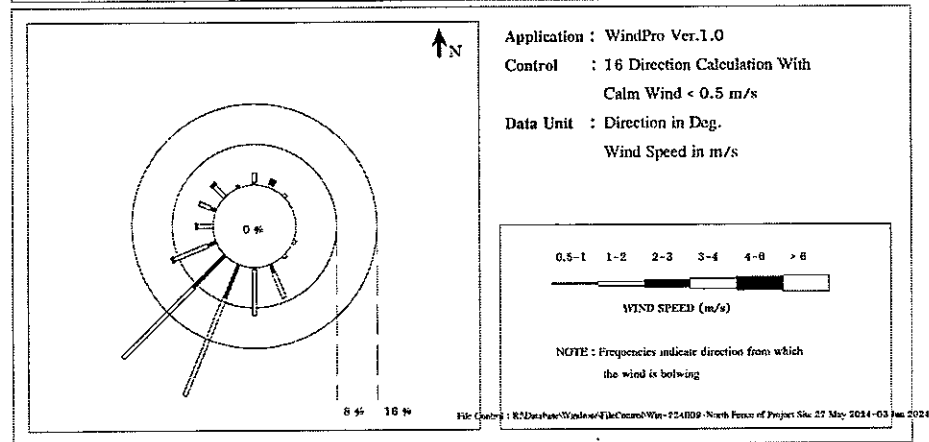


Meteorological Monitoring Results : Wind Rose

MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0060	0.0179	0.0000	0.0000	0.0000	0.0000	0.0238
NNE	0.0000	0.0060	0.0119	0.0000	0.0000	0.0000	0.0179
NE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
SE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
SSE	0.0179	0.0536	0.0000	0.0000	0.0000	0.0000	0.0714
S	0.0060	0.0893	0.0000	0.0000	0.0000	0.0000	0.0952
SSW	0.0714	0.2083	0.0000	0.0000	0.0000	0.0000	0.2798
SW	0.0893	0.1964	0.0000	0.0000	0.0000	0.0000	0.2857
WSW	0.0179	0.0714	0.0060	0.0000	0.0000	0.0000	0.0952
W	0.0000	0.0298	0.0060	0.0000	0.0000	0.0000	0.0357
WNW	0.0119	0.0238	0.0000	0.0000	0.0000	0.0000	0.0357
NW	0.0000	0.0298	0.0060	0.0000	0.0000	0.0000	0.0357
NNW	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
CALM	0.0000						



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	27-28 May 2024		28-29 May 2024		29-30 May 2024		30-31 May 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
11:00 - 12:00	2.0	NNE	2.1	WSW	1.3	SSW	1.0	SSW
12:00 - 13:00	2.1	NNE	1.9	SSW	1.5	SW	0.8	SSW
13:00 - 14:00	1.9	NNE	1.2	SSW	0.8	SSW	1.5	SW
14:00 - 15:00	1.7	N	1.8	SSW	1.5	S	1.6	SSW
15:00 - 16:00	0.7	WSW	1.8	S	1.2	SSE	1.8	SSW
16:00 - 17:00	1.4	W	1.7	SSE	1.1	SSE	1.0	SW
17:00 - 18:00	1.6	NW	1.7	SE	1.9	SSE	1.9	SW
18:00 - 19:00	1.3	WNW	1.1	SSE	0.9	S	1.2	SSW
19:00 - 20:00	0.7	WNW	0.8	SSE	1.8	SSE	0.8	SW
20:00 - 21:00	0.9	WNW	0.9	SSE	1.1	S	1.0	SW
21:00 - 22:00	1.1	NW	1.2	SSE	1.8	SSW	1.2	SW
22:00 - 23:00	2.0	NW	1.1	S	0.7	SW	1.6	WSW
23:00 - 24:00	1.9	NW	0.7	SSW	0.8	SW	0.7	WSW
00:00 - 01:00	1.7	N	1.9	SW	0.9	SSW	1.1	WSW
01:00 - 02:00	1.1	NW	1.5	SW	1.4	SSW	1.9	SW
02:00 - 03:00	1.4	NW	1.2	WSW	1.9	SW	0.8	SW
03:00 - 04:00	0.9	N	1.4	WSW	1.9	WSW	1.7	SW
04:00 - 05:00	1.4	N	1.0	SW	1.1	SW	1.2	SW
05:00 - 06:00	1.7	WNW	1.9	WSW	1.1	SW	1.9	SSW
06:00 - 07:00	1.2	WNW	1.7	SW	0.7	SW	1.6	SSW
07:00 - 08:00	1.3	WNW	1.6	SW	1.8	SW	1.3	SW
08:00 - 09:00	2.3	W	0.7	SW	1.6	SW	1.1	SSW
09:00 - 10:00	1.9	WSW	0.9	SW	1.3	SSW	1.9	SSW
10:00 - 11:00	1.7	W	1.8	SSW	1.8	SSW	1.4	SW



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



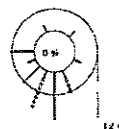
Meteorological Monitoring Results : Wind Rose

MTR-PTTGC Branch 3 (Olefins 2)

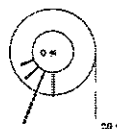
Location : North Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	May 31, 2024		Jun 01, 2024		01-02 Jun 2024		02-03 Jun 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
11:00 - 12:00	1.4	SW	1.9	SSW	1.5	SSW		
12:00 - 13:00	0.9	SW	0.9	SSW	0.9	SW		
13:00 - 14:00	1.7	SSW	0.9	SSW	1.7	SSW		
14:00 - 15:00	0.9	SW	1.5	SW	1.7	SSW		
15:00 - 16:00	1.2	SSW	1.4	SSW	1.0	SSW		
16:00 - 17:00	1.1	SSW	1.6	S	0.8	SSW		
17:00 - 18:00	1.0	SSW	1.9	SSW	1.3	SW		
18:00 - 19:00	1.7	WSW	1.3	S	1.0	SW		
19:00 - 20:00	1.8	W	1.7	S	1.7	WSW		
20:00 - 21:00	1.7	W	1.8	S	1.2	SW		
21:00 - 22:00	1.2	W	1.9	S	1.4	SW		
22:00 - 23:00	0.7	NNW	0.9	SSW	1.5	SW		
23:00 - 24:00	1.9	NE	0.7	SW	1.5	SSW		
00:00 - 01:00	1.5	ESE	1.8	SSW	2.0	WSW		
01:00 - 02:00	1.8	S	0.9	SSW	1.5	SW		
02:00 - 03:00	1.6	S	1.6	WSW	1.0	SSW		
03:00 - 04:00	0.9	SSE	1.6	WSW	1.7	SSW		
04:00 - 05:00	1.8	SSE	1.0	WSW	0.9	SW		
05:00 - 06:00	1.1	S	1.0	SW	1.3	SW		
06:00 - 07:00	1.1	SSE	1.9	SSW	1.1	SW		
07:00 - 08:00	1.1	S	0.8	SSW	1.7	SW		
08:00 - 09:00	1.1	S	1.2	SSW	1.8	SSW		
09:00 - 10:00	1.9	S	1.7	SSW	1.4	SW		
10:00 - 11:00	1.8	SSW	0.9	SW	0.8	SW		

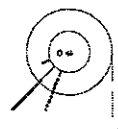
Wind Rose



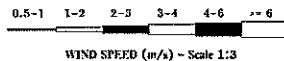
12 %



20 %



20 %



File Created : K:\Database\Windrose\FireControl\Win-224009-North Fence of Project Site 27 May 2024-03 Jun 2024

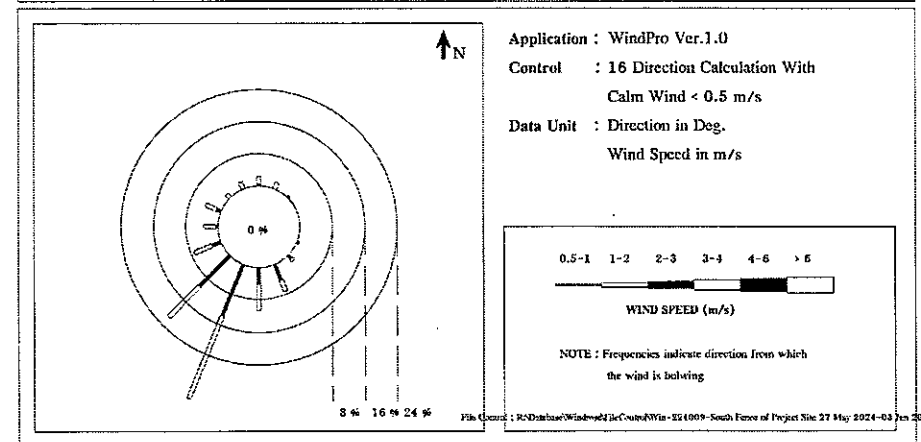


Meteorological Monitoring Results : Wind Rose

MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4905
 Wind Direction Model : Novalynx WS-25 Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0060	0.0179	0.0000	0.0000	0.0000	0.0000	0.0238
NNE	0.0000	0.0179	0.0000	0.0000	0.0000	0.0000	0.0179
NE	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
SE	0.0119	0.0060	0.0000	0.0000	0.0000	0.0000	0.0179
SSE	0.0417	0.0298	0.0000	0.0000	0.0000	0.0000	0.0714
S	0.0417	0.0655	0.0000	0.0000	0.0000	0.0000	0.1071
SSW	0.1369	0.2202	0.0000	0.0000	0.0000	0.0000	0.3571
SW	0.1071	0.1071	0.0000	0.0000	0.0000	0.0000	0.2143
WSW	0.0238	0.0476	0.0000	0.0000	0.0000	0.0000	0.0714
W	0.0060	0.0298	0.0000	0.0000	0.0000	0.0000	0.0357
WNW	0.0119	0.0298	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
NNW	0.0000	0.0179	0.0000	0.0000	0.0000	0.0000	0.0179
CALM	0.0000						



(Signature)
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Signature)
 (Miss Preeda Somjai)
 Technical Management Team

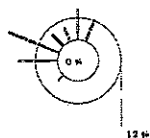


Meteorological Monitoring Results : Wind Rose MTR-PTTGC Branch 3 (Olefins 2)

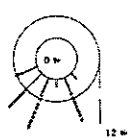
Location : South Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
Wind Speed Model : Novalynx WS-25 Serial No : A4905
Wind Direction Model : Novalynx WS-25 Serial No : A4905

Time	27-28 May 2024		28-29 May 2024		29-30 May 2024		30-31 May 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	1.2	NNE	1.6	WSW	0.9	SW	1.1	SSW
10:00 - 11:00	1.3	NNE	0.9	WSW	1.3	SSW	0.7	SSW
11:00 - 12:00	1.3	N	1.6	SSW	0.7	SSW	1.0	SSW
12:00 - 13:00	1.3	N	0.7	SSW	1.1	SSW	0.8	SSW
13:00 - 14:00	0.8	N	1.6	SSW	1.5	SSW	1.1	SW
14:00 - 15:00	1.4	N	1.0	SSW	1.0	SSW	1.0	SSW
15:00 - 16:00	1.1	SW	0.8	SSE	0.9	SSE	1.5	SSW
16:00 - 17:00	0.8	W	1.4	SSE	1.4	SE	1.3	SW
17:00 - 18:00	1.6	WNW	0.7	SE	0.9	SSE	0.7	SSW
18:00 - 19:00	1.4	W	1.2	SSE	0.9	SSE	1.2	SSW
19:00 - 20:00	1.1	WNW	1.4	SSE	0.8	SE	0.9	SSW
20:00 - 21:00	1.2	WNW	0.9	SSE	1.4	S	1.1	SSW
21:00 - 22:00	0.8	WNW	1.4	SSE	0.9	S	1.2	SW
22:00 - 23:00	1.3	WNW	1.1	S	1.0	SW	0.7	WSW
23:00 - 24:00	1.0	WNW	0.7	SSW	1.2	SW	1.3	WSW
00:00 - 01:00	1.6	NNW	1.2	SSW	1.5	SSW	1.4	WSW
01:00 - 02:00	1.4	NW	1.2	SW	1.5	SSW	0.8	SW
02:00 - 03:00	1.1	NW	0.9	WSW	1.3	SW	1.3	SW
03:00 - 04:00	1.5	NNW	1.2	SW	1.4	WSW	0.8	SW
04:00 - 05:00	1.1	NNE	0.9	SW	0.7	SW	0.7	SW
05:00 - 06:00	0.9	WNW	0.9	SW	1.3	SW	1.3	SSW
06:00 - 07:00	1.3	W	0.9	SW	1.6	SSW	1.2	SSW
07:00 - 08:00	1.3	W	1.3	SSW	1.3	SSW	0.8	SSW
08:00 - 09:00	1.4	W	1.1	SW	1.5	SSW	1.5	SSW

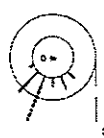
Wind Rose



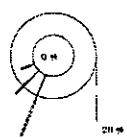
12 h



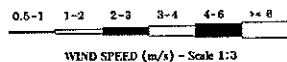
12 h



20 h



20 h



WIND SPEED (m/s) - Scale 1:3

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

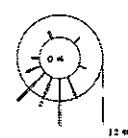


Meteorological Monitoring Results : Wind Rose MTR-PTTGC Branch 3 (Olefins 2)

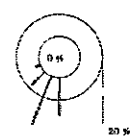
Location : South Fence of Project Site Monitor period : 27 May 2024-03 Jun 2024
Wind Speed Model : Novalynx WS-25 Serial No : A4905
Wind Direction Model : Novalynx WS-25 Serial No : A4905

Time	May 31, 2024 - Jun 01, 2024		01-02 Jun 2024		02-03 Jun 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	1.2	SSW	0.7	S	0.8	SSW
10:00 - 11:00	1.0	SW	1.3	SSW	0.7	SSW
11:00 - 12:00	1.2	SW	1.4	S	0.7	SSW
12:00 - 13:00	1.6	SW	1.4	SSW	1.4	SSW
13:00 - 14:00	1.3	SSW	0.8	SSW	0.9	SSW
14:00 - 15:00	0.8	SW	0.7	SSW	1.2	S
15:00 - 16:00	0.9	SSW	0.9	SSW	0.9	SSW
16:00 - 17:00	0.9	S	0.7	S	1.3	SSW
17:00 - 18:00	1.3	SSW	1.0	S	1.0	SSW
18:00 - 19:00	1.1	SW	1.2	S	1.5	SW
19:00 - 20:00	0.8	WSW	0.7	S	1.5	WSW
20:00 - 21:00	1.1	W	1.2	S	1.0	SW
21:00 - 22:00	1.2	WSW	1.4	S	0.8	SW
22:00 - 23:00	1.2	NNW	1.1	SSW	0.8	SW
23:00 - 24:00	1.0	NE	1.4	SSW	1.2	SSW
00:00 - 01:00	0.9	ESE	1.6	SW	1.3	WSW
01:00 - 02:00	0.9	S	1.3	SSW	1.4	SW
02:00 - 03:00	1.1	S	1.6	SW	1.6	SSW
03:00 - 04:00	0.8	SSE	0.8	SW	1.2	SSW
04:00 - 05:00	0.9	SSE	1.2	WSW	0.8	SW
05:00 - 06:00	1.0	S	0.8	SW	1.0	SW
06:00 - 07:00	1.2	SSE	0.7	SSW	1.3	SSW
07:00 - 08:00	1.2	S	0.7	SSW	1.5	SSW
08:00 - 09:00	1.3	S	1.0	SSW	1.5	SSW

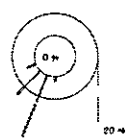
Wind Rose



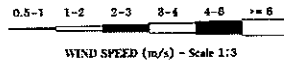
12 h



20 h



20 h



WIND SPEED (m/s) - Scale 1:3

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
Analyzer Model : API 100A Station No : SS2-05
Serial No : 347 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 08 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2025

Time	SO2 Concentration (ppm)						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
11:00 - 12:00	0.0046	0.0047	0.0040	0.0050	0.0064	0.0070	0.0041
12:00 - 13:00	0.0057	0.0063	0.0058	0.0034	0.0049	0.0064	0.0063
13:00 - 14:00	0.0032	0.0062	0.0070	0.0085	0.0047	0.0050	0.0040
14:00 - 15:00	0.0038	0.0068	0.0039	0.0049	0.0053	0.0058	0.0068
15:00 - 16:00	0.0075	0.0065	0.0065	0.0070	0.0058	0.0073	0.0057
16:00 - 17:00	0.0058	0.0051	0.0068	0.0043	0.0043	0.0043	0.0067
17:00 - 18:00	0.0062	0.0054	0.0050	0.0050	0.0059	0.0052	0.0045
18:00 - 19:00	0.0058	0.0049	0.0055	0.0043	0.0053	0.0042	0.0043
19:00 - 20:00	0.0072	0.0054	0.0035	0.0044	0.0045	0.0050	0.0039
20:00 - 21:00	0.0049	0.0055	0.0067	0.0063	0.0048	0.0031	0.0057
21:00 - 22:00	0.0040	0.0059	0.0058	0.0055	0.0032	0.0051	0.0053
22:00 - 23:00	0.0034	0.0044	0.0059	0.0047	0.0046	0.0053	0.0047
23:00 - 00:00	0.0047	0.0060	0.0054	0.0062	0.0039	0.0046	0.0056
00:00 - 01:00	0.0039	0.0064	0.0063	0.0063	0.0036	0.0056	0.0039
01:00 - 02:00	0.0026	0.0064	0.0051	0.0039	0.0059	0.0054	0.0058
02:00 - 03:00	0.0035	0.0043	0.0042	0.0050	0.0058	0.0073	0.0044
03:00 - 04:00	0.0051	0.0062	0.0035	0.0031	0.0049	0.0047	0.0047
04:00 - 05:00	0.0048	0.0060	0.0048	0.0069	0.0047	0.0053	0.0041
05:00 - 06:00	0.0044	0.0068	0.0057	0.0035	0.0053	0.0049	0.0060
06:00 - 07:00	0.0072	0.0044	0.0054	0.0040	0.0063	0.0062	0.0060
07:00 - 08:00	0.0043	0.0065	0.0055	0.0038	0.0049	0.0037	0.0042
08:00 - 09:00	0.0037	0.0056	0.0042	0.0041	0.0046	0.0042	0.0065
09:00 - 10:00	0.0055	0.0053	0.0045	0.0054	0.0051	0.0039	0.0032
10:00 - 11:00	0.0058	0.0067	0.0039	0.0039	0.0053	0.0058	0.0054
Average-24Hr*	0.0049	0.0057	0.0052	0.0048	0.0050	0.0052	0.0051
Max-1Hr	0.0075	0.0068	0.0070	0.0070	0.0064	0.0073	0.0068
Min-1Hr	0.0026	0.0043	0.0035	0.0031	0.0032	0.0031	0.0032
Standard-1Hr	0.30 ppm(750 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorrudetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
Analyzer Model : API 100A Station No : SS2-09
Serial No : 906 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 08 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2025

Time	SO2 Concentration (ppm)						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
09:00 - 10:00	0.0050	0.0055	0.0035	0.0040	0.0030	0.0050	0.0044
10:00 - 11:00	0.0056	0.0055	0.0057	0.0041	0.0052	0.0045	0.0037
11:00 - 12:00	0.0053	0.0043	0.0034	0.0049	0.0045	0.0030	0.0042
12:00 - 13:00	0.0045	0.0058	0.0033	0.0050	0.0054	0.0052	0.0047
13:00 - 14:00	0.0050	0.0061	0.0049	0.0042	0.0042	0.0042	0.0056
14:00 - 15:00	0.0047	0.0053	0.0048	0.0028	0.0054	0.0047	0.0055
15:00 - 16:00	0.0037	0.0035	0.0026	0.0032	0.0051	0.0026	0.0061
16:00 - 17:00	0.0031	0.0049	0.0050	0.0041	0.0043	0.0025	0.0052
17:00 - 18:00	0.0028	0.0046	0.0062	0.0053	0.0036	0.0049	0.0057
18:00 - 19:00	0.0061	0.0060	0.0043	0.0050	0.0034	0.0023	0.0047
19:00 - 20:00	0.0045	0.0052	0.0057	0.0056	0.0030	0.0051	0.0031
20:00 - 21:00	0.0035	0.0042	0.0026	0.0036	0.0040	0.0060	0.0043
21:00 - 22:00	0.0050	0.0040	0.0039	0.0033	0.0055	0.0060	0.0048
22:00 - 23:00	0.0050	0.0047	0.0033	0.0041	0.0052	0.0057	0.0053
23:00 - 00:00	0.0031	0.0049	0.0038	0.0048	0.0052	0.0059	0.0034
00:00 - 01:00	0.0033	0.0038	0.0047	0.0027	0.0056	0.0025	0.0060
01:00 - 02:00	0.0057	0.0027	0.0053	0.0038	0.0041	0.0030	0.0027
02:00 - 03:00	0.0059	0.0063	0.0023	0.0051	0.0037	0.0057	0.0046
03:00 - 04:00	0.0055	0.0061	0.0055	0.0063	0.0024	0.0053	0.0038
04:00 - 05:00	0.0035	0.0042	0.0023	0.0049	0.0040	0.0037	0.0056
05:00 - 06:00	0.0036	0.0048	0.0053	0.0033	0.0061	0.0026	0.0036
06:00 - 07:00	0.0033	0.0041	0.0061	0.0025	0.0034	0.0029	0.0056
07:00 - 08:00	0.0041	0.0050	0.0043	0.0060	0.0034	0.0046	0.0034
08:00 - 09:00	0.0055	0.0046	0.0031	0.0061	0.0048	0.0023	0.0037
Average-24Hr*	0.0046	0.0049	0.0042	0.0045	0.0044	0.0042	0.0046
Max-1Hr	0.0061	0.0063	0.0062	0.0063	0.0061	0.0060	0.0061
Min-1Hr	0.0028	0.0035	0.0023	0.0025	0.0024	0.0023	0.0027
Standard-1Hr	0.30 ppm(750 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorrudetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

**Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC Branch 3 (Olefins 2)**

Location : North Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
Analyzer Model : API 200A Station No : SS2-05
Serial No : 2365 Site Operator : Mr. Phuwadech Kaewjirakulsi

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 05 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppm)						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
11:00 - 12:00	0.0140	0.0073	0.0115	0.0147	0.0082	0.0062	0.0072
12:00 - 13:00	0.0108	0.0138	0.0089	0.0066	0.0135	0.0128	0.0107
13:00 - 14:00	0.0150	0.0099	0.0095	0.0074	0.0056	0.0089	0.0140
14:00 - 15:00	0.0148	0.0138	0.0071	0.0139	0.0066	0.0124	0.0140
15:00 - 16:00	0.0079	0.0113	0.0144	0.0098	0.0124	0.0119	0.0067
16:00 - 17:00	0.0140	0.0122	0.0147	0.0138	0.0069	0.0092	0.0066
17:00 - 18:00	0.0068	0.0135	0.0146	0.0146	0.0127	0.0069	0.0076
18:00 - 19:00	0.0120	0.0114	0.0060	0.0146	0.0090	0.0097	0.0137
19:00 - 20:00	0.0125	0.0068	0.0084	0.0107	0.0089	0.0082	0.0101
20:00 - 21:00	0.0102	0.0093	0.0090	0.0133	0.0062	0.0072	0.0116
21:00 - 22:00	0.0149	0.0131	0.0070	0.0066	0.0068	0.0106	0.0142
22:00 - 23:00	0.0130	0.0148	0.0137	0.0138	0.0084	0.0125	0.0125
23:00 - 00:00	0.0134	0.0098	0.0109	0.0142	0.0122	0.0063	0.0133
00:00 - 01:00	0.0084	0.0107	0.0140	0.0078	0.0087	0.0133	0.0097
01:00 - 02:00	0.0122	0.0124	0.0146	0.0085	0.0149	0.0146	0.0132
02:00 - 03:00	0.0120	0.0087	0.0094	0.0148	0.0071	0.0123	0.0144
03:00 - 04:00	0.0095	0.0121	0.0135	0.0090	0.0081	0.0109	0.0108
04:00 - 05:00	0.0071	0.0062	0.0141	0.0082	0.0096	0.0113	0.0080
05:00 - 06:00	0.0066	0.0129	0.0068	0.0109	0.0066	0.0130	0.0127
06:00 - 07:00	0.0084	0.0147	0.0064	0.0080	0.0091	0.0079	0.0134
07:00 - 08:00	0.0120	0.0081	0.0067	0.0108	0.0077	0.0127	0.0093
08:00 - 09:00	0.0112	0.0117	0.0140	0.0071	0.0063	0.0094	0.0069
09:00 - 10:00	0.0146	0.0125	0.0091	0.0133	0.0106	0.0142	0.0072
10:00 - 11:00	0.0131	0.0127	0.0078	0.0094	0.0082	0.0091	0.0122

Average-24Hr*	0.0116	0.0114	0.0105	0.0111	0.0092	0.0105	0.0108
Max-1Hr	0.0150	0.0148	0.0147	0.0148	0.0149	0.0146	0.0144
Min-1Hr	0.0066	0.0062	0.0060	0.0071	0.0062	0.0062	0.0066

Standard-1Hr 0.17 ppm(320 ug/cu.m)
Standard-24Hr -

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

**Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC Branch 3 (Olefins 2)**

Location : South Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
Analyzer Model : Thermo 42C Station No : SS2-09
Serial No : 0426708263 Site Operator : Mr. Phuwadech Kaewjirakulsi

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 08 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2025

