ภาคผนวก ค

เอกสารประกอบการปฏิบัติตาม
มาตรการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

ภาคผนวก ค.1

แผนการสำรวจสภาพเศรษฐกิจ สังคม และความคิดเห็นของประชาชน ประจำปี พ.ศ. 2569

แผนงานการสำรวจความคิดเห็น (Social Survey)

ขั้นตอนการสำรวจ	เดือนที่ 1				เดือนที่ 2				เดือนที่ 3				เดือนที่ 4				เดือนที่ 5				เดือนที่ 6				เดือนที่ 7				เดือนที่ 8			
	เม.ย.69				พ.ค.69				มิ.ย.69				ก.ค.69				ส.ค.69				ก.ย.69				ต.ค.69				พ.ย.69			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. ประชุมเริ่มงาน	29/4																															
2. รวบรวมข้อมูลรายละเอียดโครงการ / ข้อมูลทุติยภูมิ จัดเตรียมแบบสอบถาม																																
3. ดำเนินการสำรวจสภาพเศรษฐกิจ สังคม และความคิดเห็นฯ 3.1 หน่วยงาน / พื้นที่อ่อนไหว /สถานประกอบการ/กลุ่มประมง 3.2 ผู้นำชุมชน / ผู้แทนครัวเรือน																																
4. วิเคราะห์ผลการสำรวจและจัดทำตารางผลการสำรวจ																																
5. จัดทำร่างรายงานผลการสำรวจ																																
6. จัดทำรายงานผลการสำรวจฉบับสมบูรณ์																																
7. จัดทำรายงานผลการสำรวจฉบับสมบูรณ์ ภาพรวมกลุ่มบริษัท																																

หมายเหตุ : แผนการจัดเตรียมข้อมูลและลงสำรวจความคิดเห็นประจำปี สามารถปรับระยะเวลาการดำเนินการได้ตามความเหมาะสม โดยจะหารือและตกลงร่วมกับ PTTGC

17. โครงการโรงงานผลิตสารฟีนอล บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 18

MOD 8

- สำรวจสภาพเศรษฐกิจ สังคม ภาวะการเปลี่ยนแปลง สภาพปัญหา และความต้องการระดับครัวเรือนและระดับชุมชน ตลอดจนความคิดเห็นของประชาชนผู้นำชุมชน/ผู้นำท้องถิ่น ผู้แทนหน่วยงานราชการที่เกี่ยวข้อง และสถานประกอบการระยะประชิดที่อยู่โดยรอบพื้นที่โครงการ พื้นที่อ่อนไหว และชุมชนที่เป็นจุดควรวัดคุณภาพสิ่งแวดล้อม รวมถึงให้สำรวจดัชนีความพึงพอใจของชุมชน (Community Satisfaction Index) พร้อมทั้งแสดงแผนที่การกระจายตัวในการเก็บข้อมูล	- วิธีการสำรวจและจำนวนตัวอย่าง เป็นไปตามหลักวิชาการและสถิติ ทั้งนี้ให้ทำการแบ่งกลุ่มตัวอย่างของผู้ที่ได้รับผลกระทบในพื้นที่ศึกษาออกเป็น 3 กลุ่ม ได้แก่ กลุ่มระยะประชิดติดโครงการ กลุ่มระยะใกล้โครงการ (พื้นที่ที่อยู่ใกล้โครงการรัศมี 0-3 กิโลเมตร) และกลุ่มระยะไกลโครงการ (พื้นที่ที่อยู่ไกลโครงการในรัศมี 3-5 กิโลเมตร)	- ชุมชนในพื้นที่โดยรอบโครงการ รัศมี 5 กิโลเมตรหรือมากกว่า ชุมชนที่ได้รับผลกระทบสิ่งแวดล้อม พื้นที่อ่อนไหวพิเศษ เช่น ที่ตั้งสถานพยาบาล ศาสนสถาน และโรงเรียน ศูนย์กลางหรือสถานที่สำคัญ เป็นต้น รวมทั้งสถานประกอบการข้างเคียง (รูปที่ 11)	- ปีละ 1 ครั้ง

กลุ่มเป้าหมาย	จำนวนตัวอย่าง
1. หน่วยงานราชการ	40
2. พื้นที่อ่อนไหว	144
3. กลุ่มประมงเรือเล็ก	45
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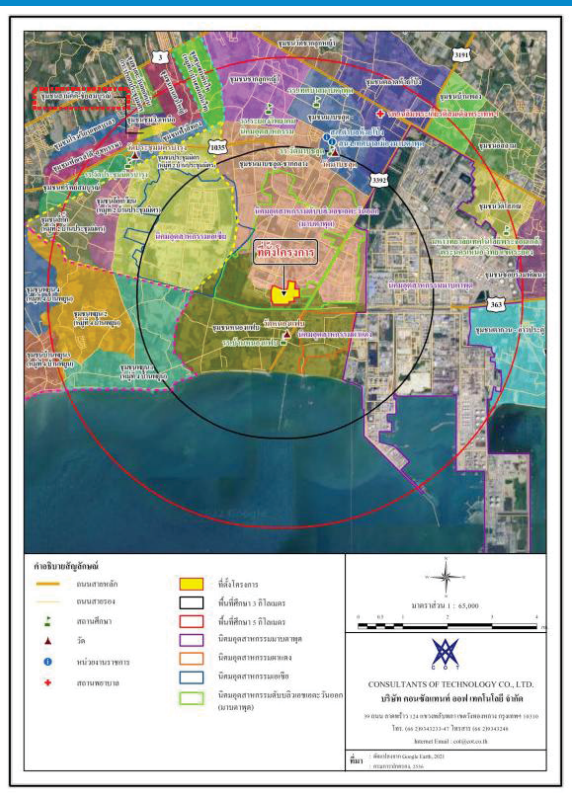
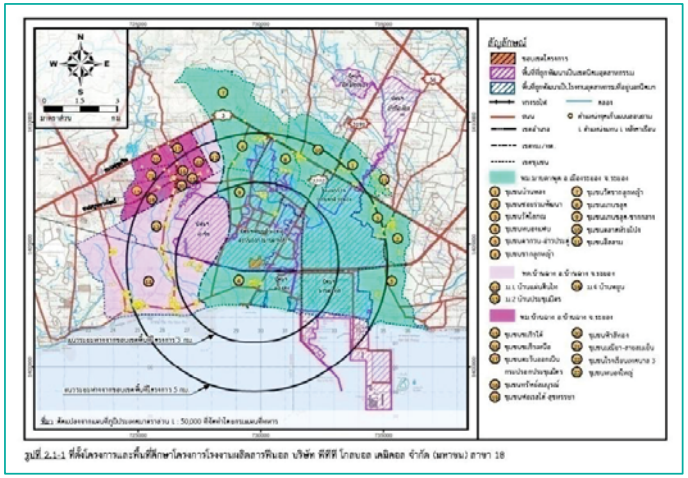
5. ผู้แทนครัวเรือน	408
6. สถานประกอบการ	9
รวม	715



Map EIA



Map Socio 2568

เขตการปกครอง	ชื่อชุมชน / หมู่บ้าน	ผู้นำชุมชน (ตัวอย่าง)	จำนวนกลุ่มครัวเรือน (ตัวอย่าง) จำนวนครัวเรือน[1/]	จากการคำนวณ	สำรวจจริง
รัศมี 0-3 กิโลเมตร จากขอบเขตพื้นที่โครงการฯ					
เทศบาลเมืองมาบตาพุด	หนองแฟบ	3	1226	46.330	47
	มาบชลูด-ชากกลาง	3	596	22.523	23
ทต.บ้านฉาง	หมู่ที่ 4 บ้านพยูน	3	4476	169.147	170
รวมรัศมี 0-3 กิโลเมตร จากขอบเขตพื้นที่โครงการฯ		**27**	**15,680**	**239**	**244**
รัศมี 3-5 กิโลเมตร จากขอบเขตพื้นที่โครงการฯ					
เทศบาลเมืองมาบตาพุด	ชากลูกหญ้า	3	2434	14.872	15
	ชอยร่วมพัฒนา	3	3057	18.678	19
	ตลาดห้วยโป่ง	3	2332	14.248	15
	ตากวน-อ่าวประดู่	3	1535	9.379	10
	บ้านพลง	3	1013	6.189	7
	มาบชลูด	3	3232	19.747	20
	วัดโสภณ	3	1729	10.564	11
	อิสลาม	3	1277	7.802	8
	วัดชากลูกหญ้า	3	1092	6.672	7
เทศบาลตำบลบ้านฉาง	หมู่ที่ 1 บ้านแผ่นดินไท	3	455	2.78	3
	หมู่ที่ 2 บ้านประชุมมิตร	3	2795	17.077	18
	ฟ้าสีทอง	3	153	0.935	1
	หนองใหญ่	3	540	3.299	4
เทศบาลเมืองบ้านฉาง	ชมวิวใต้	3	330	2.016	3
	ชมวิวเหนือ	3	476	2.908	3
	ทรัพย์สมบูรณ์	3	434	2.652	3
	ฟอเรสโต้-สุขหรรษา	3	1329	8.12	9
	มณียา-สายลมเย็น	3	271	1.656	2
	โรงเรียนเทศบาล3	3	645	3.941	4
	ตะวันออกเนินกระปรอก-ประชุมมิตร	3	894	5.462	6
รวมรัศมี 3-5 กิโลเมตร จากขอบเขตพื้นที่โครงการฯ		60	26,023	159	168
รวมรัศมี 5 กิโลเมตร		**69**	**32,321**	**397**	**408**

ภาคผนวก ง

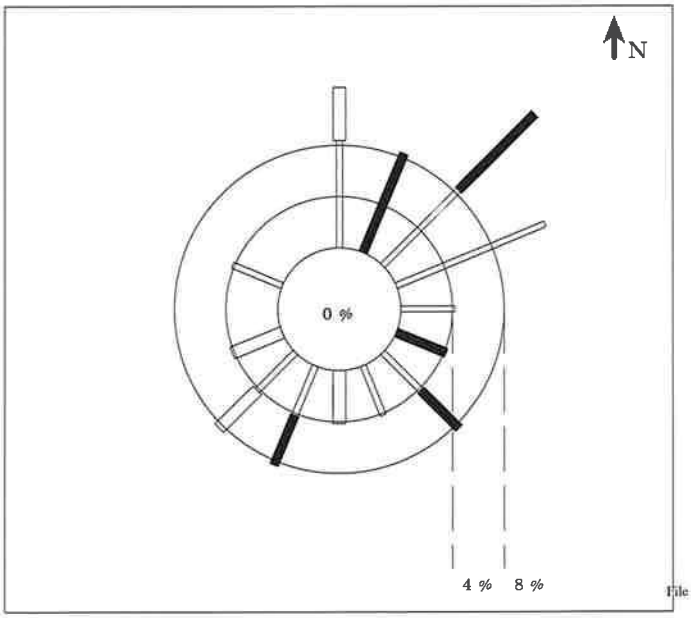
หนังสือรับรองผลการตรวจวัดคุณภาพสิ่งแวดล้อม

ใบรับรองผลการตรวจวัดทิศทางลมและความเร็วลม

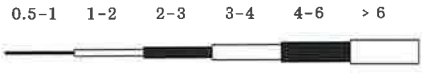
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 06-07 Jan 2026
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	0.0000	0.0833	0.0000	0.0417	0.0000	0.0000	0.1250
NNE	0.0000	0.0000	0.0833	0.0000	0.0000	0.0000	0.0833
NE	0.0000	0.0833	0.0833	0.0000	0.0000	0.0000	0.1667
ENE	0.0000	0.1250	0.0000	0.0000	0.0000	0.0000	0.1250
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0417	0.0417	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0000	0.0000	0.0417	0.0000	0.0000	0.0417
SSW	0.0000	0.0417	0.0417	0.0000	0.0000	0.0000	0.0833
SW	0.0000	0.0417	0.0000	0.0417	0.0000	0.0000	0.0833
WSW	0.0000	0.0000	0.0000	0.0417	0.0000	0.0000	0.0417
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 06-07 Jan 2026

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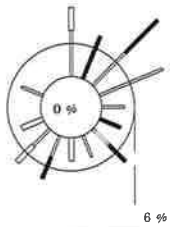
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 06-07 Jan 2026
Wind Speed Model : Novalynx WS-25
Serial No : A4905
Wind Direction Model : Novalynx WS-25
Serial No : A4905

Time	06-07 Jan 2026	
	WS(m/s)	WD
09:00 - 10:00	1.5	E
10:00 - 11:00	2.1	SE
11:00 - 12:00	1.5	SE
12:00 - 13:00	1.4	ENE
13:00 - 14:00	1.7	SSW
14:00 - 15:00	3.5	SW
15:00 - 16:00	3.2	N
16:00 - 17:00	2.4	SSW
17:00 - 18:00	1.2	SW
18:00 - 19:00	1.1	SSE
19:00 - 20:00	2.4	ESE
20:00 - 21:00	3.5	WSW
21:00 - 22:00	3.2	S
22:00 - 23:00	1.4	ENE
23:00 - 24:00	2.1	NNE
00:00 - 01:00	1.5	N
01:00 - 02:00	1.1	NE
02:00 - 03:00	1.5	N
03:00 - 04:00	1.4	WNW
04:00 - 05:00	1.7	NE
05:00 - 06:00	1.8	ENE
06:00 - 07:00	2.1	NE
07:00 - 08:00	2.5	NNE
08:00 - 09:00	2.4	NE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 06-07 Jan 2026

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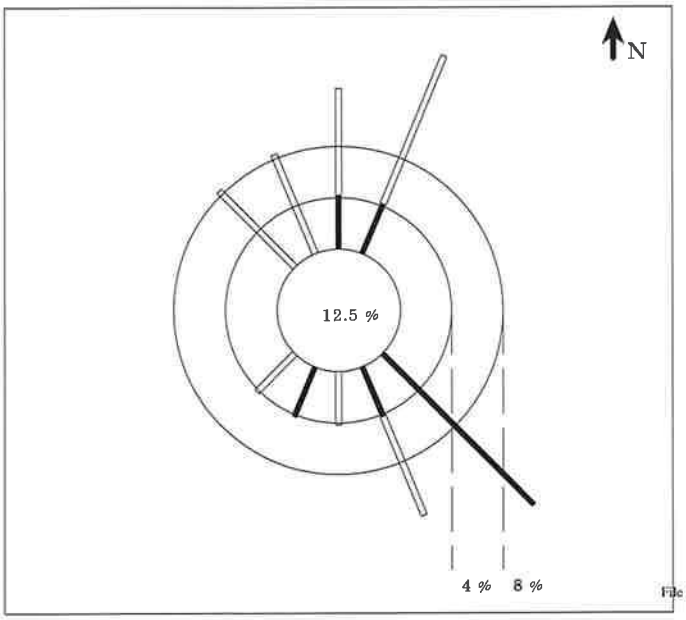
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 06-07 Jan 2026
Wind Speed Model : Novalynx NL-32
Serial No : 1208
Wind Direction Model : Novalynx NL-32
Serial No : 1208

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	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
NNE	0.0417	0.1250	0.0000	0.0000	0.0000	0.0000	0.1667
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.1667	0.0000	0.0000	0.0000	0.0000	0.0000	0.1667
SSE	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
S	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
NNW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
CALM	0.1250						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s

WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 06-07 Jan 2026

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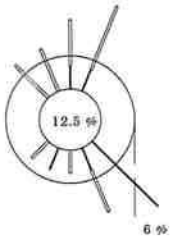
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)	**Monitor period** : 06-07 Jan 2026
Wind Speed Model : Novalynx NL-32	**Serial No** : 1208
Wind Direction Model : Novalynx NL-32	**Serial No** : 1208

Time	06-07 Jan 2026	
	WS(m/s)	WD
10:00 - 11:00	1.3	NNE
11:00 - 12:00	1.1	NNE
12:00 - 13:00	1.4	NNE
13:00 - 14:00	1.2	NNW
14:00 - 15:00	1.1	NNW
15:00 - 16:00	1.3	S
16:00 - 17:00	1.2	SW
17:00 - 18:00	1.3	NW
18:00 - 19:00	1.1	NW
19:00 - 20:00	1.4	SSE
20:00 - 21:00	0.9	SSE
21:00 - 22:00	0.8	SE
22:00 - 23:00	0.9	SSW
23:00 - 24:00	0.8	SE
00:00 - 01:00	0.4	ESE
01:00 - 02:00	0.6	NNE
02:00 - 03:00	0.6	N
03:00 - 04:00	0.4	N
04:00 - 05:00	0.4	NNE
05:00 - 06:00	0.6	SE
06:00 - 07:00	0.5	SE
07:00 - 08:00	1.3	SSE
08:00 - 09:00	1.2	N
09:00 - 10:00	1.6	N
Wind Rose		

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 06-07 Jan 2026

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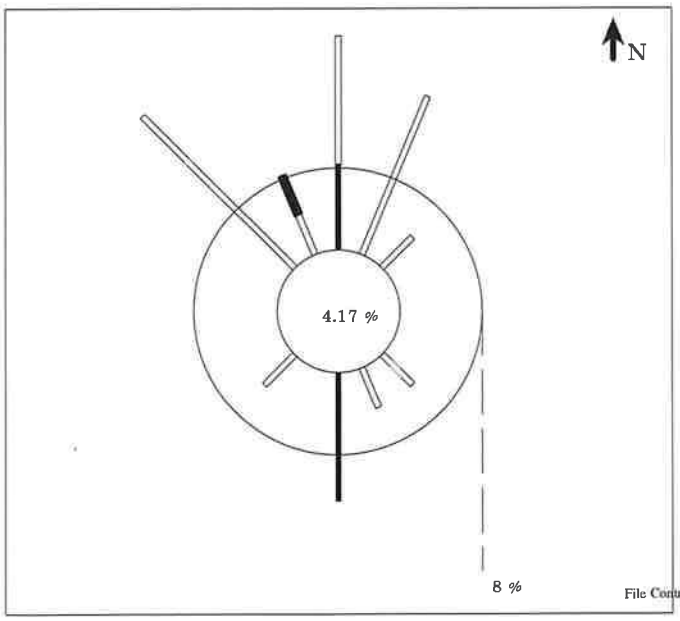
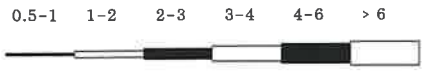
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 06-07 Jan 2026
Wind Speed Model : NRG Symphonie
Serial No : 309013914
Wind Direction Model : NRG Symphonie
Serial No : 309013914

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	0.0833	0.1250	0.0000	0.0000	0.0000	0.0000	0.2083
NNE	0.0000	0.1667	0.0000	0.0000	0.0000	0.0000	0.1667
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.2083	0.0000	0.0000	0.0000	0.0000	0.2083
NNW	0.0000	0.0417	0.0417	0.0000	0.0000	0.0000	0.0833
CALM	0.0417						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 06-07 Jan 2026

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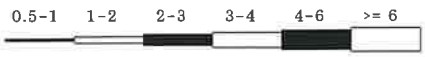
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 06-07 Jan 2026
Wind Speed Model : NRG Symphonie
Serial No : 309013914
Wind Direction Model : NRG Symphonie
Serial No : 309013914

Time	06-07 Jan 2026	
	WS(m/s)	WD
10:00 - 11:00	1.4	NW
11:00 - 12:00	1.2	N
12:00 - 13:00	1.1	SW
13:00 - 14:00	1.2	SSE
14:00 - 15:00	0.8	S
15:00 - 16:00	1.0	SE
16:00 - 17:00	0.7	S
17:00 - 18:00	0.5	S
18:00 - 19:00	0.4	W
19:00 - 20:00	0.5	N
20:00 - 21:00	0.7	N
21:00 - 22:00	1.1	NNE
22:00 - 23:00	2.0	NNW
23:00 - 24:00	1.9	NW
00:00 - 01:00	1.7	N
01:00 - 02:00	1.4	NW
02:00 - 03:00	1.3	NNE
03:00 - 04:00	1.4	NNE
04:00 - 05:00	1.4	N
05:00 - 06:00	1.7	NNW
06:00 - 07:00	1.4	NW
07:00 - 08:00	1.7	NW
08:00 - 09:00	1.8	NE
09:00 - 10:00	1.6	NNE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 06-07 Jan 2026

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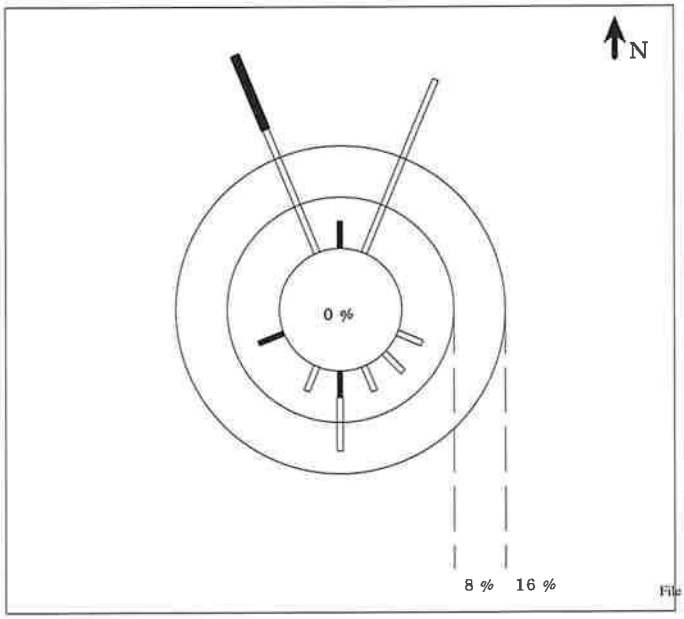
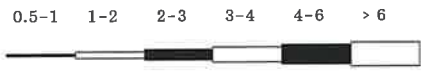
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 06-07 Jan 2026
Wind Speed Model : NRG Symphonie
Serial No : 30909366
Wind Direction Model : NRG Symphonie
Serial No : 30909366

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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.2917	0.0000	0.0000	0.0000	0.0000	0.2917
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
SSW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.2083	0.1250	0.0000	0.0000	0.0000	0.3333
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 06-07 Jan 2026

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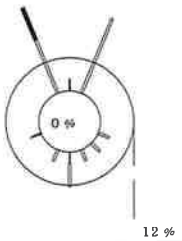
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 06-07 Jan 2026
Wind Speed Model : NRG Symphonie
Serial No : 30909366
Wind Direction Model : NRG Symphonie
Serial No : 30909366

Time	06-07 Jan 2026	
	WS(m/s)	WD
09:00 - 10:00	1.6	NNE
10:00 - 11:00	2.1	NNW
11:00 - 12:00	1.5	ESE
12:00 - 13:00	1.2	SSW
13:00 - 14:00	1.3	S
14:00 - 15:00	1.4	S
15:00 - 16:00	1.2	SE
16:00 - 17:00	1.1	SSE
17:00 - 18:00	0.7	S
18:00 - 19:00	0.5	WSW
19:00 - 20:00	0.6	N
20:00 - 21:00	1.1	NNE
21:00 - 22:00	1.5	NNW
22:00 - 23:00	2.0	NNW
23:00 - 24:00	2.1	NNW
00:00 - 01:00	1.9	NNW
01:00 - 02:00	1.8	NNW
02:00 - 03:00	1.5	NNE
03:00 - 04:00	1.6	NNW
04:00 - 05:00	1.9	NNW
05:00 - 06:00	1.8	NNE
06:00 - 07:00	1.6	NNE
07:00 - 08:00	1.9	NNE
08:00 - 09:00	1.9	NNE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 06-07 Jan 2026