Time	NO2 Concentration (ppm)						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
09:00 - 10:00	0.0120	0.0085	0.0089	0.0096	0.0104	0.0073	0.0097
10:00 - 11:00	0.0099	0.0122	0.0116	0.0112	0.0099	0.0085	0.0104
11:00 - 12:00	0.0095	0.0126	0.0079	0.0102	0.0106	0.0072	0.0100
12:00 - 13:00	0.0097	0.0127	0.0067	0.0084	0.0061	0.0125	0.0129
13:00 - 14:00	0.0077	0.0084	0.0128	0.0079	0.0094	0.0108	0.0090
14:00 - 15:00	0.0120	0.0130	0.0066	0.0090	0.0078	0.0065	0.0112
15:00 - 16:00	0.0068	0.0079	0.0081	0.0125	0.0122	0.0074	0.0111
16:00 - 17:00	0.0125	0.0109	0.0118	0.0092	0.0128	0.0073	0.0065
17:00 - 18:00	0.0081	0.0100	0.0074	0.0101	0.0077	0.0077	0.0093
18:00 - 19:00	0.0062	0.0129	0.0072	0.0110	0.0075	0.0104	0.0116
19:00 - 20:00	0.0093	0.0104	0.0080	0.0076	0.0122	0.0106	0.0072
20:00 - 21:00	0.0092	0.0116	0.0123	0.0117	0.0088	0.0067	0.0079
21:00 - 22:00	0.0063	0.0104	0.0119	0.0118	0.0099	0.0067	0.0088
22:00 - 23:00	0.0064	0.0122	0.0081	0.0078	0.0111	0.0062	0.0097
23:00 - 00:00	0.0087	0.0090	0.0085	0.0086	0.0089	0.0088	0.0110
00:00 - 01:00	0.0108	0.0104	0.0126	0.0067	0.0118	0.0075	0.0075
01:00 - 02:00	0.0115	0.0105	0.0063	0.0080	0.0117	0.0078	0.0102
02:00 - 03:00	0.0098	0.0075	0.0072	0.0066	0.0115	0.0075	0.0071
03:00 - 04:00	0.0085	0.0099	0.0102	0.0071	0.0105	0.0066	0.0104
04:00 - 05:00	0.0095	0.0100	0.0116	0.0122	0.0066	0.0077	0.0116
05:00 - 06:00	0.0105	0.0091	0.0097	0.0109	0.0101	0.0118	0.0120
06:00 - 07:00	0.0095	0.0062	0.0061	0.0077	0.0110	0.0121	0.0101
07:00 - 08:00	0.0076	0.0081	0.0090	0.0103	0.0117	0.0097	0.0103
08:00 - 09:00	0.0120	0.0082	0.0068	0.0115	0.0088	0.0126	0.0114

Average-24Hr*	0.0095	0.0101	0.0091	0.0093	0.0100	0.0087	0.0099
Max-1Hr	0.0125	0.0130	0.0128	0.0125	0.0126	0.0126	0.0129
Min-1Hr	0.0062	0.0062	0.0061	0.0065	0.0061	0.0062	0.0065

Standard-1Hr 0.17 ppm(320 ug/cu.m)
Standard-24Hr -

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.2

ใบรับรองผลการตรวจวัดคุณภาพอากาศที่แหล่งกำเนิด

The Monitoring Result of Emission Concentration

F-120

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 28, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.94	4.89	22.03	22.00	19.10
2	4.86	4.83	22.13	22.11	19.12
3	4.84	4.84	22.04	22.02	19.06
Average	4.88	4.85	22.07	22.04	19.09

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.94	4.89	0.69	0.66	0.57
2	4.86	4.83	0.87	0.84	0.73
3	4.84	4.84	0.80	0.76	0.66
Average	4.88	4.85	0.79	0.75	0.65

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 28, 2024
 Start time: 12:50 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: Teledyne 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 1
 Location : F-120
 Finish time : 1:10 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:50 PM	4.94	21.56	0.76
12:51 PM	4.94	21.81	0.71
12:52 PM	5.08	22.04	0.72
12:53 PM	4.86	22.09	0.64
12:54 PM	4.98	22.11	0.65
12:55 PM	4.89	22.03	0.63
12:56 PM	4.92	22.09	0.83
12:57 PM	5.08	22.15	0.79
12:58 PM	4.85	22.17	0.78
12:59 PM	5.07	22.14	0.73
1:00 PM	4.87	21.92	0.72
1:01 PM	4.88	22.05	0.67
1:02 PM	5.10	22.21	0.71
1:03 PM	4.84	22.03	0.65
1:04 PM	4.89	22.03	0.67
1:05 PM	4.97	22.11	0.68
1:06 PM	4.82	22.11	0.67
1:07 PM	5.06	22.05	0.64
1:08 PM	4.84	21.81	0.67
1:09 PM	4.78	21.98	0.62
1:10 PM	4.99	22.08	0.62
Average	4.94	22.03	0.69

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date:	May 28, 2024	Run # : 2
Start time:	1:11 PM	Location : F-120
O ₂ instrument Model:	AMI 70	Finish time : 1:31 PM
NO _x instrument Model:	Teledyne 200 EM	Serial No.: 161212-14
SO ₂ instrument Model:	API 100 AH	Serial No.: 435
Fuel Type :	Fuel Gas	Serial No.: 058
		Test Operator : Song H.

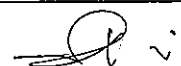
Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:11 PM	4.80	22.00	0.62
1:12 PM	4.99	22.08	0.94
1:13 PM	4.84	22.09	0.92
1:14 PM	4.77	22.21	0.94
1:15 PM	4.95	22.26	0.93
1:16 PM	4.84	22.26	0.94
1:17 PM	4.98	22.22	0.89
1:18 PM	4.81	22.14	0.90
1:19 PM	4.84	22.20	0.91
1:20 PM	4.98	22.22	0.89
1:21 PM	4.75	22.14	0.88
1:22 PM	4.95	22.17	0.89
1:23 PM	4.86	22.16	0.90
1:24 PM	4.80	22.15	0.89
1:25 PM	4.94	22.13	0.87
1:26 PM	4.83	22.07	0.83
1:27 PM	4.83	22.14	0.85
1:28 PM	4.87	22.06	0.85
1:29 PM	4.74	21.93	0.85
1:30 PM	4.93	22.03	0.82
1:31 PM	4.78	22.11	0.84
Average	4.86	22.13	0.87

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date:	May 28, 2024	Run # : 3
Start time:	1:32 PM	Location : F-120
O ₂ instrument Model:	AMI 70	Finish time : 1:52 PM
NO _x instrument Model:	Teledyne 200 EM	Serial No.: 161212-14
SO ₂ instrument Model:	API 100 AH	Serial No.: 435
Fuel Type :	Fuel Gas	Serial No.: 058
		Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:32 PM	4.95	22.11	0.82
1:33 PM	4.80	21.97	0.82
1:34 PM	4.77	22.03	0.83
1:35 PM	5.01	22.02	0.82
1:36 PM	4.71	21.86	0.80
1:37 PM	4.88	22.04	0.80
1:38 PM	4.83	22.18	0.82
1:39 PM	4.79	22.11	0.80
1:40 PM	4.99	21.98	0.79
1:41 PM	4.70	21.92	0.76
1:42 PM	4.83	22.18	0.80
1:43 PM	4.86	22.18	0.79
1:44 PM	4.83	22.06	0.79
1:45 PM	4.90	22.09	0.82
1:46 PM	4.81	22.05	0.77
1:47 PM	4.91	22.03	0.77
1:48 PM	4.83	21.92	0.78
1:49 PM	4.75	21.91	0.78
1:50 PM	4.90	21.97	0.79
1:51 PM	4.74	22.06	0.79
1:52 PM	4.86	22.19	0.78
Average	4.84	22.04	0.80

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

The Monitoring Result of Emission Concentration

F-140

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 28, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.54	4.46	59.91	59.93	50.67
2	4.41	4.34	59.99	60.02	50.38
3	4.39	4.32	59.76	59.79	50.13
Average	4.44	4.37	59.89	59.91	50.39

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.54	4.46	1.32	1.29	1.09
2	4.41	4.34	1.33	1.30	1.09
3	4.39	4.32	1.31	1.28	1.07
Average	4.44	4.37	1.32	1.29	1.08

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 28, 2024

Start time: 11:00 AM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EHSO₂ instrument Model: API 100 AH

Fuel Type: Fuel Gas

Run #: 1

Location: F-140

Finish time: 11:20 AM

Serial No.: 161212-14

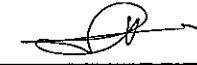
Serial No.: 435

Serial No.: 058

Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:00 AM	4.76	59.73	1.24
11:01 AM	4.59	59.84	1.13
11:02 AM	4.57	60.22	1.22
11:03 AM	4.51	60.26	1.19
11:04 AM	4.42	60.11	1.04
11:05 AM	4.58	60.10	1.36
11:06 AM	4.56	60.42	1.45
11:07 AM	4.64	60.70	1.46
11:08 AM	4.69	60.60	1.58
11:09 AM	4.66	60.60	1.41
11:10 AM	4.60	60.47	1.38
11:11 AM	4.51	60.06	1.23
11:12 AM	4.48	59.52	0.97
11:13 AM	4.48	59.44	1.41
11:14 AM	4.44	59.49	1.50
11:15 AM	4.53	59.36	1.32
11:16 AM	4.46	59.41	1.43
11:17 AM	4.50	59.15	1.25
11:18 AM	4.50	59.09	1.55
11:19 AM	4.41	59.58	1.26
11:20 AM	4.42	59.86	1.25
Average	4.54	59.91	1.32

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 28, 2024 Run #: 2
 Start time: 11:21 AM Location: F-140
 O₂ instrument Model: AMI 70 Finish time: 11:41 AM
 NO_x instrument Model: TELEDYNE 200 EH Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type: Fuel Gas Serial No.: 058
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:21 AM	4.39	60.01	1.30
11:22 AM	4.43	60.22	1.24
11:23 AM	4.54	60.21	1.28
11:24 AM	4.47	60.18	1.24
11:25 AM	4.47	60.11	1.28
11:26 AM	4.36	60.01	1.42
11:27 AM	4.42	59.97	1.26
11:28 AM	4.51	59.80	1.52
11:29 AM	4.31	59.88	1.34
11:30 AM	4.42	59.83	1.36
11:31 AM	4.32	60.01	1.34
11:32 AM	4.37	60.08	1.06
11:33 AM	4.49	59.83	1.20
11:34 AM	4.43	60.16	1.55
11:35 AM	4.48	60.55	1.39
11:36 AM	4.40	60.37	1.51
11:37 AM	4.37	60.01	1.22
11:38 AM	4.41	59.68	1.32
11:39 AM	4.34	59.68	1.26
11:40 AM	4.33	59.63	1.42
11:41 AM	4.30	59.60	1.33
Average	4.41	59.99	1.33

Signature



(Miss Katesarin Vorradetwittaya)

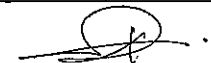
Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 28, 2024 Run #: 3
 Start time: 11:42 AM Location: F-140
 O₂ instrument Model: AMI 70 Finish time: 12:02 PM
 NO_x instrument Model: TELEDYNE 200 EH Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type: Fuel Gas Serial No.: 058
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:42 AM	4.32	59.76	1.41
11:43 AM	4.49	59.74	1.22
11:44 AM	4.44	59.83	1.37
11:45 AM	4.39	60.00	1.24
11:46 AM	4.40	59.81	1.26
11:47 AM	4.36	59.53	1.34
11:48 AM	4.51	59.58	1.27
11:49 AM	4.30	59.87	1.20
11:50 AM	4.33	60.01	1.26
11:51 AM	4.36	59.95	1.31
11:52 AM	4.39	59.56	1.41
11:53 AM	4.47	59.66	1.22
11:54 AM	4.28	60.05	1.13
11:55 AM	4.34	59.75	1.31
11:56 AM	4.46	59.37	1.34
11:57 AM	4.45	59.65	1.46
11:58 AM	4.49	59.88	1.21
11:59 AM	4.27	59.82	1.15
12:00 PM	4.33	59.60	1.50
12:01 PM	4.39	59.77	1.63
12:02 PM	4.36	59.76	1.35
Average	4.39	59.76	1.31

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

The Monitoring Result of Emission Concentration

F-180

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 28, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.81	4.80	65.87	65.89	56.89
2	4.72	4.68	65.20	65.22	55.89
3	4.70	4.63	65.12	65.14	55.65
Average	4.74	4.70	65.39	65.42	56.14

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.81	4.80	0.94	0.91	0.79
2	4.72	4.68	0.99	0.96	0.82
3	4.70	4.63	1.13	1.10	0.94
Average	4.74	4.70	1.02	0.99	0.85

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 28, 2024

Start time: 11:00 AM

O₂ instrument Model: AMI 70NO_x instrument Model: API 200 AHSO₂ instrument Model: THERMO 43 C

Fuel Type: Fuel Gas

Run #: 1

Location: F-180

Finish time: 11:20 AM

Serial No.: 121121-10

Serial No.: 314

Serial No.: 58702-319

Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:00 AM	4.89	64.63	0.98
11:01 AM	4.93	64.59	1.01
11:02 AM	4.94	65.50	1.14
11:03 AM	4.87	65.79	1.15
11:04 AM	4.86	65.96	1.15
11:05 AM	4.81	68.92	0.97
11:06 AM	4.82	66.57	0.95
11:07 AM	4.78	67.39	0.91
11:08 AM	4.77	66.59	0.98
11:09 AM	4.82	66.20	0.90
11:10 AM	4.80	65.88	0.94
11:11 AM	4.81	65.65	1.02
11:12 AM	4.81	65.60	0.95
11:13 AM	4.76	65.89	0.92
11:14 AM	4.79	65.08	0.90
11:15 AM	4.79	64.80	0.94
11:16 AM	4.78	65.91	0.90
11:17 AM	4.76	65.74	0.53
11:18 AM	4.71	65.38	0.87
11:19 AM	4.76	65.41	0.83
11:20 AM	4.73	65.72	0.89
Average	4.81	65.87	0.94

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 28, 2024 Run #: 2
 Start time: 11:21 AM Location: F-180
 Finish time: 11:41 AM
 O₂ instrument Model: AMI 70 Serial No.: 121121-10
 NO_x instrument Model: API 200 AH Serial No.: 314
 SO₂ instrument Model: THERMO 43 C Serial No.: 58702-319
 Fuel Type: Fuel Gas Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:21 AM	4.75	65.45	0.89
11:22 AM	4.74	64.71	0.96
11:23 AM	4.71	64.98	0.98
11:24 AM	4.74	65.57	1.04
11:25 AM	4.72	65.59	0.99
11:26 AM	4.70	64.88	0.97
11:27 AM	4.72	64.81	0.98
11:28 AM	4.70	64.83	0.98
11:29 AM	4.72	65.09	1.02
11:30 AM	4.67	64.66	1.03
11:31 AM	4.68	65.12	0.80
11:32 AM	4.73	65.23	0.84
11:33 AM	4.67	64.98	0.89
11:34 AM	4.74	65.20	0.99
11:35 AM	4.70	65.92	0.98
11:36 AM	4.72	65.92	1.05
11:37 AM	4.77	65.60	1.01
11:38 AM	4.74	65.54	1.09
11:39 AM	4.79	65.05	1.07
11:40 AM	4.74	64.94	1.12
11:41 AM	4.69	65.08	1.07
Average	4.72	65.20	0.99

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 28, 2024 Run #: 3
 Start time: 11:42 AM Location: F-180
 Finish time: 12:02 PM
 O₂ instrument Model: AMI 70 Serial No.: 121121-10
 NO_x instrument Model: API 200 AH Serial No.: 314
 SO₂ instrument Model: THERMO 43 C Serial No.: 58702-319
 Fuel Type: Fuel Gas Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:42 AM	4.74	65.23	1.12
11:43 AM	4.69	66.13	1.09
11:44 AM	4.67	66.08	1.01
11:45 AM	4.65	65.31	1.01
11:46 AM	4.66	65.23	1.03
11:47 AM	4.70	64.64	1.09
11:48 AM	4.71	64.72	1.09
11:49 AM	4.71	64.89	1.11
11:50 AM	4.70	65.35	1.10
11:51 AM	4.69	66.45	1.19
11:52 AM	4.77	65.11	1.18
11:53 AM	4.68	64.43	1.19
11:54 AM	4.68	64.56	1.24
11:55 AM	4.67	64.62	1.20
11:56 AM	4.67	65.13	1.13
11:57 AM	4.71	65.42	1.11
11:58 AM	4.66	65.38	1.14
11:59 AM	4.69	65.12	1.11
12:00 PM	4.72	64.86	1.19
12:01 PM	4.73	64.25	1.17
12:02 PM	4.71	64.55	1.16
Average	4.70	65.12	1.13

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

The Monitoring Result of Emission Concentration

F-740

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 30, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	10.11	10.16	6.27	6.24	8.08
2	10.22	10.22	5.48	5.45	7.09
3	10.19	10.13	5.17	5.14	6.63
Average	10.17	10.17	5.64	5.61	7.27

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	10.11	10.16	0.39	0.35	0.45
2	10.22	10.22	0.38	0.33	0.43
3	10.19	10.13	0.38	0.32	0.41
Average	10.17	10.17	0.38	0.33	0.43

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 30, 2024

Start time: 1:00 PM

O₂ instrument Model: AMI 70NO_x instrument Model: API 200 AHSO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : F-740

Finish time : 1:20 PM

Serial No.: 111117-2

Serial No.: 314

Serial No.: 060

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:00 PM	10.02	6.94	0.39
1:01 PM	10.09	6.91	0.39
1:02 PM	10.07	6.80	0.39
1:03 PM	10.04	6.69	0.39
1:04 PM	9.91	6.63	0.39
1:05 PM	9.90	6.58	0.39
1:06 PM	10.08	6.49	0.39
1:07 PM	10.21	6.38	0.39
1:08 PM	10.18	6.28	0.39
1:09 PM	10.08	6.26	0.39
1:10 PM	10.05	6.24	0.39
1:11 PM	10.13	6.19	0.39
1:12 PM	10.06	6.02	0.39
1:13 PM	10.05	6.00	0.39
1:14 PM	10.20	5.96	0.39
1:15 PM	10.21	5.94	0.39
1:16 PM	10.05	5.96	0.39
1:17 PM	10.18	5.95	0.39
1:18 PM	10.23	5.87	0.39
1:19 PM	10.34	5.78	0.39
1:20 PM	10.19	5.74	0.39
Average	10.11	6.27	0.39

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 30, 2024 Run # : 2
 Start time: 1:21 PM Location : F-740
 O₂ instrument Model: AMI 70 Finish time : 1:41 PM
 NO_x instrument Model: API 200 AH Serial No.: 111117-2
 SO₂ instrument Model: API 100 AH Serial No.: 314
 Fuel Type : Fuel Gas Serial No.: 060
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:21 PM	10.21	5.69	0.39
1:22 PM	9.98	5.64	0.39
1:23 PM	10.14	5.63	0.39
1:24 PM	10.16	5.58	0.39
1:25 PM	10.01	5.53	0.39
1:26 PM	10.13	5.54	0.39
1:27 PM	10.34	5.48	0.39
1:28 PM	10.25	5.41	0.39
1:29 PM	10.27	5.40	0.39
1:30 PM	10.29	5.38	0.39
1:31 PM	10.23	5.35	0.38
1:32 PM	10.33	5.53	0.38
1:33 PM	10.34	5.53	0.38
1:34 PM	10.35	5.52	0.38
1:35 PM	10.25	5.49	0.38
1:36 PM	10.37	5.46	0.38
1:37 PM	10.20	5.43	0.38
1:38 PM	10.30	5.39	0.38
1:39 PM	10.22	5.36	0.38
1:40 PM	10.10	5.35	0.38
1:41 PM	10.21	5.34	0.38
Average	10.22	5.48	0.38

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 30, 2024 Run # : 3
 Start time: 1:42 PM Location : F-740
 O₂ instrument Model: AMI 70 Finish time : 2:02 PM
 NO_x instrument Model: API 200 AH Serial No.: 111117-2
 SO₂ instrument Model: API 100 AH Serial No.: 314
 Fuel Type : Fuel Gas Serial No.: 060
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:42 PM	10.45	5.29	0.38
1:43 PM	10.24	5.25	0.38
1:44 PM	10.24	5.24	0.38
1:45 PM	10.04	5.23	0.38
1:46 PM	10.25	5.20	0.38
1:47 PM	10.11	5.19	0.38
1:48 PM	10.07	5.19	0.38
1:49 PM	10.19	5.19	0.38
1:50 PM	10.15	5.19	0.38
1:51 PM	10.19	5.21	0.38
1:52 PM	10.15	5.20	0.38
1:53 PM	10.15	5.18	0.38
1:54 PM	10.31	5.12	0.38
1:55 PM	10.07	5.12	0.38
1:56 PM	10.24	5.11	0.38
1:57 PM	10.19	5.09	0.38
1:58 PM	10.15	5.04	0.38
1:59 PM	10.29	5.04	0.38
2:00 PM	10.03	5.03	0.38
2:01 PM	10.21	5.18	0.38
2:02 PM	10.20	5.19	0.38
Average	10.19	5.17	0.38

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

The Monitoring Result of Emission Concentration

F-1010

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 30, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	6.28	6.23	21.70	21.69	20.55
2	6.27	6.24	21.87	21.86	20.73
3	6.24	6.24	22.21	22.20	21.05
Average	6.26	6.24	21.93	21.92	20.78

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	6.28	6.23	0.40	0.33	0.31
2	6.27	6.24	0.41	0.35	0.33
3	6.24	6.24	0.40	0.35	0.33
Average	6.26	6.24	0.41	0.34	0.33

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 30, 2024
 Start time: 3:10 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: Teledyne 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 1
 Location : F-1010
 Finish time : 3:30 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:10 PM	6.34	21.68	0.41
3:11 PM	6.25	21.44	0.41
3:12 PM	6.35	21.40	0.41
3:13 PM	6.32	21.39	0.41
3:14 PM	6.25	21.38	0.39
3:15 PM	6.34	21.45	0.41
3:16 PM	6.16	21.44	0.41
3:17 PM	6.28	21.61	0.39
3:18 PM	6.28	21.56	0.38
3:19 PM	6.23	21.58	0.41
3:20 PM	6.41	21.55	0.41
3:21 PM	6.23	21.62	0.38
3:22 PM	6.33	21.82	0.41
3:23 PM	6.23	21.82	0.41
3:24 PM	6.27	21.90	0.41
3:25 PM	6.37	21.99	0.41
3:26 PM	6.15	22.05	0.41
3:27 PM	6.32	22.10	0.41
3:28 PM	6.24	21.88	0.39
3:29 PM	6.28	21.97	0.39
3:30 PM	6.34	22.03	0.41
Average	6.28	21.70	0.40

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 30, 2024	Run #: 2
Start time: 3:31 PM	Location: F-1010
O ₂ instrument Model: AMI 70	Finish time: 3:51 PM
NO _x instrument Model: Teledyne 200 EM	Serial No.: 161212-14
SO ₂ instrument Model: API 100 AH	Serial No.: 435
Fuel Type: Fuel Gas	Serial No.: 058
	Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:31 PM	6.25	21.98	0.41
3:32 PM	6.33	22.02	0.41
3:33 PM	6.25	21.97	0.42
3:34 PM	6.27	21.85	0.42
3:35 PM	6.38	21.80	0.41
3:36 PM	6.10	21.59	0.41
3:37 PM	6.28	21.58	0.41
3:38 PM	6.25	21.51	0.41
3:39 PM	6.23	21.50	0.43
3:40 PM	6.40	21.80	0.43
3:41 PM	6.20	22.11	0.41
3:42 PM	6.24	22.20	0.41
3:43 PM	6.25	21.91	0.41
3:44 PM	6.27	21.79	0.39
3:45 PM	6.40	21.90	0.39
3:46 PM	6.15	21.92	0.38
3:47 PM	6.29	22.04	0.41
3:48 PM	6.30	21.93	0.41
3:49 PM	6.30	21.88	0.41
3:50 PM	6.35	21.99	0.41
3:51 PM	6.19	22.06	0.44
Average	6.27	21.87	0.41

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 30, 2024	Run #: 3
Start time: 3:52 PM	Location: F-1010
O ₂ instrument Model: AMI 70	Finish time: 4:12 PM
NO _x instrument Model: Teledyne 200 EM	Serial No.: 161212-14
SO ₂ instrument Model: API 100 AH	Serial No.: 435
Fuel Type: Fuel Gas	Serial No.: 058
	Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:52 PM	6.21	22.24	0.41
3:53 PM	6.30	22.19	0.41
3:54 PM	6.17	22.13	0.41
3:55 PM	6.35	22.15	0.41
3:56 PM	6.09	22.15	0.41
3:57 PM	6.22	22.13	0.38
3:58 PM	6.29	21.99	0.39
3:59 PM	6.23	22.07	0.39
4:00 PM	6.38	22.26	0.38
4:01 PM	6.17	22.19	0.39
4:02 PM	6.21	22.29	0.41
4:03 PM	6.28	22.18	0.41
4:04 PM	6.24	22.07	0.41
4:05 PM	6.32	22.18	0.41
4:06 PM	6.15	22.28	0.39
4:07 PM	6.28	22.34	0.41
4:08 PM	6.22	22.28	0.41
4:09 PM	6.20	22.34	0.42
4:10 PM	6.40	22.33	0.42
4:11 PM	6.10	22.24	0.42
4:12 PM	6.22	22.38	0.41
Average	6.24	22.21	0.40

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

**The Monitoring Result of Emission Concentration
F-3103**

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 29, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	7.33	7.26	32.06	32.05	32.66
2	7.34	7.25	32.07	32.06	32.65
3	7.34	7.24	32.00	31.99	32.55
Average	7.34	7.25	32.04	32.03	32.62

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	7.33	7.26	1.06	1.03	1.05
2	7.34	7.25	1.11	1.09	1.11
3	7.34	7.24	1.13	1.11	1.13
Average	7.34	7.25	1.10	1.08	1.10

**PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT**

Date: May 29, 2024

Start time: 11:30 AM

O₂ instrument Model: AMI 70

NO_x instrument Model: API 200 AH

SO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : F-3103

Finish time : 11:50 AM

Serial No.: 121121-10

Serial No.: 314

Serial No.: 58702-319

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:30 AM	7.34	32.09	1.05
11:31 AM	7.41	32.09	1.05
11:32 AM	7.38	32.19	1.05
11:33 AM	7.44	32.11	1.05
11:34 AM	7.40	32.20	1.05
11:35 AM	7.46	32.17	1.06
11:36 AM	7.37	31.94	1.06
11:37 AM	7.36	31.93	1.05
11:38 AM	7.36	31.99	1.06
11:39 AM	7.32	31.98	1.05
11:40 AM	7.32	32.03	1.05
11:41 AM	7.28	32.05	1.07
11:42 AM	7.29	32.09	1.05
11:43 AM	7.29	32.03	1.08
11:44 AM	7.28	31.96	1.09
11:45 AM	7.29	32.01	1.10
11:46 AM	7.27	31.98	1.06
11:47 AM	7.24	32.13	1.06
11:48 AM	7.30	32.05	1.06
11:49 AM	7.29	32.05	1.10
11:50 AM	7.28	32.19	1.07
Average	7.33	32.06	1.06

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024
 Start time: 11:51 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 2
 Location : F-3103
 Finish time : 12:11 PM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 58702-319
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:51 AM	7.31	32.05	1.08
11:52 AM	7.36	31.98	1.09
11:53 AM	7.37	32.01	1.11
11:54 AM	7.34	32.09	1.09
11:55 AM	7.31	31.99	1.11
11:56 AM	7.32	31.93	1.08
11:57 AM	7.35	32.05	1.11
11:58 AM	7.32	32.11	1.14
11:59 AM	7.33	32.12	1.14
12:00 PM	7.32	32.07	1.09
12:01 PM	7.36	32.01	1.14
12:02 PM	7.36	32.08	1.14
12:03 PM	7.35	32.01	1.13
12:04 PM	7.37	31.98	1.12
12:05 PM	7.35	32.12	1.12
12:06 PM	7.36	32.15	1.12
12:07 PM	7.35	32.16	1.12
12:08 PM	7.35	32.19	1.12
12:09 PM	7.38	32.10	1.12
12:10 PM	7.30	32.10	1.12
12:11 PM	7.38	32.08	1.12
Average	7.34	32.07	1.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024
 Start time: 12:12 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 3
 Location : F-3103
 Finish time : 12:32 PM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 58702-319
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:12 PM	7.34	32.23	1.13
12:13 PM	7.33	32.11	1.13
12:14 PM	7.36	32.08	1.13
12:15 PM	7.34	32.10	1.13
12:16 PM	7.32	32.08	1.13
12:17 PM	7.33	32.06	1.13
12:18 PM	7.32	32.11	1.12
12:19 PM	7.34	32.21	1.13
12:20 PM	7.31	31.95	1.13
12:21 PM	7.34	32.08	1.13
12:22 PM	7.33	32.07	1.13
12:23 PM	7.30	32.13	1.13
12:24 PM	7.37	32.05	1.13
12:25 PM	7.35	32.08	1.13
12:26 PM	7.38	32.02	1.11
12:27 PM	7.37	32.05	1.14
12:28 PM	7.33	31.89	1.13
12:29 PM	7.36	31.74	1.13
12:30 PM	7.32	31.68	1.13
12:31 PM	7.34	31.67	1.13
12:32 PM	7.33	31.57	1.13
Average	7.34	32.00	1.13

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

The Monitoring Result of Emission Concentration

F-3105

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 29, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	7.61	7.65	32.37	32.36	33.95
2	7.54	7.54	32.48	32.47	33.78
3	7.60	7.56	32.53	32.52	33.89
Average	7.58	7.58	32.46	32.45	33.87

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	7.61	7.65	0.36	0.33	0.35
2	7.54	7.54	0.36	0.33	0.34
3	7.60	7.56	0.34	0.30	0.31
Average	7.58	7.58	0.35	0.32	0.33

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 29, 2024
 Start time: 11:30 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 1
 Location : F-3105
 Finish time : 11:50 AM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:30 AM	7.61	32.04	0.29
11:31 AM	7.55	31.73	0.30
11:32 AM	7.76	31.74	0.31
11:33 AM	7.70	31.91	0.33
11:34 AM	7.68	32.09	0.34
11:35 AM	7.61	32.02	0.37
11:36 AM	7.65	32.03	0.35
11:37 AM	7.71	32.18	0.35
11:38 AM	7.60	32.15	0.35
11:39 AM	7.61	32.18	0.37
11:40 AM	7.59	32.18	0.38
11:41 AM	7.64	32.18	0.34
11:42 AM	7.64	32.49	0.34
11:43 AM	7.57	32.65	0.34
11:44 AM	7.58	32.78	0.38
11:45 AM	7.70	32.73	0.40
11:46 AM	7.52	32.70	0.38
11:47 AM	7.54	33.01	0.39
11:48 AM	7.62	33.16	0.42
11:49 AM	7.50	33.02	0.38
11:50 AM	7.50	32.83	0.38
Average	7.61	32.37	0.36

Signature


(Miss Katesarin Vorradeetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024 Run #: 2
 Start time: 11:51 AM Location: F-3105
 O₂ instrument Model: AMI 70 Finish time: 12:11 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type: Fuel Gas Serial No.: 058
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:51 AM	7.54	32.62	0.37
11:52 AM	7.49	32.57	0.40
11:53 AM	7.43	32.76	0.38
11:54 AM	7.61	32.77	0.35
11:55 AM	7.47	32.83	0.37
11:56 AM	7.52	32.24	0.39
11:57 AM	7.54	32.27	0.40
11:58 AM	7.44	32.20	0.38
11:59 AM	7.58	32.16	0.38
12:00 PM	7.58	31.93	0.35
12:01 PM	7.54	31.97	0.35
12:02 PM	7.52	32.18	0.36
12:03 PM	7.62	32.29	0.34
12:04 PM	7.47	32.56	0.35
12:05 PM	7.55	32.71	0.36
12:06 PM	7.63	32.68	0.34
12:07 PM	7.43	32.69	0.34
12:08 PM	7.66	32.75	0.34
12:09 PM	7.55	32.79	0.34
12:10 PM	7.54	32.63	0.34
12:11 PM	7.57	32.55	0.34
Average	7.54	32.48	0.36

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024 Run #: 3
 Start time: 12:12 PM Location: F-3105
 O₂ instrument Model: AMI 70 Finish time: 12:32 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type: Fuel Gas Serial No.: 058
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:12 PM	7.59	32.61	0.34
12:13 PM	7.54	32.64	0.32
12:14 PM	7.57	32.68	0.32
12:15 PM	7.59	32.51	0.38
12:16 PM	7.55	32.55	0.39
12:17 PM	7.55	32.51	0.34
12:18 PM	7.75	32.22	0.34
12:19 PM	7.54	32.29	0.29
12:20 PM	7.57	32.24	0.34
12:21 PM	7.69	32.00	0.34
12:22 PM	7.55	32.22	0.35
12:23 PM	7.69	32.57	0.36
12:24 PM	7.69	32.70	0.34
12:25 PM	7.52	32.74	0.33
12:26 PM	7.72	32.83	0.34
12:27 PM	7.54	33.00	0.34
12:28 PM	7.62	32.85	0.34
12:29 PM	7.62	32.61	0.34
12:30 PM	7.60	32.71	0.34
12:31 PM	7.62	32.32	0.34
12:32 PM	7.56	32.35	0.29
Average	7.60	32.53	0.34

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

The Monitoring Result of Emission Concentration

F-3106

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 29, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	6.41	6.36	27.14	27.13	25.94
2	6.38	6.32	28.01	28.00	26.69
3	6.35	6.29	27.46	27.45	26.12
Average	6.38	6.32	27.53	27.53	26.25

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	6.41	6.36	0.25	0.21	0.20
2	6.38	6.32	0.24	0.20	0.19
3	6.35	6.29	0.24	0.19	0.18
Average	6.38	6.32	0.24	0.20	0.19

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 29, 2024

Start time: 1:20 PM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : F-3106

Finish time : 1:40 PM

Serial No.: 161212-14

Serial No.: 435

Serial No.: 058

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:20 PM	6.41	26.95	0.27
1:21 PM	6.10	26.73	0.22
1:22 PM	6.23	26.56	0.21
1:23 PM	5.94	26.80	0.21
1:24 PM	6.23	26.64	0.24
1:25 PM	5.92	26.62	0.26
1:26 PM	6.07	26.76	0.24
1:27 PM	6.16	26.91	0.25
1:28 PM	6.17	26.98	0.28
1:29 PM	6.40	27.10	0.27
1:30 PM	6.48	27.34	0.24
1:31 PM	6.55	27.57	0.28
1:32 PM	6.69	27.53	0.28
1:33 PM	6.74	27.46	0.28
1:34 PM	6.78	27.42	0.28
1:35 PM	6.80	27.37	0.21
1:36 PM	6.80	27.20	0.20
1:37 PM	6.62	27.20	0.22
1:38 PM	6.67	27.34	0.24
1:39 PM	6.51	27.60	0.24
1:40 PM	6.40	27.76	0.24
Average	6.41	27.14	0.25

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024 Run # : 2
 Start time: 1:41 PM Location : F-3106
 O₂ instrument Model: AMI 70 Finish time : 2:01 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:41 PM	6.31	27.82	0.25
1:42 PM	6.27	27.73	0.25
1:43 PM	6.02	27.64	0.25
1:44 PM	6.07	27.73	0.25
1:45 PM	6.03	27.87	0.24
1:46 PM	5.85	27.91	0.25
1:47 PM	6.10	27.90	0.25
1:48 PM	5.88	28.04	0.25
1:49 PM	6.22	28.08	0.25
1:50 PM	6.04	28.01	0.26
1:51 PM	6.33	28.05	0.25
1:52 PM	6.33	28.12	0.27
1:53 PM	6.65	28.19	0.25
1:54 PM	6.49	28.18	0.29
1:55 PM	6.85	28.19	0.20
1:56 PM	6.72	28.23	0.20
1:57 PM	6.86	28.23	0.21
1:58 PM	6.87	28.10	0.21
1:59 PM	6.64	28.22	0.21
2:00 PM	6.89	28.12	0.21
2:01 PM	6.53	27.91	0.21
Average	6.38	28.01	0.24

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 29, 2024 Run # : 3
 Start time: 2:02 PM Location : F-3106
 O₂ instrument Model: AMI 70 Finish time : 2:22 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:02 PM	6.60	27.82	0.21
2:03 PM	6.36	27.65	0.21
2:04 PM	6.29	27.46	0.21
2:05 PM	6.17	27.36	0.21
2:06 PM	6.01	27.31	0.21
2:07 PM	6.14	27.25	0.21
2:08 PM	5.81	27.38	0.22
2:09 PM	5.93	27.33	0.23
2:10 PM	6.03	27.21	0.23
2:11 PM	5.87	27.30	0.23
2:12 PM	6.22	27.50	0.27
2:13 PM	6.13	27.62	0.27
2:14 PM	6.39	27.57	0.24
2:15 PM	6.48	27.53	0.27
2:16 PM	6.55	27.57	0.27
2:17 PM	6.72	27.62	0.27
2:18 PM	6.75	27.65	0.26
2:19 PM	6.82	27.61	0.26
2:20 PM	6.68	27.51	0.26
2:21 PM	6.85	27.22	0.25
2:22 PM	6.56	27.11	0.26
Average	6.35	27.46	0.24

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

**The Monitoring Result of Emission Concentration
Boiler**

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 31, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.71	4.71	36.17	36.16	31.05
2	4.58	4.54	35.70	35.69	30.32
3	4.59	4.52	35.03	35.02	29.72
Average	4.63	4.59	35.63	35.62	30.36

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	4.71	4.71	1.33	1.27	1.09
2	4.58	4.54	1.17	1.13	0.96
3	4.59	4.52	1.31	1.28	1.09
Average	4.63	4.59	1.27	1.23	1.05

**PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 1)
EMISSION TEST RESULT**

Date: May 31, 2024

Start time: 2:30 PM

O₂ instrument Model: AMI 70

NO_x instrument Model: Teledyne 200 EM

SO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : Boiler

Finish time : 2:50 PM

Serial No.: 161212-14

Serial No.: 435

Serial No.: 058

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:30 PM	4.69	37.02	1.43
2:31 PM	4.71	36.78	1.40
2:32 PM	4.82	36.49	1.40
2:33 PM	4.93	36.61	1.41
2:34 PM	5.08	36.83	1.37
2:35 PM	5.01	36.57	1.40
2:36 PM	5.30	36.31	1.35
2:37 PM	5.06	36.75	1.31
2:38 PM	4.62	36.74	1.32
2:39 PM	4.83	36.22	1.31
2:40 PM	4.62	35.85	1.31
2:41 PM	4.51	35.13	1.32
2:42 PM	4.55	35.33	1.32
2:43 PM	4.89	35.97	1.31
2:44 PM	4.51	36.15	1.32
2:45 PM	4.38	36.16	1.28
2:46 PM	4.41	35.93	1.27
2:47 PM	4.41	35.54	1.29
2:48 PM	4.40	35.52	1.32
2:49 PM	4.60	35.82	1.27
2:50 PM	4.68	35.86	1.26
Average	4.71	36.17	1.33

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 1)
EMISSION TEST RESULT

Date: May 31, 2024 Run # : 2
 Start time: 2:51 PM Location : Boiler
 O₂ instrument Model: AMI 70 Finish time : 3:11 PM
 NO_x instrument Model: Teledyne 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:51 PM	4.49	35.64	1.26
2:52 PM	4.44	35.94	1.27
2:53 PM	4.74	36.28	1.28
2:54 PM	4.62	35.53	1.30
2:55 PM	4.63	34.60	1.25
2:56 PM	4.43	34.75	1.25
2:57 PM	4.66	35.64	1.24
2:58 PM	4.71	35.97	1.22
2:59 PM	4.89	35.81	1.20
3:00 PM	4.51	35.92	1.20
3:01 PM	4.47	36.03	1.19
3:02 PM	4.51	36.01	1.18
3:03 PM	4.77	35.60	1.15
3:04 PM	4.38	35.19	1.12
3:05 PM	4.80	35.44	1.12
3:06 PM	4.70	35.84	1.11
3:07 PM	4.50	35.80	1.10
3:08 PM	4.58	35.80	1.07
3:09 PM	4.44	35.95	1.05
3:10 PM	4.43	35.88	1.05
3:11 PM	4.40	36.11	1.00
Average	4.58	35.70	1.17

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 1)
EMISSION TEST RESULT

Date: May 31, 2024 Run # : 3
 Start time: 3:12 PM Location : Boiler
 O₂ instrument Model: AMI 70 Finish time : 3:32 PM
 NO_x instrument Model: Teledyne 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:12 PM	4.51	36.02	0.99
3:13 PM	4.70	35.49	0.96
3:14 PM	5.08	35.23	0.93
3:15 PM	4.99	35.74	0.93
3:16 PM	4.44	35.87	0.92
3:17 PM	4.55	35.46	1.63
3:18 PM	4.54	35.30	1.58
3:19 PM	4.54	34.76	1.57
3:20 PM	4.69	34.18	1.53
3:21 PM	4.41	34.55	1.50
3:22 PM	4.86	35.04	1.47
3:23 PM	4.52	34.95	1.45
3:24 PM	4.55	34.86	1.45
3:25 PM	4.49	35.03	1.42
3:26 PM	4.40	35.35	1.39
3:27 PM	4.59	35.35	1.33
3:28 PM	4.70	34.85	1.33
3:29 PM	4.48	34.36	1.33
3:30 PM	4.60	34.19	1.29
3:31 PM	4.34	34.50	1.27
3:32 PM	4.37	34.61	1.24
Average	4.59	35.03	1.31

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

The Monitoring Result of Emission Concentration

F-4301

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 31, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	3.45	3.40	9.86	9.83	7.81
2	3.45	3.42	10.03	9.99	7.94
3	3.42	3.41	10.03	9.99	7.94
Average	3.44	3.41	9.97	9.94	7.90

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	3.45	3.40	0.26	0.21	0.17
2	3.45	3.42	0.23	0.17	0.14
3	3.42	3.41	0.23	0.16	0.13
Average	3.44	3.41	0.24	0.18	0.14

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 31, 2024

Start time: 10:20 AM

O₂ instrument Model: AMI 70NO_x instrument Model: Teledyne 200 EMSO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : F-4301

Finish time : 10:40 AM

Serial No.: 161212-14

Serial No.: 435

Serial No.: 058

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:20 AM	3.42	9.76	0.23
10:21 AM	3.46	9.77	0.23
10:22 AM	3.44	9.81	0.28
10:23 AM	3.41	9.82	0.29
10:24 AM	3.46	9.80	0.29
10:25 AM	3.42	9.83	0.29
10:26 AM	3.42	9.84	0.29
10:27 AM	3.42	9.83	0.29
10:28 AM	3.36	9.81	0.29
10:29 AM	3.50	9.77	0.28
10:30 AM	3.43	9.78	0.23
10:31 AM	3.38	9.86	0.23
10:32 AM	3.47	9.87	0.23
10:33 AM	3.38	9.88	0.23
10:34 AM	3.45	9.86	0.23
10:35 AM	3.53	9.89	0.29
10:36 AM	3.46	9.94	0.23
10:37 AM	3.56	9.97	0.23
10:38 AM	3.53	10.00	0.23
10:39 AM	3.40	10.02	0.23
10:40 AM	3.46	9.99	0.29
Average	3.45	9.86	0.26

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 31, 2024 Run # : 2
 Start time: 10:41 AM Location : F-4301
 O₂ instrument Model: AMI 70 Finish time : 11:01 AM
 NO_x instrument Model: Teledyne 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Test Operator : Song H. Serial No.: 058

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:41 AM	3.46	10.00	0.29
10:42 AM	3.50	10.06	0.25
10:43 AM	3.40	10.07	0.23
10:44 AM	3.46	10.02	0.23
10:45 AM	3.44	9.98	0.23
10:46 AM	3.49	10.04	0.23
10:47 AM	3.53	10.04	0.23
10:48 AM	3.45	10.04	0.23
10:49 AM	3.60	10.07	0.23
10:50 AM	3.44	10.12	0.23
10:51 AM	3.47	10.08	0.23
10:52 AM	3.54	10.05	0.23
10:53 AM	3.41	10.08	0.23
10:54 AM	3.43	10.07	0.23
10:55 AM	3.41	10.02	0.23
10:56 AM	3.38	10.00	0.23
10:57 AM	3.45	9.96	0.23
10:58 AM	3.38	9.95	0.23
10:59 AM	3.38	9.95	0.23
11:00 AM	3.50	10.02	0.23
11:01 AM	3.42	10.11	0.23
Average	3.45	10.03	0.23

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 31, 2024 Run # : 3
 Start time: 11:02 AM Location : F-4301
 O₂ instrument Model: AMI 70 Finish time : 11:22 AM
 NO_x instrument Model: Teledyne 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Fuel Gas Test Operator : Song H. Serial No.: 058

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:02 AM	3.47	10.10	0.23
11:03 AM	3.35	10.03	0.23
11:04 AM	3.53	9.99	0.23
11:05 AM	3.48	10.03	0.23
11:06 AM	3.45	10.03	0.23
11:07 AM	3.47	10.03	0.23
11:08 AM	3.43	10.03	0.23
11:09 AM	3.37	10.02	0.23
11:10 AM	3.43	10.02	0.23
11:11 AM	3.39	10.02	0.23
11:12 AM	3.46	10.02	0.23
11:13 AM	3.36	10.04	0.23
11:14 AM	3.38	10.04	0.23
11:15 AM	3.38	10.03	0.23
11:16 AM	3.33	10.03	0.23
11:17 AM	3.39	10.00	0.23
11:18 AM	3.43	10.02	0.23
11:19 AM	3.40	10.05	0.23
11:20 AM	3.42	10.04	0.23
11:21 AM	3.36	10.00	0.23
11:22 AM	3.47	9.97	0.21
Average	3.42	10.03	0.23

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

The Monitoring Result of Emission Concentration

LP Flare

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

May 31, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	14.59	14.48	33.78	33.77	73.12
2	14.54	14.40	33.63	33.62	71.90
3	14.44	14.26	33.80	33.79	70.74
Average	14.52	14.38	33.74	33.73	71.90

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	14.59	14.48	0.48	0.42	0.91
2	14.54	14.40	0.55	0.50	1.07
3	14.44	14.26	0.54	0.50	1.05
Average	14.52	14.38	0.52	0.47	1.01

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: May 31, 2024

Start time: 2:30 PM

O₂ instrument Model: AMI 70NO_x instrument Model: API 200 AHSO₂ instrument Model: THERMO 43 C

Fuel Type : Fuel Gas

Run # : 1

Location : LP Flare

Finish time : 2:50 PM

Serial No.: 121121-10

Serial No.: 314

Serial No.: 58702-319

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:30 PM	14.64	34.06	0.57
2:31 PM	14.87	34.04	0.42
2:32 PM	14.51	33.95	0.43
2:33 PM	14.50	34.25	0.42
2:34 PM	14.66	34.37	0.42
2:35 PM	14.45	34.19	0.48
2:36 PM	14.31	34.04	0.43
2:37 PM	14.31	34.11	0.52
2:38 PM	14.49	34.04	0.43
2:39 PM	14.73	33.68	0.46
2:40 PM	14.75	33.54	0.44
2:41 PM	14.76	33.65	0.43
2:42 PM	14.68	33.83	0.51
2:43 PM	14.69	33.69	0.52
2:44 PM	14.72	33.47	0.52
2:45 PM	14.39	33.57	0.52
2:46 PM	14.70	33.64	0.52
2:47 PM	14.46	33.50	0.52
2:48 PM	14.24	33.37	0.52
2:49 PM	14.86	33.26	0.52
2:50 PM	14.63	33.12	0.52
Average	14.59	33.78	0.48

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 31, 2024 Run #: 2
 Start time: 2:51 PM Location: LP Flare
 O₂ instrument Model: AMI 70 Finish time: 3:11 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: THERMO 43 C Serial No.: 314
 Fuel Type: Fuel Gas Serial No.: 58702-319
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:51 PM	14.43	33.07	0.52
2:52 PM	14.33	33.05	0.52
2:53 PM	14.54	32.97	0.52
2:54 PM	14.45	33.01	0.52
2:55 PM	14.34	33.23	0.52
2:56 PM	14.24	33.27	0.52
2:57 PM	14.50	33.24	0.55
2:58 PM	14.67	33.25	0.62
2:59 PM	14.93	33.28	0.62
3:00 PM	14.57	33.41	0.57
3:01 PM	14.36	33.49	0.52
3:02 PM	14.88	33.63	0.52
3:03 PM	14.72	33.70	0.52
3:04 PM	14.54	33.94	0.57
3:05 PM	14.33	34.22	0.60
3:06 PM	14.29	34.38	0.54
3:07 PM	14.57	34.29	0.54
3:08 PM	14.86	34.29	0.54
3:09 PM	14.72	34.32	0.54
3:10 PM	14.51	34.16	0.54
3:11 PM	14.64	34.00	0.54
Average	14.54	33.63	0.55

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: May 31, 2024 Run #: 3
 Start time: 3:12 PM Location: LP Flare
 O₂ instrument Model: AMI 70 Finish time: 3:32 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: THERMO 43 C Serial No.: 314
 Fuel Type: Fuel Gas Serial No.: 58702-319
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:12 PM	14.46	34.11	0.54
3:13 PM	14.31	34.32	0.54
3:14 PM	14.24	34.23	0.54
3:15 PM	14.26	33.96	0.54
3:16 PM	14.30	33.59	0.54
3:17 PM	14.31	33.46	0.54
3:18 PM	14.51	33.44	0.54
3:19 PM	14.79	33.43	0.54
3:20 PM	14.75	33.54	0.54
3:21 PM	14.48	33.73	0.54
3:22 PM	14.39	34.08	0.54
3:23 PM	14.34	34.17	0.54
3:24 PM	14.28	34.10	0.54
3:25 PM	14.34	34.17	0.54
3:26 PM	14.73	34.02	0.54
3:27 PM	14.86	33.76	0.54
3:28 PM	14.49	33.63	0.54
3:29 PM	14.35	33.71	0.54
3:30 PM	14.31	33.64	0.54
3:31 PM	14.30	33.43	0.54
3:32 PM	14.36	33.36	0.54
Average	14.44	33.80	0.54

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

The Monitoring Result of Emission Concentration

F-4302

PTT Global Chemical Public Co., Ltd.