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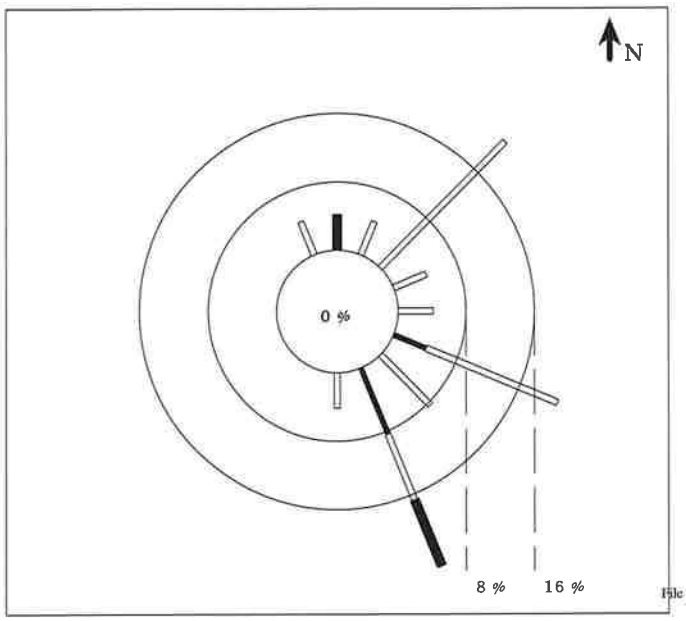
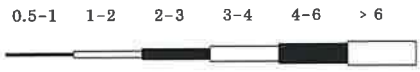
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie
Serial No : 309019737
Wind Direction Model : NRG Symphonie
Serial No : 309019737

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	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0000	0.2083	0.0000	0.0000	0.0000	0.0000	0.2083
ENE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0417	0.1667	0.0000	0.0000	0.0000	0.0000	0.2083
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0833	0.0833	0.0833	0.0000	0.0000	0.0000	0.2500
S	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 02-03 Feb 2026

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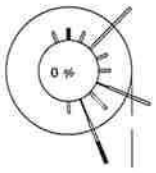
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)	**Monitor period** : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie	**Serial No** : 309019737
Wind Direction Model : NRG Symphonie	**Serial No** : 309019737

Time	02-03 Feb 2026	
	WS(m/s)	WD
10:00 - 11:00	1.5	ESE
11:00 - 12:00	1.9	SE
12:00 - 13:00	1.4	SSE
13:00 - 14:00	2.5	SSE
14:00 - 15:00	2.2	SSE
15:00 - 16:00	1.5	SSE
16:00 - 17:00	1.1	S
17:00 - 18:00	0.6	SSE
18:00 - 19:00	0.6	SSE
19:00 - 20:00	1.4	NE
20:00 - 21:00	1.2	E
21:00 - 22:00	1.1	ESE
22:00 - 23:00	1.2	SE
23:00 - 24:00	1.6	ESE
00:00 - 01:00	1.4	ESE
01:00 - 02:00	1.1	NNW
02:00 - 03:00	2.0	N
03:00 - 04:00	1.8	NE
04:00 - 05:00	1.9	NE
05:00 - 06:00	1.4	NE
06:00 - 07:00	1.1	NE
07:00 - 08:00	1.8	ENE
08:00 - 09:00	1.8	NNE
09:00 - 10:00	0.8	ESE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 02-03 Feb 2026

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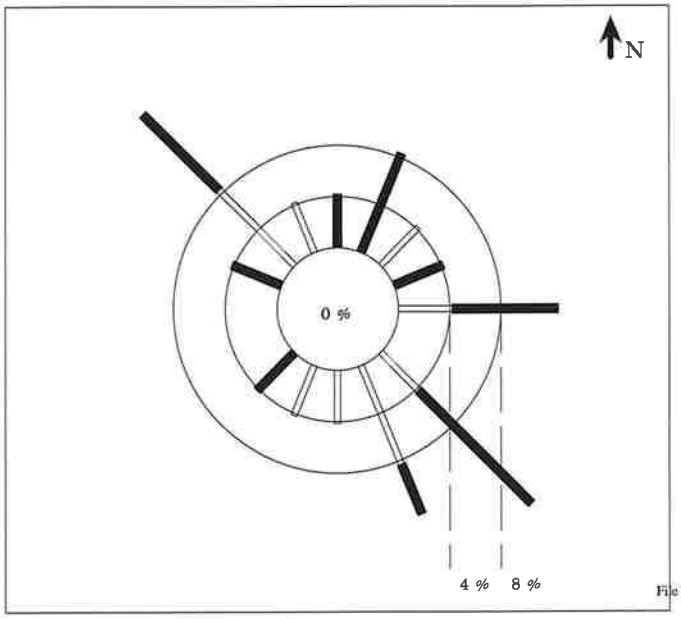
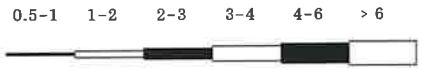
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie
Serial No : 309013914
Wind Direction Model : NRG Symphonie
Serial No : 309013914

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	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0000	0.0833	0.0000	0.0000	0.0000	0.0833
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0417	0.0833	0.0000	0.0000	0.0000	0.1250
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0417	0.1250	0.0000	0.0000	0.0000	0.1667
SSE	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
S	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0833	0.0833	0.0000	0.0000	0.0000	0.1667
NNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 02-03 Feb 2026

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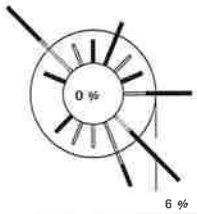
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)	**Monitor period** : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie	**Serial No** : 309013914
Wind Direction Model : NRG Symphonie	**Serial No** : 309013914

Time	02-03 Feb 2026	
	WS(m/s)	WD
11:00 - 12:00	1.6	E
12:00 - 13:00	2.0	SE
13:00 - 14:00	1.9	SSE
14:00 - 15:00	2.2	SE
15:00 - 16:00	2.6	SE
16:00 - 17:00	1.9	SE
17:00 - 18:00	1.9	SSE
18:00 - 19:00	2.0	E
19:00 - 20:00	2.0	N
20:00 - 21:00	1.2	NE
21:00 - 22:00	2.4	E
22:00 - 23:00	2.0	ENE
23:00 - 24:00	2.5	WNW
00:00 - 01:00	2.5	NNE
01:00 - 02:00	2.1	NW
02:00 - 03:00	1.6	NW
03:00 - 04:00	1.7	SSW
04:00 - 05:00	2.3	NNE
05:00 - 06:00	1.8	NW
06:00 - 07:00	2.0	NW
07:00 - 08:00	1.7	NNW
08:00 - 09:00	2.1	SSE
09:00 - 10:00	1.9	S
10:00 - 11:00	2.4	SW
Wind Rose		

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 02-03 Feb 2026

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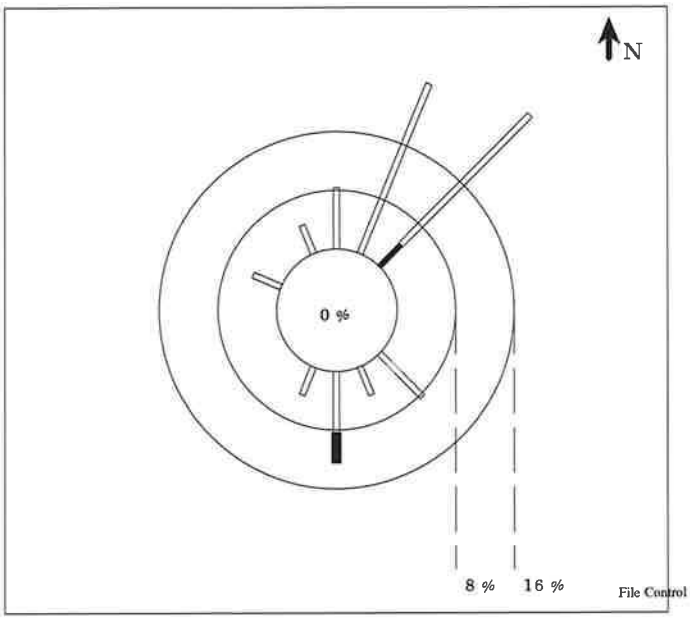
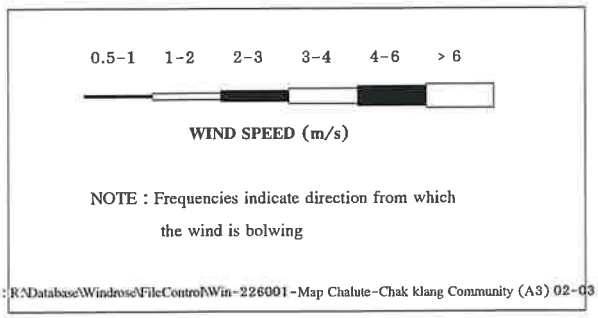
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie
Serial No : 309013230
Wind Direction Model : NRG Symphonie
Serial No : 309013230

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	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
NNE	0.0000	0.2500	0.0000	0.0000	0.0000	0.0000	0.2500
NE	0.0417	0.2500	0.0000	0.0000	0.0000	0.0000	0.2917
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
SSW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 02-03 Feb 2026

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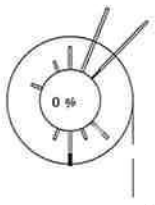
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie
Serial No : 309013230
Wind Direction Model : NRG Symphonie
Serial No : 309013230

Time	02-03 Feb 2026	
	WS(m/s)	WD
11:00 - 12:00	1.2	NE
12:00 - 13:00	1.1	SE
13:00 - 14:00	1.2	S
14:00 - 15:00	2.0	S
15:00 - 16:00	1.6	S
16:00 - 17:00	1.2	SSW
17:00 - 18:00	1.0	SE
18:00 - 19:00	1.3	NNW
19:00 - 20:00	1.4	N
20:00 - 21:00	1.1	NNE
21:00 - 22:00	1.1	WNW
22:00 - 23:00	1.2	NNE
23:00 - 24:00	1.3	NNE
00:00 - 01:00	1.1	NNE
01:00 - 02:00	1.2	N
02:00 - 03:00	1.2	NNE
03:00 - 04:00	1.4	NE
04:00 - 05:00	1.0	NE
05:00 - 06:00	1.2	NNE
06:00 - 07:00	1.5	NE
07:00 - 08:00	1.3	NE
08:00 - 09:00	0.8	NE
09:00 - 10:00	1.2	NE
10:00 - 11:00	1.2	SSE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 02-03 Feb 2026

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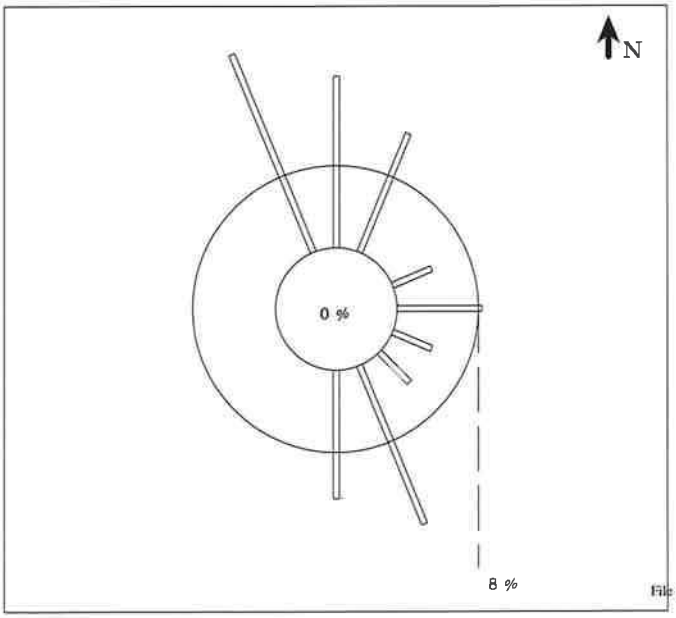
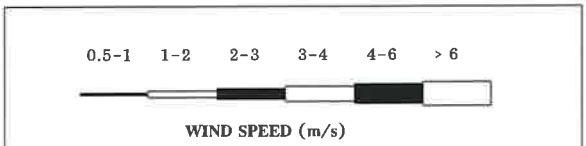
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie
Serial No : 309016178
Wind Direction Model : NRG Symphonie
Serial No : 309016178

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	0.0000	0.1667	0.0000	0.0000	0.0000	0.0000	0.1667
NNE	0.0000	0.1250	0.0000	0.0000	0.0000	0.0000	0.1250
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
ESE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.1667	0.0000	0.0000	0.0000	0.0000	0.1667
S	0.0000	0.1250	0.0000	0.0000	0.0000	0.0000	0.1250
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.2083	0.0000	0.0000	0.0000	0.0000	0.2083
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 02-03 Feb 2026

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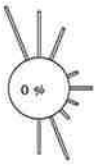
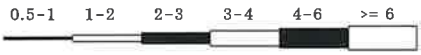
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)	**Monitor period** : 02-03 Feb 2026
Wind Speed Model : NRG Symphonie	**Serial No** : 309016178
Wind Direction Model : NRG Symphonie	**Serial No** : 309016178

Time	02-03 Feb 2026	
	WS(m/s)	WD
09:00 - 10:00	1.3	N
10:00 - 11:00	1.4	NNE
11:00 - 12:00	1.2	ESE
12:00 - 13:00	1.5	SSE
13:00 - 14:00	1.1	SSE
14:00 - 15:00	1.1	SSE
15:00 - 16:00	1.5	SSE
16:00 - 17:00	1.2	S
17:00 - 18:00	1.5	S
18:00 - 19:00	1.2	E
19:00 - 20:00	1.3	NNE
20:00 - 21:00	1.5	E
21:00 - 22:00	1.3	SE
22:00 - 23:00	1.0	ENE
23:00 - 24:00	1.2	NNW
00:00 - 01:00	1.6	NNE
01:00 - 02:00	1.5	NNW
02:00 - 03:00	1.3	NNW
03:00 - 04:00	1.1	N
04:00 - 05:00	1.6	N
05:00 - 06:00	1.2	NNW
06:00 - 07:00	1.4	NNW
07:00 - 08:00	1.5	N
08:00 - 09:00	1.4	S

Wind Rose





WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 02-03 Feb 2026

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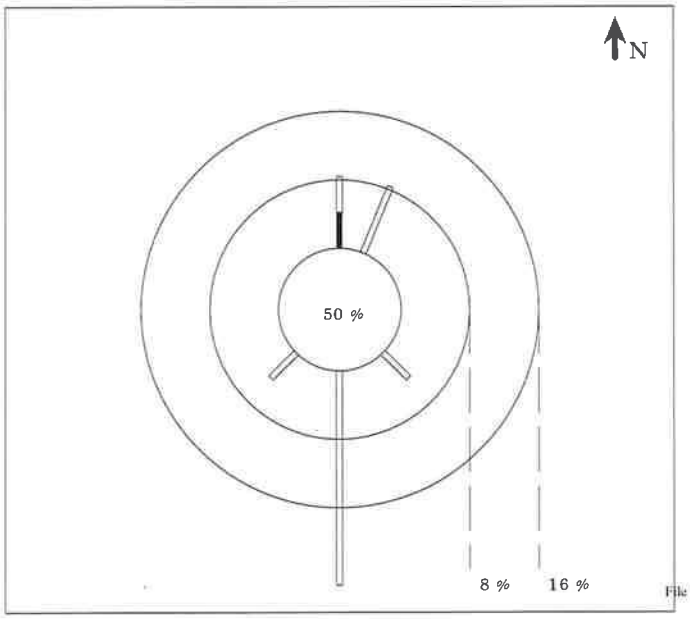
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:41
Wind Direction Model : Scarlet WS-21
Serial No : AD:41

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	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
NNE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.2500	0.0000	0.0000	0.0000	0.0000	0.2500
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.5000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s

WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 10-11 Mar 2026

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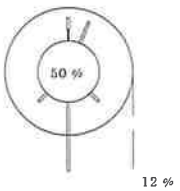
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:41
Wind Direction Model : Scarlet WS-21
Serial No : AD:41

Time	10-11 Mar 2026	
	WS(m/s)	WD
14:00 - 15:00	1.9	S
15:00 - 16:00	1.7	S
16:00 - 17:00	1.2	SW
17:00 - 18:00	0.4	WNW
18:00 - 19:00	0.2	E
19:00 - 20:00	0.1	E
20:00 - 21:00	0.1	E
21:00 - 22:00	0.1	NE
22:00 - 23:00	0.0	WSW
23:00 - 24:00	0.0	SE
00:00 - 01:00	0.0	S
01:00 - 02:00	0.0	S
02:00 - 03:00	0.0	S
03:00 - 04:00	0.0	SSW
04:00 - 05:00	0.2	SW
05:00 - 06:00	0.8	N
06:00 - 07:00	1.0	NNE
07:00 - 08:00	1.1	N
08:00 - 09:00	1.1	NNE
09:00 - 10:00	1.3	SE
10:00 - 11:00	1.7	S
11:00 - 12:00	1.8	S
12:00 - 13:00	1.7	S
13:00 - 14:00	1.8	S

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 10-11 Mar 2026

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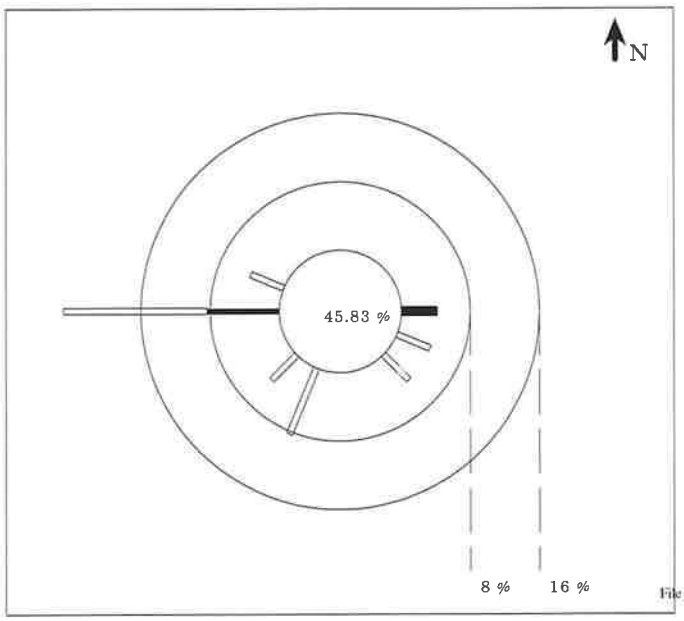
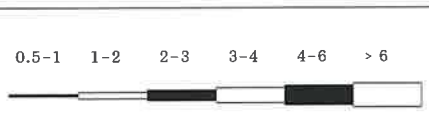
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:38
Wind Direction Model : Scarlet WS-21
Serial No : AD:38

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0833	0.1667	0.0000	0.0000	0.0000	0.0000	0.2500
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.4583						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 10-11 Mar 2026

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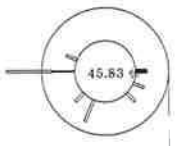
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:38
Wind Direction Model : Scarlet WS-21
Serial No : AD:38

Time	10-11 Mar 2026	
	WS(m/s)	WD
14:00 - 15:00	2.2	E
15:00 - 16:00	1.6	ESE
16:00 - 17:00	1.4	SE
17:00 - 18:00	1.0	SW
18:00 - 19:00	0.4	WSW
19:00 - 20:00	0.0	WSW
20:00 - 21:00	0.1	WSW
21:00 - 22:00	0.0	SW
22:00 - 23:00	0.0	WSW
23:00 - 24:00	0.1	W
00:00 - 01:00	0.1	WSW
01:00 - 02:00	0.0	SW
02:00 - 03:00	0.0	SW
03:00 - 04:00	0.0	SW
04:00 - 05:00	0.2	W
05:00 - 06:00	0.6	W
06:00 - 07:00	0.8	W
07:00 - 08:00	1.1	W
08:00 - 09:00	1.4	W
09:00 - 10:00	1.3	W
10:00 - 11:00	1.3	W
11:00 - 12:00	1.2	WNW
12:00 - 13:00	1.1	SSW
13:00 - 14:00	1.2	SSW

Wind Rose



12 %

0.5-1 1-2 2-3 3-4 4-6 >= 6

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 10-11 Mar 2026

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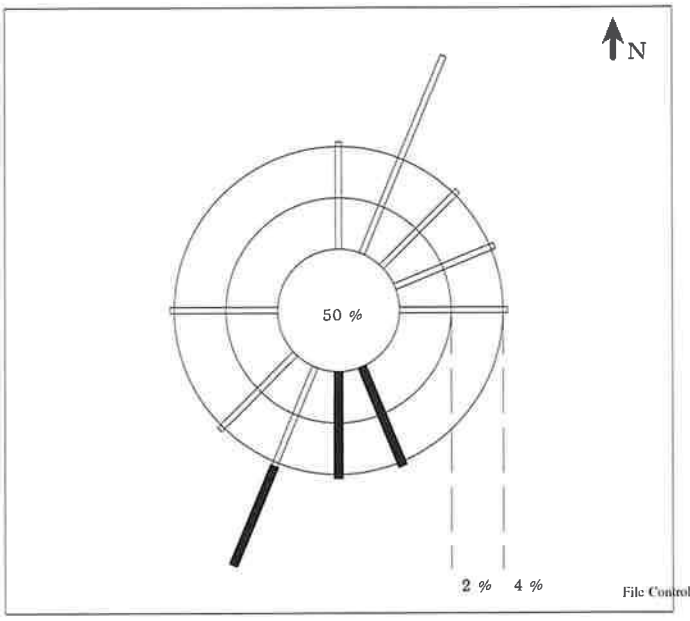
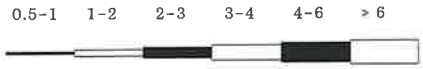
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:06
Wind Direction Model : Scarlet WS-21
Serial No : AD:06

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	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
SSW	0.0000	0.0417	0.0417	0.0000	0.0000	0.0000	0.0833
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.5000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 10-11 Mar 2026

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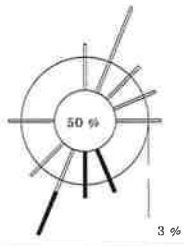
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:06
Wind Direction Model : Scarlet WS-21
Serial No : AD:06

Time	10-11 Mar 2026	
	WS(m/s)	WD
14:00 - 15:00	2.5	SSE
15:00 - 16:00	2.4	S
16:00 - 17:00	2.3	SSW
17:00 - 18:00	1.5	W
18:00 - 19:00	0.3	WNW
19:00 - 20:00	0.0	W
20:00 - 21:00	0.0	W
21:00 - 22:00	0.0	W
22:00 - 23:00	0.0	W
23:00 - 24:00	0.1	WNW
00:00 - 01:00	0.2	WNW
01:00 - 02:00	0.1	WNW
02:00 - 03:00	0.0	WNW
03:00 - 04:00	0.0	W
04:00 - 05:00	0.0	NW
05:00 - 06:00	0.3	N
06:00 - 07:00	1.0	NNE
07:00 - 08:00	1.2	N
08:00 - 09:00	1.3	NNE
09:00 - 10:00	1.4	ENE
10:00 - 11:00	1.4	NE
11:00 - 12:00	1.3	E
12:00 - 13:00	1.6	SW
13:00 - 14:00	1.8	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 10-11 Mar 2026