(Branch 3 : Olefins 2)

July 1, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	10.99	11.03	11.99	11.97	16.86
2	10.95	10.93	12.05	12.01	16.74
3	10.89	10.82	11.89	11.84	16.33
Average	10.94	10.93	11.98	11.94	16.64

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	10.99	11.03	0.12	0.11	0.15
2	10.95	10.93	0.10	0.09	0.13
3	10.89	10.82	0.13	0.12	0.17
Average	10.94	10.93	0.12	0.11	0.15

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)

EMISSION TEST RESULT

Date: July 1, 2024

Start time: 10:20 AM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type : Fuel Gas

Run # : 1

Location : F-4302

Finish time : 10:40 AM

Serial No.: 161212-13

Serial No.: 433

Serial No.: 060

Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:20 AM	11.01	12.11	0.21
10:21 AM	10.92	12.05	0.11
10:22 AM	10.96	11.96	0.11
10:23 AM	11.03	11.86	0.13
10:24 AM	11.02	11.90	0.14
10:25 AM	10.90	12.06	0.10
10:26 AM	10.93	12.12	0.10
10:27 AM	10.94	12.03	0.12
10:28 AM	10.98	11.91	0.17
10:29 AM	10.96	11.91	0.15
10:30 AM	10.95	12.01	0.14
10:31 AM	10.98	11.97	0.10
10:32 AM	10.97	11.93	0.10
10:33 AM	10.99	11.91	0.10
10:34 AM	10.97	11.90	0.10
10:35 AM	11.06	11.91	0.11
10:36 AM	11.15	11.96	0.11
10:37 AM	11.04	12.10	0.16
10:38 AM	11.04	12.08	0.12
10:39 AM	10.97	12.05	0.10
10:40 AM	10.96	12.08	0.10
Average	10.99	11.99	0.12

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: July 1, 2024
 Start time: 10:41 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 2
 Location : F-4302
 Finish time : 11:01 AM
 Serial No.: 161212-13
 Serial No.: 433
 Serial No.: 060
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:41 AM	11.07	11.88	0.10
10:42 AM	11.13	11.88	0.10
10:43 AM	11.21	12.04	0.10
10:44 AM	11.10	12.03	0.08
10:45 AM	11.04	11.99	0.08
10:46 AM	11.01	12.04	0.09
10:47 AM	10.93	11.88	0.07
10:48 AM	10.95	12.02	0.08
10:49 AM	10.90	12.09	0.13
10:50 AM	10.92	11.94	0.09
10:51 AM	10.94	11.91	0.07
10:52 AM	10.85	12.08	0.09
10:53 AM	10.85	12.15	0.07
10:54 AM	10.38	12.11	0.06
10:55 AM	11.01	12.03	0.13
10:56 AM	10.94	11.97	0.14
10:57 AM	10.97	12.10	0.11
10:58 AM	11.01	12.22	0.14
10:59 AM	11.01	12.30	0.10
11:00 AM	10.87	12.32	0.11
11:01 AM	10.91	12.16	0.12
Average	10.95	12.05	0.10

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Date: July 1, 2024
 Start time: 11:02 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Fuel Gas

Run # : 3
 Location : F-4302
 Finish time : 11:22 AM
 Serial No.: 161212-13
 Serial No.: 433
 Serial No.: 060
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:02 AM	11.01	12.07	0.12
11:03 AM	10.98	12.06	0.11
11:04 AM	10.89	11.88	0.11
11:05 AM	10.79	11.81	0.11
11:06 AM	10.79	11.89	0.10
11:07 AM	10.82	11.81	0.11
11:08 AM	10.92	11.75	0.11
11:09 AM	10.86	11.79	0.12
11:10 AM	10.88	11.77	0.15
11:11 AM	10.97	11.82	0.16
11:12 AM	10.88	11.91	0.16
11:13 AM	10.81	12.01	0.14
11:14 AM	10.85	11.99	0.15
11:15 AM	10.78	11.91	0.12
11:16 AM	10.81	11.80	0.12
11:17 AM	10.84	11.74	0.11
11:18 AM	10.85	11.76	0.11
11:19 AM	11.15	11.77	0.13
11:20 AM	11.01	11.94	0.16
11:21 AM	11.00	12.07	0.17
11:22 AM	10.87	12.07	0.13
Average	10.89	11.89	0.13

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

ภาคผนวก ง.3

ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป



Noise Monitoring Result : Community Noise MTR-PTTGC Branch 3 (Olefins 2)

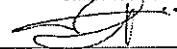
Location : North Fence of Project Site	Monitor Period : 27 May 2024-03 Jun 2024
SLM Model : Cirrus CR162C	Serial No : G300838
Site Operator : Mr. Phuwadech Kaewjirakulsri	


Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 04 Sep 2023
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 03 Sep 2024
Cal Sheet No.: CR-515-2024-173	

Time	Equivalent Sound Pressure Level (dB(A))						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
10:00 - 11:00	58.8	59.5	60.2	60.8	59.0	60.9	58.6
11:00 - 12:00	58.7	58.0	58.6	59.2	58.7	59.2	58.8
12:00 - 13:00	58.8	58.0	58.8	60.0	58.6	59.3	57.4
13:00 - 14:00	57.9	58.2	58.8	59.9	58.3	59.8	61.0
14:00 - 15:00	58.7	58.6	58.1	60.9	58.7	60.6	59.8
15:00 - 16:00	58.8	58.7	60.0	59.8	59.1	70.0	59.8
16:00 - 17:00	58.8	58.5	60.4	60.1	59.3	59.9	60.1
17:00 - 18:00	58.8	58.5	58.3	60.0	60.7	59.1	59.4
18:00 - 19:00	59.0	58.6	58.1	60.0	59.2	59.2	59.3
19:00 - 20:00	58.1	58.4	58.0	59.2	59.5	59.2	60.3
20:00 - 21:00	58.2	58.3	57.6	58.5	59.5	59.1	60.1
21:00 - 22:00	57.9	58.0	58.1	59.1	59.6	58.7	59.7
22:00 - 23:00	58.1	57.6	57.6	59.8	59.7	58.2	59.6
23:00 - 00:00	58.4	58.1	58.1	58.6	59.3	58.4	58.6
00:00 - 01:00	58.4	57.8	57.5	58.1	59.4	58.2	59.9
01:00 - 02:00	58.8	58.0	58.0	57.7	58.9	58.2	58.9
02:00 - 03:00	58.6	58.0	58.1	58.3	59.2	58.5	58.3
03:00 - 04:00	59.3	57.5	58.2	58.8	58.1	59.9	58.0
04:00 - 05:00	59.2	58.1	58.0	58.0	58.1	59.6	58.3
05:00 - 06:00	59.8	60.2	58.6	58.9	58.6	59.1	59.3
06:00 - 07:00	60.0	59.5	58.9	59.2	59.1	58.8	60.0
07:00 - 08:00	59.6	59.5	59.3	58.3	59.4	60.0	59.6
08:00 - 09:00	59.8	60.0	60.7	60.0	59.3	62.3	59.7
09:00 - 10:00	58.9	59.7	60.4	59.0	59.1	58.7	60.2
Leq(24)*	58.8	58.6	58.8	59.3	59.1	61.0	59.4
Ldn	65.4	64.9	64.7	65.2	65.4	65.9	65.5
Lmax **	80.6	79.1	86.1	96.9	99.5	99.6	93.9
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 10:00-10:00

** Maximum Sound Pressure Level between 10:00-10:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



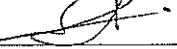
Noise Monitoring Result : Background Noise MTR-PTTGC Branch 3 (Olefins 2)


Location : North Fence of Project Site	Monitor Period : 27 May 2024-03 Jun 2024
SLM Model : Cirrus CR162C	Serial No : G300838
Site Operator : Mr. Phuwadech Kaewjirakulsri	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 04 Sep 2023
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 03 Sep 2024
Cal Sheet No.: CR-515-2024-173	

Time	L90 (dB(A))						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
10:00 - 11:00	57.0	57.3	57.2	57.8	57.3	57.5	56.2
11:00 - 12:00	56.9	56.3	56.7	57.2	57.0	57.1	56.1
12:00 - 13:00	56.8	56.3	56.9	57.9	57.0	57.2	55.7
13:00 - 14:00	56.3	56.7	56.7	57.9	56.8	57.9	56.9
14:00 - 15:00	56.7	56.7	56.3	58.0	56.9	57.8	58.0
15:00 - 16:00	56.8	56.7	56.4	57.8	57.6	57.9	57.7
16:00 - 17:00	56.5	56.5	57.3	57.7	57.6	58.0	57.8
17:00 - 18:00	57.0	56.7	56.4	57.8	57.5	57.4	57.6
18:00 - 19:00	57.2	56.8	56.5	58.0	57.5	57.3	57.5
19:00 - 20:00	56.9	56.6	56.3	57.2	57.8	57.4	58.3
20:00 - 21:00	56.8	56.7	56.4	56.9	57.9	57.5	58.2
21:00 - 22:00	56.6	56.6	56.7	57.1	58.0	57.6	57.8
22:00 - 23:00	56.6	56.3	56.5	57.4	57.9	56.9	57.3
23:00 - 00:00	56.9	56.4	56.5	56.5	58.0	56.8	56.9
00:00 - 01:00	56.9	56.3	56.2	56.3	58.3	56.8	57.2
01:00 - 02:00	57.1	56.4	56.4	56.3	58.1	56.7	57.0
02:00 - 03:00	57.0	56.4	56.4	56.8	58.2	56.9	56.7
03:00 - 04:00	57.5	56.2	56.3	56.8	57.1	57.3	56.6
04:00 - 05:00	57.3	56.5	56.4	56.5	56.8	57.4	56.6
05:00 - 06:00	57.7	57.5	56.7	56.9	57.4	57.3	57.5
06:00 - 07:00	57.6	57.3	56.8	57.3	57.5	57.7	58.1
07:00 - 08:00	57.4	57.2	57.1	56.5	57.8	58.0	57.6
08:00 - 09:00	57.7	57.4	57.9	57.2	57.2	56.9	57.7
09:00 - 10:00	57.1	57.6	58.1	57.4	57.1	56.3	58.0
L90(avg)*	57.0	56.7	56.7	57.3	57.5	57.3	57.4

Remark : * Average time between 10:00-10:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team




Noise Monitoring Result : Background Noise MTR-PTTGC Branch 3 (Olefins 2)

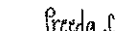
Location : South Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
SLM Model : Cirrus CR162C Serial No : G300832
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : 04 Sep 2023
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 03 Sep 2024
Cal Sheet No.: CR-515-2024-173

Time	L90 (dB(A))						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
10:00 - 11:00	55.7	56.5	57.0	57.4	57.4	57.8	57.4
11:00 - 12:00	55.4	55.9	55.9	57.4	56.2	57.2	60.2
12:00 - 13:00	55.6	55.8	55.9	55.4	57.2	57.1	59.7
13:00 - 14:00	55.5	55.8	55.4	55.6	57.1	57.2	59.7
14:00 - 15:00	55.7	57.1	55.9	55.7	56.7	56.7	61.0
15:00 - 16:00	56.8	59.0	55.8	56.8	57.0	57.0	60.1
16:00 - 17:00	56.9	58.3	56.1	56.9	57.9	58.5	59.4
17:00 - 18:00	57.0	58.1	56.5	55.5	57.6	58.7	58.8
18:00 - 19:00	56.1	57.7	56.4	58.3	57.9	57.6	58.9
19:00 - 20:00	55.8	58.1	56.6	58.1	57.8	57.1	57.0
20:00 - 21:00	55.9	57.9	56.0	57.7	57.0	57.0	58.1
21:00 - 22:00	56.1	56.2	55.6	56.0	56.2	56.4	57.9
22:00 - 23:00	55.9	57.4	55.8	56.4	56.0	56.3	58.2
23:00 - 00:00	55.7	57.1	56.2	56.5	56.4	56.4	57.4
00:00 - 01:00	55.6	56.9	56.2	56.6	56.5	56.4	57.1
01:00 - 02:00	55.7	57.1	56.0	56.9	56.6	56.3	56.9
02:00 - 03:00	55.9	57.2	57.5	57.1	57.6	55.7	57.1
03:00 - 04:00	56.2	57.3	57.6	55.7	58.0	55.6	57.5
04:00 - 05:00	56.4	57.2	57.9	55.9	57.8	55.7	57.6
05:00 - 06:00	57.6	57.2	57.1	57.2	56.7	55.9	57.9
06:00 - 07:00	57.9	57.6	57.2	57.2	56.0	56.2	57.2
07:00 - 08:00	56.2	58.0	57.6	57.6	56.9	56.4	57.2
08:00 - 09:00	56.3	57.6	57.6	58.0	58.2	57.8	58.0
09:00 - 10:00	56.2	57.4	57.8	57.6	59.2	57.6	57.9
L90(avg)*	56.2	57.3	56.6	56.9	57.2	56.7	58.1

Remark : * Average time between 10:00-10:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site Monitor Period : 27 May 2024-03 Jun 2024
SLM Model : Cirrus CR162C Serial No : G300832
Site Operator : Mr. Phuwadech Kaewjirakulsri


Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : 04 Sep 2023
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 03 Sep 2024
Cal Sheet No.: CR-515-2024-173

Time	Equivalent Sound Pressure Level (dB(A))						
	27-28 May 2024	28-29 May 2024	29-30 May 2024	30-31 May 2024	31-01 Jun 2024	01-02 Jun 2024	02-03 Jun 2024
10:00 - 11:00	57.5	58.1	58.6	58.9	58.5	59.3	58.5
11:00 - 12:00	57.1	58.1	57.6	58.7	58.0	58.9	62.9
12:00 - 13:00	57.4	57.6	60.2	57.1	58.9	58.7	61.4
13:00 - 14:00	57.5	57.6	56.9	57.4	58.7	60.4	62.0
14:00 - 15:00	57.4	58.7	57.6	57.4	58.4	58.4	62.5
15:00 - 16:00	59.4	60.5	57.5	59.4	58.8	58.8	62.2
16:00 - 17:00	58.4	59.9	58.0	58.4	60.4	58.6	63.0
17:00 - 18:00	59.1	59.4	59.0	57.5	59.9	58.7	59.4
18:00 - 19:00	57.8	59.1	59.3	59.9	60.4	59.9	58.4
19:00 - 20:00	58.6	63.1	58.5	59.4	60.1	58.8	59.1
20:00 - 21:00	56.9	58.9	57.9	59.1	60.0	60.5	57.8
21:00 - 22:00	57.5	57.0	66.9	57.6	58.1	57.9	58.9
22:00 - 23:00	56.9	58.4	56.8	57.6	57.6	57.3	57.0
23:00 - 00:00	58.3	58.2	57.3	57.6	57.6	57.1	58.4
00:00 - 01:00	56.0	57.7	57.0	57.4	57.6	57.2	58.2
01:00 - 02:00	56.2	57.7	56.7	57.7	57.4	57.1	57.7
02:00 - 03:00	56.6	57.8	58.2	57.7	62.1	56.3	57.7
03:00 - 04:00	56.9	58.0	58.3	56.2	59.4	56.0	58.2
04:00 - 05:00	57.8	58.0	58.7	56.6	58.4	56.2	58.3
05:00 - 06:00	59.8	58.3	57.7	58.0	57.5	56.6	58.7
06:00 - 07:00	60.2	59.0	58.2	58.3	56.7	56.9	58.0
07:00 - 08:00	57.9	59.9	59.0	59.8	58.9	57.8	58.3
08:00 - 09:00	57.8	59.3	59.8	59.9	60.7	59.8	59.9
09:00 - 10:00	58.0	58.5	59.7	59.3	61.6	59.3	60.2
Leq(24)*	57.8	58.9	58.3	58.3	59.2	58.4	59.9
Ldn	64.1	64.7	64.3	64.1	65.1	63.6	64.9
Lmax **	80.5	87.7	84.6	81.4	89.9	82.6	81.4
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 10:00-10:00

** Maximum Sound Pressure Level between 10:00-10:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.4

ใบรับรองผลการวิเคราะห์คุณภาพน้ำทิ้ง

คุณภาพน้ำทิ้งที่ออกจาก Equalization Tank (SC-11371)



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0005/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:23
SAMPLING DATE : 03/01/2024 ANALYTICAL DATE : 04-10/01/2024
RECEIVED DATE : 04/01/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 16/01/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371) FILE CODE : 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.31	-
Total Dissolved Solids	mg/l	2540 C	< 50	2,384	-
Total Suspended Solids	mg/l	2540 D	< 5	30	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	0.93	-
Phenols	mg/l	5530 B,D	< 0.10	0.58	-
BOD ₅	mg/l	5210 B	< 1.0	118	-
COD	mg/l	5220 C	< 15.00	407	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0026	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0233/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:45
SAMPLING DATE : 07/02/2024 ANALYTICAL DATE : 08-14/02/2024
RECEIVED DATE : 08/02/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 15/02/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371) FILE CODE : 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.28	-
Total Dissolved Solids	mg/l	2540 C	< 50	4,600	-
Total Suspended Solids	mg/l	2540 D	< 5	17	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,D	< 0.10	2.1	-
BOD ₅	mg/l	5210 B	< 1.0	258	-
COD	mg/l	5220 C	< 15.00	464	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0037	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0423/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:03
SAMPLING DATE : 06/03/2024 ANALYTICAL DATE : 07-15/03/2024
RECEIVED DATE : 07/03/2024 SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 16/03/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371) FILE CODE : 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND	STATION	STANDARD
			(non-detectable)	1	
pH	-	4500-H ⁺ B	< 0.10	9.04	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,158	-
Total Suspended Solids	mg/l	2540 D	< 5	62	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,D	< 0.10	0.79	-
BOD ₅	mg/l	5210 B	< 1.0	158	-
COD	mg/l	5220 C	< 15.00	406	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0010	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-n-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0650/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 13:30
SAMPLING DATE : 03/04/2024 ANALYTICAL DATE : 04-11/04/2024
RECEIVED DATE : 04/04/2024 SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 18/04/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371) FILE CODE : 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND	STATION	STANDARD
			(non-detectable)	1	
pH	-	4500-H ⁺ B	< 0.10	8.95	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,328	-
Total Suspended Solids	mg/l	2540 D	< 5	63	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	0.50	-
Phenols	mg/l	5530 B,D	< 0.10	ND	-
BOD ₅	mg/l	5210 B	< 1.0	189	-
COD	mg/l	5220 C	< 15.00	444	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0021	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-n-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No. :	0845/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:23
SAMPLING DATE	: 02/05/2024	ANALYTICAL DATE	: 03-10/05/2024
RECEIVED DATE	: 03/05/2024	SITE OPERATOR	: Miss Mareeyanee Hawae
REPORT DATE	: 13/05/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: I = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD
pH	-	4500-H ⁺ B	< 0.10	8.96	-
Total Dissolved Solids	mg/l	2540 C	< 50	6,904	-
Total Suspended Solids	mg/l	2540 D	< 5	236	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	7.9	-
Phenols	mg/l	5530 B,D	< 0.10	ND	-
BOD ₅	mg/l	5210 B	< 1.0	188	-
COD	mg/l	5220 C	< 15.00	706	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0019	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21ST ED. 2017 (AWWA-APHA-WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No. :	1124/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:34
SAMPLING DATE	: 05/06/2024	ANALYTICAL DATE	: 06-15/06/2024
RECEIVED DATE	: 06/06/2024	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 19/06/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: I = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD
pH	-	4500-H ⁺ B	< 0.10	8.67	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,776	-
Total Suspended Solids	mg/l	2540 D	< 5	1,796	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,D	< 0.10	ND	-
BOD ₅	mg/l	5210 B	< 1.0	836	-
COD	mg/l	5220 C	< 15.00	3,278	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0321	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0016	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21ST ED. 2017 (AWWA-APHA-WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

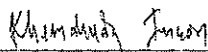
239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited . REQUEST SERVICE No. : 1314/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:50
SAMPLING DATE : 27/06/2024 ANALYTICAL DATE : 28/06/2024-04/07/2024
RECEIVED DATE : 28/06/2024 SITE OPERATOR : Mr.Tanachet Changlor
REPORT DATE : 05/07/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = น้ำที่ขุ่นออกจาก Equalization Tank (SC-11371) FILE CODE : 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				1	
Total Suspended Solids	mg/l	2540 D	< 5	308	-
BOD ₅	mg/l	5210 B	< 1.0	278	-
COD	mg/l	5220 C	< 15.00	742	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21ST ED. 2012 (AWWA APHA WFP)



(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005



(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.

คุณภาพน้ำทิ้งที่ออกจาก Final Clarifier #1 (SC-11441)



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0025/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:36
SAMPLING DATE	: 08/01/2024	ANALYTICAL DATE	: 09-15/01/2024
RECEIVED DATE	: 09/01/2024	SITE OPERATOR	: Miss Mareeyanee Hawae
REPORT DATE	: 16/01/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.23	-
Total Dissolved Solids	mg/l	2540 C	< 50	7,176	-
Total Suspended Solids	mg/l	2540 D	< 5	51	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	12.9	-
COD	mg/l	5220 C	< 15.00	220	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0006	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA/PHA/WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0233/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:56
SAMPLING DATE	: 07/02/2024	ANALYTICAL DATE	: 08-14/02/2024
RECEIVED DATE	: 08/02/2024	SITE OPERATOR	: Miss Salisa Ainree
REPORT DATE	: 15/02/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.38	-
Total Dissolved Solids	mg/l	2540 C	< 50	5,176	-
Total Suspended Solids	mg/l	2540 D	< 5	33	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	6.0	-
COD	mg/l	5220 C	< 15.00	145	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA/PHA/WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0423/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:22
SAMPLING DATE	: 06/03/2024	ANALYTICAL DATE	: 07-15/03/2024
RECEIVED DATE	: 07/03/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 16/03/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	6.72	-
Total Dissolved Solids	mg/l	2540 C	< 50	2,900	-
Total Suspended Solids	mg/l	2540 D	< 5	11	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	1.6	-
COD	mg/l	5220 C	< 15.00	79.93	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0006	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0650/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:38
SAMPLING DATE	: 03/04/2024	ANALYTICAL DATE	: 04-11/04/2024
RECEIVED DATE	: 04/04/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/04/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.10	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,364	-
Total Suspended Solids	mg/l	2540 D	< 5	6	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	2.9	-
COD	mg/l	5220 C	< 15.00	65.01	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0009	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0845/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:43
SAMPLING DATE	: 02/05/2024	ANALYTICAL DATE	: 03-10/05/2024
RECEIVED DATE	: 03/05/2024	SITE OPERATOR	: Miss Mareeyanee Hawae
REPORT DATE	: 13/05/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.89	-
Total Dissolved Solids	mg/l	2540 C	< 50	6,764	-
Total Suspended Solids	mg/l	2540 D	< 5	10	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	3.4	-
COD	mg/l	5220 C	< 15.00	84.43	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1124/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:50
SAMPLING DATE	: 05/06/2024	ANALYTICAL DATE	: 06-15/06/2024
RECEIVED DATE	: 06/06/2024	SITE OPERATOR	: Mr. Tanachot Changlor
REPORT DATE	: 19/06/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.56	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,896	-
Total Suspended Solids	mg/l	2540 D	< 5	13	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	3.1	-
COD	mg/l	5220 C	< 15.00	55.77	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.

คุณภาพน้ำทิ้งที่ออกจาก Final Clarifier #2 (SC-11442)



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0005/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:34
SAMPLING DATE : 03/01/2024 ANALYTICAL DATE : 04-10/01/2024
RECEIVED DATE : 04/01/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 16/01/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442) FILE CODE : 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.37	-
Total Dissolved Solids	mg/l	2540 C	< 50	5,652	-
Total Suspended Solids	mg/l	2540 D	< 5	50	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	8.2	-
COD	mg/l	5220 C	< 15.00	210	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA-APHA-WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0233/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 12:05
SAMPLING DATE : 07/02/2024 ANALYTICAL DATE : 08-14/02/2024
RECEIVED DATE : 08/02/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 15/02/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442) FILE CODE : 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.52	-
Total Dissolved Solids	mg/l	2540 C	< 50	5,200	-
Total Suspended Solids	mg/l	2540 D	< 5	68	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	6.7	-
COD	mg/l	5220 C	< 15.00	134	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA-APHA-WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0463/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:54
SAMPLING DATE	: 11/03/2024	ANALYTICAL DATE	: 12-18/03/2024
RECEIVED DATE	: 12/03/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 18/03/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจากร Final Clarifier (SC-11442)	FILE CODE	: 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.01	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,356	-
Total Suspended Solids	mg/l	2540 D	< 5	8	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	1.6	-
COD	mg/l	5220 C	< 15.00	106	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0650/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:42
SAMPLING DATE	: 03/04/2024	ANALYTICAL DATE	: 04-11/04/2024
RECEIVED DATE	: 04/04/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/04/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจากร Final Clarifier (SC-11442)	FILE CODE	: 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.23	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,448	-
Total Suspended Solids	mg/l	2540 D	< 5	8	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	2.8	-
COD	mg/l	5220 C	< 15.00	57.53	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0009	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No. :	0845/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:35
SAMPLING DATE	: 02/05/2024	ANALYTICAL DATE	: 03-10/05/2024
RECEIVED DATE	: 03/05/2024	SITE OPERATOR	: Miss Marceyane Hawae
REPORT DATE	: 13/05/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.88	-
Total Dissolved Solids	mg/l	2540 C	< 50	6,688	-
Total Suspended Solids	mg/l	2540 D	< 5	13	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	4.1	-
COD	mg/l	5220 C	< 15.00	81.44	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0006	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No. :	1124/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:05
SAMPLING DATE	: 05/06/2024	ANALYTICAL DATE	: 06-15/06/2024
RECEIVED DATE	: 06/06/2024	SITE OPERATOR	: Mr. Tanachot Changlor
REPORT DATE	: 19/06/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.65	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,920	-
Total Suspended Solids	mg/l	2540 D	< 5	9	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	4.1	-
COD	mg/l	5220 C	< 15.00	105	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0007	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.