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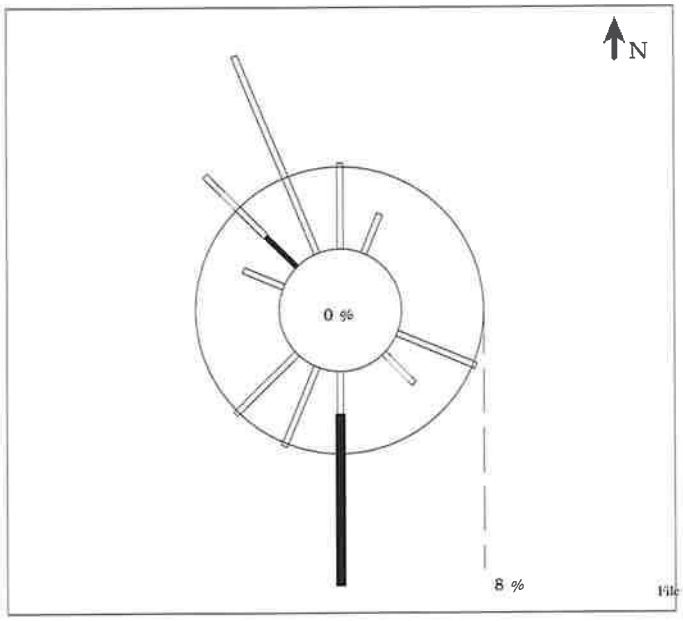
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:67
Wind Direction Model : Scarlet WS-21
Serial No : AD:67

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	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
NNE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0417	0.1667	0.0000	0.0000	0.0000	0.2083
SSW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
NNW	0.0000	0.2083	0.0000	0.0000	0.0000	0.0000	0.2083
CALM				0.0000			



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s

WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 10-11 Mar 2026

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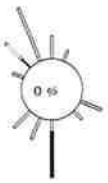
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 10-11 Mar 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:67
Wind Direction Model : Scarlet WS-21
Serial No : AD:67

Time	10-11 Mar 2026	
	WS(m/s)	WD
09:00 - 10:00	1.5	NNE
10:00 - 11:00	1.8	ESE
11:00 - 12:00	1.9	SE
12:00 - 13:00	2.8	S
13:00 - 14:00	2.5	S
14:00 - 15:00	2.3	S
15:00 - 16:00	2.1	S
16:00 - 17:00	1.6	S
17:00 - 18:00	1.0	SW
18:00 - 19:00	1.1	SW
19:00 - 20:00	1.3	SSW
20:00 - 21:00	1.5	SSW
21:00 - 22:00	1.0	NW
22:00 - 23:00	0.9	NW
23:00 - 24:00	1.0	NNW
00:00 - 01:00	1.0	ESE
01:00 - 02:00	1.1	N
02:00 - 03:00	1.7	NW
03:00 - 04:00	1.7	WNW
04:00 - 05:00	1.2	NNW
05:00 - 06:00	1.3	N
06:00 - 07:00	1.2	NNW
07:00 - 08:00	1.3	NNW
08:00 - 09:00	1.1	NNW

Wind Rose



0.5-1 1-2 2-3 3-4 4-6 >= 6

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 10-11 Mar 2026

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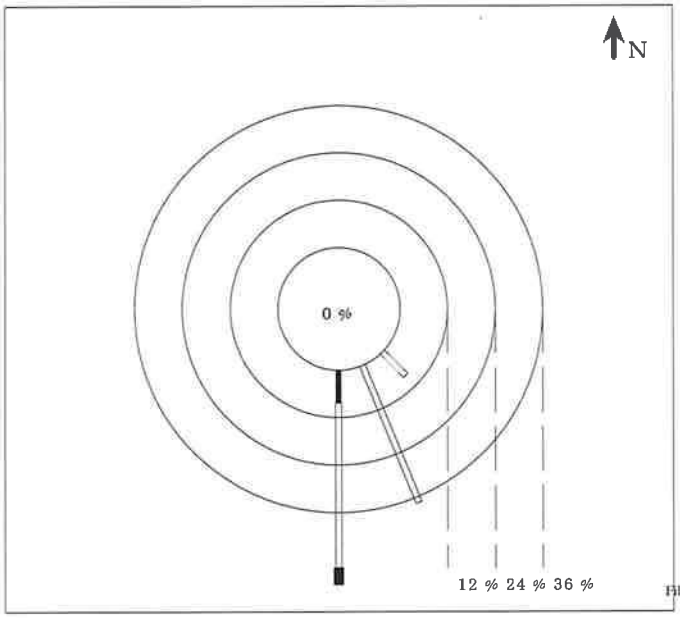
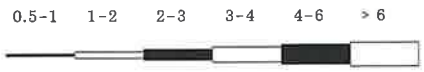
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5088
Wind Direction Model : Novalynx WS-25
Serial No : A5088

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.3750	0.0000	0.0000	0.0000	0.0000	0.3750
S	0.0833	0.4167	0.0417	0.0000	0.0000	0.0000	0.5417
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 02-03 Apr 2026

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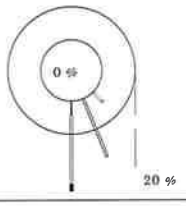
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5088
Wind Direction Model : Novalynx WS-25
Serial No : A5088

Time	02-03 Apr 2026	
	WS(m/s)	WD
10:00 - 11:00	1.0	S
11:00 - 12:00	1.2	SE
12:00 - 13:00	1.5	SSE
13:00 - 14:00	1.1	S
14:00 - 15:00	1.9	S
15:00 - 16:00	1.7	S
16:00 - 17:00	1.8	S
17:00 - 18:00	0.8	S
18:00 - 19:00	1.8	SSE
19:00 - 20:00	1.2	SSE
20:00 - 21:00	1.5	S
21:00 - 22:00	1.0	SSE
22:00 - 23:00	1.2	S
23:00 - 24:00	1.4	SSE
00:00 - 01:00	2.0	S
01:00 - 02:00	1.1	S
02:00 - 03:00	1.9	SSE
03:00 - 04:00	1.2	SE
04:00 - 05:00	1.4	SSE
05:00 - 06:00	1.9	SSE
06:00 - 07:00	1.1	SSE
07:00 - 08:00	1.5	S
08:00 - 09:00	1.4	S
09:00 - 10:00	0.8	S

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 02-03 Apr 2026

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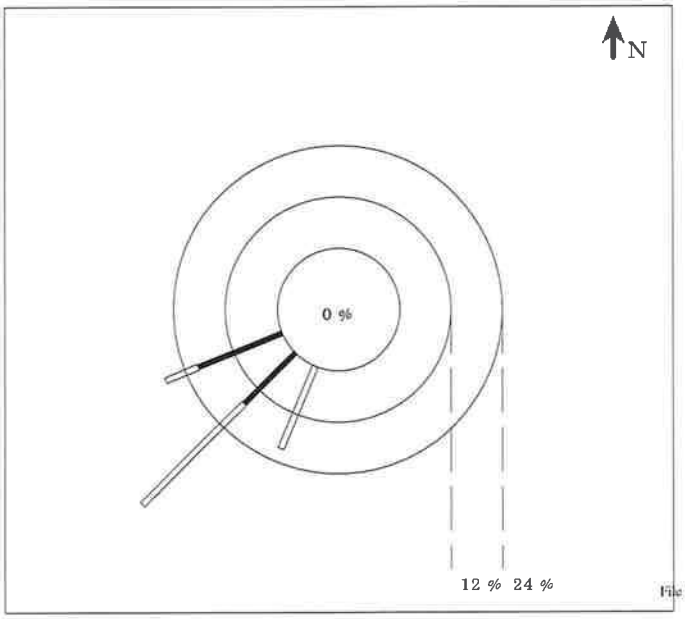
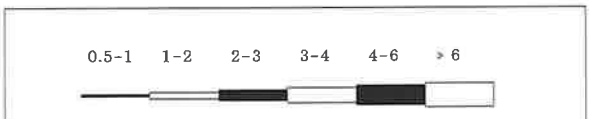
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A4904
Wind Direction Model : Novalynx WS-25
Serial No : A4904

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.2083	0.0000	0.0000	0.0000	0.0000	0.2083
SW	0.1667	0.3333	0.0000	0.0000	0.0000	0.0000	0.5000
WSW	0.2083	0.0833	0.0000	0.0000	0.0000	0.0000	0.2917
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : RADatabase\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 02-03 Apr 2026

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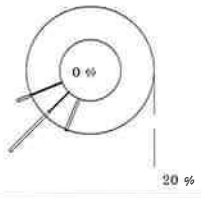
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A4904
Wind Direction Model : Novalynx WS-25
Serial No : A4904

Time	02-03 Apr 2026	
	WS(m/s)	WD
10:00 - 11:00	1.3	SW
11:00 - 12:00	1.4	SSW
12:00 - 13:00	0.9	SW
13:00 - 14:00	0.7	SW
14:00 - 15:00	0.8	WSW
15:00 - 16:00	1.2	SW
16:00 - 17:00	1.0	SW
17:00 - 18:00	1.2	WSW
18:00 - 19:00	1.0	SW
19:00 - 20:00	1.6	SSW
20:00 - 21:00	0.8	WSW
21:00 - 22:00	0.7	SW
22:00 - 23:00	1.6	SW
23:00 - 24:00	1.5	SSW
00:00 - 01:00	1.0	WSW
01:00 - 02:00	0.7	WSW
02:00 - 03:00	0.7	WSW
03:00 - 04:00	1.5	SSW
04:00 - 05:00	1.2	SW
05:00 - 06:00	1.1	SW
06:00 - 07:00	1.5	SSW
07:00 - 08:00	0.7	WSW
08:00 - 09:00	0.9	SW
09:00 - 10:00	1.4	SW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 02-03 Apr 2026

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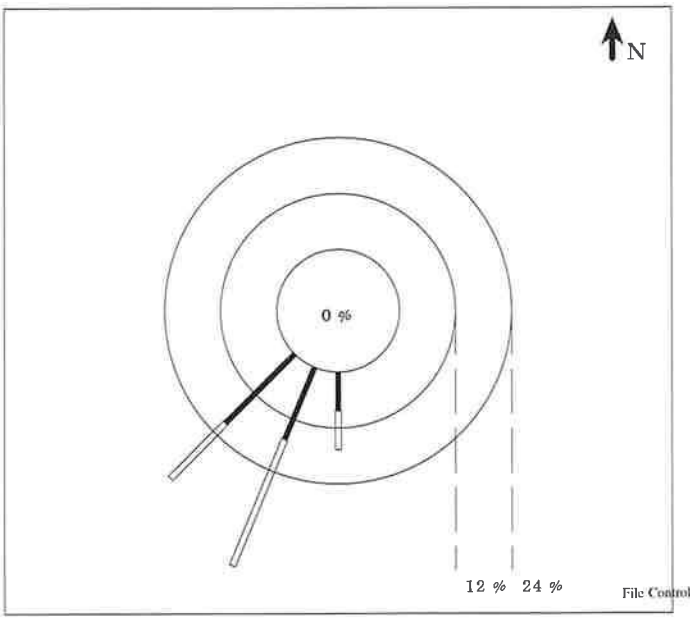
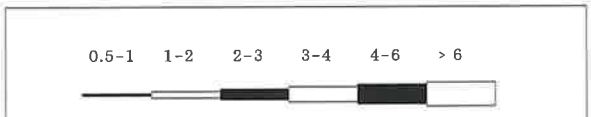
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5084
Wind Direction Model : Novalynx WS-25
Serial No : A5084

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0833	0.0833	0.0000	0.0000	0.0000	0.0000	0.1667
SSW	0.1667	0.2917	0.0000	0.0000	0.0000	0.0000	0.4583
SW	0.2083	0.1667	0.0000	0.0000	0.0000	0.0000	0.3750
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 02-03 Apr 2026

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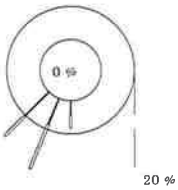
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5084
Wind Direction Model : Novalynx WS-25
Serial No : A5084

Time	02-03 Apr 2026	
	WS(m/s)	WD
10:00 - 11:00	0.8	SSW
11:00 - 12:00	1.3	SSW
12:00 - 13:00	1.5	SSW
13:00 - 14:00	0.8	SSW
14:00 - 15:00	1.0	SW
15:00 - 16:00	0.8	SSW
16:00 - 17:00	0.7	SW
17:00 - 18:00	1.1	SW
18:00 - 19:00	1.1	SSW
19:00 - 20:00	0.7	S
20:00 - 21:00	0.7	SW
21:00 - 22:00	1.1	SSW
22:00 - 23:00	1.1	SW
23:00 - 24:00	1.3	S
00:00 - 01:00	1.3	SW
01:00 - 02:00	0.8	SW
02:00 - 03:00	0.6	SW
03:00 - 04:00	1.4	S
04:00 - 05:00	1.1	SSW
05:00 - 06:00	1.2	SSW
06:00 - 07:00	0.6	S
07:00 - 08:00	0.8	SW
08:00 - 09:00	0.6	SSW
09:00 - 10:00	1.0	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 02-03 Apr 2026

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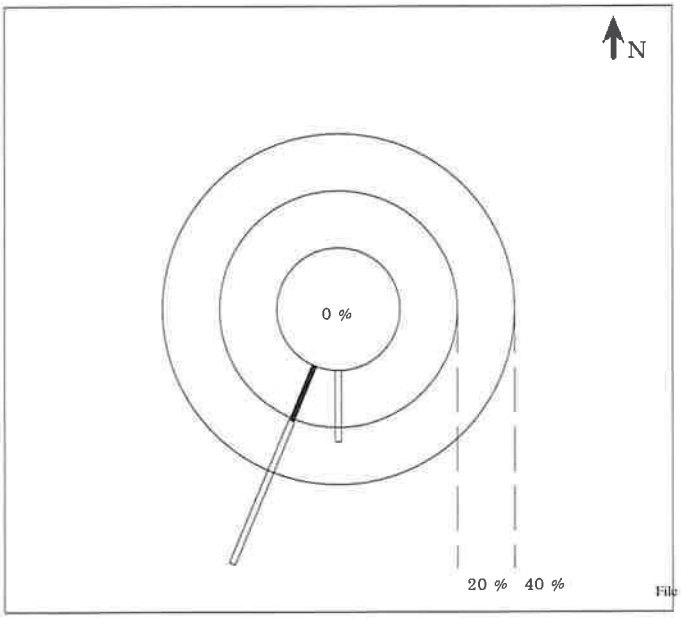
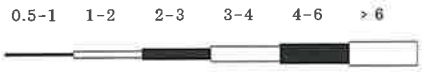
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5092
Wind Direction Model : Novalynx WS-25
Serial No : A5092

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.2500	0.0000	0.0000	0.0000	0.0000	0.2500
SSW	0.2083	0.5417	0.0000	0.0000	0.0000	0.0000	0.7500
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 02-03 Apr 2026

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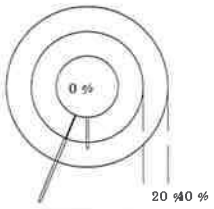
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 02-03 Apr 2026
Wind Speed Model : Novalynx WS-25
Serial No : A5092
Wind Direction Model : Novalynx WS-25
Serial No : A5092

Time	02-03 Apr 2026	
	WS(m/s)	WD
09:00 - 10:00	1.3	SSW
10:00 - 11:00	1.1	SSW
11:00 - 12:00	1.3	S
12:00 - 13:00	1.6	SSW
13:00 - 14:00	0.8	SSW
14:00 - 15:00	0.8	SSW
15:00 - 16:00	1.4	S
16:00 - 17:00	1.1	SSW
17:00 - 18:00	1.2	SSW
18:00 - 19:00	1.5	S
19:00 - 20:00	1.6	SSW
20:00 - 21:00	1.5	SSW
21:00 - 22:00	1.5	SSW
22:00 - 23:00	0.7	SSW
23:00 - 24:00	1.0	S
00:00 - 01:00	1.0	SSW
01:00 - 02:00	1.1	S
02:00 - 03:00	1.4	SSW
03:00 - 04:00	1.0	S
04:00 - 05:00	0.7	SSW
05:00 - 06:00	1.6	SSW
06:00 - 07:00	1.6	SSW
07:00 - 08:00	1.2	SSW
08:00 - 09:00	0.7	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 02-03 Apr 2026

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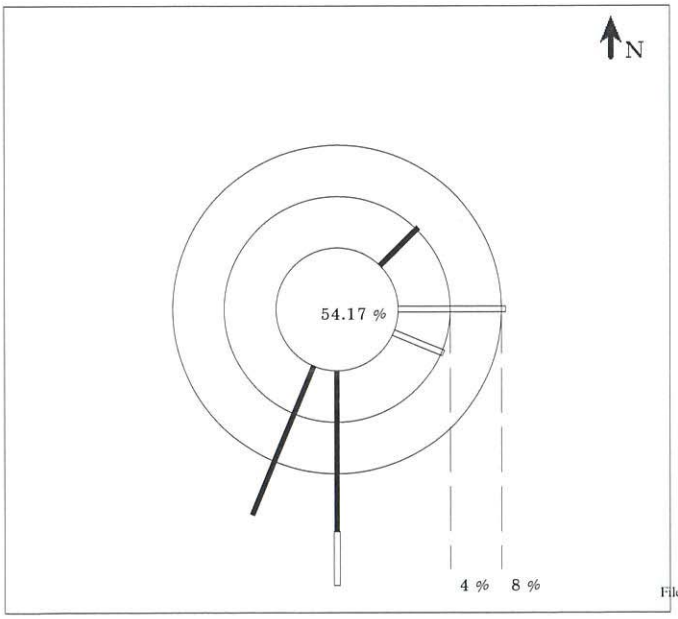
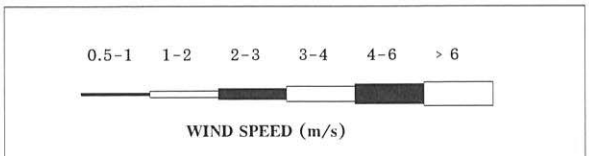
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:16
Wind Direction Model : Scarlet WS-21
Serial No : AD:16

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
ESE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.1250	0.0417	0.0000	0.0000	0.0000	0.0000	0.1667
SSW	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.5417						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 12-13 May 2026

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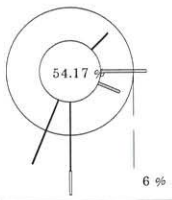
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:16
Wind Direction Model : Scarlet WS-21
Serial No : AD:16

Time	12-13 May 2026	
	WS(m/s)	WD
12:00 - 13:00	0.9	S
13:00 - 14:00	0.9	S
14:00 - 15:00	1.0	S
15:00 - 16:00	0.9	S
16:00 - 17:00	0.9	SSW
17:00 - 18:00	0.8	SSW
18:00 - 19:00	0.3	SSW
19:00 - 20:00	0.4	SSW
20:00 - 21:00	0.4	S
21:00 - 22:00	0.1	SSE
22:00 - 23:00	0.2	SSW
23:00 - 24:00	0.2	SSW
00:00 - 01:00	0.0	SSW
01:00 - 02:00	0.1	SW
02:00 - 03:00	0.1	SW
03:00 - 04:00	0.2	SW
04:00 - 05:00	0.2	SW
05:00 - 06:00	0.3	SW
06:00 - 07:00	0.4	SW
07:00 - 08:00	0.6	SSW
08:00 - 09:00	1.2	E
09:00 - 10:00	1.4	E
10:00 - 11:00	1.4	ESE
11:00 - 12:00	0.8	NE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 12-13 May 2026

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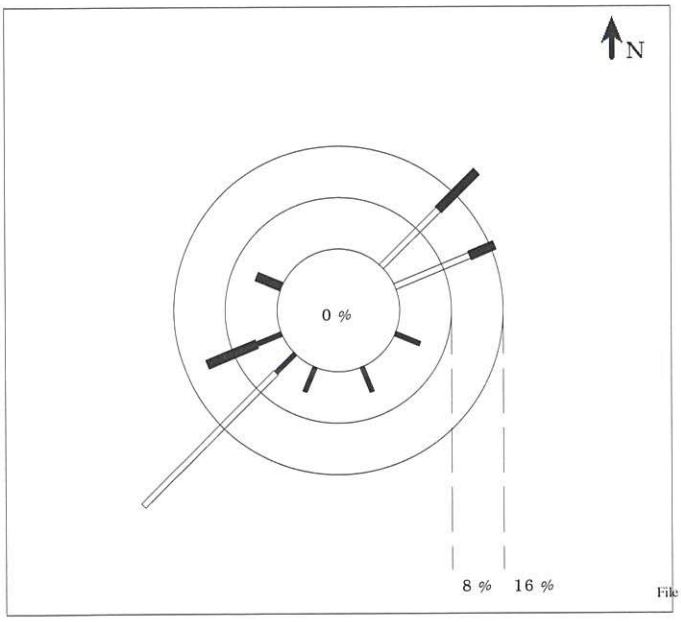
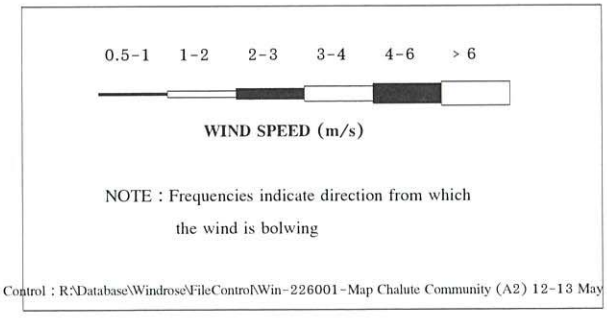
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:28
Wind Direction Model : Scarlet WS-21
Serial No : AD:28

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.1250	0.0833	0.0000	0.0000	0.0000	0.2083
ENE	0.0000	0.1250	0.0417	0.0000	0.0000	0.0000	0.1667
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0417	0.2917	0.0000	0.0000	0.0000	0.0000	0.3333
WSW	0.0417	0.0000	0.0833	0.0000	0.0000	0.0000	0.1250
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 12-13 May 2026

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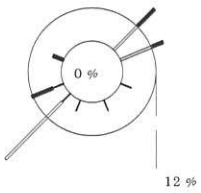
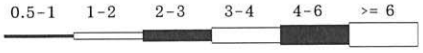
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:28
Wind Direction Model : Scarlet WS-21
Serial No : AD:28

Time	12-13 May 2026	
	WS(m/s)	WD
12:00 - 13:00	1.3	SW
13:00 - 14:00	2.1	WSW
14:00 - 15:00	2.3	WSW
15:00 - 16:00	2.1	WNW
16:00 - 17:00	2.7	NE
17:00 - 18:00	2.4	NE
18:00 - 19:00	1.9	NE
19:00 - 20:00	1.7	NE
20:00 - 21:00	1.6	NE
21:00 - 22:00	1.5	ENE
22:00 - 23:00	2.0	ENE
23:00 - 24:00	1.8	ENE
00:00 - 01:00	1.4	ENE
01:00 - 02:00	0.5	SSE
02:00 - 03:00	0.6	SSW
03:00 - 04:00	0.8	ESE
04:00 - 05:00	0.9	WSW
05:00 - 06:00	1.0	SW
06:00 - 07:00	0.9	SW
07:00 - 08:00	1.1	SW
08:00 - 09:00	1.2	SW
09:00 - 10:00	1.2	SW
10:00 - 11:00	1.3	SW
11:00 - 12:00	1.8	SW