คุณภาพน้ำทิ้งใน Final Check Basin ก่อนระบายออกนอกโรงงาน
(SC-11390)



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0116/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:00
SAMPLING DATE : 22/01/2024 ANALYTICAL DATE : 23-29/01/2024
RECEIVED DATE : 23/01/2024 SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 29/01/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390) FILE CODE : 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.49	-
Total Dissolved Solids	mg/l	2540 C	< 50	2,596	-
Total Suspended Solids	mg/l	2540 D	< 5	5	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	4.0	-
COD	mg/l	5220 C	< 15.00	46.17	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0022	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-R-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0233/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 12:21
SAMPLING DATE : 07/02/2024 ANALYTICAL DATE : 08-14/02/2024
RECEIVED DATE : 08/02/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 15/02/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390) FILE CODE : 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.33	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,676	-
Total Suspended Solids	mg/l	2540 D	< 5	14	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	4.5	-
COD	mg/l	5220 C	< 15.00	77.95	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0013	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-R-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0423/67
	Branch 3 (Olefin 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:10
SAMPLING DATE	: 06/03/2024	ANALYTICAL DATE	: 07-15/03/2024
RECEIVED DATE	: 07/03/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 16/03/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.85	-
Color	ADMI	2120 F	< 6.0	37.6	-
Total Dissolved Solids	mg/l	2540 C	< 50	1,548	-
Total Suspended Solids	mg/l	2540 D	< 5	< 5	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	-
COD	mg/l	5220 C	< 15.00	49.87	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0024	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19th ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0650/67
	Branch 3 (Olefin 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:53
SAMPLING DATE	: 03/04/2024	ANALYTICAL DATE	: 04-11/04/2024
RECEIVED DATE	: 04/04/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/04/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.31	-
Total Dissolved Solids	mg/l	2540 C	< 50	2,264	-
Total Suspended Solids	mg/l	2540 D	< 5	5	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	2.1	-
COD	mg/l	5220 C	< 15.00	59.03	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0015	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0845/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:48
SAMPLING DATE : 02/05/2024 ANALYTICAL DATE : 03-10/05/2024
RECEIVED DATE : 03/05/2024 SITE OPERATOR : Miss Marceyanee Hawae
REPORT DATE : 13/05/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390) FILE CODE : 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.36	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,840	-
Total Suspended Solids	mg/l	2540 D	< 5	7	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	2.6	-
COD	mg/l	5220 C	< 15.00	69.49	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0017	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1124/67
Branch 3 (Olefins 2) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 13:39
SAMPLING DATE : 05/06/2024 ANALYTICAL DATE : 06-15/06/2024
RECEIVED DATE : 06/06/2024 SITE OPERATOR : Mr. Tanachot Changlor
REPORT DATE : 19/06/2024 SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390) FILE CODE : 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H ⁺ B	< 0.10	7.65	-
Total Dissolved Solids	mg/l	2540 C	< 50	3,122	-
Total Suspended Solids	mg/l	2540 D	< 5	11	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD ₅	mg/l	5210 B	< 1.0	3.0	-
COD	mg/l	5220 C	< 15.00	61.88	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0008	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.

คุณภาพน้ำทิ้งที่จุดปล่อยออกนอกโรงงาน (SC-11411)



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0005/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:09
SAMPLING DATE	: 03/01/2024	ANALYTICAL DATE	: 04-10/01/2024
RECEIVED DATE	: 04/01/2024	SITE OPERATOR	: Miss Salisa Aintree
REPORT DATE	: 16/01/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ¹⁾
Temperature	°C	2550 B	< 0.5	35.1	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.39	5.5-9.0
Color	ADMI	2120 F	< 6.0	44.3	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	2,278	34,060 ²⁾
Total Suspended Solids	mg/l	2540 D	< 5	9	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.8	≤ 20
COD	mg/l	5220 C	< 15.00	85.36	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0025	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ¹⁾ Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. ²⁾ In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on January 11, 2024 found to be 29,060 mg/l therefore the Standard of TDS found to be 34,060 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0005/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:09
SAMPLING DATE	: 03/01/2024	ANALYTICAL DATE	: 04-08/01/2024
RECEIVED DATE	: 04/01/2024	SITE OPERATOR	: Miss Salisa Aintree
REPORT DATE	: 16/01/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ¹⁾
Barium (Ba)	mg/l	3120 B	< 0.001	0.17	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	0.03	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.08	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	0.04	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.58	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Krisana Chanthoom

(Miss Krisana Chanthoom)

Analyst

REG. NO. 7-239-ก-0017

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ¹⁾ Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0233/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:28
SAMPLING DATE	: 07/02/2024	ANALYTICAL DATE	: 08-14/02/2024
RECEIVED DATE	: 08/02/2024	SITE OPERATOR	: Miss Salisa Aineee
REPORT DATE	: 15/02/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4- น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ¹⁾
Temperature	°C	2550 B	< 0.5	35.6	≤ 40
pH	.	4500-H ⁺ B	< 0.10	7.41	5.5-9.0
Color	ADMI	2120 F	< 6.0	35.8	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	2,456	25,660 ²⁾
Total Suspended Solids	mg/l	2540 D	< 5	12	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	4.2	≤ 20
COD	mg/l	5220 C	< 15.00	25.98	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0024	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ¹⁾ Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. ²⁾ In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on February 08, 2024 found to be 20,660 mg/l therefore the Standard of TDS found to be 25,660 mg/l).
5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0233/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:28
SAMPLING DATE	: 07/02/2024	ANALYTICAL DATE	: 09-13/02/2024
RECEIVED DATE	: 08/02/2024	SITE OPERATOR	: Miss Salisa Aineee
REPORT DATE	: 15/02/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4- น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ¹⁾
Barium (Ba)	mg/l	3120 B	< 0.001	0.16	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.05	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	< 0.01	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.52	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Krisana Chanthoom

(Miss Krisana Chanthoom)

Analyst

REG. NO. 7-239-n-0017

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ¹⁾ Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0423/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:32
SAMPLING DATE	: 06/03/2024	ANALYTICAL DATE	: 07-15/03/2024
RECEIVED DATE	: 07/03/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 16/03/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 - น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Temperature	°C	2550 B	< 0.5	36.5	≤ 40
pH	-	4500-H ^u B	< 0.10	7.67	5.5-9.0
Color	ADMI	2120 F	< 6.0	43.3	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,232	36,020 ^u
Total Suspended Solids	mg/l	2540 D	< 5	7	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	8.3	≤ 20
COD	mg/l	5220 C	< 15.00	47.14	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0024	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Inorn

(Miss Khemchuda Inorn)

Analyst

REG. NO. 7-239-n-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^u Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. ^u In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on March 14, 2024 found to be 31,020 mg/l therefore the Standard of TDS found to be 36,020 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0423/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:32
SAMPLING DATE	: 06/03/2024	ANALYTICAL DATE	: 07-12/03/2024
RECEIVED DATE	: 07/03/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 16/03/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 - น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Barium (Ba)	mg/l	3120 B	< 0.001	0.22	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.10	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	0.01	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.71	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Krisana Chanthoorn

(Miss Krisana Chanthoorn)

Analyst

REG. NO. 7-239-n-0017

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^u Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0650/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:09
SAMPLING DATE	: 03/04/2024	ANALYTICAL DATE	: 04-11/04/2024
RECEIVED DATE	: 04/04/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/04/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Temperature	°C	2550 B	< 0.5	36.9	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.66	5.5-9.0
Color	ADMI	2120 F	< 6.0	35.4	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	2,098	35,080 ^u
Total Suspended Solids	mg/l	2540 D	< 5	87	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	2.0	≤ 20
COD	mg/l	5220 C	< 15.00	33.62	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0026	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-R-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 - 3.^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
 - 4.^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on April 11, 2024 found to be 30,080 mg/l therefore the Standard of TDS found to be 35,080 mg/l).
 5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0650/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:09
SAMPLING DATE	: 03/04/2024	ANALYTICAL DATE	: 04-06/04/2024
RECEIVED DATE	: 04/04/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/04/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Barium (Ba)	mg/l	3120 B	< 0.001	0.14	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.10	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	< 0.01	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.54	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Krisana Chanthoom

(Miss Krisana Chanthoom)

Analyst

REG. NO. 7-239-R-0017

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 - 3.^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).



บริษัท ซีคอต จำกัด SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0845/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:05
SAMPLING DATE	: 02/05/2024	ANALYTICAL DATE	: 03-10/05/2024
RECEIVED DATE	: 03/05/2024	SITE OPERATOR	: Miss Marceyanee Hawae
REPORT DATE	: 13/05/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Temperature	°C	2550 B	< 0.5	38.5	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.74	5.5-9.0
Color	ADMI	2120 F	< 6.0	23.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,982	30,620 ^{2v}
Total Suspended Solids	mg/l	2540 D	< 5	14	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	2.0	≤ 20
COD	mg/l	5220 C	< 15.00	51.56	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0023	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED.2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3.^{1v} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4.^{2v} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on May 09, 2024 found to be 25,620 mg/l therefore the Standard of TDS found to be 30,620 mg/l).

5.- Not available.



บริษัท ซีคอต จำกัด SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0845/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:05
SAMPLING DATE	: 02/05/2024	ANALYTICAL DATE	: 03-07/05/2024
RECEIVED DATE	: 03/05/2024	SITE OPERATOR	: Miss Marceyanee Hawae
REPORT DATE	: 13/05/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Barium (Ba)	mg/l	3120 B	< 0.001	0.16	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	0.03	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.10	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	< 0.01	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.76	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED.2017 (AWWA APHA WEF)

Krisana Chanthoom

(Miss Krisana Chanthoom)

Analyst

REG. NO. 2-239-ก-0017

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3.^{1v} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1124/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:23
SAMPLING DATE	: 05/06/2024	ANALYTICAL DATE	: 06-15/06/2024
RECEIVED DATE	: 06/06/2024	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 19/06/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Temperature	"C	2550 B	< 0.5	37.0	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.52	5.5-9.0
Color	ADMI	2120 F	< 6.0	30.1	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,230	35,720 ^{2v}
Total Suspended Solids	mg/l	2540 D	< 5	5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	2.1	≤ 20
COD	mg/l	5220 C	< 15.00	25.21	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0028	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insom)

Analyst

REG. NO. 7-239-R-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^u Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. ^{2v} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on June 13, 2024 found to be 30,720 mg/l therefore the Standard of TDS found to be 35,720 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1124/67
	Branch 3 (Olefins 2)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:23
SAMPLING DATE	: 05/06/2024	ANALYTICAL DATE	: 06-11/06/2024
RECEIVED DATE	: 06/06/2024	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 19/06/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 224009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD ^u
Barium (Ba)	mg/l	3120 B	< 0.001	0.11	≤ 1.0
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2.0
Hexavalent Chromium (Cr ⁶⁺)	mg/l	3500-Cr B	< 0.01	ND	≤ 0.25
Trivalent Chromium (Cr ³⁺)	mg/l	3120 B / Calculation	< 0.01	ND	≤ 0.75
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Manganese (Mn)	mg/l	3120 B	< 0.001	0.10	≤ 5.0
Nickel (Ni)	mg/l	3120 B	< 0.002	< 0.01	≤ 1.0
Selenium (Se)	mg/l	3114 C	< 0.0005	ND	≤ 0.02
Zinc (Zn)	mg/l	3120 B	< 0.003	0.38	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Krisana Chanthoom)

Analyst

REG. NO. 7-239-R-0017

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^u Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

คุณภาพน้ำจาก Wastewater Stripper
ของหน่วยผลิต Butadiene และ Butene-1



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0004/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 15:24
SAMPLING DATE : 03/01/2024 ANALYTICAL DATE : 04/01/2024
RECEIVED DATE : 04/01/2024 SITE OPERATOR : Miss Salisa Aiarue
REPORT DATE : 05/01/2024 FILE CODE : 224009_WW_January
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846, 3rd EDITION 2020

Supawadee Buakaeuw
(Miss Supawadee Buakaeuw)
Analyst

MT
(Mrs. Anya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0074/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:50
SAMPLING DATE : 12/01/2024 ANALYTICAL DATE : 15/01/2024
RECEIVED DATE : 12/01/2024 SITE OPERATOR : Mr.Chanapon Oukkharaplon
REPORT DATE : 16/01/2024 FILE CODE : 224009_WW_January
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.1604	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846, 3rd EDITION 2020

Supawadee Buakaeuw
(Miss Supawadee Buakaeuw)
Analyst

MT
(Mrs. Anya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0083/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:30
SAMPLING DATE	: 15/01/2024	ANALYTICAL DATE	: 16/01/2024
RECEIVED DATE	: 16/01/2024	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 17/01/2024	FILE CODE	: 224009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND	STATION	STANDARD
			(non-detectable)	บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0435	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaew
(Miss Supawadee Buakaew)

Analyst

Araya Tipparak
(Mrs. Araya Tipparak)

Technical Management Team

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0115/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:30
SAMPLING DATE	: 22/01/2024	ANALYTICAL DATE	: 23/01/2024
RECEIVED DATE	: 23/01/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 24/01/2024	FILE CODE	: 224009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND	STATION	STANDARD
			(non-detectable)	บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0612	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaew
(Miss Supawadee Buakaew)

Analyst

Araya Tipparak
(Mrs. Araya Tipparak)

Technical Management Team

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: cnvserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0148/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:32
SAMPLING DATE	: 29/01/2024	ANALYTICAL DATE	: 31/01/2024
RECEIVED DATE	: 30/01/2024	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 02/02/2024	FILE CODE	: 224009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.7580	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 1st EDITION 2020

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

Araya Tipparuk
(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: cnvserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0208/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:56
SAMPLING DATE	: 05/02/2024	ANALYTICAL DATE	: 06/02/2024
RECEIVED DATE	: 06/02/2024	SITE OPERATOR	: Miss Salisa Aintree
REPORT DATE	: 07/02/2024	FILE CODE	: 224009_WW_February
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 1st EDITION 2020

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

Araya Tipparuk
(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0307/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 16:14
SAMPLING DATE : 16/02/2024 ANALYTICAL DATE : 17/02/2024
RECEIVED DATE : 17/02/2024 SITE OPERATOR : Miss Wiraya Patchimboon
REPORT DATE : 20/02/2024 FILE CODE : 224009_WW_February
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ	STANDARD
				Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	1.38	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)
Analyst

(Mrs. Araya Tipparak)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0325/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:30
SAMPLING DATE : 19/02/2024 ANALYTICAL DATE : 20/02/2024
RECEIVED DATE : 20/02/2024 SITE OPERATOR : Mr. Anival Pimwarua
REPORT DATE : 21/02/2024 FILE CODE : 224009_WW_February
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ	STANDARD
				Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0522	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)
Analyst

(Mrs. Araya Tipparak)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0365/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:40
SAMPLING DATE	: 27/02/2024	ANALYTICAL DATE	: 28/02/2024
RECEIVED DATE	: 28/02/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 29/02/2024	FILE CODE	: 224009_WW_February
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)

Analyst

Araya Tippiaruk
(Mrs. Araya Tippiaruk)

Technical Management Team

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0450/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:30
SAMPLING DATE	: 08/03/2024	ANALYTICAL DATE	: 12/03/2024
RECEIVED DATE	: 09/03/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 14/03/2024	FILE CODE	: 224009_WW_March
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)

Analyst

Araya Tippiaruk
(Mrs. Araya Tippiaruk)

Technical Management Team

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0460/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:21
SAMPLING DATE : 11/03/2024 ANALYTICAL DATE : 12/03/2024
RECEIVED DATE : 12/03/2024 SITE OPERATOR : Miss Wiraya Patchimboon
REPORT DATE : 14/03/2024 FILE CODE : 224009_WW_March
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2020

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

M
(Mrs. Araya Tippasuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0518/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:19
SAMPLING DATE : 18/03/2024 ANALYTICAL DATE : 19/03/2024
RECEIVED DATE : 19/03/2024 SITE OPERATOR : Miss Mareeyanee Hawae
REPORT DATE : 20/03/2024 FILE CODE : 224009_WW_March
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2020

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

M
(Mrs. Araya Tippasuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, REQUEST SERVICE No. : 0610/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 18:44
SAMPLING DATE : 29/03/2024 ANALYTICAL DATE : 02/04/2024
RECEIVED DATE : 30/03/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 03/04/2024 FILE CODE : 224009_WW_March
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD
				บริเวณจุดเก็บตัวอย่าง	Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND		-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0162		-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 2nd EDITION, 2020.

Supawadee Buakaw

(Miss Supawadee Buakaw)

Analyst

MR

(Mrs. Anya Tippasuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, REQUEST SERVICE No. : 0624/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:27
SAMPLING DATE : 01/04/2024 ANALYTICAL DATE : 02/04/2024
RECEIVED DATE : 02/04/2024 SITE OPERATOR : Mr. Aniwat Pimwanma
REPORT DATE : 03/04/2024 FILE CODE : 224009_WW_April
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD
				บริเวณจุดเก็บตัวอย่าง	Wastewater Stripper	
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND		-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0203		-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 2nd EDITION, 2020.

Supawadee Buakaw

(Miss Supawadee Buakaw)

Analyst

MR

(Mrs. Anya Tippasuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0741/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:20
SAMPLING DATE : 14/04/2024 ANALYTICAL DATE : 17/04/2024
RECEIVED DATE : 15/04/2024 SITE OPERATOR : Miss Thipsuda Wannakran
REPORT DATE : 18/04/2024 FILE CODE : 224009_WW_April
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	20.48	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaw

(Miss Supawadee Buakaw)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0743/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:38
SAMPLING DATE : 17/04/2024 ANALYTICAL DATE : 19/04/2024
RECEIVED DATE : 18/04/2024 SITE OPERATOR : Mr. Nuthanai Kritsanajom
REPORT DATE : 19/04/2024 FILE CODE : 224009_WW_April
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	34.08	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Supawadee Buakaw

(Miss Supawadee Buakaw)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0765/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:20
SAMPLING DATE	: 22/04/2024	ANALYTICAL DATE	: 23/04/2024
RECEIVED DATE	: 23/04/2024	SITE OPERATOR	: Miss Salisa Ainree
REPORT DATE	: 25/04/2024	FILE CODE	: 224009_WW_April
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	18.97	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 1st EDITION, 2020.

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0860/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:45
SAMPLING DATE	: 03/05/2024	ANALYTICAL DATE	: 07/05/2024
RECEIVED DATE	: 04/05/2024	SITE OPERATOR	: Mr.Suphachai Sukmai
REPORT DATE	: 08/05/2024	FILE CODE	: 224009_WW_May
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	1.80	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 1st EDITION, 2020.

Supawadee Bunkaew
(Miss Supawadee Bunkaew)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0885/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 15:46
SAMPLING DATE : 07/05/2024 ANALYTICAL DATE : 09/05/2024
RECEIVED DATE : 08/05/2024 SITE OPERATOR : Mr. Baworn Dechaiya
REPORT DATE : 10/05/2024 FILE CODE : 22-4009_WW_May
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	14.20	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846, 3rd EDITION 2020.

Supawadee Buakaew
(Miss Supawadee Buakaew)
Analyst

NT
(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0964/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:24
SAMPLING DATE : 17/05/2024 ANALYTICAL DATE : 18/05/2024
RECEIVED DATE : 18/05/2024 SITE OPERATOR : Miss Mareeyanee Hawae
REPORT DATE : 21/05/2024 FILE CODE : 22-4009_WW_May
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	24.55	-

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846, 3rd EDITION 2020.

Supawadee Buakaew
(Miss Supawadee Buakaew)
Analyst

NT
(Mrs. Araya Tipparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited. REQUEST SERVICE No. : 1113/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:35
SAMPLING DATE : 04/06/2024 ANALYTICAL DATE : 06/06/2024
RECEIVED DATE : 05/06/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 07/06/2024 FILE CODE : 224009_WW_June
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
I,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846.1 EDITION 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited. REQUEST SERVICE No. : 1223/67
(Branch 3) Olefins 2 SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 08:33
SAMPLING DATE : 14/06/2024 ANALYTICAL DATE : 19/06/2024
RECEIVED DATE : 15/06/2024 SITE OPERATOR : Miss Salisa Ainree
REPORT DATE : 20/06/2024 FILE CODE : 224009_WW_June
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
I,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	21.52	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846.1 EDITION 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1238/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:34
SAMPLING DATE	: 17/06/2024	ANALYTICAL DATE	: 19/06/2024
RECEIVED DATE	: 18/06/2024	SITE OPERATOR	: Mr.Natthachai Chaiyakhot
REPORT DATE	: 20/06/2024	FILE CODE	: 224009_WW_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.8020	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 1st EDITION, 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)
Analyst

M. Araya Tapparuk
(Mrs. Araya Tapparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1287/67
	(Branch 3) Olefins 2	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:26
SAMPLING DATE	: 25/06/2024	ANALYTICAL DATE	: 26/06/2024
RECEIVED DATE	: 26/06/2024	SITE OPERATOR	: Mr. Siwanon Kulwong
REPORT DATE	: 28/06/2024	FILE CODE	: 224009_WW_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0488	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 1st EDITION, 2020.

Supawadee Buakaw
(Miss Supawadee Buakaw)
Analyst

M. Araya Tapparuk
(Mrs. Araya Tapparuk)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. - Not available.

ภาคผนวก ง.5

ใบรับรองผลการวิเคราะห์คุณภาพน้ำใต้ดินและดิน



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0933/67
(Branch 3) Olefins 2 SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:27-14:44
SAMPLING DATE : 14/05/2024 ANALYTICAL DATE : 14, 15-20/05/2024
RECEIVED DATE : 15/05/2024 SITE OPERATOR : Mr.Tanachot Changlor
REPORT DATE : 21/05/2024 FILE CODE : 224009_GW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : MW-04 = บ่อส่งผลการดำเนินงานได้คืนค่าน้ำบริเวณทิศเหนือของโรงงาน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-04	STANDARD ¹⁾
pH	-	4500-H ⁺ B	< 0.10	7.36	6.5-9.2
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
1,3-Butadiene	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2021

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-0-0022

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-0-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ¹⁾ Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0948/67
(Branch 3) Olefins 2 SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 14:10-14:24
SAMPLING DATE : 15/05/2024 ANALYTICAL DATE : 14, 15-20/05/2024
RECEIVED DATE : 16/05/2024 SITE OPERATOR : Mr.Tanachot Changlor
REPORT DATE : 27/05/2024 FILE CODE : 224009_GW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : MW-06 = บ่อส่งผลการดำเนินงานได้คืนค่าน้ำบริเวณทิศตะวันออกของโรงงาน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-06	STANDARD ¹⁾
pH	-	4500-H ⁺ B	< 0.10	6.74	6.5-9.2
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
1,3-Butadiene	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3rd EDITION 2021

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-0-0022

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-0-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ¹⁾ Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0948/67
(Branch 3) Olefins 2 SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:37-09:51
SAMPLING DATE : 15/05/2024 ANALYTICAL DATE : 14, 15-20/05/2024
RECEIVED DATE : 16/05/2024 SITE OPERATOR : Mr.Tanachot Changlor
REPORT DATE : 27/05/2024 FILE CODE : 224009_GW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : MW-01 = บ่อตั้งเหตุการณ์น้ำใต้ดินที่ขุดบริเวณทิศใต้ของโรงงาน (MW-01)

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^U
		METHODS	(non-detectable)	MW-01	
pH	-	4500-H ⁺ B	< 0.10	6.52	6.5-9.2
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
1,3-Butadiene	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21ST ED. 2017 (AWWA APHA WEF)

REFERENCE: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SW-846 3RD EDITION 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

REG. NO. 3-239-0-0022

(Mrs. Ajaya Tippanuk)

Technical Management Team

REG. NO. 3-239-0-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ^U Notification of the Ministry of Industry, B.E.2559 (2016).
4. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1332/67
(Branch 3) Olefins 2
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger
SAMPLING DATE : 27/06/2024 SAMPLING TIME : 14:15-14:40
RECEIVED DATE : 01/07/2024 ANALYTICAL DATE : 01-05/07/2024
REPORT DATE : 11/07/2024 SITE OPERATOR : Mr. Jeerawat Khothamhan
FILE CODE : 224009_Soil_June
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^u
				บ่อสังกะการณน้ำใต้ดิน	
				พื้นที่บริเวณอู่เก็บของโรงงาน (MW-04)	
pH	-	9045 D	< 0.10	7.76	-
Benzene	mg/kg	5035A /8260D	< 0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /8260D	< 0.001	ND	-

REFERENCE : USE EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE 1st ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-9-0022

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-9-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^v Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1332/67
(Branch 3) Olefins 2
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger
SAMPLING DATE : 27/06/2024 SAMPLING TIME : 13:30-14:00
RECEIVED DATE : 01/07/2024 ANALYTICAL DATE : 01-05/07/2024
REPORT DATE : 11/07/2024 SITE OPERATOR : Mr. Jeerawat Khothamhan
FILE CODE : 224009_Soil_June
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS	ND	STATION	
		METHODS	(non-Detectable)	บ่อสังกะการณน้ำใต้ดิน	STANDARD
				พื้นที่บริเวณอู่เก็บของโรงงาน (MW-06)	
pH	-	9045 D	< 0.10	8.07	-
Benzene	mg/kg	5035A /8260D	< 0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /8260D	< 0.001	ND	-

REFERENCE : USE EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE 1st ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-9-0022

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-9-0004

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^u Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1332/67
(Branch 3) Office 2
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger
SAMPLING DATE : 27/06/2024 ANALYTICAL DATE : 01-05/07/2024
RECEIVED DATE : 01/07/2024 SITE OPERATOR : Mr. Jeerawat Khothamphan
REPORT DATE : 11/07/2024 FILE CODE : 224009_Soil_June
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				บ่อฝังกลบขยะน้ำเสีย ท้ายน้ำบริเวณทิศใต้ ของโรงงาน (MFW-01)	STANDARD ^u
pH	-	9045 D	< 0.10	8.15	-
Benzene	mg/kg	5035A /5260D	< 0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /5260D	< 0.001	ND	-

REFERENCE: U.S. EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1st ed., 2020.

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 3-239-0-0022

Mrs. Aranya Tippanuk

(Mrs. Aranya Tippanuk)

Technical Management Team

REG. NO. 3-239-0-0004

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ^u Notification of the Ministry of Industry, B.E.2559 (2016).
4. - Not available.

ภาคผนวก ง.6

ใบรับรองผลการตรวจวัดระดับเสียงในสถานประกอบการ



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Company Limited, Branch 3
REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd.
CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 14/03/2024
SERIAL NO. : 95168
MEASUREMENT LOCATION : Olefins 2
CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Wiraya Patchimboon

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008040	Senior Operator (I-4/I)	07.22-18.58	3.7	69.0	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Company Limited, Branch 3
REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd.
CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 14/03/2024
SERIAL NO. : 95168
MEASUREMENT LOCATION : Olefins 2
CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Wiraya Patchimboon

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26004698	Field Operator (I-4/I)	07.31-18.56	10.7	73.6	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008055	Field Operator (I-4/1)	07.22-18.55	17.9	75.8	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001857	Field Operator (I-4/1)	07.33-18.58	10.5	73.5	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002236	Field Operator (I-4/I)	07.36-18.57	35.6	78.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002888	Field Operator (I-4/I)	07.35-18.57	8.4	72.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001768	Field Operator (I-4/I)	07.42-12.04	8.1	72.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/09/2023	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001772	Field Operator (I-4/I)	07.42-18.56	0.5	60.1	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคงประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RUMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Company Limited, Branch 3
REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd.
CALIBRATOR MODEL : 22R
MEASUREMENT DATE : 14/03/2024
SERIAL NO. : 79781
MEASUREMENT LOCATION : Olefins 2
CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Wiraya Patchimboon

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008560	Field Operator (I-4/1)	07.24-10.48	13.2	74.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคงประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RUMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Company Limited, Branch 3
REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd.
CALIBRATOR MODEL : 22R
MEASUREMENT DATE : 14/03/2024
SERIAL NO. : 79781
MEASUREMENT LOCATION : Olefins 2
CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Wiraya Patchimboon

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005566	Field Operator (I-4/1)	07.21-18.56	10.1	73.3	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008120	Field Operator (I-4/1)	07.20-18.58	20.5	76.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008558	Field Operator (I-4/1)	07.37-18.58	6.8	73.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008039	Field Operator (I-4/I)	07.19-18.56	9.6	73.1	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 14/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001946	Field Operator (I-4/I)	07.24-18.58	7.8	72.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 15/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008417	Field Operator (I-4/2)	07.40-19.15	10.0	73.3	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 15/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009729	Field Operator (I-4/2)	07.40-19.15	29.5	78.0	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 15/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006758	Field Operator (I-4/2)	07.39-19.14	20.7	76.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 15/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002908	Field Operator (I-4/2)	07.40-19.15	89.0	82.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 15/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002952	Field Operator (I-4/2)	07.39-19.14	46.2	79.9	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001778	Field Operator (I-4/1)	07.34-19.01	8.7	72.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008989	Field Operator (I-4/I)	07.23-19.04	10.7	61.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002225	Senior Operator (I-4/I)	08.38-19.01	4.9	70.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001776	Senior Operator (I-4/1)	07.04-19.02	58.3	80.9	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: 22R
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 79781
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005239	Field Operator (I-4/1)	07.17-19.02	6.5	71.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : 22R
MEASUREMENT DATE : 27/03/2024 SERIAL NO. : 79781
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
21005557	Field Operator (I-4/1)	08.26-19.01	7.0	71.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 27/03/2024 SERIAL NO. : 95168
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009800	Field Operator (I-4/1)	07.58-19.03	19.8	76.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคงประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 27/04/2023	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008408	Field Operator (I-4/1)	07.05-18.59	31.0	78.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคงประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 27/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002095	Field Operator (I-4/1)	08.18-19.01	6.9	71.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : 22R
MEASUREMENT DATE : 27/03/2024 SERIAL NO. : 79781
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006180	Field Operator (I-4/1)	07.20-19.00	12.5	74.2	83.0

(Miss Katesarin Vorradetwitaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/Mar24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 27/03/2024 SERIAL NO. : 95168
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001794	Senior Operator (I-4/2)	07.08-19.03	54.6	80.6	83.0

(Miss Katesarin Vorradetwitaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Marecyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002235	Field Operator (I-4/I)	07.29-18.58	11.3	73.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Marecyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002519	Field Operator (I-4/I)	07.32-19.01	11.0	73.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002381	Field Operator (I-4/2)	07.50-19.00	0.2	56.6	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009802	Field Operator (I-4/2)	07.51-19.00	49.1	80.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008609	Field Operator (I-4/2)	07.30-19.00	14.2	74.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009848	Field Operator (I-4/3)	07.42-19.02	14.4	74.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008559	Field Operator (I-4/3)	07.39-19.00	40.7	79.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/Mar24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 28/03/2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006562	Field Operator (I-4/3)	07.39-19.01	17.0	75.6	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001058	Field Operator (I-4/1)	08.10-19.01	2.3	66.9	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 14/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001859	Field Operator (I-4/1)	08.08-19.03	88.9	82.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Marecyane Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001942	Senior Operator (I-4/1)	07.29-18.57	1.3	64.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Marecyane Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006882	Field Operator (I-4/1)	07.25-18.59	14.1	74.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002907	Field Operator (I-4/I)	07.32-18.58	10.4	73.5	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001880	Field Operator (I-4/I)	07.25-18.58	19.8	76.2	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

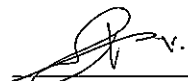
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

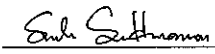
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002091	Field Operator (I-4/1)	07.33-18.57	6.1	71.1	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001774	Field Operator (I-4/1)	07.25-19.00	22.7	76.8	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001881	Senior Operator (I-4/I)	07.34-18.59	79.1	82.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26001876	Field Operator (I-4/I)	07.23-18.57	32.5	78.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

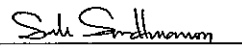
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26004920	Field Operator (I-4/2)	07.45-18.59	170.6	85.6	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800


239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

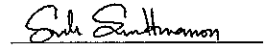
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002334	Field Operator (I-4/2)	07.24-19.00	34.3	78.6	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

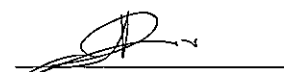
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

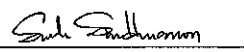
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26004992	Field Operator (I-4/2)	07.43-18.58	37.8	79.0	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

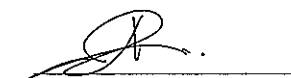
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002026	Field Operator (I-4/2)	07.44-18.59	54.1	80.6	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

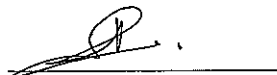
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

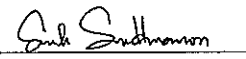
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006551	Field Operator (I-4/3)	08.03-19.03	85.1	82.5	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

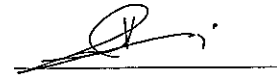
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th


NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public REFERENCE NO. : 224009_Cert-Noise Dose/May24
Company Limited, Branch 3 INSTRUMENT : Noise Dosimeter
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR MODEL : RC 110A
MEASUREMENT DATE : 17/05/2024 SERIAL NO. : 95167
MEASUREMENT LOCATION : Olefins 2 CALIBRATOR REF. : 114 dB @1,000 Hz
SITE OPERATOR : Miss Mareeyanee Hawae

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26004922	Field Operator (I-4/3)	07.26-18.59	45.7	79.9	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนรัตนคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envs@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public	REFERENCE NO.	: 224009_Cert-Noise Dose/May24
	Company Limited, Branch 3	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR MODEL	: RC 110A
MEASUREMENT DATE	: 17/05/2024	SERIAL NO.	: 95167
MEASUREMENT LOCATION	: Olefins 2	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Mareeyanee Hawae		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008119	Field Operator (1-4/3)	07.32-18.57	52.2	80.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



NOISE MEASUREMENT RESULT : WORKING NOISE

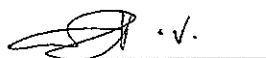
MTR-PTTGC, Branch 3 (Olefins 2)

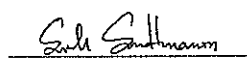
LOCATION : Cracked Gas Compressor (R-300)	MEASUREMENT DATE : Mar 15, 2024
SLM MODEL : SCARLET ST-21D	SERIAL No. : 820723
SITE OPERATOR : Miss Wiraya Patchimboon	
CALIBRATOR MODEL : Cirrus CR:515	SERIAL No. : 97097
CALIBRATION REF dBA : 94.0	CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 93.7/0.1	Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-070	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 15, 2024
00:00-01:00	
01:00-02:00	
02:00-03:00	
03:00-04:00	
04:00-05:00	
05:00-06:00	
06:00-07:00	
07:00-08:00	
08:00-09:00	
09:00-10:00	84.2
10:00-11:00	84.3
11:00-12:00	84.1
12:00-13:00	83.8
13:00-14:00	84.0
14:00-15:00	83.9
15:00-16:00	84.0
16:00-17:00	83.9
17:00-18:00	83.8
18:00-19:00	83.9
19:00-20:00	84.0
20:00-21:00	83.9
21:00-22:00	
22:00-23:00	
23:00-24:00	
Leq*	84.0
Lmax**	99.8

Remark : * Average time between 09:00-21:00

** Maximum Sound Pressure Level between 09:00-21:00


(Miss Katesarin Vorradeewittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



NOISE MEASUREMENT RESULT : WORKING NOISE


MTR-PTTGC, Branch 3 (Olefins 2)


LOCATION : Cracked Gas Compressor (R-3301)	MEASUREMENT DATE : May 14, 2024
SLM MODEL : SCARLET ST-21D	SERIAL No. : 820723
SITE OPERATOR : Miss Salisa Ainree	
CALIBRATOR MODEL : Cirrus CR:515	SERIAL No. : 97097
CALIBRATION REF dBA : 94.0	CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 93.7/0.1	Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-116	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	May 14, 2024
00:00-01:00	
01:00-02:00	
02:00-03:00	
03:00-04:00	
04:00-05:00	
05:00-06:00	
06:00-07:00	
07:00-08:00	84.0
08:00-09:00	83.9
09:00-10:00	83.9
10:00-11:00	83.8
11:00-12:00	83.8
12:00-13:00	83.8
13:00-14:00	85.6
14:00-15:00	84.5
15:00-16:00	84.6
16:00-17:00	83.8
17:00-18:00	84.2
18:00-19:00	84.5
19:00-20:00	
20:00-21:00	
21:00-22:00	
22:00-23:00	
23:00-24:00	
Leq*	84.2
Lmax**	94.7

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00


(Miss Katesarin Vorradeewittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

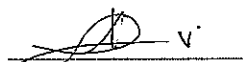
LOCATION : Hydrogen Compressor (R-401) MEASUREMENT DATE : Mar 15, 2024
SLM MODEL : SCARLET ST-21D SERIAL No. : 820722
SITE OPERATOR : Miss Wiraya Patchimboon

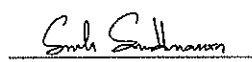
CALIBRATOR MODEL : Cirrus CR-515 SERIAL No. : 97097
CALIBRATION REF dBA : 94.0 CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 93.8/0.0 Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-070

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)	
	Mar 15, 2024	
00.00-01.00		
01.00-02.00		
02.00-03.00		
03.00-04.00		
04.00-05.00		
05.00-06.00		
06.00-07.00		
07.00-08.00		
08.00-09.00		
09.00-10.00	75.1	
10.00-11.00	74.9	
11.00-12.00	74.8	
12.00-13.00	74.9	
13.00-14.00	75.0	
14.00-15.00	75.1	
15.00-16.00	75.3	
16.00-17.00	75.3	
17.00-18.00	75.6	
18.00-19.00	75.8	
19.00-20.00	74.7	
20.00-21.00	75.3	
21.00-22.00		
22.00-23.00		
23.00-24.00		
Leq*	75.2	
Lmax**	84.2	

Remark : * Average time between 09:00-21:00

** Maximum Sound Pressure Level between 09:00-21:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Propylene Compressor (R-650) MEASUREMENT DATE : Mar 15, 2024
SLM MODEL : SCARLET ST-21D SERIAL No. : 820726
SITE OPERATOR : Miss Wiraya Patchimboon

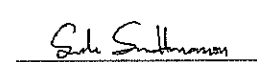
CALIBRATOR MODEL : Cirrus CR-515 SERIAL No. : 97097
CALIBRATION REF dBA : 94.0 CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 93.7/0.1 Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-070

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)	
	Mar 15, 2024	
00.00-01.00		
01.00-02.00		
02.00-03.00		
03.00-04.00		
04.00-05.00		
05.00-06.00		
06.00-07.00		
07.00-08.00		
08.00-09.00		
09.00-10.00	85.1	
10.00-11.00	84.9	
11.00-12.00	84.9	
12.00-13.00	84.8	
13.00-14.00	84.8	
14.00-15.00	84.8	
15.00-16.00	84.9	
16.00-17.00	85.0	
17.00-18.00	84.9	
18.00-19.00	84.8	
19.00-20.00	84.9	
20.00-21.00	84.9	
21.00-22.00		
22.00-23.00		
23.00-24.00		
Leq*	84.9	
Lmax**	90.7	

Remark : * Average time between 09:00-21:00

** Maximum Sound Pressure Level between 09:00-21:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)


LOCATION : Propylene Compressor (R-3650)	MEASUREMENT DATE : May 14, 2024
SLM MODEL : SCARLET ST-21D	SERIAL No. : 820722
SITE OPERATOR : Miss Salisa Ainree	
CALIBRATOR MODEL : Citrus CR-515	SERIAL No. : 97097
CALIBRATION REF dBA : 94.0	CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 93.8/0.0	Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-116	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	May 14, 2024
00:00-01:00	
01:00-02:00	
02:00-03:00	
03:00-04:00	
04:00-05:00	
05:00-06:00	
06:00-07:00	
07:00-08:00	
08:00-09:00	85.8
09:00-10:00	85.9
10:00-11:00	85.9
11:00-12:00	85.9
12:00-13:00	85.8
13:00-14:00	85.8
14:00-15:00	94.2
15:00-16:00	88.4
16:00-17:00	89.5
17:00-18:00	86.4
18:00-19:00	86.4
19:00-20:00	88.7
20:00-21:00	
21:00-22:00	
22:00-23:00	
23:00-24:00	
Leq*	88.2
Lmax**	92.3

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)


LOCATION : GHU Recycle Hydrogen Compressor (R-701)	MEASUREMENT DATE : Mar 15, 2024
SLM MODEL : SCARLET ST-21D	SERIAL No. : 820725
SITE OPERATOR : Miss Wiraya Patchimboon	
CALIBRATOR MODEL : Citrus CR-515	SERIAL No. : 97097
CALIBRATION REF dBA : 94.0	CERTIFIED DATE : Sep 04, 2023
SLM READING/SLM ADJUST dBA : 94.0/-0.2	Expire DATE : Sep 03, 2024
CAL SHEET No. : CR-515-2024-070	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 15, 2024
00:00-01:00	
01:00-02:00	
02:00-03:00	
03:00-04:00	
04:00-05:00	
05:00-06:00	
06:00-07:00	
07:00-08:00	
08:00-09:00	
09:00-10:00	74.5
10:00-11:00	74.3
11:00-12:00	74.0
12:00-13:00	74.0
13:00-14:00	74.0
14:00-15:00	74.1
15:00-16:00	74.1
16:00-17:00	74.1
17:00-18:00	73.9
18:00-19:00	73.3
19:00-20:00	73.7
20:00-21:00	73.8
21:00-22:00	
22:00-23:00	
23:00-24:00	
Leq*	74.0
Lmax**	92.4

Remark : * Average time between 09:00-21:00

** Maximum Sound Pressure Level between 09:00-21:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

ภาคผนวก ง.7

ใบรับรองผลการตรวจวิเคราะห์ระดับสารเคมีในพื้นที่ผู้ปฏิบัติงาน

ค่าความเข้มข้นของเบนซีนจากการตรวจวัด
แบบติดตั้งกับพื้นที่



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1230/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 11/06/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 15/06/2024
		Test Date	: 18/06/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 25/06/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
Wastewater Treatment System (WW-01)	11/06/2024 07:16-19:16	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Tank Farm (TF-BE-BU-05)	11/06/2024 07:25-19:25	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cracking Furnace (FU-04)	11/06/2024 07:18-19:18	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cold Area (C-BE-BU-01)	11/06/2024 07:36-19:36	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Hot Area (H-HY-BE-02)	11/06/2024 07:30-19:30	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Central Control Building (CO/LB-01)	11/06/2024 07:49-19:49	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัทไทย (VNT-BE-BU-01)	11/06/2024 07:20-19:20	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1230/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 11/06/2024
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	Received Date	: 15/06/2024
		Test Date	: 18/06/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 25/06/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 1)	11/06/2024 07:46-19:46	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 2)	11/06/2024 07:44-19:44	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 3)	11/06/2024 07:45-19:45	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0550/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 19/03/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/03/2024
		Test Date	: 26/03/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 01/04/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
Wastewater Treatment System (WW-01)	19/03/2024 08:00-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Tank Farm (TF-BE-BU-05)	19/03/2024 08:15-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cracking Furnace (FU-04)	19/03/2024 08:05-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cold Area (C-BE-BU-01)	19/03/2024 08:20-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Hot Area (H-HY-BE-02)	19/03/2024 08:25-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Central Control Building (CO/LB-01)	19/03/2024 07:45-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัทวินิไทย (VNT-BE-BU-01)	19/03/2024 08:10-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0550/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 19/03/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/03/2024
		Test Date	: 26/03/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 01/04/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 1)	19/03/2024 08:30-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 2)	19/03/2024 08:35-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 3)	19/03/2024 08:40-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

ค่าความเข้มข้นของเบนซีนจากการตรวจวัด
แบบติดตัวบุคคล



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800.

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0551/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 19/03/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/03/2024
		Test Date	: 26/03/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 01/04/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26010058	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 1	07:05-19:00					
ID : 26005239	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 2	07:05-19:00					
ID : 26005557	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 3	07:15-19:00					
ID : 26002519	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 4	07:10-19:00					
ID : 26001859	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 5	07:10-19:00					
ID : 226000829	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 6	07:20-19:00					
ID : 26009802	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 7	07:15-19:00					
ID : 26002950	19/03/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 8	07:05-19:00					

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1231/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 11/06/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 15/06/2024
		Test Date	: 18/06/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 24/06/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26010058	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 1	07:00-19:00					
ID : 26005239	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 2	07:00-19:00					
ID : 26005557	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 3	07:00-19:00					
ID : 26006180	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 4	07:00-19:00					
ID : 26001859	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 5	07:00-19:00					
ID : 26008418	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 6	07:00-19:00					
ID : 26002381	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 7	07:00-19:00					
ID : 26002950	11/06/2024	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Area 8	07:00-19:00					

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpeth

(Miss Narisa Poowasanpeth)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

ค่าความเข้มข้นของ 1,3-บิวทาไดอินจากการตรวจวัด
แบบติดตั้งกับพื้นที่



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1230/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 12/06/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 15/06/2024
		Test Date	: 18/06/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 25/06/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
R-4801 A	12/06/2024 07:05-19:05	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
P-4051	12/06/2024 07:06-19:06	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
M-4090 & M-4091	12/06/2024 07:08-19:08	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือของ Process Chemical Drum	12/06/2024 07:13-19:13	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ B1-05	12/06/2024 07:11-19:11	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ BD-01	12/06/2024 07:10-19:10	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือ Cooling Tower ติดกับ HY-1603	12/06/2024 07:12-19:12	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Foam Tank ข้างประตู A	12/06/2024 07:04-19:04	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศเหนือ	12/06/2024 07:18-19:18	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศใต้	12/06/2024 07:15-19:15	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0550/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 20/03/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/03/2024
		Test Date	: 26/03/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 01/04/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
R-4801 A	20/03/2024 08:05-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
P-4051	20/03/2024 08:10-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
M-4090 & M-4091	20/03/2024 08:15-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือของ Process Chemical Drum	20/03/2024 08:20-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ B1-05	20/03/2024 08:25-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ BD-01	20/03/2024 08:30-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือ Cooling Tower ติดกับ HY-1603	20/03/2024 08:35-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Foam Tank ข้างประตู A	20/03/2024 08:00-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศเหนือ	20/03/2024 08:02-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศใต้	20/03/2024 07:55-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

ค่าความเข้มข้นของ 1,3-บิวทาไดอินจากการตรวจวัด
แบบติดตัวบุคคล



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0551/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 20/03/2024
Address	: 9, I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/03/2024
		Test Date	: 26/03/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 01/04/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26009848	20/03/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : BV Plant	07:00-19:00					
ID : 26005527	20/03/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : BV Plant	07:00-19:00					
ID : 26006551	20/03/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : BV Plant	07:00-19:00					

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1231/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	Sampling Date	: 12/06/2024
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	Received Date	: 15/06/2024
		Test Date	: 18/06/2024
Tel/Fax	: 0-3899-4000 / 0-3899-4111	Report Date	: 24/06/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	Sampling Method	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	Sample Condition	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26005527	12/06/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	I
Area : BV Plant	07:00-19:00					
ID : 26010314	12/06/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	I
Area : BV Plant	07:00-19:00					
ID : 26008559	12/06/2024	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	I
Area : BV Plant	07:00-19:00					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpeth
(Miss Narisa Poowasanpeth)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ

CERTIFICATE OF ANALYSIS **Grade of Product: EPA Protocol**

Part Number: E04N199E15AC084 Reference Number: 82-401409170-1
Cylinder Number: EB0102326 Cylinder Volume: 144.4 CF
Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG
PGVP Number: B52019 Valve Outlet: 680
Gas Code: CO,NO,NOX,SO2,BALN Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	51.01 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.86 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	50.87 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5050 %	G1	+/- 0.7% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13080206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12387	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Siemens Ultramat 6 J3-599 COHIGH	NDIR	Jan 18, 2019
Nicolet 6700 APW1100391 NO	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 NO2	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 SO2	FTIR	Jan 10, 2019

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol Document EPA-600/R-12/531. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certificate. Items not certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty shall not be reproduced in full without written approval of the issuer.



TESTING CERT No. 3082.05

[Signature]
Approved for Release



CONTROL UNIT CALIBRATION **(Metric units, mm)**

Date: 6 Jan 24

Initial Final Average
Barometric press, Pb 759 759 759 mmHg

Dry Gas Meter Data

Reference Dry Gas Meter Data

Console No. M50-06

Serial No. 358794

Metering System ID

Model S110

DGM Number 917415

Correction factor (Yr) 1.0068

DGM Model MST-C2-1

Last Calibration Date 26 Oct 23

Calibrated by: Montri P.

Orifice manometer setting, ΔH mm H ₂ O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time ⊙ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.2	101.7	25	25	24	24.5	8.87	0.9901	44.4570
25.0	100.1	102.0	25	25	24	24.5	6.52	0.9854	48.0383
50.0	100.3	101.1	25	25	24	24.5	4.72	0.9935	50.1707
76.0	99.3	99.3	25	25	24	24.5	3.70	0.9987	47.9159
100.0	100.1	101.6	25	25	24	24.5	3.70	0.9816	49.8135
150.0	100.2	100.2	25	25	24	24.5	2.67	0.9919	48.1679

Average 0.9902 48.0939

Approved by: *[Signature]*

[Signature]



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 09-01-2024

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

C_{P(A),avg} 0.8468

B Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

C_{P(B),avg} 0.8468

| CP(A)-CP(B) | = 0.0000

C_{P(Avg)} = 0.8468

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** | CP(A)-CP(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is to be used ***



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: May 27, 24

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref. Calibrated (dB)	Eff. Calibrated (dB)
Cirrus	CR-515	97097	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
24	Cirrus	CR162C	G300832	93.7	0.0
25	Cirrus	CR162C	G300838	93.7	0.0

Calibrated by :

Approved by :



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT
975 Moo 4, Bangpoo Industrial Estate, Soi 8, Sukhumvit Road km 37,
Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280
Tel: +66 2709 4860 Fax: +66 2324 0917



Certificate No.: CP20230345EA
Operation No.: CP2023080023

Certificate of Calibration

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 97097
ID No.: -
Customer: SECOT Co.,Ltd.
Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand
Received Date: 28 August 2023
Calibrated Date: 4 September 2023
Issued Date: 8 September 2023
Calibrated by: Ms. Juntaporn Kunhakorn

Approved by: _____

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k)
providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except
with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20230345EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 97097
ID No.: -
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa
Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2787490	AA-1024-22	6 November 2023
2) Waveform Generator	33511B	MY52302264	CK20230039EA	27 June 2024
3) Audio Analyzing DMM	2015-P	000136E	E1U225466	2 December 2023
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P230024 CD20230196EA	20 March 2024 23 July 2024

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute; NSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

Nominal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value ^[1] (dB)	Acceptance limit ^[2] (dB)
1000	94	94.13	0.13	±0.25

2. Function : Frequency

Nominal Sound Pressure level (dB)	Specified Frequency (Hz)	Measured value (Hz)	Deviated value ^[2] (%)	Acceptance limit ^[3] (%)
94	1000	1000.3	0.0	±0.7



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20230345EA

Calibration Report

3. Function : Total distortion + noise

Normal	Normal	Measured value ^[4]	Acceptance limit ^[5]
Sound Pressure level (dB)	Frequency (Hz)	(%)	(%)
94	1000	1.0	2.5

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.15 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	0.50 %

Note: [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.
[2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.
[3] The acceptance limit is for the deviated value.
[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
[5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 1.
2. Maximum-permitted uncertainty of measurement was IEC 60942:2017 Class 1.
3. The coverage factor $k = 2.00$

-- End of Report --



Request Service No. 098/66

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Mettler Toledo Type : Top-Loading Electronic Balance

Model : AG245 Serial No. : 1117293916 (198129-0)

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 - 200 g Scale division : 0.00001 g (41g)/ 0.0001 g (210g)

Calibration date : May 25, 2023

Reference Standard No. M220177, M2302167S, M2303005N

Traceable to : Metrological Center SCI ECO Services Company Limited.

Thai Calibration Services CO., LTD.