Wind Rose





WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 12-13 May 2026

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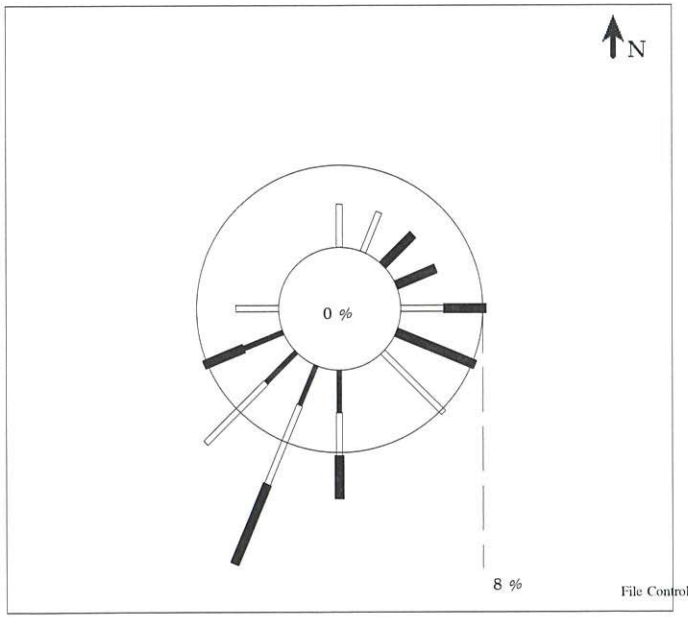
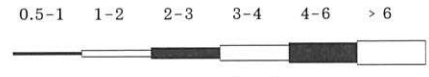
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 12-13 May 2026
Wind Speed Model : Novalynx WS-25
Serial No : A4904
Wind Direction Model : Novalynx WS-25
Serial No : A4904

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	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0417	0.0417	0.0000	0.0000	0.0000	0.0833
ESE	0.0000	0.0000	0.0833	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0417	0.0417	0.0417	0.0000	0.0000	0.0000	0.1250
SSW	0.0417	0.0833	0.0833	0.0000	0.0000	0.0000	0.2083
SW	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
WSW	0.0417	0.0000	0.0417	0.0000	0.0000	0.0000	0.0833
W	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 12-13 May 2026

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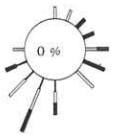
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 12-13 May 2026
Wind Speed Model : Novalynx WS-25
Serial No : A4904
Wind Direction Model : Novalynx WS-25
Serial No : A4904

Time	12-13 May 2026	
	WS(m/s)	WD
09:00 - 10:00	1.1	SSW
10:00 - 11:00	1.2	SW
11:00 - 12:00	2.6	SSW
12:00 - 13:00	1.1	W
13:00 - 14:00	2.0	WSW
14:00 - 15:00	0.8	SW
15:00 - 16:00	1.2	SW
16:00 - 17:00	2.5	S
17:00 - 18:00	2.2	ESE
18:00 - 19:00	2.4	E
19:00 - 20:00	1.7	SE
20:00 - 21:00	1.9	N
21:00 - 22:00	1.4	E
22:00 - 23:00	2.3	SSW
23:00 - 24:00	1.2	SE
00:00 - 01:00	1.9	NNE
01:00 - 02:00	2.0	ENE
02:00 - 03:00	0.8	SSW
03:00 - 04:00	2.4	ESE
04:00 - 05:00	0.5	WSW
05:00 - 06:00	1.2	S
06:00 - 07:00	2.3	NE
07:00 - 08:00	0.5	S
08:00 - 09:00	1.0	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 12-13 May 2026

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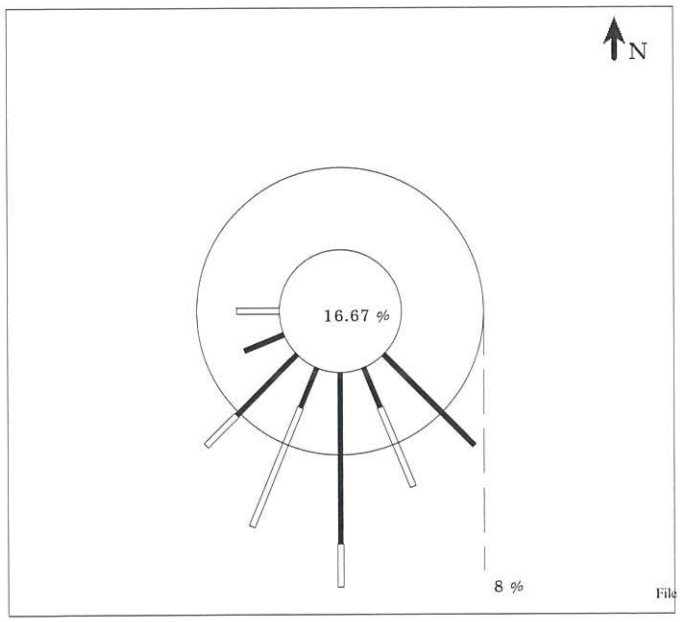
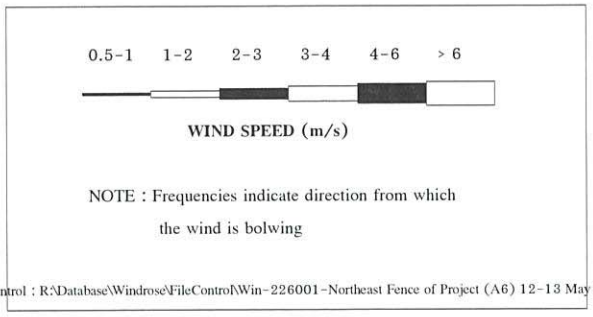
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:27
Wind Direction Model : Scarlet WS-21
Serial No : AD:27

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
SSE	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
S	0.1667	0.0417	0.0000	0.0000	0.0000	0.0000	0.2083
SSW	0.0417	0.1250	0.0000	0.0000	0.0000	0.0000	0.1667
SW	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
WSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
W	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.1667						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 12-13 May 2026

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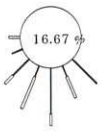
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 12-13 May 2026
Wind Speed Model : Scarlet WS-21
Serial No : AD:27
Wind Direction Model : Scarlet WS-21
Serial No : AD:27

Time	12-13 May 2026	
	WS(m/s)	WD
09:00 - 10:00	0.0	N
10:00 - 11:00	0.0	WNW
11:00 - 12:00	0.0	WNW
12:00 - 13:00	0.0	WNW
13:00 - 14:00	0.6	SSW
14:00 - 15:00	1.2	SSW
15:00 - 16:00	1.3	SSW
16:00 - 17:00	1.1	W
17:00 - 18:00	1.1	SSE
18:00 - 19:00	0.9	SSE
19:00 - 20:00	1.2	SSE
20:00 - 21:00	0.8	SE
21:00 - 22:00	0.8	SE
22:00 - 23:00	0.5	S
23:00 - 24:00	0.6	S
00:00 - 01:00	0.5	SE
01:00 - 02:00	0.5	S
02:00 - 03:00	0.6	SW
03:00 - 04:00	0.5	S
04:00 - 05:00	0.7	WSW
05:00 - 06:00	0.5	SW
06:00 - 07:00	1.1	S
07:00 - 08:00	1.0	SW
08:00 - 09:00	1.0	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 12-13 May 2026

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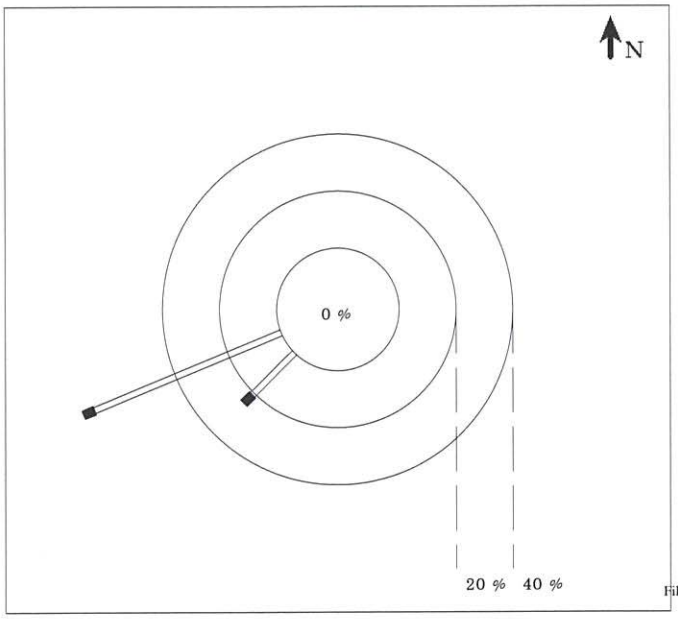
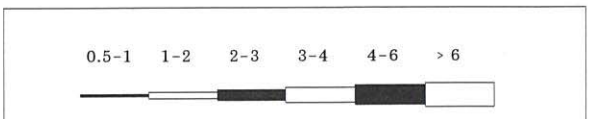
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2112DR0016
Wind Direction Model : Scarlet WL-21
Serial No : 2112DR0016

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.2083	0.0417	0.0000	0.0000	0.0000	0.2500
WSW	0.0000	0.7083	0.0417	0.0000	0.0000	0.0000	0.7500
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 04-05 Jun 2026

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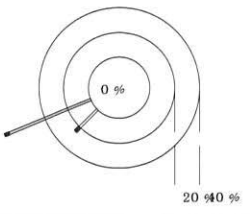
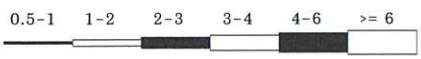
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (A1)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2112DR0016
Wind Direction Model : Scarlet WL-21
Serial No : 2112DR0016

Time	04-05 Jun 2026	
	WS(m/s)	WD
10:00 - 11:00	1.8	SW
11:00 - 12:00	2.0	SW
12:00 - 13:00	1.8	WSW
13:00 - 14:00	1.9	WSW
14:00 - 15:00	2.1	WSW
15:00 - 16:00	1.8	WSW
16:00 - 17:00	1.7	SW
17:00 - 18:00	1.9	SW
18:00 - 19:00	1.8	SW
19:00 - 20:00	1.4	WSW
20:00 - 21:00	1.2	WSW
21:00 - 22:00	1.6	WSW
22:00 - 23:00	1.7	WSW
23:00 - 24:00	1.7	WSW
00:00 - 01:00	1.8	WSW
01:00 - 02:00	1.7	WSW
02:00 - 03:00	1.6	WSW
03:00 - 04:00	1.5	WSW
04:00 - 05:00	1.6	WSW
05:00 - 06:00	1.6	WSW
06:00 - 07:00	1.6	WSW
07:00 - 08:00	1.6	WSW
08:00 - 09:00	1.7	WSW
09:00 - 10:00	1.9	SW

Wind Rose





WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Nong Feab Community (A1) 04-05 Jun 2026

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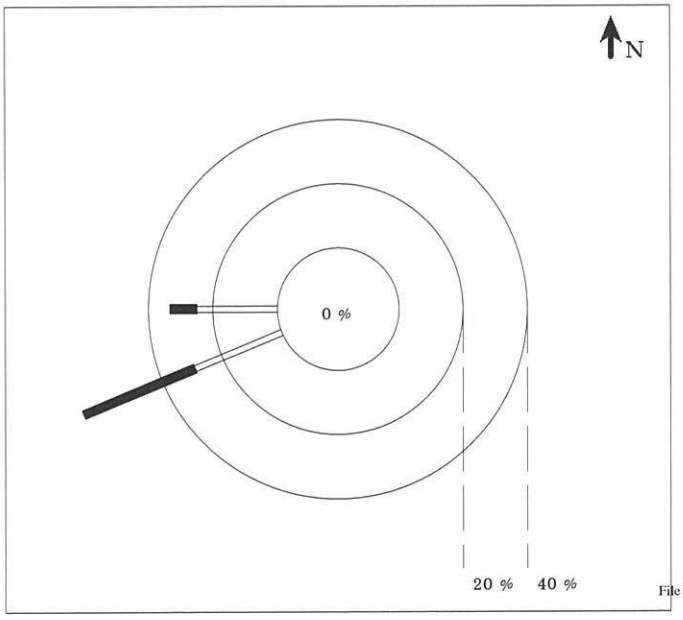
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0039
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0039

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.2917	0.3750	0.0000	0.0000	0.0000	0.6667
W	0.0000	0.2500	0.0833	0.0000	0.0000	0.0000	0.3333
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s

WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 04-05 Jun 2026

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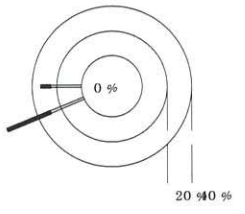
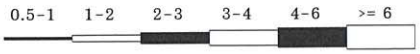
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (A2)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0039
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0039

Time	04-05 Jun 2026	
	WS(m/s)	WD
10:00 - 11:00	2.0	WSW
11:00 - 12:00	2.3	WSW
12:00 - 13:00	2.4	WSW
13:00 - 14:00	2.6	WSW
14:00 - 15:00	2.6	WSW
15:00 - 16:00	2.1	WSW
16:00 - 17:00	1.9	WSW
17:00 - 18:00	2.0	WSW
18:00 - 19:00	1.9	WSW
19:00 - 20:00	1.4	WSW
20:00 - 21:00	1.5	W
21:00 - 22:00	1.8	W
22:00 - 23:00	1.8	WSW
23:00 - 24:00	2.0	W
00:00 - 01:00	1.9	W
01:00 - 02:00	1.9	W
02:00 - 03:00	2.0	W
03:00 - 04:00	1.6	W
04:00 - 05:00	1.7	WSW
05:00 - 06:00	1.5	W
06:00 - 07:00	1.8	WSW
07:00 - 08:00	1.9	WSW
08:00 - 09:00	2.0	WSW
09:00 - 10:00	2.1	WSW

Wind Rose





WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute Community (A2) 04-05 Jun 2026

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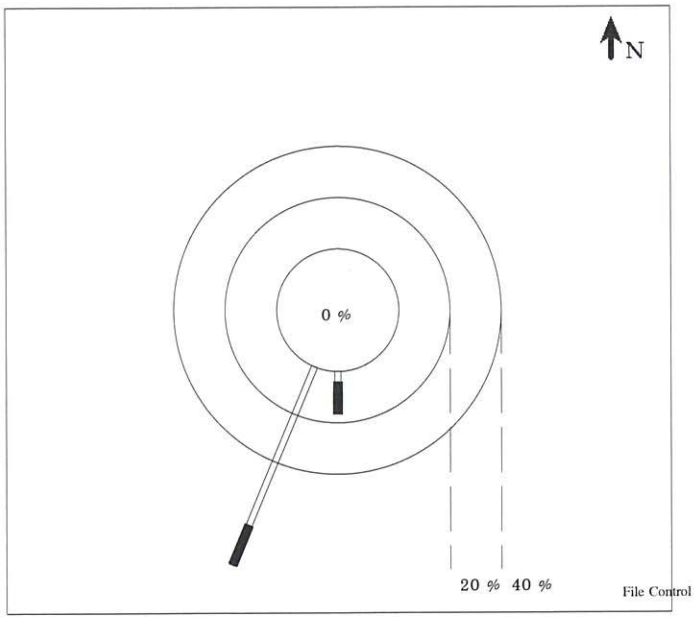
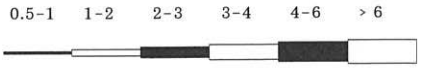
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0066
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0066

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0417	0.1250	0.0000	0.0000	0.0000	0.1667
SSW	0.0000	0.6667	0.1667	0.0000	0.0000	0.0000	0.8333
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 04-05 Jun 2026

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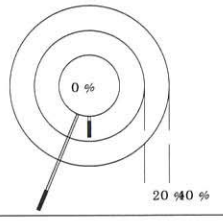
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute-Chak klang Community (A3)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0066
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0066

Time	04-05 Jun 2026	
	WS(m/s)	WD
10:00 - 11:00	2.2	S
11:00 - 12:00	2.3	S
12:00 - 13:00	2.1	SSW
13:00 - 14:00	2.1	SSW
14:00 - 15:00	2.3	SSW
15:00 - 16:00	1.9	SSW
16:00 - 17:00	1.8	S
17:00 - 18:00	2.0	S
18:00 - 19:00	1.8	SSW
19:00 - 20:00	1.3	SSW
20:00 - 21:00	1.2	SSW
21:00 - 22:00	1.6	SSW
22:00 - 23:00	1.6	SSW
23:00 - 24:00	1.7	SSW
00:00 - 01:00	1.5	SSW
01:00 - 02:00	1.6	SSW
02:00 - 03:00	1.5	SSW
03:00 - 04:00	1.4	SSW
04:00 - 05:00	1.6	SSW
05:00 - 06:00	1.4	SSW
06:00 - 07:00	1.6	SSW
07:00 - 08:00	1.6	SSW
08:00 - 09:00	1.8	SSW
09:00 - 10:00	2.1	SSW

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Map Chalute-Chak klang Community (A3) 04-05 Jun 2026

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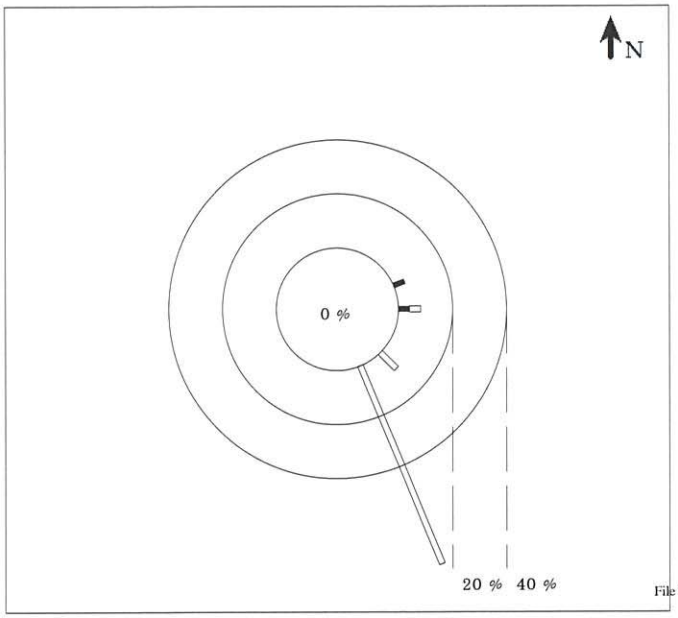
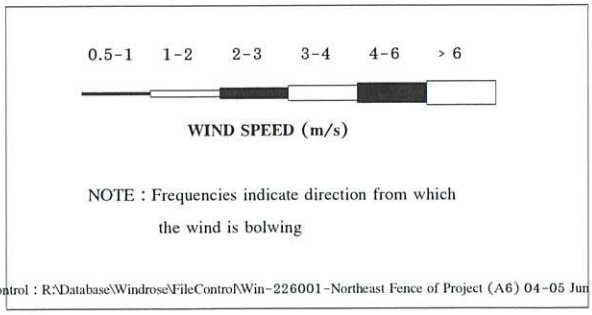
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0067
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0067

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.7917	0.0000	0.0000	0.0000	0.0000	0.7917
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 04-05 Jun 2026

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
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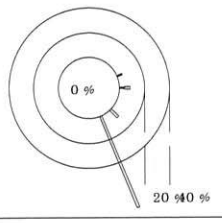
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC18 (Phenol Plant)

Location : Northeast Fence of Project (A6)
Monitor period : 04-05 Jun 2026
Wind Speed Model : Scarlet WL-21
Serial No : 2205DR0067
Wind Direction Model : Scarlet WL-21
Serial No : 2205DR0067

Time	04-05 Jun 2026	
	WS(m/s)	WD
14:00 - 15:00	1.4	SSE
15:00 - 16:00	1.4	SSE
16:00 - 17:00	1.3	SSE
17:00 - 18:00	1.6	SSE
18:00 - 19:00	1.5	SSE
19:00 - 20:00	1.1	SSE
20:00 - 21:00	0.8	ENE
21:00 - 22:00	1.1	SSE
22:00 - 23:00	1.1	SSE
23:00 - 24:00	1.1	SSE
00:00 - 01:00	1.1	SE
01:00 - 02:00	1.0	SE
02:00 - 03:00	1.0	E
03:00 - 04:00	0.9	E
04:00 - 05:00	1.1	SSE
05:00 - 06:00	1.1	SSE
06:00 - 07:00	1.0	SSE
07:00 - 08:00	1.1	SSE
08:00 - 09:00	1.2	SSE
09:00 - 10:00	1.4	SSE
10:00 - 11:00	1.6	SSE
11:00 - 12:00	1.4	SSE
12:00 - 13:00	1.8	SSE
13:00 - 14:00	1.4	SSE

Wind Rose



WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-226001-Northeast Fence of Project (A6) 04-05 Jun 2026

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Environmental Scientist

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0027/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 11/01/2026
SAMPLING DATE	: 06-07/01/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 09:58-10:00, 10:20-10:23, 10:13-10:15	**FILE CODE**	: 226001_TO-15_January
RECEIVED DATE	: 08/01/2026		
REPORT DATE	: 15/01/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD*
			A1		A2		A3		
	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	(µg/m^3)
Acetone	0.10	0.24	3.45	8.20	4.87	11.56	4.41	10.48	-
Benzene	0.004	0.013	0.60	1.92	0.35	1.12	0.34	1.09	7.6
Cumene	0.10	0.49	0.33	1.62	ND	ND	ND	ND	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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4. - Not available.

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0027/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 11/01/2026
SAMPLING DATE	: 06-07/01/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 09:38-09:37, 09:00-09:20 , 09:32-09:30, 09:43-09:45	**FILE CODE**	: 226001_TO-15_January
RECEIVED DATE	: 08/01/2026		
REPORT DATE	: 15/01/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD*
			A4		A5		A6		A7		
	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	(µg/m^3)
Benzene	0.004	0.013	0.58	1.85	0.81	2.59	0.49	1.57	0.32	1.02	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0172/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 06/02/2026
SAMPLING DATE	: 02-03/02/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 10:46-10:38, 11:22-11:15, 11:10-11:00	**FILE CODE**	: 226001_TO-15_February
RECEIVED DATE	: 04/02/2026		
REPORT DATE	: 07/02/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD* ($\mu g/m^3$)
			A1		A2		A3		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Acetone	0.10	0.24	5.98	14.21	9.25	21.98	13.69	32.53	-
Benzene	0.004	0.013	0.94	3.00	0.62	1.98	0.54	1.72	7.6
Cumene	0.10	0.49	0.53	2.61	ND	ND	ND	ND	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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Siriwan Chimsanga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0172/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 06/02/2026
SAMPLING DATE	: 02-03/02/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 10:14-10:04, 10:29-09:52 , 10:07-10:00, 10:19-10:09	**FILE CODE**	: 226001_TO-15_February
RECEIVED DATE	: 04/02/2026		
REPORT DATE	: 07/02/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD*
			A4		A5		A6		A7		
	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	(µg/m^3)
Benzene	0.004	0.013	1.33	4.25	1.03	3.29	0.79	2.52	0.71	2.27	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0432.0434.0435/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 16/03/2026
SAMPLING DATE	: 10-11/03/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 13:25-13:20, 13:48-13:51, 13:41-13:37	**FILE CODE**	: 226001_TO-15_March
RECEIVED DATE	: 12/03/2026		
REPORT DATE	: 17/03/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD* ($\mu g/m^3$)
			A1		A2		A3		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Acetone	0.10	0.24	2.90	6.89	2.86	6.80	3.20	7.60	-
Benzene	0.004	0.013	0.49	1.57	0.41	1.31	0.54	1.72	7.6
Cumene	0.10	0.49	0.65	3.20	ND	ND	ND	ND	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsanga
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Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0432,0434,0435/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 16/03/2026
SAMPLING DATE	: 10-11/03/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 09:15-09:25, 08:50-09:05 , 09:05-09:20, 09:22-09:35	**FILE CODE**	: 226001_TO-15_March
RECEIVED DATE	: 12/03/2026		
REPORT DATE	: 17/03/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD*
			A4		A5		A6		A7		
	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	(µg/m^3)
Benzene	0.004	0.013	0.56	1.79	0.56	1.79	0.56	1.79	0.41	1.31	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0563/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 06/04/2026
SAMPLING DATE	: 02-03/04/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 10:00-10:10, 10:50-10:53, 10:28-10:44	**FILE CODE**	: 226001_TO-15_April
RECEIVED DATE	: 04/04/2026		
REPORT DATE	: 08/04/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD* ($\mu g/m^3$)
			A1		A2		A3		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Acetone	0.10	0.24	3.43	8.15	1.99	4.73	2.75	6.53	-
Benzene	0.004	0.013	0.11	0.35	0.18	0.58	0.13	0.42	7.6
Cumene	0.10	0.49	ND	ND	0.29	1.43	0.45	2.21	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
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Siriwan Chimsa-nga
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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0563/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 06/04/2026
SAMPLING DATE	: 02-03/04/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 09:30-09:45, 09:07-09:29 , 09:17-09:37, 09:39-09:50	**FILE CODE**	: 226001_TO-15_April
RECEIVED DATE	: 04/04/2026		
REPORT DATE	: 08/04/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD*
			A4		A5		A6		A7		
	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	(µg/m^3)
Benzene	0.004	0.013	0.36	1.15	0.09	0.29	0.21	0.67	0.09	0.29	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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Siriwan Chimsa-nga
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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0822,0823,0826/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 15-16/05/2026
SAMPLING DATE	: 12-13/05/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 12:18-11:45, 11:08-11:29, 09:45-09:50	**FILE CODE**	: 226001_TO-15_May
RECEIVED DATE	: 14/05/2026		
REPORT DATE	: 18/05/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD* ($\mu g/m^3$)
			A1		A2		A3		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Acetone	0.10	0.24	4.81	11.43	1.88	4.47	2.61	6.20	-
Benzene	0.004	0.013	0.28	0.89	0.17	0.54	0.26	0.83	7.6
Cumene	0.10	0.49	0.26	1.28	0.12	0.59	ND	ND	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsanga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0822,0823,0826/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 15-16/05/2026
SAMPLING DATE	: 12-13/05/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 12:35-12:54, 13:00-12:44 , 12:40-12:50, 12:29-12:57	**FILE CODE**	: 226001_TO-15_May
RECEIVED DATE	: 14/05/2026		
REPORT DATE	: 18/05/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD* ($\mu g/m^3$)
			A4		A5		A6		A7		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Benzene	0.004	0.013	0.47	1.50	0.19	0.61	0.54	1.72	0.17	0.54	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0970/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 08,10/06/2026
SAMPLING DATE	: 04-05/06/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 10:10-10:25, 10:40-10:40, 10:30-11:00	**FILE CODE**	: 226001_TO-15_June
RECEIVED DATE	: 06/06/2026		
REPORT DATE	: 11/06/2026		
LOCATION DESCRIPTION	: A1 = Nong Feab Community	A3 = Map Chalute-Chakklang Community	
	A2 = Map Chalute Community		

Compound	Non Detection		SAMPLING LOCATION						STANDARD* ($\mu g/m^3$)
			A1		A2		A3		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Acetone	0.10	0.24	7.06	16.78	5.12	12.17	5.79	13.76	-
Benzene	0.004	0.013	0.13	0.42	0.04	0.13	0.49	1.57	7.6
Cumene	0.10	0.49	ND	ND	ND	ND	ND	ND	-

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsanga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REQUEST SERVICE No.**	: 0970/69
	Branch 18 (Phenol Plant)	**SAMPLING METHOD**	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 08,10/06/2026
SAMPLING DATE	: 04-05/06/2026	**SAMPLE CONDITION**	: Normal
SAMPLING TIME	: 14:17-13:40, 14:00-13:20 , 14:10-13:30, 14:20-13:35	**FILE CODE**	: 226001_TO-15_June
RECEIVED DATE	: 06/06/2026		
REPORT DATE	: 11/06/2026		
LOCATION DESCRIPTION	: A4 = North Fence of Project	A6 = Northeast Fence of Project	
	A5 = South Fence of Project	A7 = West Fence of Project (G9 Road)	

Compound	Non Detection		SAMPLING LOCATION								STANDARD* ($\mu g/m^3$)
			A4		A5		A6		A7		
	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	ppbv	$\mu g/m^3$	
Benzene	0.004	0.013	0.45	1.44	0.02	0.06	0.71	2.27	0.02	0.06	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15,1999

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226001-Amb-2601-0028
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 06-07/01/2026	**RECEIVE DATE**	: 12/01/2026
ANALYTICAL DATE	: 19/01/2026	**REPORT DATE**	: 20/01/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr Song Hengchawankul		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226002-Amb-2602-0082
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 02-03/02/2026	**RECEIVE DATE**	: 06/02/2026
ANALYTICAL DATE	: 11/02/2026	**REPORT DATE**	: 23/02/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr. Sittichai Sawangwongchai		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226001-Amb-2603-0093
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 10-11/03/2026	**RECEIVE DATE**	: 17/03/2026
ANALYTICAL DATE	: 19/03/2026	**REPORT DATE**	: 24/03/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr. Sittichai Sawangwongchai		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226001-Amb-2604-0170
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 02-03/04/2026	**RECEIVE DATE**	: 04/04/2026
ANALYTICAL DATE	: 07/04/2026	**REPORT DATE**	: 21/04/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr. Phuwadech Kaewjirakulsri		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226001-Amb-2605-0248
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 12-13/05/2026	**RECEIVE DATE**	: 14/05/2026
ANALYTICAL DATE	: 21/05/2026	**REPORT DATE**	: 28/05/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr. Sittichai Sawangwongchai		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Miss Narisa Poowasanpetch)
Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REF. NO.**	: 226001-Amb-2606-0041
	Branch 18 (Phenol Plant)	**SAMPLING BY**	: SECOT Co., Ltd.
SAMPLING DATE	: 04-05/06/2026	**RECEIVE DATE**	: 06/06/2026
ANALYTICAL DATE	: 10/06/2026	**REPORT DATE**	: 16/06/2026
SAMPLE CONDITION	: Normal	**INSTRUMENT**	: Impingment Absorption
CALIBRATOR S/N	: 160100	**CALIBRATOR MODEL**	: Defender 520 L
SITE OPERATOR	: Mr Song Hengchawankul		
LOCATIONS	: A1 = Nong Feab Community		
	A2 = Map Chalute Community		
	A3 = Map Chalute-Chakklang Community		

PARAMETER	UNIT	ND (Non-detectable)	RESULTS			REFERENCE METHOD
			A1	A2	A3	
Phenol (Avg. 24 hr.)	ppm	<0.02	ND	ND	ND	US.EPA Method TO-8

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2602-0083
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 02/02/2026	RECEIVED DATE	: 05/02/2026
SAMPLING TIME	: 10.25-10.55 a.m.	ANALYTICAL DATE	: 06/02/2026
STACK LOCATION	: Charcoal Adsorber 1 (X-1204)	REPORT DATE	: 16/02/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 80	m	Gas Velocity	: 19.2	m/s
Diameter	: 0.9	m	Flow rate[1/]	: 686.6	Ncu.m/min
Temperature	: 28.0	°C	Excess Oxygen	: 4.3	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Total Hydrocarbon	ppm	<0.10	57.30	250	Flame Ionization Detector
	g/s	-	3.22	12.79	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

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3. [1/] At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. [2/] Assigned value in the Project Description Revision Report in Environmental and Health Impact Assessment Report (No.8) of PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant).

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2605-0108
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 12/05/2026	RECEIVED DATE	: 15/05/2026
SAMPLING TIME	: 01.15-01.50 p.m.	ANALYTICAL DATE	: 18/05/2026
STACK LOCATION	: Charcoal Adsorber 1 (X-1204)	REPORT DATE	: 26/05/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	:	80	m	Gas Velocity	:	20.1 m/s
Diameter	:	0.9	m	Flow rate[1/]	:	737.1 Ncu.m/min
Temperature	:	26.3	°C	Excess Oxygen	:	4.9 %

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Total Hydrocarbon	ppm	<0.10	49.95	250	Flame Ionization Detector
	g/s	-	3.02	12.79	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

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3. [1/] At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. [2/] Assigned value in the Project Description Revision Report in Environmental and Health Impact Assessment Report (No.8) of PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant).

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2602-0083
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 02/02/2026	RECEIVED DATE	: 05/02/2026
SAMPLING TIME	: 11.00-11.15 a.m.	ANALYTICAL DATE	: 09/02/2026
STACK LOCATION	: Charcoal Adsorber 3 (D-1510B)	REPORT DATE	: 16/02/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 9.6	m	Gas Velocity	: 2.3	m/s
Diameter	: 0.2	m	Flow rate[1/]	: 5.1	Ncu.m/min
Temperature	: 36.0	^{o}C	Excess Oxygen	: 0.6	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Cumene	ppm	<0.04	0.26	5	US. EPA Method 18
	g/s	-	0.0001	0.0007	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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3. [1/] At standard pressure of 760 mmHg and temperature of 25 ^{o}C, dry basis.

4. [2/] Assigned value in the Project Description Revision Report in Environmental and Health Impact Assessment Report (No.8) of PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant).

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2605-0108
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 13/05/2026	RECEIVED DATE	: 15/05/2026
SAMPLING TIME	: 01.00-01.20 p.m.	ANALYTICAL DATE	: 15/05/2026
STACK LOCATION	: Charcoal Adsorber 3 (D-1510A)	REPORT DATE	: 26/05/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	:	9.6	m	Gas Velocity	:	0.6 m/s
Diameter	:	0.2	m	Flow rate[1/]	:	1.0 Ncu.m/min
Temperature	:	37.3	^{o}C	Excess Oxygen	:	0.7 %

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Cumene	ppm	<0.04	ND	5	US. EPA Method 18
	g/s	-	<0.000003	0.0007	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2602-0083
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 03/02/2026	RECEIVED DATE	: 05/02/2026
SAMPLING TIME	: 10.15-10.35 a.m.	ANALYTICAL DATE	: 09/02/2026
STACK LOCATION	: Charcoal Adsorber 5 (V-9104)	REPORT DATE	: 16/02/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 4.0	m	Gas Velocity	: 2.4	m/s
Diameter	: 0.2	m	Flow rate[1/]	: 4.1	Ncu.m/min
Temperature	: 32.0	^{o}C	Excess Oxygen	: 0.5	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Cumene	ppm	<0.04	ND	5	US. EPA Method 18
	g/s	-	<0.00001	0.01213	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2605-0108
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 13/05/2026	RECEIVED DATE	: 15/05/2026
SAMPLING TIME	: 01.30-01.50 p.m.	ANALYTICAL DATE	: 15/05/2026
STACK LOCATION	: Charcoal Adsorber 5 (V-9104)	REPORT DATE	: 26/05/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	:	4.0	m	Gas Velocity	:	0.6 m/s
Diameter	:	0.2	m	Flow rate[1/]	:	1.0 Ncu.m/min
Temperature	:	36.0	^{o}C	Excess Oxygen	:	2.7 %

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Cumene	ppm	<0.04	ND	5	US. EPA Method 18
	g/s	-	<0.000003	0.01213	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2602-0083
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 03/02/2026	RECEIVED DATE	: 05/02/2026
SAMPLING TIME	: 03.00-03.35 p.m.	ANALYTICAL DATE	: 06/02/2026
STACK LOCATION	: Charcoal Adsorber 6 (X-2204)	REPORT DATE	: 16/02/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 70.5	m	Gas Velocity	: 9.5	m/s
Diameter	: 0.7	m	Flow rate[1/]	: 214.9	Ncu.m/min
Temperature	: 25.0	^{o}C	Excess Oxygen	: 4.3	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Total Hydrocarbon	ppm	<0.10	155	250	Flame Ionization Detector
	g/s	-	2.73	12.75	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2605-0108
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 13/05/2026	RECEIVED DATE	: 15/05/2026
SAMPLING TIME	: 02.30-03.10 p.m.	ANALYTICAL DATE	: 18/05/2026
STACK LOCATION	: Charcoal Adsorber 6 (X-2204)	REPORT DATE	: 26/05/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 70.5	m	Gas Velocity	: 7.8	m/s
Diameter	: 0.7	m	Flow rate[1/]	: 175	Ncu.m/min
Temperature	: 25.0	°C	Excess Oxygen	: 3.8	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Total Hydrocarbon	ppm	<0.10	151	250	Flame Ionization Detector
	g/s	-	2.17	12.75	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
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Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2602-0083
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 02/02/2026	RECEIVED DATE	: 05/02/2026
SAMPLING TIME	: 11.20-11.35 a.m.	ANALYTICAL DATE	: 11/02/2026
STACK LOCATION	: Scrubber 1 (V-4101)	REPORT DATE	: 16/02/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	: 3.5	m	Gas Velocity	: 2.0	m/s
Diameter	: 0.1	m	Flow rate[1/]	: 0.9	Ncu.m/min
Temperature	: 37.0	^{o}C	Excess Oxygen	: 0.9	%

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Phenol	ppm	<0.05	ND	3	US. EPA Method 18
	g/s	-	<0.000003	0.0001	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	REF. NO.	: 226001-STK-2605-0108
SAMPLING BY	: SECOT Co., Ltd.	REGISTRATION NO.	: -
SAMPLING DATE	: 12/05/2026	RECEIVED DATE	: 15/05/2026
SAMPLING TIME	: 02.05-02.25 p.m.	ANALYTICAL DATE	: 18/05/2026
STACK LOCATION	: Scrubber 1 (V-4101)	REPORT DATE	: 26/05/2026
SOURCE DESCRIPTION	: Process	SITE OPERATOR	: Mr. Pisanu Seenampeng
SAMPLE CONDITION	: Normal	FUEL TYPE	: -

STACK DESCRIPTION

Height	:	3.5	m	Gas Velocity	:	0.6 m/s
Diameter	:	0.1	m	Flow rate[1/]	:	0.3 Ncu.m/min
Temperature	:	35.0	^{o}C	Excess Oxygen	:	1.1 %

PARAMETER	UNIT	ND (Non-detectable)	RESULT[1/]	ASSIGNED VALUE[2/]	REFERENCE METHODS
Phenol	ppm	<0.05	ND	3	US. EPA Method 18
	g/s	-	<0.000001	0.0001	

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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ใบรับรองผลการตรวจวัดคุณภาพน้ำ

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:35
ANALYTICAL DATE	: 09-17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: ว-239-จ-0026
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_January
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	°C	2550 B	< 0.5	31.1	-
pH	-	4500-H^+ B	< 0.10	11.93	-
Color	ADMI	2120 F	< 6.0	39.4	-
Total Dissolved Solids	mg/l	2540 C	< 25	21,700	-
Total Suspended Solids	mg/l	2540 D	< 2.5	3.8	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	20.4	-
BOD_5	mg/l	5210 B	< 1.0	1,088	-
COD	mg/l	5220 D	< 10.00	5,107	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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4. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:35
ANALYTICAL DATE	: 17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_January
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	603,100	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	67,935	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:15
ANALYTICAL DATE	: 06-13/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_February
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	°C	2550 B	< 0.5	34.5	-
pH	-	4500-H^+ B	< 0.10	11.71	-
Color	ADMI	2120 F	< 6.0	32.1	-
Total Dissolved Solids	mg/l	2540 C	< 25	22,040	-
Total Suspended Solids	mg/l	2540 D	< 2.5	3.2	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	16.4	-
BOD_5	mg/l	5210 B	< 1.0	1,492	-
COD	mg/l	5220 D	< 10.00	2,234	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:15
ANALYTICAL DATE	: 09/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: -
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_February
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	487,550	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	62,190	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 14:20
ANALYTICAL DATE	: 06-12/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_March
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	^{o}C	2550 B	< 0.5	35.5	-
pH	-	4500-H^{+} B	< 0.10	11.90	-
Color	ADMI	2120 F	< 6.0	28.8	-
Total Dissolved Solids	mg/l	2540 C	< 25	21,000	-
Total Suspended Solids	mg/l	2540 D	< 2.5	5.4	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	26.6	-
BOD_5	mg/l	5210 B	< 1.0	902	-
COD	mg/l	5220 D	< 10.00	4,130	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insom)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 14:20
ANALYTICAL DATE	: 07/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_March
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	152,200	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	90,955	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
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Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 09:20
ANALYTICAL DATE	: 03-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_April
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	°C	2550 B	< 0.5	35.3	-
pH	-	4500-H^+ B	< 0.10	11.17	-
Color	ADMI	2120 F	< 6.0	35.0	-
Total Dissolved Solids	mg/l	2540 C	< 25	18,960	-
Total Suspended Solids	mg/l	2540 D	< 2.5	< 2.5	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	19.0	-
BOD_5	mg/l	5210 B	< 1.0	530	-
COD	mg/l	5220 D	< 10.00	3,058	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 09:20
ANALYTICAL DATE	: 09-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_April
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	493,550	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	245	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	66,165	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

(Miss Pornnapa Budthum)
Analyst

(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 10:59
ANALYTICAL DATE	: 08-16/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: ว-239-จ-0038
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_May
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	°C	2550 B	< 0.5	34.9	-
pH	-	4500-H^+ B	< 0.10	11.12	-
Color	ADMI	2120 F	< 6.0	31.2	-
Total Dissolved Solids	mg/l	2540 C	< 25	20,440	-
Total Suspended Solids	mg/l	2540 D	< 2.5	10	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	18.1	-
BOD_5	mg/l	5210 B	< 1.0	554	-
COD	mg/l	5220 D	< 10.00	5,241	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 10:59
ANALYTICAL DATE	: 14/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: -
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_May
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	654,400	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	47,640	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 10:02
ANALYTICAL DATE	: 05-12/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: ว-239-จ-0038
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_June
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Temperature	^{o}C	2550 B	< 0.5	36.5	-
pH	-	4500-H^{+} B	< 0.10	12.15	-
Color	ADMI	2120 F	< 6.0	27.4	-
Total Dissolved Solids	mg/l	2540 C	< 25	20,020	-
Total Suspended Solids	mg/l	2540 D	< 2.5	2.8	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,D	< 0.10	11.5	-
BOD_5	mg/l	5210 B	< 1.0	461	-
COD	mg/l	5220 D	< 10.00	4,328	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 10:02
ANALYTICAL DATE	: 10/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: -
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_June
LOCATION DESCRIPTION	: A = น้ำเสียจากกระบวนการผลิตก่อนบำบัดใน Equalization Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION A	STANDARD
Acetone	µg/l	5030 C / 8260 D	< 0.62	588,800	-
Benzene	µg/l	5030 C / 8260 D	< 0.20	150	-
Cumene	µg/l	5030 C / 8260 D	< 0.50	57,515	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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Khemchuda Insorn
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:40
ANALYTICAL DATE	: 09-17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: ว-239-จ-0026
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_January

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	33.2	≤ 40
pH	-	4500-H^+ B	< 0.10	8.14	5.5-9.0
Color	ADMI	2120 F	< 6.0	26.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	8,620	39,080[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	21	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	3.2	≤ 20
COD	mg/l	5220 D	< 10.00	54.68	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED. 2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
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3. [1/] Notification of the Ministry of Industry, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. [2/] The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(Measurement Results of klongbangburd on January 08, 2026
found to be 34,080 mg/l therefore the Standard of TDS found to be 39,080 mg/l).

5. * Not registered with the Department of Industrial Works.

6. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:40
ANALYTICAL DATE	: 17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_January
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:10
ANALYTICAL DATE	: 06-13/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: ว-239-จ-0027
SAMPLE CONDITION	: ขุ่นมีตะกอน	**FILE CODE**	: 226001_WW_February
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD 1/
Temperature	°C	2550 B	< 0.5	36.5	≤ 40
pH	-	4500-H^+ B	< 0.10	7.50	5.5-9.0
Color	ADMI	2120 F	< 6.0	25.4	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	4,032	39,300 2/
Total Suspended Solids	mg/l	2540 D	< 2.5	15	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	5.5	≤ 20
COD	mg/l	5220 D	< 10.00	60.54	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(Measurement Results of klongbangburd on February 05, 2026
found to be 34,300 mg/l therefore the Standard of TDS found to be 39,300 mg/l).

5. * Not registered with the Department of Industrial Works.

6. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:10
ANALYTICAL DATE	: 09/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: -
SAMPLE CONDITION	: ขุ่นมีตะกอน	**FILE CODE**	: 226001_WW_February
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
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.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 14:00
ANALYTICAL DATE	: 06-12/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_March

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD 1/
Temperature	°C	2550 B	< 0.5	36.1	≤ 40
pH	-	4500-H^+ B	< 0.10	7.80	5.5-9.0
Color	ADMI	2120 F	< 6.0	22.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	2,470	38,660 2/
Total Suspended Solids	mg/l	2540 D	< 2.5	17	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	4.7	≤ 20
COD	mg/l	5220 D	< 10.00	38.33	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(Measurement Results of klongbangburd on March 05, 2026
found to be 33,660 mg/l therefore the Standard of TDS found to be 38,660 mg/l).

5. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 14:00
ANALYTICAL DATE	: 07/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: -
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_March
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
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.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 09:10
ANALYTICAL DATE	: 03-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองขุ่นเล็กน้อย	**FILE CODE**	: 226001_WW_April
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	37.8	≤ 40
pH	-	4500-H^+ B	< 0.10	8.03	5.5-9.0
Color	ADMI	2120 F	< 6.0	25.0	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	7,890	38,960[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	14	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	3.0	≤ 20
COD	mg/l	5220 D	< 10.00	53.06	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. [2/] The standard value is not more than 5,000 mg/l exceed TDS of receiving water (Measurement Results of klongbangburd on April 02, 2026 found to be 33,960 mg/l therefore the Standard of TDS found to be 38,960 mg/l).

5. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 09:10
ANALYTICAL DATE	: 09-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: -
SAMPLE CONDITION	: เหลืองขุ่นเล็กน้อย	**FILE CODE**	: 226001_WW_April

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

(Miss Pornnapa Budthum)
Analyst

(Miss Khemchuda Insorn)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
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3. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 10:45
ANALYTICAL DATE	: 08-16/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: ว-239-จ-0038
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_May

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD 1/
Temperature	°C	2550 B	< 0.5	38.8	≤ 40
pH	-	4500-H^+ B	< 0.10	7.58	5.5-9.0
Color	ADMI	2120 F	< 6.0	26.8	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	8,420	39,340 2/
Total Suspended Solids	mg/l	2540 D	< 2.5	25	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	3.0	≤ 20
COD	mg/l	5220 D	< 10.00	81.22	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED. 2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water (Measurement Results of klongbangburd on May 07, 2026 found to be 34,340 mg/l therefore the Standard of TDS found to be 39,340 mg/l).

5. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 10:45
ANALYTICAL DATE	: 14/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: -
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_May
LOCATION DESCRIPTION	: B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insom
(Miss Khemchuda Insom)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
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3. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: จ-239
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 09:52
ANALYTICAL DATE	: 05-12/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: จ-239-จ-0038
SAMPLE CONDITION	: ขาวขุ่น	**FILE CODE**	: 226001_WW_June

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD[1/]
Temperature	^{o}C	2550 B	< 0.5	36.3	≤ 40
pH	-	4500-H^{+} B	< 0.10	7.97	5.5-9.0
Color	ADMI	2120 F	< 6.0	23.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	4,576	35,260[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	21	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	5.8	≤ 20
COD	mg/l	5220 D	< 10.00	54.67	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. จ-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. จ-239-ค-0005

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, Regarding Industrial Effluent Standards, B.E.2560 (2017).

4. [2/] The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(Measurement Results of klongbangburd on June 12, 2026
found to be 30,260 mg/l therefore the Standard of TDS found to be 35,260 mg/l).

5. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 09:52
ANALYTICAL DATE	: 10/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: -
SAMPLE CONDITION	: ขาวขุ่น	**FILE CODE**	: 226001_WW_June

LOCATION DESCRIPTION : B = น้ำทิ้งหลังจากการบำบัดใน Final Polishing Pond

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION B	STANDARD
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

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3. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:50
ANALYTICAL DATE	: 09-17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: ว-239-จ-0026
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_January

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD 1/
Total Suspended Solids	mg/l	2540 D	< 2.5	20	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 10
BOD_5	mg/l	5210 B	< 1.0	45.0	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

Remark : 1. Reported analysis refers to submitted sample only.

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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 Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:30
ANALYTICAL DATE	: 06-13/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองขุ่นมีตะกอน	**FILE CODE**	: 226001_WW_February

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD[1/]
Total Suspended Solids	mg/l	2540 D	< 2.5	26	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 10
BOD_5	mg/l	5210 B	< 1.0	48.5	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
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Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 15:00
ANALYTICAL DATE	: 06-12/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_March

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD 1/
Total Suspended Solids	mg/l	2540 D	< 2.5	45	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	2.4	≤ 10
BOD_5	mg/l	5210 B	< 1.0	40.0	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
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REG. NO. ว-239-จ-0018

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Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 10:00
ANALYTICAL DATE	: 03-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: ว-239-จ-0027
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_April

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD 1/
Total Suspended Solids	mg/l	2540 D	< 2.5	29	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 10
BOD_5	mg/l	5210 B	< 1.0	51.8	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 11:21
ANALYTICAL DATE	: 08-16/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: ว-239-จ-0038
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_May

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD 1/
Total Suspended Solids	mg/l	2540 D	< 2.5	28	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	3.4	≤ 10
BOD_5	mg/l	5210 B	< 1.0	35.6	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 10:20
ANALYTICAL DATE	: 05-12/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: ว-239-จ-0038
SAMPLE CONDITION	: เหลืองขุ่น	**FILE CODE**	: 226001_WW_June

LOCATION DESCRIPTION : C = น้ำทิ้งจากพนักงานหลังบำบัดด้วยถังบำบัดน้ำเสียสำเร็จรูปและน้ำทิ้งจากโรงอาหาร หลังบำบัดด้วยถังบำบัดแบบไร้อากาศและเติมอากาศแบบสำเร็จรูปในบ่อตรวจสอบ

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION C	STANDARD 1/
Total Suspended Solids	mg/l	2540 D	< 2.5	17	≤ 200
Fat Oil & Grease	mg/l	5520 B	< 2.0	3.3	≤ 10
BOD_5	mg/l	5210 B	< 1.0	29.5	≤ 500

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Miss Khemchuda Insorn)
Technical Management Team
REG. NO. ว-239-ค-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0035/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 08/01/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 09/01/2026	**SAMPLING TIME**	: 09:44
ANALYTICAL DATE	: 17/01/2026	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 17/01/2026		: -
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_January
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0191/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/02/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/02/2026	**SAMPLING TIME**	: 09:20
ANALYTICAL DATE	: 09/02/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 13/02/2026		: -
SAMPLE CONDITION	: เหลืองใสมีตะกอน	**FILE CODE**	: 226001_WW_February
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0388/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 05/03/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 06/03/2026	**SAMPLING TIME**	: 14:45
ANALYTICAL DATE	: 07/03/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 12/03/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_March
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0547/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 02/04/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 03/04/2026	**SAMPLING TIME**	: 09:35
ANALYTICAL DATE	: 09-10/04/2026	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 10/04/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_April
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

(Miss Pornnapa Budthum)
Analyst

(Miss Khemchuda Insorn)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0746/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 07/05/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 08/05/2026	**SAMPLING TIME**	: 10:45
ANALYTICAL DATE	: 14/05/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 16/05/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_May
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
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Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0953/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: -
SAMPLING DATE	: 04/06/2026	**SAMPLING METHOD**	: Grab
RECEIVED DATE	: 05/06/2026	**SAMPLING TIME**	: 10:11
ANALYTICAL DATE	: 10/06/2026	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 17/06/2026		: -
SAMPLE CONDITION	: เหลืองใส	**FILE CODE**	: 226001_WW_June
LOCATION DESCRIPTION	: D = น้ำทิ้งหลังผ่านการบำบัดใน Final Polishing Buffer Tank		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION D
Benzene	µg/l	5030 C / 8260 D	< 0.20	ND

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

Khemchuda Insorn
(Miss Khemchuda Insorn)
Technical Management Team

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3. - Not available.

ใบรับรองผลการตรวจวัดคุณภาพน้ำใต้ดิน

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 12:12-12:30
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใสมีตะกอน	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW1 : บริเวณ Truck Loading		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW1	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	0.0003	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
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REG. NO. ว-239-จ-0022

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 10:40-10:57
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใสมีตะกอน	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW2 : ทิศเหนือใกล้หอหล่อเย็นสายการผลิตที่ 2		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW2	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 09:45-10:08
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใส	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW3 : ริมรั้วทิศตะวันตกของโครงการ (สายการผลิตที่ 2) ติดถนน จี 9		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW3	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 28/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 11:30-11:50
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใส	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW4 : พื้นที่ว่างใกล้ลานถังแห่งที่ 6 (สายการผลิตที่ 2)		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW4	STANDARD[1/]
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 28/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 09:38-10.04
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใสมีตะกอน	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW5 : บริเวณส่วนการผลิตฟีนอล (สายการผลิตที่ 2)		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW5	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 11:31-11:49
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ใส	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW6 : บริเวณลานถังแห่งที่ 1 (สายการผลิตที่ 1)		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW6	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 14:29-14:41
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ขาวขุ่น	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW7 : บริเวณหอหล่อเย็น (สายการผลิตที่ 1)		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW7	STANDARD[1/]
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 16:43-17:00
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ขาวขุ่น	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW8 : บริเวณหอเผา		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW8	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24th ED.,2023 (AWWA,APHA, WEF)

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REQUEST SERVICE No.**	: 0920/69
SAMPLING BY	: SECOT Co., Ltd.	**REGISTRATION No.**	: ว-239
SAMPLING DATE	: 27/05/2026	**SAMPLING METHOD**	: Pneumatic Bladder Pump
RECEIVED DATE	: 29/05/2026	**SAMPLING TIME**	: 15:15-15:34
ANALYTICAL DATE	: 01-07/06/2026	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 09/06/2026	**SITE OPERATOR REG.No.**	: ว-239-จ-0025
SAMPLE CONDITION	: ขาวขุ่น	**FILE CODE**	: 226001_GW_May
SAMPLE DESCRIPTION	: UW9 : บริเวณอาคารเก็บกากของเสีย		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION UW9	STANDARD 1/
Acetone	mg/l	6200 B	< 0.001	ND	≤ 230
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Phenol	mg/l	6410 B	< 0.00025	ND	≤ 72

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ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป

Noise Monitoring Result : Community Noise
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (N1)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820729
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	Equivalent Sound Pressure Level (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
14:00 - 15:00	53.5	52.8	52.2	55.8	58.0	52.6	66.9
15:00 - 16:00	51.9	52.4	52.5	55.8	56.5	54.8	66.3
16:00 - 17:00	55.4	54.2	53.4	54.2	58.4	54.8	66.2
17:00 - 18:00	54.0	53.8	53.5	56.4	57.8	55.9	66.2
18:00 - 19:00	52.8	54.4	54.0	55.9	57.7	54.0	67.6
19:00 - 20:00	51.4	53.0	52.1	53.9	55.3	59.9	67.7
20:00 - 21:00	49.1	51.2	50.6	52.7	54.0	60.8	67.3
21:00 - 22:00	53.7	52.6	51.5	51.3	61.3	60.1	69.8
22:00 - 23:00	49.2	66.8	47.6	52.3	54.8	65.2	68.4
23:00 - 00:00	47.8	46.8	47.1	50.2	52.7	65.2	65.4
00:00 - 01:00	47.5	48.3	49.3	48.3	52.0	54.2	66.7
01:00 - 02:00	49.1	46.3	45.5	46.5	47.5	54.5	64.3
02:00 - 03:00	50.3	47.6	46.1	46.0	47.4	55.8	54.9
03:00 - 04:00	49.2	47.3	45.5	55.4	49.3	53.8	57.9
04:00 - 05:00	49.0	47.3	50.1	46.0	47.7	56.3	65.0
05:00 - 06:00	52.9	52.7	53.0	53.2	49.4	54.2	64.7
06:00 - 07:00	54.6	53.6	56.0	55.6	53.0	68.2	64.4
07:00 - 08:00	55.6	54.3	57.5	57.0	58.7	59.5	64.2
08:00 - 09:00	52.3	51.7	54.2	57.3	57.1	54.6	63.6
09:00 - 10:00	51.5	51.3	54.6	53.8	59.5	51.4	63.1
10:00 - 11:00	52.8	52.6	52.9	53.3	54.0	48.8	62.9
11:00 - 12:00	54.4	52.8	56.9	53.1	56.0	50.8	62.5
12:00 - 13:00	53.7	53.5	55.6	53.6	52.4	59.5	62.3
13:00 - 14:00	52.8	50.5	59.9	53.1	53.9	67.6	63.6
Leq(24)*	52.5	55.5	53.7	53.9	55.9	60.6	65.6
Ldn	57.5	63.8	57.9	58.8	59.2	68.3	71.4
Lmax **	84.0	89.1	86.8	88.3	100.0	84.9	94.7
Standard-24Hr	**70 dB(A)**						
Standard-Max	**115 dB(A)**						

Remark : * Average time between 14:00-14:00
** Maximum Sound Pressure Level between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
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Noise Monitoring Result : Background Noise
MTR-PTTGC18 (Phenol Plant)

Location : Nong Feab Community (N1)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820729
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	L90 (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
14:00 - 15:00	43.8	46.3	43.7	46.5	44.9	43.9	65.3
15:00 - 16:00	43.6	45.9	44.5	48.4	44.2	44.5	64.9
16:00 - 17:00	45.1	46.4	45.0	46.7	46.2	44.0	64.9
17:00 - 18:00	44.7	45.3	45.1	48.1	47.6	46.3	64.8
18:00 - 19:00	47.0	46.2	46.9	49.5	46.6	45.8	64.5
19:00 - 20:00	46.0	44.4	46.4	47.4	45.1	47.9	65.5
20:00 - 21:00	43.7	44.0	46.6	47.4	45.8	57.5	66.1
21:00 - 22:00	43.8	44.1	44.2	46.3	45.9	57.0	67.0
22:00 - 23:00	43.1	43.2	43.8	44.8	44.3	56.7	63.1
23:00 - 00:00	42.2	42.9	43.4	45.0	44.3	63.9	60.2
00:00 - 01:00	42.9	43.2	42.9	43.0	45.2	45.8	63.1
01:00 - 02:00	43.2	43.3	42.5	42.2	43.5	45.2	46.1
02:00 - 03:00	44.1	42.2	41.7	42.5	43.4	45.5	45.6
03:00 - 04:00	42.4	42.6	41.8	42.6	43.1	47.4	45.7
04:00 - 05:00	42.6	42.6	42.0	42.5	43.0	46.8	58.7
05:00 - 06:00	43.8	44.3	42.9	42.5	43.0	46.5	58.1
06:00 - 07:00	45.3	44.6	46.2	45.0	45.3	48.9	57.4
07:00 - 08:00	45.7	44.8	47.4	48.1	46.9	45.7	56.5
08:00 - 09:00	45.0	44.3	45.4	46.1	45.8	45.2	55.4
09:00 - 10:00	44.3	44.3	44.6	45.4	44.5	44.5	54.7
10:00 - 11:00	44.2	44.3	44.1	45.7	44.4	44.4	54.1
11:00 - 12:00	45.9	44.7	45.2	44.9	44.3	44.4	53.2
12:00 - 13:00	44.6	44.6	44.9	44.5	44.1	44.3	53.9
13:00 - 14:00	46.3	43.5	51.7	43.7	43.3	65.5	55.8
L90(avg)*	44.5	44.4	45.4	45.9	45.0	55.4	61.9

Remark : * Average time between 14:00-14:00

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Noise Monitoring Result : Community Noise
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (N2)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820728
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	Equivalent Sound Pressure Level (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
14:00 - 15:00	58.2	54.1	58.6	60.0	56.8	58.1	59.0
15:00 - 16:00	57.6	56.6	58.6	60.1	57.3	57.4	57.6
16:00 - 17:00	60.1	57.6	59.8	59.3	58.2	57.5	58.6
17:00 - 18:00	60.6	59.3	60.3	60.6	61.2	59.5	58.9
18:00 - 19:00	60.8	58.8	60.5	61.5	61.6	61.1	60.6
19:00 - 20:00	65.1	57.0	57.7	60.6	61.0	59.4	59.9
20:00 - 21:00	53.8	54.6	54.6	58.6	58.5	59.2	59.6
21:00 - 22:00	53.0	53.3	52.7	56.3	58.4	55.6	58.3
22:00 - 23:00	51.1	50.3	51.2	58.1	53.7	53.1	51.9
23:00 - 00:00	51.8	48.9	49.3	52.8	53.4	52.4	53.5
00:00 - 01:00	48.8	49.5	50.0	52.0	52.9	52.1	49.5
01:00 - 02:00	50.9	48.9	49.9	50.9	54.8	50.2	48.8
02:00 - 03:00	49.7	50.0	48.0	46.7	49.8	48.1	47.4
03:00 - 04:00	49.5	48.2	47.7	46.7	48.6	50.2	56.5
04:00 - 05:00	52.4	53.5	54.5	50.6	50.1	51.2	48.0
05:00 - 06:00	57.2	60.1	58.3	52.4	52.2	50.8	52.6
06:00 - 07:00	60.2	59.5	60.5	57.8	56.3	56.5	56.0
07:00 - 08:00	64.4	59.8	63.8	60.1	60.9	60.0	59.6
08:00 - 09:00	58.3	58.8	59.8	63.8	62.9	63.7	62.1
09:00 - 10:00	57.0	58.7	60.3	60.0	60.8	61.1	61.3
10:00 - 11:00	55.3	55.7	59.6	58.0	58.0	59.5	58.3
11:00 - 12:00	58.5	57.6	59.4	57.5	59.2	58.0	58.3
12:00 - 13:00	57.3	56.8	60.5	58.8	58.4	58.9	58.5
13:00 - 14:00	54.0	58.2	56.3	57.5	58.1	58.7	59.8
Leq(24)*	58.4	56.7	58.2	58.4	58.3	58.0	58.0
Ldn	62.0	61.6	62.2	61.7	61.3	60.8	61.0
Lmax **	95.6	83.9	88.9	88.5	85.9	87.9	89.6
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 14:00-14:00
** Maximum Sound Pressure Level between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

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Noise Monitoring Result : Background Noise
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Community (N2)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820728
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	L90 (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
14:00 - 15:00	44.1	45.4	47.1	46.3	45.1	44.9	47.3
15:00 - 16:00	45.9	46.9	47.3	46.2	45.4	46.1	46.0
16:00 - 17:00	49.2	45.6	47.1	46.9	46.1	45.1	46.7
17:00 - 18:00	48.1	45.8	47.6	44.9	46.9	46.1	45.9
18:00 - 19:00	47.5	46.4	47.0	46.5	49.2	44.7	46.3
19:00 - 20:00	45.9	44.0	45.6	48.2	48.0	44.2	46.3
20:00 - 21:00	43.4	43.4	44.8	46.7	46.5	44.2	45.1
21:00 - 22:00	43.6	43.8	44.5	44.3	46.4	45.1	44.5
22:00 - 23:00	43.9	43.8	43.1	45.0	45.7	44.0	43.3
23:00 - 00:00	44.0	42.6	43.8	44.8	45.4	44.4	43.5
00:00 - 01:00	44.0	43.3	43.7	44.5	45.8	43.7	42.8
01:00 - 02:00	44.0	42.4	43.3	44.1	45.0	43.5	42.9
02:00 - 03:00	43.1	41.4	42.6	43.0	43.3	43.6	42.2
03:00 - 04:00	41.8	41.7	41.5	43.2	43.6	43.5	43.0
04:00 - 05:00	42.3	42.1	42.2	42.5	44.4	43.2	42.2
05:00 - 06:00	41.8	43.5	43.1	42.8	44.1	42.1	42.2
06:00 - 07:00	43.6	44.3	45.4	42.7	43.0	43.0	42.8
07:00 - 08:00	42.8	45.0	46.7	45.0	46.2	44.7	44.0
08:00 - 09:00	41.0	43.3	46.3	46.6	46.7	47.2	44.3
09:00 - 10:00	41.2	44.0	45.4	43.6	45.2	45.8	45.2
10:00 - 11:00	44.0	43.7	46.0	46.3	44.6	45.1	43.2
11:00 - 12:00	43.5	43.5	47.7	45.2	45.9	45.1	43.9
12:00 - 13:00	44.0	43.6	46.3	45.7	44.2	45.2	44.1
13:00 - 14:00	44.8	44.9	54.7	44.7	44.9	44.6	43.2
L90(avg)*	44.6	44.2	46.7	45.2	45.7	44.7	44.5

Remark : * Average time between 14:00-14:00

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Noise Monitoring Result : Community Noise
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Chakklang Community (N3)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820726
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	Equivalent Sound Pressure Level (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
15:00 - 16:00	59.3	54.0	62.3	45.4	46.2	45.9	45.7
16:00 - 17:00	58.3	55.0	58.4	48.8	49.5	46.8	45.4
17:00 - 18:00	53.5	57.0	62.1	60.7	62.9	58.9	50.8
18:00 - 19:00	55.8	55.9	65.0	63.2	58.5	54.4	56.6
19:00 - 20:00	51.3	53.7	57.5	58.3	59.6	58.4	51.1
20:00 - 21:00	50.0	51.7	56.0	60.0	55.7	55.6	51.5
21:00 - 22:00	48.6	46.9	47.8	58.5	53.4	58.7	54.6
22:00 - 23:00	45.8	47.9	57.4	59.0	54.3	56.3	61.0
23:00 - 00:00	45.9	46.1	48.8	58.2	56.2	57.0	55.9
00:00 - 01:00	49.1	45.9	47.2	53.1	53.8	56.9	56.7
01:00 - 02:00	46.3	45.8	56.9	49.3	57.0	51.9	56.0
02:00 - 03:00	45.1	59.4	58.8	57.3	53.5	55.4	54.1
03:00 - 04:00	45.4	45.5	55.5	54.9	52.5	55.6	53.0
04:00 - 05:00	46.1	46.7	55.0	58.9	55.5	54.2	58.2
05:00 - 06:00	51.1	53.7	61.1	58.1	56.9	55.3	55.2
06:00 - 07:00	51.9	52.0	59.6	57.3	54.2	52.5	55.6
07:00 - 08:00	50.3	61.1	65.9	54.3	54.0	53.7	56.0
08:00 - 09:00	53.1	57.8	51.0	50.1	50.4	54.8	56.2
09:00 - 10:00	53.9	55.1	47.4	52.7	48.1	47.6	55.7
10:00 - 11:00	54.5	55.1	46.9	46.9	59.3	47.1	55.7
11:00 - 12:00	58.5	54.6	48.7	47.4	47.6	47.9	55.6
12:00 - 13:00	52.2	51.6	47.0	46.7	46.1	46.6	55.5
13:00 - 14:00	53.4	51.1	45.8	54.4	50.3	46.6	55.7
14:00 - 15:00	54.9	57.3	45.6	46.3	47.9	45.8	55.9
Leq(24)*	53.4	54.7	58.6	56.7	55.6	54.5	55.5
Ldn	56.5	59.4	64.0	63.4	61.7	61.6	63.0
Lmax **	87.6	89.0	98.5	91.0	88.5	88.9	94.3
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 15:00-15:00
** Maximum Sound Pressure Level between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
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Noise Monitoring Result : Background Noise
MTR-PTTGC18 (Phenol Plant)

Location : Map Chalute Chakklang Community (N3)
Monitor Period : 17-24 Apr 2026
SLM Model : SCARLET ST-21D
Serial No : 820726
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-095

Time	L90 (dB(A))						
	17-18 Apr 2026	18-19 Apr 2026	19-20 Apr 2026	20-21 Apr 2026	21-22 Apr 2026	22-23 Apr 2026	23-24 Apr 2026
15:00 - 16:00	46.0	44.9	44.8	43.1	43.4	43.6	42.7
16:00 - 17:00	45.9	46.1	45.2	43.0	43.8	42.2	43.0
17:00 - 18:00	44.6	45.3	48.6	43.4	43.3	42.8	43.2
18:00 - 19:00	44.8	44.7	47.5	45.2	44.6	44.5	43.6
19:00 - 20:00	44.4	44.6	45.1	45.7	44.0	44.2	42.6
20:00 - 21:00	44.0	44.0	43.7	43.8	43.2	45.6	42.8
21:00 - 22:00	44.0	43.9	44.1	46.2	44.5	46.0	44.0
22:00 - 23:00	43.9	44.1	43.4	44.6	44.0	44.0	43.8
23:00 - 00:00	43.6	43.7	44.2	45.1	44.0	45.9	43.9
00:00 - 01:00	42.8	43.3	43.9	44.2	43.8	44.8	43.5
01:00 - 02:00	43.3	43.3	45.6	44.1	44.3	46.0	42.7
02:00 - 03:00	43.3	43.1	46.6	44.9	44.5	46.5	44.6
03:00 - 04:00	42.5	43.2	44.5	44.9	43.9	45.3	44.0
04:00 - 05:00	43.0	43.2	45.7	44.9	44.0	45.5	45.0
05:00 - 06:00	43.8	44.0	45.9	45.5	43.7	46.2	43.7
06:00 - 07:00	44.0	44.1	45.5	45.4	44.6	45.2	43.8
07:00 - 08:00	43.7	44.0	45.1	45.0	44.2	44.4	43.9
08:00 - 09:00	43.1	43.9	44.1	44.5	45.3	44.1	43.9
09:00 - 10:00	42.5	44.1	44.0	44.0	44.0	43.2	43.9
10:00 - 11:00	43.3	43.3	44.6	43.9	43.5	43.8	43.9
11:00 - 12:00	43.9	44.7	44.8	44.2	44.2	43.5	43.9
12:00 - 13:00	43.9	45.0	43.7	43.6	43.6	42.4	44.1
13:00 - 14:00	44.7	44.2	42.9	43.7	43.3	41.8	44.0
14:00 - 15:00	45.1	44.4	43.2	43.4	43.3	42.6	44.0
L90(avg)*	44.0	44.2	45.1	44.5	44.0	44.5	43.7