Ambient Condition : Temperature 25.70 - 25.90 °C

Humidity 50.70 - 51.20 % RH

Calibrated By : Sasipa Jaidee Approved By : Nanna Poowasanpetch

(Miss Sasipa Jaidee)

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : 25/05/2023

Date : 25/05/2023

Issued Date : May 26, 2023

Measurement Report

Request Service No. 098/66

Page 2 of 3

Description : Brand : Mettler Toledo Type : Top-Loading Electronic Balance
 Model : AG245 Serial No. : 1117293916 (198129-0)
 Calibration range : 0 – 200 g Scale division : 0.00001 g (41g)/ 0.0001 g (210g)
 Calibration date : May 25, 2023
 Ambient Condition : Temperature 25.70-25.90 °C Relative humidity 50.70-51.20 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.000052	0.0001
100	0.000071	0.0002
150	0.000067	0.0002
200	0.000071	0.0002

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
50.00040	50.00062	50.00078	50.00000	50.00010	50.00040	0.00038

Issued Date : May 26, 2023

Request Service No.098/66

Page 3 of 3

3. Departure from Nominal Value :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.000000	± 0.000008
0.5	-0.000017	± 0.000014
1	-0.000026	± 0.000018
10	-0.000099	± 0.000033
20	-0.000168	± 0.000046
40	-0.000339	± 0.000072
60	-0.00058	± 0.00011
80	-0.00059	± 0.00014
100	-0.00070	± 0.00016
120	-0.00069	± 0.00018
140	-0.00096	± 0.00020
160	-0.00082	± 0.00023
180	-0.00089	± 0.00024
200	-0.00118	± 0.00027

Calibrated by : Sasipa Jaidee

(Miss Sasipa Jaidee)

Testing Officer

Date : 25/05/2023

Approved By : Nanna Poowasanpetch

(Miss Narisa Poowasanpetch)

Chief of Technical Management

Date : 25/05/2023

Issued Date : May 26, 2023



Request Service No.100/66

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 23, 2023

Reference Standard No. M220177, M2302167S, M2303005N

Traceable to : Metrological Center SCI ECO Services Co., Ltd., Thai Calibration services Co., Ltd

Ambient Condition : Temperature 24.60-24.80 °C

Humidity 50.6-51.4 % RH

Calibrated By : *Khemchuda Insorn*

(Miss Khemchuda Insorn)

Approved By : *Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : *24/05/2023*

Date : *24/05/2023*

Issued Date : May 24, 2023

Measurement Report

Request Service No.100/66

Page 2 of 3

Description : Brand : Sartorius

Type : Top-Loading Electronic Balance

Model : BSA224S-CW

Serial No. : 32191636

Calibration range : 0 – 200 g

Scale division : 0.0001 g (220 g)

Calibration date : May 23, 2023

Ambient Condition : Temperature 24.60-24.80 °C Relative humidity 50.6-51.4 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.00007	0.0002
100	0.00005	0.0001
150	0.00006	0.0002
200	0.00006	0.0002

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
49.99976	49.99988	49.99984	49.99984	49.99990	49.99976	0.00012

Issued Date : May 24, 2023

3. Departure from Nominal Value :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.00000	± 0.00008
1	+ 0.00004	± 0.00008
5	- 0.00005	± 0.00008
10	+ 0.00020	± 0.00008
20	+ 0.00027	± 0.00008
40	+ 0.00022	± 0.00010
60	+ 0.00018	± 0.00012
80	+ 0.00019	± 0.00014
100	+ 0.00028	± 0.00016
120	+ 0.00027	± 0.00018
140	+ 0.00036	± 0.00020
160	+ 0.00040	± 0.00022
180	+ 0.00058	± 0.00024
200	+ 0.00052	± 0.00027

Calibrated by :

Khemchuda Insorn

(Miss Khemchuda Insorn)

Testing Officer

Date :

ny 10/5/2023

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Chief of Technical Management

Date :

24/05/2023

Issued Date : May 24, 2023



มูลนิธิพัฒนาอุตสาหกรรม
ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center



Calibration Certificate

Certificate No.: 2304081-003-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)
Manufacturer: BINDER
Model: ED 53
Serial No.: 01-27152
ID No.: N/A
Order No.: 2304081
Operation No.: 2304081-003
Date of Receipt: 27 July 2023
Date of Calibration: 27 July 2023

Calibrated by

Mr. Worapob Sooktong
Scientist

Approved by

Pheraphat Tuanjit
(Mr. Pheraphat Tuanjit)Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue:

7 August 2023

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

FCS-009 Revision: 01 Date: 20-04-65



Calibration Report

Certificate No.: 2304081-003-01
Equipment: CHAMBER (Hot Air Oven)
Model: ED 53 Serial No.: 01-27152
Resolution: 1 °C ID No.: N/A
Manufacturer: BINDER
Date of Calibration: 27 July 2023

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (32 ± 1) °C
Relative Humidity (52 ± 2) %
Line Voltage (228 ± 1) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E); Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
- The temperature scale used was based on ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY49016894	TE 660380-01	22 April 2024	NATIONAL FOOD INSTITUTE
	RTD	CHP101-109/RTD#101-109			

- This certificate is traceable to International System of Units (SI Units).
- This certificate was certified only for the instrument we calibrated.
- This result of calibration was found accurate as shown on date and place of calibration only.
- Condition of Calibrated item : Good

UUC Description :

Time of Record 1 Hour 9 Minute At 104, 110 and 180 °C
Fresh air Damper ☐ Open Position ☐
☒ Close
☐ Not Available

- Result of Calibration : ☒ Without adjustment ☐ After adjustment



Calibration Report

Certificate No.: 2304081-003-01
Equipment: CHAMBER (Hot Air Oven)
Model: ED 53 Serial No.: 01-27152
Resolution: 1 °C ID No.: N/A
Manufacturer: BINDER
Date of Calibration: 27 July 2023

Page 3 of 3

Calibration point: 104, 110 and 180 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	31.7	50.3	227.1
MAX	32.7	53.5	228.5

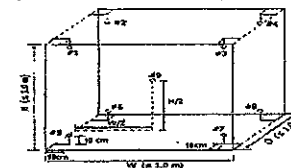


Table 1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
104	104.79	105.05	104.60	104.30	104.35	103.88	104.29	103.87	103.82	0.78
110	111.06	111.10	110.65	110.38	110.01	109.70	109.80	109.76	109.80	0.80
180	181.06	181.08	180.58	180.53	180.43	180.25	179.97	180.71	180.08	0.90

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
104	104	104	104	0.22	1.23	1.55
110	110	110	110	0.25	1.30	1.80
177	177	177	177	0.32	0.99	1.54

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k= 2, providing a level of confidence of approximately 95 %.

----- End -----



CAL

Calibratech Co.,Ltd.

7/106-7 Moo 2, Sukhprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com



Certificate of Calibration

Certificate No. : 67-420019-1

Page : 1 of 2

Submitted by : Saccot Co.,Ltd.

239 RimKlongprapa Road, Bangsue, Bangkok 10800 Thailand

Equipment : pH Meter with electrode

pH meter

Manufacturer : Mettler Toledo Model : Seven2Go S2

Range : N/A pH Resolution : 0.01 pH

Serial No. : B924795409 ID No. : PH No.12

Electrode

Model : InLab Expert Go Serial No. : 3051249

Environment : Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$ Relative Humidity : $(50 \pm 15) \%$

Date of Received : 13 February 2024

Date of Calibration : 20 February 2024

Date of Issue : 20 February 2024

Calibrated by : Permpon Chanpu

Calibration Method : In-house method CAL-M4201 direct measurement by using standard voltage calibrator and using certified reference material (CRM)

Reference Standard Instruments : This certification is traceable to the International System of Units

1. Multiproduct Calibrator

ID No.	Cert. No.	Due Date	Traceability
440001	23E1240	24 Mar 2025	National Institute of Metrology Thailand (NIMT)

2. Standard Buffer Solution

pH	Cert. No.	Lot No.	Exp. Date	Traceability
4.008	61293328	944535	27 Nov 2025	CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025
6.986	61281486	944537	17 Nov 2024	CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025
9.997	61281073	944536	17 Nov 2024	CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025

Approved by :

(Surachai Promthong)

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced or used in full or in part without the prior written approval of the Calibratech Co.,Ltd.



CAL

Calibratech Co.,Ltd.

7/106-7 Moo 2, Sukhprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : 67-420019-1

Page : 2 of 2

Result of Calibration :

UUC Condition As-Received : Good

Function : Electrical measurement

pH meter

Performing standard curve by Multiproduct Calibrator at pH (4,7,10)

Adjustment Curve at nominal pH	Applied Voltage (mV)	Nominal Value (pH)	UUC Reading		Correction (mV)	Uncertainty (\pm mV)
			(pH)	(mV)		
4, 7, 10	177.4800	4	4.00	177	0	0.58
	0.0000	7	7.00	0	0	0.58
	-177.4800	10	10.00	-177	0	0.58

Function : pH meter with electrode

Performing a three - buffer standard curve using buffer nominal pH (4,7,10)

Adjustment Curve at nominal pH	Standard Buffer (pH)	UUC Reading (pH)	Correction (pH)	Uncertainty (\pm pH)
4, 7, 10	4.008	4.01	0.00	0.0097
	6.986	7.00	-0.01	0.011
	9.997	10.01	-0.01	0.014

Remark

UUC: Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%

-o0o-



CAL

Calibratech Co.,Ltd.

7/106-7 Moo 2, Sukhprachasri 3 Rd., Banggood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com



NSG-TIS1-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : 67-400100-1

Page : 1 of 2

Submitted by : Secot Co.,Ltd.
239 RimKlongprapa Road, Bangsue, Bangkok 10800 Thailand

Equipment : Temperature Indicator with Thermistor Probe (Temp pH)
Temperature Indicator
Manufacturer : Mettler Toledo Model : Seven2Go S2
Range : N/A Resolution : 0.1 °C
Serial No. : B924795409 ID No. : PH No.12
Thermistor Probe
Model : InLab Expert Go Sheath Material : Plastic
Diameter : 10 mm. Length : 120 mm.
Serial No. : 3051249 ID No. : PH No.12

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %
Line Voltage : (220 ± 22) VAC

Date of Received : 13 February 2024

Date of Calibration : 20 February 2024

Date of Issue : 20 February 2024

Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4003
by compared with PRT in the liquid bath at the constant controlled temperature.

The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units

1. Platinum Resistance Thermometer (PRT)

ID No.	Cert. No.	Due Date	Traceability
400002	TT-0074-22	20 Jun 2024	National Institute of Metrology Thailand (NIMT)

2. Standard Digital Thermometer

ID No.	Cert. No.	Due Date	Traceability
400003	23E1866	01 Jun 2025	National Institute of Metrology Thailand (NIMT)
400004	23E1866	01 Jun 2025	National Institute of Metrology Thailand (NIMT)

Approved by :

(Surachai Promthong)

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the Calibratech Co.,Ltd.



CAL

Calibratech Co.,Ltd.

7/106-7 Moo 2, Sukhprachasri 3 Rd., Banggood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 67-400100-1

Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

Immersion Depth (mm.)	Standard Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (± °C)
100	25.0020	25.3	-0.3	0.11
100	30.0015	30.3	-0.3	0.11
100	35.0023	35.3	-0.3	0.11

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k=2,
providing a level of confidence of approximately 95%

- o O o -

Signature





SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: May 14, 24

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref. Calibrated (dB)	Eff. Calibrated (dB)
Cirrus	CR-515	97097	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET	ST-21D	820722	93.8	0.0
2	SCARLET	ST-21D	820723	93.7	0.1

Calibrated by :

Approved by :

ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

975 Moo 4, Bangpoo Industrial Estate, Sol 8, Sukhumvit Road km 37,

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860 Fax: +66 2324 0917



Certificate No.: CP20230345EA

Operation No.: CP2023080023

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: Cirrus Research Plc

Model/Type: CR-515

Serial No.: 97097

ID No.: -

Customer: SECOT Co., Ltd.

Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand

Received Date: 28 August 2023

Calibrated Date: 4 September 2023

Issued Date: 8 September 2023

Calibrated by: Ms. Juntaporn Kunhakom

Approved by:

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k) providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20230345EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 97097
ID No.:
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa

Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2787490	AA-1024-22	6 November 2023
2) Waveform Generator	33511B	MY52302264	CK20230039EA	27 June 2024
3) Audio Analyzing DMM	2015-P	000136E	E1U225466	2 December 2023
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P230024 CD20230196EA	20 March 2024 23 July 2024

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute; NSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

Normal	Specified Sound	Measured value	Deviated value ^[1]	Acceptance limit ^[1]
Frequency (Hz)	Pressure level (dB)	(dB)	(dB)	(dB)
1000	94	94.13	0.13	±0.25

2. Function : Frequency

Normal Sound	Specified Frequency	Measured value	Deviated value ^[2]	Acceptance limit ^[2]
Pressure level (dB)	(Hz)	(Hz)	(%)	(%)
94	1000	1000.3	0.0	±0.7



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20230345EA

Calibration Report

3. Function : Total distortion + noise

Normal	Normal	Measured value ^[4]	Acceptance limit ^[5]
Sound Pressure level (dB)	Frequency (Hz)	(%)	(%)
94	1000	1.0	2.5

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.15 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	0.50 %

Note: [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.
[2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.
[3] The acceptance limit is for the deviated value.
[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
[5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 1.
2. Maximum-permitted uncertainty of measurement was IEC 60942:2017 Class 1.
3. The coverage factor $k = 2.00$

-- End of Report --



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-67/0383

MTC.No.23-67/0383

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

Scale range : 300 ml/min to 30,000 ml/min

Subdivision : (0.0001, 0.001) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 2 April 2024

Condition of measured item : Normal

Calibration date : 7 May 2024

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 119216	MW-0035-23	31-May-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by :

(Ms.Kirana Kuanghirun)

Director
TISTR
Mechanical Engineering Standards Laboratory

Ref. 20132670420197001

Issued Date 13 May 2024

The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FM.BLMTC.002 Rev.4

Head Office

35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang,
Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9000
Fax. (66) 0 2577 9009
E-mail : rumpai@tistr.or.th Website:www.tistr.or.th

Office/Laboratory

Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,
Amphoe Muang, Changwat Samutprakan 10280, Thailand
Tel. (66) 0 2323 1672-80 ext. 115, 116
Fax. (66) 0 2323 9165
E-mail : mtc@tistr.or.th

Office

196 Phahonyothin Road, Chatuchak, Bangkok 10900,
Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
Fax. (66) 0 2579 8592
E-mail : sumalee@tistr.or.th

THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-67/0383

2/2

MTC.No.23-67/0383

Calibration point : (1.5, 5.0, 10, 15, 25) L/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with
standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition
within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (L/min)	Standard Value (L/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
1.5116	1.4904	25.492	1007.32	+1.42	0.93
5.0284	4.9847	25.446	1007.65	+0.88	0.92
10.072	10.027	25.442	1008.43	+0.45	0.92
15.109	15.087	25.457	1009.62	+0.15	0.91
25.206	25.160	25.520	1013.18	+0.18	0.91

The reported expanded uncertainties are based on standard uncertainties multiplied by
a coverage factor $k=2$, which provides a level of confidence of approximately 95%.

The end of calibration certificate.

Tg.

The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FM.BLMTC.002 Rev.4

Head Office

35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang,
Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9000
Fax. (66) 0 2577 9009
E-mail : rumpai@tistr.or.th Website:www.tistr.or.th

Office/Laboratory

Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,
Amphoe Muang, Changwat Samutprakan 10280, Thailand
Tel. (66) 0 2323 1672-80 ext. 115, 116
Fax. (66) 0 2323 9165
E-mail : mtc@tistr.or.th

Office

196 Phahonyothin Road, Chatuchak, Bangkok 10900,
Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
Fax. (66) 0 2579 8592
E-mail : sumalee@tistr.or.th



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-67/0303

MTC.No.23-67/0303-02

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 160100

Model : Defender 520-L

Scale range : 5 ml/min to 500 ml/min

Subdivision : (0.001, 0.01) ml/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2024 Condition of measured item : Normal

Calibration date : 6 March 2024

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 117982	MW-0034-23	11-Jun-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by :

(Ms.Kirana Luanghijun)

Mechanical Engineering Standards Laboratory

Ref. 2013267021300639002

Issued Date 11 March 2024

The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FM.BL.MTC.002 Rev.4

Head Office
35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang,
Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9000
Fax. (66) 0 2577 9009
E-mail : rumpai@tistr.or.th Website:www.tistr.or.th

Office/Laboratory
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,
Amphoe Muang, Changwat Samutprakan 10280, Thailand
Tel. (66) 0 2323 1672-80 ext. 115, 116
Fax. (66) 0 2323 9165
E-mail : mtc@tistr.or.th

Office
196 Phahonyothin Road, Chatuchak, Bangkok 10900,
Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
Fax. (66) 0 2579 8592
E-mail : sumalee@tistr.or.th

THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-67/0303

2/2

MTC.No.23-67/0303-02

Calibration point : (20, 50, 100, 200, 400) ml/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (ml/min)	Standard Value (ml/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
19.854*	19.920	25.169	1006.69	-0.33	1.1
49.990	50.384	25.058	1006.80	-0.78	1.1
99.770	99.036	25.047	1006.89	+0.74	0.99
199.87	192.51	24.984	1007.03	+3.82	1.0
401.92	384.44	24.959	1007.30	+4.55	0.99

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor $k=2$, which provides a level of confidence of approximately 95%.

* : The calibration point is not the scope of accreditation.

The end of calibration certificate.

TB.

The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FM.BL.MTC.002 Rev.4

Head Office
35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang,
Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9000
Fax. (66) 0 2577 9009
E-mail : rumpai@tistr.or.th Website:www.tistr.or.th

Office/Laboratory
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,
Amphoe Muang, Changwat Samutprakan 10280, Thailand
Tel. (66) 0 2323 1672-80 ext. 115, 116
Fax. (66) 0 2323 9165
E-mail : mtc@tistr.or.th

Office
196 Phahonyothin Road, Chatuchak, Bangkok 10900,
Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
Fax. (66) 0 2579 8592
E-mail : sumalee@tistr.or.th



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 12 Jan 24

Barometric press, Pb

Initial	Final	Average
758	758	758

 mmHg

Dry Gas Meter Data

Console No. M50-07

Metering System ID

DGM Number 90331

DGM Model MST-C2-1

Calibrated by Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0068

Last Calibration Date 26 Oct 23

Orifice manometer setting, ΔH mm H ₂ O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time Θ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.0	100.6	25	25	24	24.5	9.72	0.9981	53.7523
25.0	100.2	100.2	25	25	24	24.5	6.48	1.0029	47.6709
50.0	100.0	100.8	25	25	24	24.5	4.77	0.9919	51.7327
76.0	100.2	100.9	25	25	24	24.5	3.90	0.9908	52.4606
100.0	100.1	99.6	25	25	24	24.5	3.90	1.0005	53.0627
150.0	100.2	98.9	25	25	24	24.5	2.82	1.0032	54.0289

Average 0.9979 52.1180

Approved by :



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 09-01-2024

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

C_{P(A)} avg 0.8468

B Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

C_{P(B)} avg 0.8468

| CP(A) - CP(B) | = 0.0000

C_{P(Avg)} = 0.8468

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** | Cp(A) - Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is to be used ***



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 09-01-2024

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

$C_{P(A),avg}$ 0.8468

B Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

$C_{P(B),avg}$ 0.8468

$|C_{P(A)} - C_{P(B)}| = 0.0000$

$C_{P(Avg)} = 0.8468$

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** $|C_{P(A)} - C_{P(B)}|$ must also be < 0.01 if average of $C_{P(A)}$ and $C_{P(B)}$ is to be used ***

ภาคผนวก จ

หนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๐ กรกฎาคม ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอต จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน

ลงวันที่ ๗ เมษายน ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๙ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอต จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙-ก-๐๐๐๓๔ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอต จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย ตามสิ่งที่ส่งมาด้วย ๒

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล หรือวัสดุที่ไม่ใช่แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม ดำรงพงษ์)

กองวิจัยและเตือนภัยมลพิษโรงงาน ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ส่งที่ส่งมาด้วย ๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอต จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

๑) นายขรรชัย เกรียงไกรอุดม

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๒

๒) นางสมฤดี เกรียงไกรอุดม

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๓

๓) นางสาวธนา ทิพรัักษ์

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๔

๔) นางสาวเชมเชดา อินทร์ศร

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๕

๕) นางสาวปรีดา สมใจ

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๖

๖) นางสาวอริญา มาตา

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๗

๗) นางสาวลดาวัลย์ วงศ์เจริญ

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๘

๘) นางสาวณัฏฐพร เกตะวันดี

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๙

๙) นางสาวริสา ภูวสรเพ็ชญ์

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๑๐

๑๐) นางสาวศิริวรรณ อิมสง่า

ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๑๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอต จำกัด

เลขทะเบียน ว-๒๓๙

ที่อก ๐๓๑๐(๑)/ ๑๑ ๐ ๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย

- ๑) นางสาวสุตาพร สุนทร
- ๒) นางสาวสุธาทิพย์ เทียนเตี้ย
- ๓) นางสาวสุนันทา ศิริวัฒนานนท์
- ๔) นายบวร ศิษย์ยะ
- ๕) นางสาวเกศรินทร์ วรเดชะวิทยา
- ๖) นายอนิวัฒน์ พิมพ์นา
- ๗) นายชิตพล สมประสงค์
- ๘) นางสาวศศิธร พรหมประเสริฐ
- ๙) นายศิวัชนนท์ กุลวงษ์
- ๑๐) นางสาวอริษา คณิธรานนท์
- ๑๑) นางสาวสิริวรรณ แก้วชิงดวง
- ๑๒) นางสาวปัทมวรรณ สุวรรณวิโรจน์
- ๑๓) นางสาวกนิษฐา เจริญเชื้อ
- ๑๔) นายวัชรกานต์ ประมาคะเต
- ๑๕) นายชอง เสงขลกุล
- ๑๖) นางสาวกฤษณา จันทุม
- ๑๗) นางสาวพรนภา บุตรธรรม
- ๑๘) นางสาวธรรณี อาจปลิว
- ๑๙) นายธนโชติ ช่างลื้อ
- ๒๐) นางสาวพัชรา สมานพันธ์
- ๒๑) นางสาวจุฑาทิพย์ แจ่มเรือน
- ๒๒) นางสาวณิศา กุ้ยอ่อน
- ๒๓) นายกิตติพงษ์ ตะเกียงสุข
- ๒๔) นายจิรวัฒน์ โคตรคำหาญ
- ๒๕) นายชนะพล อัครผล
- ๒๖) นางสาวทิพย์สุดา วรรณการ
- ๒๗) นายสิทธิชัย สว่างวงศ์ไชย
- ๒๘) นายพิชญ์ สีนามเพ็ง
- ๒๙) นายรัตนชัย ขอบทำกิจ
- ๓๐) นายธนาวุฒิ ค่วนแสง
- ๓๑) นายณัฐชัย ไชยโคตร
- ๓๒) นายณัฐดนัย กฤษณะโสม
- ๓๓) นายศุภชัย สุขใหม่
- ๓๔) นายรอมฎอน เหลี่ยมมาตร
- ๓๕) นางสาวสุภาวดี บัวแก้ว
- ๓๖) นางสาวมาเรียณี อาแว
- ๓๗) นางสาววิระยา ปิจฉิมบุรณ์
- ๓๘) นางสาวศลิษา อินทรีย์

- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๑
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๓
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๔
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๕
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๖
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๗
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๘
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๙
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๐
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๑
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๒
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๓
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๔
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๕
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๖
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๗
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๘
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๙
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๐
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๑
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๒
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๓
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๔
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๕
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๖
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๗
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๘
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๙
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๐
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๑
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๒
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๓
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๔
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๕
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๖
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๗
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๘
- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๙

3/10/1

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอต จำกัด

เลขทะเบียน ว-๒๓๙

ที่อก ๐๓๑๐(๑)/ ๑๑ ๐ ๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๕ รายการ

น้ำเสีย จำนวน 45 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
2	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
3	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
4	α-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
5	β-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
6	δ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
7	γ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

3/10/1

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
8	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method ^[4] 2) 5-Day BOD Test, Membrane Electrode Method ^[4]
9	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]
10	Chemical Oxygen Demand	1) Open Reflux, Titrimetric method ^[4] 2) Closed Reflux, Colorimetric method ^[4] 3) Closed Reflux, Titrimetric Method ^[4]
11	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
12	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]
13	Color	ADMI Weighted-Ordinate Spectrophotometric Method ^[4]
14	Copper	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]
15	Cyanide	Distillation, Colorimetric method ^[4]
16	4,4'-DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	4,4'-DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
18	4,4'-DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
19	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
20	Endosulfan I	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
21	Endosulfan II	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
22	Endosulfan Sulfate	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
23	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
24	Endrin Aldehyde	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
25	Formaldehyde	Distillation, Colorimetric Method ^[3]
26	Free Chlorine	1) Iodometric Method ^[4] 2) DPD Colorimetric Method ^[4]
27	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
28	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
29	Hexavalent Chromium	1) Colorimetric Method ^[4] 2) Extraction, Air-Acetylene Flame Method ^[4]
30	Lead	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]
31	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]
32	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]
33	Methoxychlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
34	Nickel	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion...

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		3) Digestion, Inductively Coupled Plasma Method ^[4]
35	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method ^[4] 2) Soxhlet Extraction Method ^[4]
36	pH	Electrometric Method ^[4]
37	Phenols	1) Distillation, Chloroform Extraction Method ^[4] 2) Distillation, Direct Photometric Method ^[4]
38	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
39	Sulfide	1) Iodometric method ^[4] 2) Methylene blue method ^[4]
40	Temperature	Laboratory and Field Methods ^[4]
41	Total Dissolved Solids	Dried at 180 °C ^[4]
42	Total Kjeldahl Nitrogen	1) Macro Kjeldahl Method ^[4] 2) Semi-Micro Kjeldahl Method ^[4]
43	Total Suspended Solids	Dried at 103-105 °C ^[4]
44	Trivalent Chromium	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^[4] 3) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ^[4]
45	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4] 3) Digestion...

น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
2	Acetone	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
3	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
5	Antimony	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
8	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
10	Benzene	Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ 31mg)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
16	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
19	Bromodichloromethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
20	Bromoform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
21	Butanol	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
23	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
25	Carbon disulfide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
26	Carbon tetrachloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾ 31mg)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
29	Chlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
30	Chlorodibromomethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
31	Chloroform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
33	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
34	Chromium (III)	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method; Colorimetric Method; Calculation ^[4]
35	Chromium (VI)	1) Colorimetric Method ^[4] 2) Extraction, Air-Acetylene Flame Method ^[4]
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] <i>สม)</i>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
37	Cyanide	1) Distillation, Titrimetric Method ^[4] 2) Distillation, Colorimetric Method ^[4]
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
39	DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
40	DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
41	DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
43	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
44	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
45	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
46	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
47	3,3'-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
48	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
49	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4] <i>สม)</i>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
50	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
51	cis-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
52	trans-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
54	1,2-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
55	1,3-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
56	1,3-Dichloropropene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
57	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
58	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
63	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
64	Endosulfan	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid...

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
65	Endrin	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾ 1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
66	Ethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
69	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
70	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
72	Hexachloro-1,3-butadiene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
73	n-Hexane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
74	α-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
75	β-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid...

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
77	Hexachlorocyclopentadiene	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
81	Lead	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
82	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
83	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]
84	Methanol	Purge and Trap Gas Chromatographic/Mass spectrometric Method ^[4]
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
86	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]

87 Methylene chloride...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
87	Methylene chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
90	Methyl tert-butyl ether	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
92	Nickel	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
95	N-Nitrosodi-n-propylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
96	Polychlorinated Biphenyls - PCB-1016 - PCB-1221 - PCB-1232 - PCB-1242 - PCB-1248 - PCB-1254 - PCB-1260	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
98	pH	Electrometric method ^[4]

99 Phenanthrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
100	Phenol	1) Distillation, Chloroform Extraction Method ^[4] 2) Distillation, Direct Photometric Method ^[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
102	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
103	Silver	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
104	Styrene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
105	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
106	Tetrachloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
107	Toluene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
108	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[12,25]
109	TPH (C ₉ -C ₁₆)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[9,21] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[9,25]
110	TPH (C ₁₆ -C ₃₅)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[9,21] <i>วิธีนี้</i>

2) Separatory...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[9,25]
111	1,2,4-Trichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
112	1,1,1-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
113	1,1,2-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
114	Trichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
115	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
116	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
117	1,3,5-Trimethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
118	Vanadium	Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
119	Vinyl acetate	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
120	Vinyl chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
121	m-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
122	o-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
123	p-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
124	Xylene (Total)	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4] <i>วิธีนี้</i>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
125	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]

อากาศเสีย (ปล่อยระบาย) จำนวน 27 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
2	Arsenic	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
3	Beryllium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
4	Cadmium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
5	Carbon monoxide	Instrumental Analyzer Method ^[5]
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]
7	Chromium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] <i>เพิ่ม</i>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
8	Cobalt	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
9	Copper	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
10	Cresol	Adsorption Sampling, Gas Chromatographic Method ^[5]
11	Dioxin/Furans	Isokinetic Sampling ^[5]
12	Hydrogen chloride	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ^[5]
15	Lead	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
16	Manganese	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
17	Mercury	Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[5]
18	Nickel	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] <i>เพิ่ม</i>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Opacity	Ringelmann's Method ^[2]
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic acid Method ^[5] 2) Absorption Sampling, Ion Chromatographic Method ^[5] 3) Instrumental Analyzer Method ^[5]
21	Selenium	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
22	Sulfur dioxide	1) Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5] 2) Absorption Sampling, Barium-Thorin Titrimetric Method ^[5] 3) Instrumental Analyzer Method ^[5]
23	Sulfuric acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5]
24	Tin	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
25	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method ^[5] 2) Paired Train, Isokinetic Sampling, Gravimetric Method ^[5]
26	Vanadium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
27	Xylene	1) Adsorption Sampling, Gas Chromatographic Method ^[5] 2) Adsorption Sampling, Gas Chromatographic/Mass Spectrometric Method ^[5]

สิ่งปฏิกูล...

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,6,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,6,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
2	Antimony	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
3	Arsenic	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
4	Barium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15]

2) Waste Extraction...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
7	Chlordane	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
8	Chromium	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27] 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] <i>เพิ่ม</i>

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
9	Chromium (III)	3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation ^[1,6,15,17] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation ^[1,6,14,17]
10	Chromium (VI)	3) Digestion, Flame Atomic Absorption Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation ^[7,8,15,17] 4) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation ^[7,8,14,17]
11	Cobalt	1) Waste Extraction, Colorimetric Method ^[1,17] 2) Alkaline Digestion, Colorimetric Method ^[8,17]
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] <i>เพิ่ม</i>

13 2,4-D...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	2,4-D	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,25]
14	DDD	2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[25] 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]

17 Dieldrin...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
20	Lead	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14]

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
21	Lindane	3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[1,18] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[19] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]


24 Molybdenum...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
25	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
26	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,23] 2) Soxhlet Extraction, Gas Chromatographic Method ^[10,23]
27	Pentachlorophenol	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,25] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[25]
28	pH	Electrometric Method ^[31,32]
29	Selenium	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,20] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20]


4) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
30	Silver	4) Digestion, Inductively Coupled Plasma Method ^(7,14) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
31	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
32	Trichloroethylene	1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(1,12,26) 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(12,26)
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 4) Digestion, Inductively Coupled Plasma Method ^(7,14)

ดิน จำนวน 124 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27) 

2 Acetone...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
2	Acetone	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
3	Aldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
4	Anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
5	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,16) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,16) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
7	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method ^(11,24)
8	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
9	Benz(a)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
10	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
11	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
12	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
13	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27) 

14 Benzo(a)pyrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Benzo(a)pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
15	Benzo(g,h,i)perylene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
16	Beryllium	Digestion, Inductively Coupled Plasma Method ^(7,14)
17	Bis(2-chloroethyl)ether	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
18	Bis(2-ethylhexyl)phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
22	Butyl benzyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
23	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
24	Carbazole	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
27	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
31	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
32	2-Chlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
33	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
34	Chromium (III)	1) Digestion, Flame Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^(7,8,15,17) 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ^(7,8,14,17)
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^(8,17)
36	Chrysene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
37	Cyanide	1) Extraction, Distillation, Titrimetric Method ^(28,29,30) 2) Extraction, Distillation, Colorimetric Method ^(28,29,30)
38	2,4-D	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽²⁴⁾
39	DDD	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
41	DDT	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
42	Dibenz(a,h)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
43	Di-n-butyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
47	3,3'-Dichlorobenzidine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
53	2,4-Dichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)

54 1,2-Dichloropropane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
57	Dieldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
58	Diethyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
59	2,4-Dimethylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
60	2,4-Dinitrophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
61	2,4-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
62	2,6-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
63	Di-n-Octyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
64	Endosulfan	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
65	Endrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)

67 Fluoranthene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
67	Fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
68	Fluorene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
69	Heptachlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
70	Heptachlor epoxide	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
71	Hexachlorobenzene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
74	α-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
75	β-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
76	γ-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
77	Hexachlorocyclopentadiene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27) <i>simul</i>

78 Hexachloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
78	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
79	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
80	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
81	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
82	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁹⁾ 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
84	Methanol	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^(11,21)
85	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
86	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
87	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
88	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
89	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27) <i>simul</i>

90 Methyl tert-butyl ether...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
90	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
91	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
92	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
93	Nitrobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
94	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
95	N-Nitrosodi-n-propylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
96	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	Soxhlet Extraction, Gas Chromatographic Method ^(10,23)
97	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽²⁴⁾
98	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
99	Phenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
100	Pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
101	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,20)

2) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Digestion, Inductively Coupled Plasma Method ^(7,14)
102	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
103	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
106	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
107	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
108	TPH (C ₈ -C ₁₆)	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,21) 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^(10,26)
109	TPH (C ₁₆ -C ₃₅)	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,21) 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^(10,26)
110	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
111	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
112	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
113	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)

114 2,4,5-Trichlorophenol...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
114	2,4,5-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
115	2,4,6-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
116	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
117	Vanadium	Digestion, Inductively Coupled Plasma Method ^(7,14)
118	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass spectrometric Method ^(13,26)
119	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
120	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
121	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
122	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
123	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
124	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14) <i>สีทอง</i>

เอกสารอ้างอิง

- กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2548. เรื่อง การกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว.ราชกิจจานุเบกษา. 25 มกราคม 2549. เล่มที่ 123 ตอนพิเศษ 11ง.
- กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2549. เรื่อง กำหนดค่าปริมาณเขม่าควันที่เจือปนในอากาศที่ระบายออกจากปล่องของหม้อน้ำโรงสีข้าวที่ใช้แก๊สเป็นเชื้อเพลิง.ราชกิจจานุเบกษา. 4 ธันวาคม 2549. เล่มที่ 123 ตอนพิเศษ 125ง.
- สมาคมวิศวกรรมสิ่งแวดล้อมแห่งประเทศไทย. คู่มือวิเคราะห์น้ำเสีย. พิมพ์ครั้งที่ 4. กรุงเทพฯ: เรือนแก้วกราฟิกส์, 2547.

- APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 23rd ed. Washington, DC: APHA, 2017.
- United States Environmental Protection Agency. Standards of Performance for New Stationary Sources. 40 CFR 60. Appendix A, 2023.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SW-846, 2020.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Acid Digestion of Sediments, Sludges, and Soils. SW-846 Method 3050B, 1996.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Alkaline Digestion for Hexavalent Chromium. SW-846 Method 3060A, 1996.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Separatory Funnel Liquid-Liquid Extraction. SW-846 Method 3510C, 1996.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Soxhlet Extraction. SW-846 Method 3540C, 1996.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Ultrasonic Extraction. SW-846 Method 3550C, 2007.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Purge-and-Trap for Aqueous Samples. SW-846 Method 5030C, 2003.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples. SW-846 Method 5035, 1996.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-optical Emission Spectrometry. SW-846 Method 6010D, 2018.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Flame Atomic Absorption Spectrophotometry. SW-846 Method 7000B, 2007.
- United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Antimony and Arsenic (Atomic Absorption, Borohydride Reduction). SW-846 Method 7062, 1994. *สีทอง*

17. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Chromium, Hexavalent (Colorimetric), SW-846 Method 7196A, 1992.

18. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Liquid Waste (Manual Cold-Vapor Technique, SW-846 Method 7470A, 1994.

19. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique, SW-846 Method 7471B, 2007.

20. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Selenium (Atomic Absorption, Borohydride Reduction), SW-846 Method 7742, 1994.

21. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Nonhalogenated Organics Using GC/FID. SW-846 Method 8015D, 2003.


22. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Organochlorine Pesticide by Gas Chromatography. SW-846 Method 8081B, 2007.

23. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Polychlorinated Biphenyls (PCBs) By Gas Chromatography. SW-846 Method 8082A, 2007.

24. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Organophosphorus Compounds by Gas Chromatography. SW-846 Method 8141B, 2007.

25. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Chlorinated Herbicides By GC Using Methylation or Pentafluorobenzoylation Derivatization. SW-846 Method 8151A, 1996.

26. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS). SW-846 Method 8260D, 2018.

27. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SemiVolatile Organic Compounds by Gas Chromatography/Mass Spectrometry. SW-846 Method 8270E, 2018. 


28. United States...

28. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Total and Amenable Cyanide: Distillation. SW-846 Method 9010C, 2004.

29. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide Extraction Procedure for Solids and Oils. SW-846 Method 9013A, 2014.

30. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide in Waters and Extracts Using Titrimetric and Manual Spectrophotometric. SW-846 Method 9014, 2014.

31. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. pH Electrometric Measurement. SW-846 Method 9040C, 2004.

32. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Solid and Waste pH. SW-846 Method 9045D, 2004. 



ที่ อก ๐๓๑๐(๑)/ ๕๐๕๔

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๗ พฤษภาคม ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคोट จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๑ พฤษภาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท ซีคोट จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙
สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร
ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๒ ราย ได้แก่

๑) นายวัชรกานต์ ประมาคะเต

ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๕

๒) นายรัตนชัย ชอบทำกิจ

ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๐

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

ก

(นายพรยศ กลั่นกรอง)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ภาคผนวก ข

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่าย
การรับรองห้องปฏิบัติการทดสอบตาม ISO/IEC 17025
จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)



แบบ กษช./สมอ.๖
Form NSC/TISI 2

ใบรับรองเลขที่ 24-LB0026
(Certificate No.)

ใบรับรองระบบงาน (Certificate of Accreditation)

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑
(By Virtue of National Standardization Act B.E. 2551 (2008))

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้
(Issues this certificate to)

บริษัท ซีคอต จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

ตั้งอยู่เลขที่
(Address)

๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
(239 Rimklongprapa Road, Bangsue, Bangkok)

ได้รับการรับรองความสามารถ
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๗๐๒๕ - ๒๕๖๑
(Standard No. TIS 17025-2561 (2018) (ISO/IEC 17025: 2017))

ข้อกำหนดทั่วไปว่าด้วยความสามารถของ ห้องปฏิบัติการทดสอบและห้องปฏิบัติการสอบเทียบ
(General requirements for the competence of testing and calibration laboratories)

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔
(Accreditation No. Testing 0394)

โดยมีรายละเอียดสาขาและขอบข่ายที่ได้ใบรับรอง แสดงไว้ใน QR CODE และ www.tisi.go.th
(Details of the scheme and scope of the certificate are shown in QR CODE and www.tisi.go.th)

ออกให้ ณ วันที่ ๖ ธันวาคม พ.ศ. ๒๕๖๖
(Issue date : 6 December B.E. 2566 (2023))


(นายวีระศักดิ์ เพ็งหล่ง)
(นายวีระศักดิ์ เพ็งหล่ง)

ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



Signed by สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม (สมอ.)
Thai Industrial Standards Institute (TISI)
Date: 2023-12-06T08:49:04.474+07:00
d68cbe6b

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry Thailand, Thai Industrial Standards Institute)



รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ชื่อห้องปฏิบัติการ
(Laboratory Name)
หมายเลขการรับรองที่
(Accreditation No.)

ฉบับที่ 02
(Issue No.02)

สถานภาพห้องปฏิบัติการ
(Laboratory status)

บริษัท ซีคอต จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

ทดสอบ 0394
(Testing 0394)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

☒ถาวร (Permanent) ☐นอกสถานที่ (Site) ☐ชั่วคราว (Temporary)

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

☐เคลื่อนที่ (Mobile) ☐หลายสถานที่ (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 1. น้ำและน้ำเสีย (water and wastewater)	- โลหะหนัก (heavy metals) • สารหนู (Arsenic, As) 0.000 5 mg/L ถึง 0.090 0 mg/L • สารหนู (Arsenic, As) 0.05 mg/L ถึง 4.50 mg/L • แบเรียม (Barium, Ba) 0.02 mg/L ถึง 4.50 mg/L • แคดเมียม (Cadmium, Cd) 0.01 mg/L ถึง 4.50 mg/L • โครเมียม (Chromium, Cr) 0.01 mg/L ถึง 4.50 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 F and Part 3114 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 E and Part 3120 B

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry, Thai Industrial Standards Institute)

หน้า 1/9

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02

(Issue No.02)

ออกให้ตั้งแต่วันที่

(Valid from)

30 ตุลาคม พ.ศ. 2566

(30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571

(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)</p>	<p>- โลหะหนัก (heavy metals)</p> <ul style="list-style-type: none"> ทองแดง (Copper, Cu) 0.02 mg/L ถึง 4.50 mg/L เหล็ก (Iron, Fe) 0.05 mg/L ถึง 9.00 mg/L ตะกั่ว (Lead, Pb) 0.03 mg/L ถึง 4.50 mg/L แมงกานีส (Manganese, Mn) 0.01 mg/L ถึง 9.00 mg/L นิกเกิล (Nickel, Ni) 0.01 mg/L ถึง 4.50 mg/L สังกะสี (Zinc, Zn) 0.02 mg/L ถึง 9.00 mg/L 	<p>- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23rd edition, 2017, Part 3030 E and Part 3120 B</p>

กระทรวงอุตสาหกรรมสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

(Ministry of Industry, Thai Industrial Standards Institute)

หน้าที่ 2/9

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02

(Issue No.02)

ออกให้ตั้งแต่วันที่

(Valid from)

30 ตุลาคม พ.ศ. 2566

(30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571

(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)</p>	<p>- ซีโอดี (Chemical oxygen demand, COD) 100 mg/L ถึง 4 000 mg/L</p>	<p>- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23rd edition, 2017, Part 5220 D</p>
<p>2. บริเวณทำงาน (workplace)</p>	<p>- ฝุ่นละอองรวม (Total dust) 0.10 mg/filter ถึง 2.00 mg/filter</p> <p>- ฝุ่นละอองขนาดเล็ก (Respirable dust) 0.10 mg/filter ถึง 2.00 mg/filter</p>	<p>- NIOSH Manual of Analytical Methods (NMAM), method 0500, 4th edition, 15th August 1994 (Exclude Sampling)</p> <p>- NIOSH Manual of Analytical Methods (NMAM), method 0600, 4th edition, 15th January 1998 (Exclude Sampling)</p>

กระทรวงอุตสาหกรรมสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

(Ministry of Industry, Thai Industrial Standards Institute)

หน้าที่ 3/9

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>2. บริเวณทำงาน (ต่อ) (workplace) (cont.)</p>	<ul style="list-style-type: none"> เบนซีน (Benzene) 1.10 µg/tube ถึง 420 µg/tube โทลูอีน (Toluene) 1.10 µg/tube ถึง 420 µg/tube โทไทรไซลีน (Total xylenes) 2.20 µg/tube ถึง 840 µg/tube เมตา, พารา-ไซลีน (m, p- Xylene) 1.10 µg/tube ถึง 420 µg/tube ออร์โธ-ไซลีน (o- Xylene) 1.10 µg/tube ถึง 420 µg/tube 	<ul style="list-style-type: none"> NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4th edition , 15th March 2003 (Exclude Sampling)
<p>3. ปล่องระบายอากาศ (stack)</p>	<ul style="list-style-type: none"> ซัลเฟอร์ไดออกไซด์ (Sulfur dioxide) 1.00 mg/L ถึง 16 000 mg/L (solution) 	<ul style="list-style-type: none"> US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A , method 6 , July 2019 (Exclude Sampling)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>3. ปล่องระบายอากาศ (ต่อ) (stack) (cont.)</p>	<ul style="list-style-type: none"> ไฮโดรเจนฟลูออไรด์ (Hydrogen fluoride) 5 µg/sample ถึง 400 µg/sample ไฮโดรเจนคลอไรด์ (Hydrogen chloride) 5 µg/sample ถึง 400 µg/sample 	<ul style="list-style-type: none"> WI-7.2-1-22 based on US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A, method 26 , 2019 (Exclude Sampling)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ฉบับที่ 02 (Issue No.02) ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566 (Valid from (30 October B.E.2566 (2023))) ถึงวันที่ 8 กันยายน พ.ศ. 2571 (Until (8 September B.E.2571 (2028)))
สถานภาพห้องปฏิบัติการ ☒ ถาวร (Laboratory status) (Permanent) ☒ นอกสถานที่ ☐ชั่วคราว (Site) (Temporary) ☐เคลื่อนที่ ☐หลายสถานที่ (Mobile) (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field)		
4. บรรยากาศทั่วไป (ambient air)	<ul style="list-style-type: none"> สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs) คลอโรอีเทน (Chloroethene) 0.05 $\mu\text{g}/\text{m}^3$ ถึง 51.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 1,3-บิวทาไดเอิน (1,3-butadiene) 0.04 $\mu\text{g}/\text{m}^3$ ถึง 44.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) โบรมอมีเทน (Bromomethane) 0.08 $\mu\text{g}/\text{m}^3$ ถึง 77.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) อะครอลีน (Acrolein) 0.05 $\mu\text{g}/\text{m}^3$ ถึง 45.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 	<p>WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ฉบับที่ 02 (Issue No.02) ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566 (Valid from (30 October B.E.2566 (2023))) ถึงวันที่ 8 กันยายน พ.ศ. 2571 (Until (8 September B.E.2571 (2028)))
สถานภาพห้องปฏิบัติการ ☒ ถาวร (Laboratory status) (Permanent) ☒ นอกสถานที่ ☐ชั่วคราว (Site) (Temporary) ☐เคลื่อนที่ ☐หลายสถานที่ (Mobile) (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field)		
4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	<ul style="list-style-type: none"> สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs) อะคริโลไนไตรล์ (Acrylonitrile) 0.04 $\mu\text{g}/\text{m}^3$ ถึง 43.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) ไดคลอโรมีเทน (Dichloromethane) 0.14 $\mu\text{g}/\text{m}^3$ to 69.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) คาร์บอนไดซัลไฟด์ (Carbon disulfide) 0.06 $\mu\text{g}/\text{m}^3$ ถึง 62.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) ไตรคลอโรมีเทน (Trichloromethane) 0.20 $\mu\text{g}/\text{m}^3$ ถึง 97.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 1,2-ไดคลอโรอีเทน (1,2-dichloroethane) 0.08 $\mu\text{g}/\text{m}^3$ ถึง 80.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 	<p>WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ฉบับที่ 02 (Issue No.02) ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566 (Valid from) (30 October B.E.2566 (2023)) ถึงวันที่ 8 กันยายน พ.ศ. 2571 (Until) (8 September B.E.2571 (2028))
สถานภาพห้องปฏิบัติการ ☒ถาวร (Permanent) ☒นอกสถานที่ (Site) ☐ชั่วคราว (Temporary) ☐เคลื่อนที่ (Mobile) ☐หลายสถานที่ (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs)</p> <ul style="list-style-type: none"> • เบนซีน (Benzene) 0.06 $\mu\text{g}/\text{m}^3$ ถึง 63.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) • คาร์บอนเตตระคลอไรด์ (Carbon tetrachloride) 0.25 $\mu\text{g}/\text{m}^3$ ถึง 125 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • ไตรคลอโรเอทิลีน (Trichloroethylene) 0.21 $\mu\text{g}/\text{m}^3$ ถึง 107 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,2-ไดคลอโรโพรเพน (1,2-dichloropropane) 0.18 $\mu\text{g}/\text{m}^3$ ถึง 92.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • เตตระคลอโรเอทิลีน (Tetrachloroethylene) 0.27 $\mu\text{g}/\text{m}^3$ ถึง 135 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ฉบับที่ 02 (Issue No.02) ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566 (Valid from) (30 October B.E.2566 (2023)) ถึงวันที่ 8 กันยายน พ.ศ. 2571 (Until) (8 September B.E.2571 (2028))
สถานภาพห้องปฏิบัติการ ☒ถาวร (Permanent) ☒นอกสถานที่ (Site) ☐ชั่วคราว (Temporary) ☐เคลื่อนที่ (Mobile) ☐หลายสถานที่ (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds ,VOCs)</p> <ul style="list-style-type: none"> • 1,2-ไดโบรมโออีเทน (1,2-dibromoethane) 0.31 $\mu\text{g}/\text{m}^3$ ถึง 153 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,1,2,2-เตตระคลอโรอีเทน (1,1,2,2-tetrachloroethane) 0.69 $\mu\text{g}/\text{m}^3$ ถึง 137 $\mu\text{g}/\text{m}^3$ (0.10 ppbv ถึง 20.00 ppbv) • เบนซิลคลอไรด์ (Benzyl chloride) 0.52 $\mu\text{g}/\text{m}^3$ ถึง 103 $\mu\text{g}/\text{m}^3$ (0.10 ppbv ถึง 20.00 ppbv) • 1,4-ไดคลอโรเบนซีน (1,4-dichlorobenzene) 0.24 $\mu\text{g}/\text{m}^3$ ถึง 120 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999</p>

ภาคผนวก ข

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน
จากกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๑๒๐๑-๐๓-๒๕๖๕-๐๐๕๙

อนุญาตให้ บริษัท พีคอส จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๘๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวง
กำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้น
ของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับ
กฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน
พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม

ข-๑๑-๐๒๐๑-๐๔๙-๐๑-๖๕

(ลงนาม)

(นายทะเบียน)

(นายศักดิ์ศิษฐ์ ตูลาธร)


ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๔

๑. นายจิตพล	สมประสงค์
๒. นายอนิวัฒน์	พินวันนา
๓. นายศิระนนท์	กุลวงษ์
๔. นายวิชรภานต์	ประมาคะเต
๕. นายธนโชติ	ช่างลือ
๖. นายกิตติพงศ์	ณะกิจสุข
๗. นายจิรวุฒน์	โคตรคำหาญ
๘. นายศุภกิจ	ติงมุกา
๙. นางสาวธัญลักษณ์	โยธา
๑๐. นางสาวพิชญ์สุดา	วรรณการ
๑๑. นางสาวสายธาร	ภูเขียว
๑๒. นายภาณุภูมิ	แทนไทย
๑๓. นายธนาวุฒิ	ด่วนแสง
๑๔. นายรัตนชัย	ชอบทำกิจ

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กบ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๔

อนุญาตให้ บริษัท ซีคอท จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๘๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวง
กำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้น
ของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับ
กฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน
พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

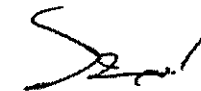
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

๑. นางสาววิสา	ภูธรเทชะชัย
๒. นางอารยา	ทิพรักษ์
๓. นางสาวศิริวรรณ	นิมสง่า
๔. นางสาวสุธาทิพย์	เทียนเตี้ย
๕. นางสาวพรนภา	บุตรธรรม
๖. นางสาวธารณี	อาจปลิว
๗. นางสาวกฤษณา	จันทร์
๘. นางสาวพัชรา	สมานสันต์
๙. นางสาวจนิสดา	ก้อยอ่อน
๑๐. นางสาวศศิภา	ใจดี
๑๑. นางสาวจุฑารัตน์	แจ่มเรือน
๑๒. นางสาวณัฐศิริ	เลิศธีรพัฒน์
๑๓. นางสาวสัญญาลักษณ์	อินทประสิทธิ์
๑๔. นางสาวสุดาพร	สุนทร

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ข-๑๑-๐๒๐๒-๐๓๔-๐๑-๖๕

(ลงนาม).....(นายทะเบียน)

(นายศักดิ์ศิลป์ ทุลาธร)

ผู้อำนวยการกองความปลอดภัยแรงงาน