Remark : * Average time between 15:00-15:00

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Noise Monitoring Result : Community Noise
MTR-PTTGC18 (Phenol Plant)

Location : South Fence of Project (N4)
Monitor Period : 20-27 May 2026
SLM Model : Cirrus CR161B
Serial No : G301354
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-143

Time	Equivalent Sound Pressure Level (dB(A))						
	20-21 May 2026	21-22 May 2026	22-23 May 2026	23-24 May 2026	24-25 May 2026	25-26 May 2026	26-27 May 2026
10:00 - 11:00	55.1	56.3	55.7	55.0	54.3	55.0	53.7
11:00 - 12:00	56.9	56.3	56.4	54.5	53.7	54.6	54.3
12:00 - 13:00	53.5	53.7	55.2	53.8	53.9	54.8	53.3
13:00 - 14:00	54.4	55.4	54.8	53.9	53.7	54.0	53.5
14:00 - 15:00	53.8	57.2	56.5	54.3	55.0	56.3	55.4
15:00 - 16:00	55.0	54.5	56.6	54.7	54.2	53.7	56.0
16:00 - 17:00	54.3	55.3	56.7	54.3	54.3	54.2	55.0
17:00 - 18:00	56.6	55.8	56.1	54.9	54.9	55.2	54.2
18:00 - 19:00	56.4	55.7	56.8	57.3	56.8	56.1	56.5
19:00 - 20:00	56.0	55.3	56.1	55.8	55.9	55.0	55.7
20:00 - 21:00	55.9	54.5	55.9	55.8	55.6	54.8	56.1
21:00 - 22:00	55.7	54.6	55.8	56.0	55.5	54.2	55.5
22:00 - 23:00	54.8	54.8	55.5	55.4	55.1	53.9	55.3
23:00 - 00:00	54.4	54.8	55.3	55.3	55.1	53.8	55.1
00:00 - 01:00	54.2	55.0	55.2	55.1	55.0	53.7	54.2
01:00 - 02:00	54.5	55.1	55.2	55.1	54.8	53.9	54.1
02:00 - 03:00	54.2	55.3	55.0	54.7	55.2	53.3	53.9
03:00 - 04:00	54.4	55.4	54.6	55.4	54.4	53.4	53.8
04:00 - 05:00	55.2	54.7	54.8	55.8	54.6	53.7	54.1
05:00 - 06:00	55.4	58.6	55.4	56.2	56.7	55.1	56.2
06:00 - 07:00	55.7	70.2	55.5	55.4	55.6	55.1	55.8
07:00 - 08:00	54.8	57.2	55.7	54.6	55.2	55.2	57.0
08:00 - 09:00	56.9	55.3	54.8	54.0	54.8	54.3	54.4
09:00 - 10:00	54.3	56.5	54.4	54.5	54.5	53.5	54.1
Leq(24)*	55.2	59.0	55.6	55.2	55.0	54.5	55.0
Ldn	61.3	67.7	61.7	61.8	61.6	60.6	61.3
Lmax **	80.8	104.6	85.9	82.0	79.7	80.7	83.4
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

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

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Noise Monitoring Result : Background Noise
MTR-PTTGC18 (Phenol Plant)

Location : South Fence of Project (N4)
Monitor Period : 20-27 May 2026
SLM Model : Cirrus CR161B
Serial No : G301354
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-143

Time	L90 (dB(A))						
	20-21 May 2026	21-22 May 2026	22-23 May 2026	23-24 May 2026	24-25 May 2026	25-26 May 2026	26-27 May 2026
10:00 - 11:00	52.4	53.0	54.4	53.4	53.1	52.4	52.3
11:00 - 12:00	52.7	52.9	54.0	53.4	53.0	52.7	52.3
12:00 - 13:00	52.8	53.0	54.2	53.2	53.0	52.4	52.5
13:00 - 14:00	52.6	53.3	53.7	53.2	53.0	52.4	52.4
14:00 - 15:00	52.7	53.9	54.2	53.4	53.4	52.6	52.2
15:00 - 16:00	52.8	53.6	54.4	53.4	53.4	52.6	52.6
16:00 - 17:00	53.1	53.6	54.4	53.7	53.6	52.9	52.8
17:00 - 18:00	53.8	54.0	55.3	54.2	54.2	54.0	53.0
18:00 - 19:00	54.4	54.2	55.4	54.7	54.8	54.5	54.0
19:00 - 20:00	54.3	54.2	55.3	55.0	55.0	54.2	54.8
20:00 - 21:00	54.5	54.1	55.4	55.0	55.0	54.0	55.0
21:00 - 22:00	54.8	54.1	55.2	55.0	54.7	53.6	54.8
22:00 - 23:00	53.9	54.4	55.0	54.9	54.6	53.3	54.6
23:00 - 00:00	53.8	54.4	54.8	54.7	54.6	53.3	54.3
00:00 - 01:00	53.6	54.6	54.8	54.7	54.5	53.2	53.4
01:00 - 02:00	53.6	54.7	54.7	54.6	54.1	53.5	53.4
02:00 - 03:00	53.7	54.8	54.2	53.9	53.9	53.0	53.5
03:00 - 04:00	54.0	54.7	54.2	53.9	53.9	53.0	53.5
04:00 - 05:00	54.8	53.9	54.2	54.0	54.0	53.3	53.7
05:00 - 06:00	54.5	54.3	54.3	54.0	54.1	53.4	53.8
06:00 - 07:00	54.3	56.4	54.4	54.0	54.5	53.5	53.7
07:00 - 08:00	53.7	54.8	54.0	53.7	54.1	53.4	53.3
08:00 - 09:00	53.1	54.0	53.7	53.4	53.6	52.8	52.7
09:00 - 10:00	52.8	54.3	53.4	53.2	52.8	52.4	52.5
L90(avg)*	53.7	54.2	54.5	54.1	54.0	53.2	53.5

Remark : * Average time between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

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(Miss Preeda Somjai)
Technical Management Team

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Noise Monitoring Result : Community Noise
MTR-PTTGC18 (Phenol Plant)

Location : West Fence of Project (N5)
Monitor Period : 20-27 May 2026
SLM Model : Cirrus CR161B
Serial No : G303385
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-143

Time	Equivalent Sound Pressure Level (dB(A))						
	20-21 May 2026	21-22 May 2026	22-23 May 2026	23-24 May 2026	24-25 May 2026	25-26 May 2026	26-27 May 2026
10:00 - 11:00	60.5	60.7	61.0	59.7	59.6	60.0	59.3
11:00 - 12:00	61.1	60.9	60.7	59.9	59.5	59.6	59.5
12:00 - 13:00	59.5	60.3	60.1	60.0	60.0	59.7	59.7
13:00 - 14:00	60.5	60.9	60.7	59.7	59.5	59.7	59.4
14:00 - 15:00	60.3	62.2	60.6	59.6	59.3	60.0	59.4
15:00 - 16:00	60.4	61.5	60.2	59.4	59.7	59.5	59.4
16:00 - 17:00	60.9	62.4	61.5	59.9	59.4	60.5	61.1
17:00 - 18:00	60.7	60.8	61.8	60.3	59.6	61.2	60.6
18:00 - 19:00	61.3	60.8	60.9	60.6	59.9	61.1	60.2
19:00 - 20:00	60.6	60.1	60.0	59.7	59.4	59.5	59.8
20:00 - 21:00	60.5	60.4	60.0	59.8	59.3	59.3	59.4
21:00 - 22:00	61.3	60.1	59.8	59.8	59.3	59.2	59.4
22:00 - 23:00	61.1	60.1	59.9	59.8	59.2	59.3	59.1
23:00 - 00:00	60.5	59.7	59.9	59.6	59.2	59.2	59.0
00:00 - 01:00	60.3	60.0	59.7	59.3	59.4	59.4	59.2
01:00 - 02:00	61.1	59.6	59.8	59.4	59.1	59.4	59.1
02:00 - 03:00	61.1	59.5	59.7	59.2	59.4	59.2	59.3
03:00 - 04:00	60.5	59.9	59.7	59.4	59.1	59.3	59.2
04:00 - 05:00	60.8	60.3	59.7	60.1	59.3	60.1	59.8
05:00 - 06:00	60.6	62.6	60.1	59.9	59.9	60.0	59.9
06:00 - 07:00	60.3	61.3	60.3	59.9	60.3	60.2	60.3
07:00 - 08:00	62.0	62.4	61.0	63.2	61.1	61.1	60.7
08:00 - 09:00	61.1	62.1	60.2	60.1	60.1	59.9	60.1
09:00 - 10:00	60.8	61.3	59.8	59.4	59.7	59.9	59.6
Leq(24)*	60.8	60.9	60.3	60.0	59.6	59.9	59.7
Ldn	67.1	67.0	66.4	66.1	65.9	66.1	65.9
Lmax **	87.0	105.9	91.1	84.8	84.3	82.1	83.1
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

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

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Noise Monitoring Result : Background Noise
MTR-PTTGC18 (Phenol Plant)

Location : West Fence of Project (N5)
Monitor Period : 20-27 May 2026
SLM Model : Cirrus CR161B
Serial No : G303385
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 14 Oct 2025
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 13 Oct 2026
Cal Sheet No.: CR-515-2026-143

Time	L90 (dB(A))						
	20-21 May 2026	21-22 May 2026	22-23 May 2026	23-24 May 2026	24-25 May 2026	25-26 May 2026	26-27 May 2026
10:00 - 11:00	59.0	58.9	59.4	59.0	58.8	58.7	58.7
11:00 - 12:00	58.8	59.1	59.3	59.0	58.8	58.7	58.6
12:00 - 13:00	58.6	58.9	59.3	58.8	58.7	58.7	58.6
13:00 - 14:00	58.9	59.1	59.3	58.8	58.7	58.7	58.6
14:00 - 15:00	58.7	59.9	59.4	58.8	58.7	58.6	58.5
15:00 - 16:00	58.9	59.2	59.3	58.7	58.7	58.5	58.6
16:00 - 17:00	58.9	59.6	59.5	58.9	58.8	58.7	58.8
17:00 - 18:00	59.1	59.0	59.5	59.1	59.0	59.1	58.9
18:00 - 19:00	59.3	59.1	59.6	59.3	59.1	59.2	59.2
19:00 - 20:00	59.1	58.8	59.4	59.1	58.9	58.9	59.0
20:00 - 21:00	58.9	58.9	59.4	59.1	58.9	58.8	58.9
21:00 - 22:00	59.2	58.9	59.5	59.2	58.8	58.8	58.8
22:00 - 23:00	59.2	58.9	59.6	59.1	58.9	58.9	58.7
23:00 - 00:00	59.0	58.8	59.6	59.1	58.9	58.8	58.7
00:00 - 01:00	59.0	58.9	59.4	59.0	59.0	59.1	58.6
01:00 - 02:00	59.0	58.8	59.5	59.0	58.7	59.1	58.7
02:00 - 03:00	59.1	58.8	59.3	58.9	58.8	58.9	59.0
03:00 - 04:00	59.2	59.0	59.4	59.1	58.8	59.0	59.0
04:00 - 05:00	59.3	59.2	59.3	59.2	58.9	59.2	59.2
05:00 - 06:00	59.3	59.6	59.4	59.2	59.3	59.3	59.2
06:00 - 07:00	59.1	60.7	59.4	59.2	59.3	59.3	59.2
07:00 - 08:00	59.2	60.5	59.2	59.1	59.4	59.3	59.1
08:00 - 09:00	59.1	59.7	59.1	59.0	59.0	58.8	58.9
09:00 - 10:00	59.1	59.6	59.0	58.8	58.7	58.7	58.7
L90(avg)*	59.0	59.3	59.4	59.0	58.9	58.9	58.8

Remark : * Average time between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

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ใบรับรองผลการตรวจวัดคุณภาพอากาศในสถานประกอบการ

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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.**	: 0265/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 13/02/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 16/02/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 19/02/2026
Tel/Fax	: 66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 24/02/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 1 (P1)	13/02/2026 09:55-14:55	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 2 (P2)	13/02/2026 10:00-15:00	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5
บริเวณลานถังเก็บฟีนอล (P3)	13/02/2026 10:05-15:05	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5

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.

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3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0914/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 22/05/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 27/05/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 05/06/2026
Tel/Fax	: 66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 12/06/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 1 (P1)	22/05/2026 09:25-13:25	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 2 (P2)	22/05/2026 09:30-13:30	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5
บริเวณลานถังเก็บฟีนอล (P3)	22/05/2026 09:35-13:35	Phenol	NIOSH 2546/GC FID	< 0.01	ND	5

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0265/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 13/02/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 16/02/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 20/02/2026
Tel/Fax	66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 24/02/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตคิวมีน	13/02/2026	Benzene	NIOSH 1501/GC FID	< 0.007	ND	1
สายการผลิตที่ 1 (P4)	10:05-15:05	Cumene	NIOSH 1501/GC FID	< 0.01	ND	50
บริเวณส่วนการผลิตคิวมีน	13/02/2026	Benzene	NIOSH 1501/GC FID	< 0.007	ND	1
สายการผลิตที่ 2 (P5)	09:50-14:50	Cumene	NIOSH 1501/GC FID	< 0.01	ND	50
บริเวณลานถังเก็บเบนซีน (P6)	13/02/2026 10:10-15:10	Benzene	NIOSH 1501/GC FID	< 0.007	ND	1
บริเวณถังเก็บคิวมีน	13/02/2026	Cumene	NIOSH 1501/GC FID	< 0.01	0.08	50
(Cumene Storage Tank) (P9)	10:15-15:15					
บริเวณถังเก็บคิวมีน	13/02/2026	Cumene	NIOSH 1501/GC FID	< 0.01	0.02	50
(Cumene Rundown Tank) (P10)	10:10-15:10					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0914/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 22/05/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 27/05/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 05/06/2026
Tel/Fax	66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 12/06/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตคิวมีน	22/05/2026	Benzene	NIOSH 1501/GC FID	< 0.007	0.266	1
สายการผลิตที่ 1 (P4)	09:40-13:40	Cumene	NIOSH 1501/GC FID	< 0.01	ND	50
บริเวณส่วนการผลิตคิวมีน	22/05/2026	Benzene	NIOSH 1501/GC FID	< 0.007	ND	1
สายการผลิตที่ 2 (P5)	09:45-13:45	Cumene	NIOSH 1501/GC FID	< 0.01	0.06	50
บริเวณลานถังเก็บเบนซีน (P6)	22/05/2026	Benzene	NIOSH 1501/GC FID	< 0.007	ND	1
	09:50-13:50					
บริเวณถังเก็บคิวมีน	22/05/2026	Cumene	NIOSH 1501/GC FID	< 0.01	ND	50
(Cumene Storage Tank) (P9)	10:05-14:05					
บริเวณถังเก็บคิวมีน	22/05/2026	Cumene	NIOSH 1501/GC FID	< 0.01	ND	50
(Cumene Rundown Tank) (P10)	10:10-14:10					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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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.**	: 0265/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 13/02/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 16/02/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 19/02/2026
Tel/Fax	66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 24/02/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 1 (P1)	13/02/2026 09:55-11:55	Acetone	NIOSH 1300/GC	< 0.03	ND	1,000
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 2 (P2)	13/02/2026 10:00-12:00	Acetone	NIOSH 1300/GC	< 0.03	ND	1,000
บริเวณถังเก็บอะซิโตน (P7)	13/02/2026 10:10-12:10	Acetone	NIOSH 1300/GC	< 0.03	ND	1,000

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0914/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 22/05/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 27/05/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 08/06/2026
Tel/Fax	66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 12/06/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sorbent Adsorption
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 1 (P1)	22/05/2026 09:25-12:25	Acetone	NIOSH 1300/GC	< 0.02	ND	1,000
บริเวณส่วนการผลิตฟีนอล สายการผลิตที่ 2 (P2)	22/05/2026 09:30-12:30	Acetone	NIOSH 1300/GC	< 0.02	ND	1,000
บริเวณถังเก็บอะซิโตน (P7)	22/05/2026 09:55-13:55	Acetone	NIOSH 1300/GC	< 0.02	ND	1,000

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0265/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 13/02/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 16/02/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 19/02/2026
Tel/Fax	: 66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 24/02/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sampling Bag
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณ Truck Loading (P8)	13/02/2026 10:30-10:45	NMHC	Flame Ionization detection/ NMHC Analyzer	< 0.05	0.05	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
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Technical Management Team

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5. - No Standard.

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0914/69
For	: PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**Sampling Date**	: 22/05/2026
Address	: 9 Soi G9 WHA Eastern Industrial Estate (Map Ta Phut),	**Received Date**	: 27/05/2026
	Pakornsongkrohraj Rd., Map Ta Phut, Muang, Rayong, 21150	**Test Date**	: 05/06/2026
Tel/Fax	: 66(0) 38-643-8000/66(0) 38-643-3809	**Report Date**	: 12/06/2026

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Sampling Bag
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณ Truck Loading (P8)	22/05/2026 10:00-10:15	NMHC	Flame Ionization detection/ NMHC Analyzer	< 0.05	0.52	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
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ใบรับรองผลการตรวจวัดระดับเสียงในสถานประกอบการ

Noise Monitoring Result : Working Noise
MTR-PTTGC18 (Phenol Plant)

Location : Air Compressor 1
Monitor Period : Mar 17, 2026
SLM Model : SCARLET ST-21D
Serial No : 821080
Site Operator : Miss Wiraya Patchimboon

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : Oct 14 2025
SLM Reading / Adjust dB(A) : 93.8/0.0
Expire Date : Oct 13 2026
Cal Sheet No.: CR-515-2026-058

Time	Equivalent Sound Pressure Level (dB(A))
	Mar 17, 2026
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	82.9
10:00 - 11:00	83.2
11:00 - 12:00	83.1
12:00 - 13:00	83.1
13:00 - 14:00	83.2
14:00 - 15:00	83.2
15:00 - 16:00	83.2
16:00 - 17:00	83.2
17:00 - 18:00	83.3
18:00 - 19:00	83.2
19:00 - 20:00	83.3
20:00 - 21:00	83.2
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	83.2
Lmax **	89.6
Standard-12Hr	**87 dB(A)**
Standard-Max	**140 dB(A)**

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

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Bangsue, Bangkok 10800
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Noise Monitoring Result : Working Noise
MTR-PTTGC18 (Phenol Plant)

Location : Air Compressor 2	**Monitor Period** : Mar 17, 2026
SLM Model : SCARLET ST-21D	**Serial No** : 821078
Site Operator : Miss Wiraya Patchimboon	

Calibrator Model : Cirrus CR:515	**Serial No** : 97097
Calibration Ref dB(A) : 94.0	**Certified Date** : Oct 14 2025
SLM Reading / Adjust dB(A) : 93.8/0.0	**Expire Date** : Oct 13 2026
Cal Sheet No.: CR-515-2026-058	

Time	Equivalent Sound Pressure Level (dB(A))
	Mar 17, 2026
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	82.1
10:00 - 11:00	82.4
11:00 - 12:00	82.4
12:00 - 13:00	82.3
13:00 - 14:00	82.1
14:00 - 15:00	82.3
15:00 - 16:00	82.2
16:00 - 17:00	82.3
17:00 - 18:00	82.0
18:00 - 19:00	82.5
19:00 - 20:00	82.3
20:00 - 21:00	82.3
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	82.3
Lmax **	93.9
Standard-12Hr	**87 dB(A)**
Standard-Max	**140 dB(A)**

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)
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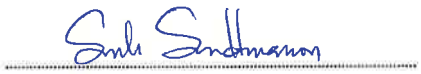
NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2603-0096
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 17/03/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1053
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 113.6/0.4	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-036		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006009	Phenol Plant 1	08.48-19.00	84.1	82.5	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist



(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2603-0096
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 17/03/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1101
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 113.7/0.3	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-036		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006011	Phenol Plant 1	08.52-19.00	19.3	76.1	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2603-0096
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 17/03/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1043
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 114.1/-0.1	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-036		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005900	Phenol Plant 1	08.54-19.00	59.7	81.0	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2605-0249
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 22/05/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Pulsar 23	**INSTRUMENT SERIAL NO.**	: PB617
CALIBRATOR MODEL	: PULSAR 22R	**CALIBRATOR SERIAL NO.**	: 79781
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 20/04/2026
READING / ADJUST	: 113.7/0.3	**EXPIRE DATE**	: 19/04/2027
CAL SHEET NO.	: NC-PULSAR-2026-032		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005933	Phenol Plant 1	07.37-18.59	7.3	71.9	83.0

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Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2603-0096
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 17/03/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1056
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 114.2/-0.2	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-036		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008165	Phenol Plant 2	08.56-19.00	63.4	81.3	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2603-0096
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 17/03/2026
OPERATOR	: Miss Wiraya Patchimboon	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1055
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 114.4/-0.4	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-036		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005886	Phenol Plant 2	08.59-19.00	38.8	79.1	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME :	PTT Global Chemical Public Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2606-0222
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 19/06/2026
OPERATOR	: Mr. Pongsiri Jukkeaw	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1023
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 114.6/-0.6	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-106		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006065	Phenol Plant 2	07.21-19.20	63.6	81.3	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.

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
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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 Co., Ltd. Branch 18 (Phenol Plant)	**REFERENCE NO.**	: 226001-TWA-2606-0222
MEASUREMENT BY	: SECOT Co., Ltd.	**MEASUREMENT DATE**	: 19/06/2026
OPERATOR	: Mr. Pongsiri Jukkeaw	**INSTRUMENT**	: Dosimeter
INSTRUMENT MODEL	: Cirrus CR110A	**INSTRUMENT SERIAL NO.**	: CB1104
CALIBRATOR MODEL	: Cirrus RC110A	**CALIBRATOR SERIAL NO.**	: 95167
CALIBRATION REF.	: 1,000 Hz, 114 dB	**CALIBRATION DATE**	: 02/03/2026
READING / ADJUST	: 113.0/1.0	**EXPIRE DATE**	: 01/03/2027
CAL SHEET NO.	: NC-CIRRUS-2026-106		

OPERATOR ID	LOCATION	TIME	%DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26005993	Phenol Plant 2	07.22-19.20	1.7	65.6	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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3. * Notification of the Department of Labour Protection and Welfare, B.E. 2561 (2018).

4. TWA means Time Weighted Average.

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HEAT STRESS MEASUREMENT REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 226001-WBGT-2604-0174
	Branch 18 (Phenol Plant)	**INSTRUMENT**	: WBGT METER
MEASUREMENT BY	: SECOT Co., Ltd.	**SERIAL NO.**	: 3522210179
MEASUREMENT DATE	: 22/04/2026	**MODEL**	: JT2011-E2A
MEASUREMENT LOCATION	: Flare radius 60 meters	**SITE OPERATOR**	: Miss Wiraya Patchimboon

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	$WBGT_{Out}$	$WBGT_{Avg}$	WBGT
Flare radius 60 meters	14.00-14.30	30.9	32.8	40.0	32.9	32.6	34.0
	14.30-15.00	30.9	32.9	39.4	32.8		
	15.00-15.30	30.5	32.6	38.1	32.2		
	15.30-16.00	30.6	32.5	38.0	32.3		

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

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3. * WBGT standard was notified by the Ministry of Industry, B.E.2546 (2003) and the Ministerial Regulations of Labor, B.E.2559 (2016).

4. NWB = Natural Wet Bulb Temperature

DB = Dry Bulb Temperature

GT = Globe Temperature

WBGT = Wet Bulb Globe Temperature

5. Work Load : Light work load = 34°C, Moderate work load = 32°C and Heavy work load = 30°C

ภาคผนวก จ

ข้อมูลการตรวจเทียบเครื่องมือ

(Calibration Data Sheets)

Sheet No. : CAL-M5006/01/26

CONTROL UNIT CALIBRATION
(Metric units, mm)

Date: 5 Jan 26

	Initial	Final	Average	
Barometric press, Pb	758	758	758	mmHg

Dry Gas Meter Data

Console No.: M50-06

Metering System ID

DGM Number: 28779

DGM Model: MST-C2-1

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No.: 358794

Model: S110

Correction factor (Yr): 1.0058

Last Calibration Date: 10 Oct 25

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V_r Liters	DGM Volume V_m Liters	Temperature (^oC) Ref DGM T_r	Dry Gas Meter Inlet T_i	Outlet T_o	Avg T_m	Time Θ min	DGM Correction factor (Y)	ΔH@ mm
12.5	100.0	101.0	25	25	24	24.5	9.03	0.9930	46.5409
25.0	100.0	101.0	25	25	24	24.5	6.35	0.9918	45.9956
50.0	100.0	101.0	25	25	24	24.5	4.57	0.9894	47.5770
76.0	100.0	100.0	25	25	24	24.5	3.68	0.9968	47.0462
100.0	100.0	99.0	25	25	24	24.5	3.68	1.0045	47.2108
150.0	100.0	99.0	25	25	24	24.5	2.62	0.9997	46.8616
							Average	0.9958	46.8720

Approved by :

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Sheet No. : CAL-PI-PV12-01/2026

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Duct No.: CD-0123

Calibration Date : 08-01-2026

Calibration Standard Pitot tube data

Pitot No. : Std-02

Type S Pitot No. : PV12-01

Coefficient (Cp) : 0.99

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	0.0000
2	15.0	21.0	0.8367	0.0000
3	15.0	21.0	0.8367	0.0000

$C_{P(A)}$,avg = 0.8367

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	20.5	0.8468	0.0034
2	15.0	20.5	0.8468	0.0034
3	15.0	21.0	0.8367	-0.0068

$C_{P(B)}$,avg = 0.8435

$|CP(A)-CP(B)|$ = 0.0068

$C_{P(Avg)}$ = 0.8401

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 ot be used ***

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Sheet No. : CAL-PI-PS10-01/2026

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 07-01-2026

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

$C_{P(A)}$avg 0.8401

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	21.0	0.8367	-0.0068
2	15.0	20.5	0.8468	0.0034
3	15.0	20.5	0.8468	0.0034

$C_{P(B)}$avg 0.8435

$|CP(A)-CP(B)|$ = 0.0034

$C_{P(Avg)}$ = 0.8418

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 ot be used ***

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Sheet No. : CAL-PI-PS10-02/2026

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 07-01-2026

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS10-02

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

$C_{P(A)}$avg 0.8401

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	21.0	0.8367	-0.0068
2	15.0	20.5	0.8468	0.0034
3	15.0	20.5	0.8468	0.0034

$C_{P(B)}$avg 0.8435

$|CP(A)-CP(B)|$ = 0.0034

$C_{P(Avg)}$ = 0.8418

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 ot be used ***

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NSC-TISI-TIS 17025
CALIBRATION 0119

Certificate No.: CP20250278EA
Operation No.: CP2025100271

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:	9 October 2025
Calibrated Date:	14 October 2025
Issued Date:	16 October 2025
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.

Certificate No.: CP20250278EA

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	2661000	AA-1011-25	24 June 2026
2)	Waveform Generator	33511B	MY52302264	CK20250036EA	29 June 2026
3)	Audio Analyzing DMM	2015-P	000136E	CK20250002EA CB20250007EA	25 December 2025 6 January 2026
4)	Pressure humidity and Temperature Transmitter	PTU301	F0640003	CL1-P250034 CD20250096EA	10 April 2026 29 March 2026

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).; ILAC Policy, Item 2 (1) No.ILAC-P10:07/2020.
   Reference standards instrument for Electrical function
   - Electrical and Electronics Institute; NSC Accredited Calibration No.0119
   - IRPC Metrology Center, IRPC Public Co., Ltd.; NSC Accredited Calibration No.0204.

Result of Calibration:-

1. Function : Sound pressure level

Norminal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value[1] (dB)	Acceptance limit[3] (dB)
1000	94	94.07	0.07	±0.25

2. Function : Frequency

Norminal Sound Pressure level (dB)	Specified Frequency (Hz)	Measured value (Hz)	Deviated value[2] (%)	Acceptance limit[3] (%)
94	1000	1000.31	0.03	±.0.70

สถาบันไฟฟ้าและอิเล็กทรอนิกส์
ELECTRICAL AND ELECTRONICS INSTITUTE

ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20250278EA

Calibration Report

3. Function : Total distortion + noise

Norminal Sound Pressure level (dB)	Norminal Frequency (Hz)	Measured value[4] (%)	Acceptance limit[5] (%)
94	1000	0.47	2.50

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 absolube valule of the difference between the measured value and the corresponding specified sound pressure level.
[2] The deviated value is the absolube valule 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 - -

Sheet No. : CR-515-2026-095

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT Calibration Date: Apr 17, 26

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
5	SCARLET	ST-21D	820726	93.8	0.0
7	SCARLET	ST-21D	820728	93.8	0.0
8	SCARLET	ST-21D	820729	93.8	0.0
9	SCARLET	ST-21D	820730	93.8	0.0
10	SCARLET	ST-21D	820731	93.8	0.0

Calibrated by : _____ Approved by : Preeda S.

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Sheet No. : CR-515-2026-143

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT Calibration Date: May 20, 26

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
13	Cirrus	CR161B	G301354	93.7	0.0
45	Cirrus	CR161B	G303385	93.7	0.0

Calibrated by : _____ Approved by : Preeda S.

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Sheet No. : CR-515-2026-058

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT Calibration Date: Mar 17, 26

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
11	SCARLET	ST-21D	821078	93.8	0.0
13	SCARLET	ST-21D	821080	93.8	0.0

Calibrated by : _____ Approved by : _____

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Tel: (662)959-3600 Fax: (662) 959-3535
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CERTIFICATE OF CALIBRATION

ISSUED BY **Noisemeters**

DATE OF ISSUE **02 March 2026** CERTIFICATE NUMBER **260487**

NoiseMeters
Acoustic House
Bridlington Road
Hunmanby
YO14 0PH
United Kingdom
www.noisemeters.com

Approved signatory
N.Smith
Electronically signed:

doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Cirrus Research plc **Notes:**

Model: RC:110A

Serial number: 95167

Class: 2

Test summary

Date of calibration: 02 March 2026

The doseBadge reader detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The doseBadge Reader has been shown to conform to the Class 2 requirements for periodic testing, described in Annex B of IEC 60942:2003 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

However, as public evidence was not available, from a testing organisation responsible for pattern approval, to demonstrate that the model of doseBadge Reader conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, no general statement or conclusion can be made about conformance of the doseBadge Reader to the requirements of IEC 60942:2003.

Notes:

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Environmental conditions

The following conditions were recorded at the time of the test:

Before Pressure: 100.27 kPa Temperature: 22.9 °C Humidity: 38.6 %

After Pressure: 100.27 kPa Temperature: 23.1 °C Humidity: 40 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	0939404
Environmental Monitor	Comet	T7510	21962628

Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.97	113.98	113.98	**113.98**	-0.02	±0.75	0.11 dB
Distortion (%)	< 4.00	0.45	0.44	0.44	**0.44**	0.44	+4.00	0.13 %
Frequency (Hz)	1000.0	990.3	990.3	990.4	**990.3**	-9.7	±20.0	0.1 Hz

The measured quantities or deviations (as applicable), extended by the expanded combined uncertainty of measurement, must not exceed the corresponding tolerance.

Functionality Results

Function	Result
Keypad	**Pass**
Battery Power	**Pass**
Display	**Pass**
Communication	**Pass**
2 way IR link	**Pass**
Clock	**Pass**

End of results

Sheet No. : NC-CIRRUS-2026-036

NOISE DOSE METER CALIBRATION

Calibration Location: SECOT Calibration Date: Mar 17, 26

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
CIRRUS	RC 110A	95167	114.00	1000

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR110A	CB1043	114.1	-0.1
2	Cirrus	CR110A	CB1053	113.6	0.4
3	Cirrus	CR110A	CB1055	114.4	-0.4
4	Cirrus	CR110A	CB1056	114.2	-0.2
5	Cirrus	CR110A	CB1101	113.7	0.3

Calibrated by : _____ Approved by : _____

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Sheet No. : NC-CIRRUS-2026-106

NOISE DOSE METER CALIBRATION

Calibration Location: SECOT Calibration Date: Jun 19, 26

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
CIRRUS	RC 110A	95167	114.00	1000

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR110A	CB1023	114.6	-0.6
2	Cirrus	CR110A	CB1104	113.0	1.0

Calibrated by : _____ Approved by : _____

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
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E-Mail: envserv@secot.co.th

CERTIFICATE OF CALIBRATION

ISSUED BY **Noisemeters**

DATE OF ISSUE **20 April 2026** CERTIFICATE NUMBER **264476**

NoiseMeters
Acoustic House
Bridlington Road
Hunmanby
YO14 0PH
United Kingdom
www.noisemeters.com

Approved signatory
N.Smith
Electronically signed:

doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Pulsar Instruments

Model: Model 22R

Serial number: 79781

Class: 2

Notes:

Test summary

Date of calibration: 20 April 2026

The doseBadge reader detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The doseBadge Reader has been shown to conform to the Class 2 requirements for periodic testing, described in Annex B of IEC 60942:2003 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

However, as public evidence was not available, from a testing organisation responsible for pattern approval, to demonstrate that the model of doseBadge Reader conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, no general statement or conclusion can be made about conformance of the doseBadge Reader to the requirements of IEC 60942:2003.

Notes:

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Environmental conditions

The following conditions were recorded at the time of the test:

Before	Pressure:	101.85 kPa	Temperature:	23.0 °C	Humidity: 39.1 %
After	Pressure:	101.85 kPa	Temperature:	23.0 °C	Humidity: 37.8 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	0939404
Environmental Monitor	Comet	T7510	21962628

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.93	113.92	113.94	**113.93**	-0.07	±0.75	0.09 dB
Distortion (%)	< 4.00	0.55	0.56	0.55	**0.55**	0.55	+4.00	0.22 %
Frequency (Hz)	1000.0	998.9	998.9	998.9	**998.9**	-1.1	±20.0	0.2 Hz

The measured quantities or deviations (as applicable), extended by the expanded combined uncertainty of measurement, must not exceed the corresponding tolerance.

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.98	113.97	113.98	**113.98**	-0.02	±0.75	0.09 dB
Distortion (%)	< 4.00	0.57	0.57	0.79	**0.64**	0.64	+4.00	0.22 %
Frequency (Hz)	1000.0	998.9	998.9	998.9	**998.9**	-1.1	±20.0	0.2 Hz

Functionality Results

Function	Result
Keypad	Pass
Battery Power	Pass
Display	Pass
Communication	Pass
2 way IR link	Pass
Clock	Pass

End of results

Sheet No. : NC-PULSAR-2026-032

NOISE DOSE METER CALIBRATION

Calibration Location: SECOT **Calibration Date:** May 22, 26

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
PULSAR	22R	79781	114.00	1000

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Pulsar	23	PB617	113.7	0.3

Calibrated by : **Approved by :**

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

Calibration Certificate

ENVIR SERVICE CO., LTD.
www.envirservice.co.th

ENVIR SERVICE CO., LTD. (HEAD OFFICE)
42 Ramintra 14, Yeak 9 Tha Raeng, Bang Khen, Bangkok 10230 Thailand
Tax ID: 0105555170865 Tel: 02-943-5814-5
Tel: 02-943-8201 Email: pasagorn@envirservice.co.th

Certificate No. EN202502009

CALIBRATION CERTIFICATE

Instrument Description	: WET BULE GLOBE TEMPERATURE (WBGT) METER
Manufacture	: Beijing JANTYTECH Technology Co., Ltd.
Instrument Model	: JT2011-E2A
Serial No.	: 3522210179
Customer Name	: SECOT CO., LTD.
Address	: 239 Thanon Rim Khlong Prapa, Bang Sue, Bangkok 10800

Measurement standard used in the Calibration

Reference Standard: Standard Calibration Device, Manufacture: JANTYTECH, Model WBGT (2011-E2A), SN: 241011001 Calibration Date : 2025 Oct. 27, Calibration Certificate No. : JTCD202510005

The verification result in the certificate can be traceable to international system of unit (SI) / social pubic measurement standards.

CALIBRATION REULTS

Testing Result:

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	25.2	-0.2	0.2
	30.0	30.1	-0.1	0.2
	35.0	34.9	0.1	0.2
	40.0	40.2	-0.2	0.2
	45.0	44.8	0.2	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	30.1	-0.1	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	45.1	-0.1	0.2
GLOBE	25.0	24.8	0.2	0.2
	30.0	29.9	0.1	0.2
	35.0	34.9	0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.2	-0.2	0.2

Environment Condition: Temperature (25 ± 2) °C Relative Humidity (50 ± 15) %RH

1. The report applies to the item and shall not be reproduced except in full, without written approval by Calibration Laboratory, Envir Service Co., Ltd.
2. This result of this report only to the item calibrated.

Date of Calibration : 2026-01-14
Valid to : 2027-01-13

Calibrated By : กิตติศักดิ์ จันทร์แสงวัฒนา
Kittisak Jansangwattana
(Technician)

Approved By : บริษัท เอ็นไวร์ เซอร์วิส จำกัด
ENVIR SERVICE CO., LTD.
Pasagorn Samol
(Technician Manager)

- End of Calibrated -

THAI CALIBRATION SERVICES CO., LTD.
19/8 Moo 9 Soi Raikhing 30, Phutthamonthon 5 Rd., Raikhing,
Samphran, Nakhonpathom 73210 Tel. 0-3439-7682-5, 08-6341-8613
www.thaical.com E-mail : sales@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025
CALIBRATION 0189

CALIBRATION CERTIFICATE

Certificate No.S2604485S

Customer : SECOT CO., LTD.
239 Rimklongprapa Rd.,
Bangsue, Bangkok 10800

Equipment : Non-automatic weighing instrument (Electronic instrument)

Manufacturer :	Mettler Toledo	**Order No. :**	69S1571-1
Model :	AG245	**Ambient temperature :**	(27.4 ± 5.0) °C
Accuracy class :	-	**Relative humidity :**	(46.0 ± 10.0) %
Capacity :	41 g / 210 g	**Received date :**	20-Apr-2026
Resolution :	0.00001 g / 0.0001 g	**Date of calibration :**	20-Apr-2026
Serial No. :	1117293916	**Date of issue :**	23-Apr-2026
ID No. :	-	**Condition of the balance :**	Good working conditions

Place of calibration : BAL

Calibration method

This instrument was calibrated according to the EURAMET Calibration Guide No. 18.

Condition of reference standard weight

Instrument	Nominal value	Serial No.	Certificate No.	Due-date	Density (kg/m^3)
1 Standard weight set	1 mg to 2 kg	15885+15849	M2510001S	7-Oct-2026	7950

Traceability of the reference standard weight

The measurement results are traceable to the International System of Units (SI) through Mass Calibration Laboratory Thai Calibration Services Co., Ltd., NSC-ONSC accredited no. Calibration 0189.

Calibrated By : Chartchai Rattanaapichartwong
Technician

Approved Signatory :
Somwang Wongduang

This calibration certificate may not be reproduced other than in full, except with the prior written approval of the head of TCS calibration laboratory.

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Samphran, Nakhonpathom 73210 Tel. 0-3439-7682-5, 08-6341-8613
www.thaical.com E-mail : sales@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025
CALIBRATION 0189

CALIBRATION CERTIFICATE

Certificate No.S2604485S

The repeatability of indication

Nominal Value (g)	Standard Deviation of reading (g)	Maximum difference between sucessive reading (g)	n
40	0.000005	0.00001	5
200	0.00004	0.0001	5

The effect of eccentric application of a load on the indication (test load : 100 g)

Position	Balance Reading (g)
Point 1	99.9999
Point 2	99.9997
Point 3	99.9999
Point 4	99.9998
Point 5	99.9998
Eccentric Value	0.0002

The error of indication

Nominal Value (g)	Value of Reference Standard Weight (g)	Balance Reading (g)	Correction (g)	Uncertainty (±) (g)	k
Unload	0.00000	0.00000	0.00000	0.000016	2.52
0.5	0.49999	0.50001	-0.00002	0.000023	2.04
1	1.00000	1.00000	0.00000	0.000026	2.00
10	9.99997	10.00000	-0.00003	0.000046	2.00
20	19.99996	20.00001	-0.00005	0.000062	2.00
40	40.00000	39.99999	+0.00001	0.00013	2.00
60	60.0000	60.0000	0.0000	0.00018	2.05
80	79.9999	79.9999	0.0000	0.00022	2.00
100	99.9999	99.9999	0.0000	0.00020	2.03
120	119.9999	119.9999	0.0000	0.00025	2.00
140	139.9999	139.9999	0.0000	0.00030	2.00
160	159.9999	159.9999	0.0000	0.00031	2.00
180	179.9999	180.0000	-0.0001	0.00037	2.00
200	200.0000	200.0000	0.0000	0.00033	2.00

Remark : Adjustment, External weight nominal value 200 g, Standard weight of Lab

Uncertainty of measurement

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor (k), which for a normal distribution corresponds to a coverage probability of approximately 95% (confidence level).

This report will certify of the calibrated equipment only.

--End--

TCS-F-138 Issue 01/Rev.02/8 Aug 2025

Bangkok High Lab Co.,Ltd.
4/176 Soi Ladplakao 66, Ladplakao Rd., Anusawari, Bangkhen, Bangkok 10220
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Website: www.bangkokhighlab.com E-mail: info@bangkokhighlab.com

NSC-TISI-TIS 17025
CALIBRATION 0366

CERTIFICATE OF CALIBRATION

Certificate No : S2026/030
Page : 1/5
Order No : 016/2026

Customer	:	SECOT COMPANY LIMITED
Address	:	239 Rimklongprapa Road, Bangsue, Bangkok 10800, Thailand
Instrument	:	UV/VIS spectrophotometer
Manufacture	:	Thermo Scientific
Model	:	GENESYS 150
Serial Number	:	9A5Y332022
Environment	:	Temperature (24.9 - 25) °C
	:	Humidity (59 - 58) %RH
Received Date	:	February 16, 2026
Calibration Date	:	February 16, 2026
Issued Date	:	March 2, 2026
Calibrate Status	:	No Adjustment
Calibration Area	:	Customer area
Roomname	:	Laboratory Room of SECOT COMPANY LIMITED

Calibrated By : Pannawat Pungsaard
(Mr. Pannawat Pungsaard)
Calibration Engineer

Approved By :
(Mr.Wanchai Meesiri)
Manager

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Bangkok High Lab Co.,Ltd.

Bangkok High Lab Co.,Ltd.
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NSC-TISI-TIS 17025
CALIBRATION 0366

1. Photometric Accuracy

CRMs: Neutral Density Glass Filters **CRMs Serial Number: A404**

Traceability: Traceable to NIST, U.S.A. through Neutral density filters NIST SRM 930e & 1930, Double Aperture method through Starna certificate report no. 9119762

Spectral slit width : 2.00 nm

1.1 Reading scale at 420.0 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4956	0.497	-0.0014	0.0044
0.9626	0.965	-0.0024	0.0038
2.0348	2.039	-0.0042	0.0065

1.2 Reading scale at 440.0 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4855	0.487	-0.0015	0.0040
0.9425	0.945	-0.0025	0.0040
1.9648	1.968	-0.0032	0.0065

1.3 Reading scale at 465.0 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4518	0.454	-0.0022	0.0036
0.8766	0.879	-0.0024	0.0040
1.8406	1.844	-0.0034	0.0060

1.4 Reading scale at 546.1 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4698	0.470	-0.0002	0.0036
0.9078	0.909	-0.0012	0.0036
1.8745	1.876	-0.0015	0.0065

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CALIBRATION 0366

1.5 Reading scale at 590.0 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4890	0.490	-0.0010	0.0036
0.9457	0.946	-0.0003	0.0036
1.9004	1.898	0.0024	0.0065

1.6 Reading scale at 635.0 nm

Filter STDs (Abs) Certificate	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
0.0000	0.000	0.0000	0.0036
0.4634	0.464	-0.0006	0.0036
0.8986	0.898	0.0006	0.0036
1.7803	1.778	0.0023	0.0062

2. Photometric Accuracy

CRMs: Potassium Dichromate in Perchloric acid

CRMs Serial Number: 15086 **Blank Serial Number: 15178**

Traceability: Traceable to NIST, U.S.A. through crystalline potassium dichromate NIST SRM 935a through Starna certificate report no. 127613

Spectral slit width : 2.00 nm

Wavelength (nm)	Certificate (Abs)	Average Measured Value (A)	Correction (A)	Uncertainty ± (A)
235	0.0000	0.000	0.0000	0.0050
	0.7332	0.730	0.0032	0.0056
257	0.0000	0.000	0.0000	0.0050
	0.8510	0.848	0.0030	0.0058
313	0.0000	0.000	0.0000	0.0050
	0.2861	0.286	0.0001	0.0057
350	0.0000	0.000	0.0000	0.0050
	0.6316	0.629	0.0026	0.0061

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3. Wavelength Accuracy

Spectral slit width : 2.00 nm

3.1 CRMs: Holmium Glass Filter

CRMs Serial Number: W184/H

Traceability Traceable to NIST Holmium oxide filter NIST SRM 2034, through Starna certificate report no. 9119741

Filter STDs (nm) Certificate	Average Measured Value (nm)	Correction (nm)	Uncertainty ± (nm)
241.74	241.33	0.41	0.12
279.44	279.05	0.39	0.12
287.98	287.57	0.41	0.12
334.10	333.73	0.37	0.12
361.00	361.01	-0.01	0.12
418.61	418.70	-0.09	0.12
453.63	453.53	0.10	0.12
460.05	459.97	0.08	0.12
536.66	536.43	0.23	0.12
637.98	637.76	0.22	0.12

3.2 CRMs: Didymium Glass Filter

CRMs Serial Number: W184/D

Traceability Traceable to NIST Holmium oxide filter NIST SRM 2034, through Starna certificate report no. 9119742

Filter STDs (nm) Certificate	Average Measured Value (nm)	Correction (nm)	Uncertainty ± (nm)
585.29	585.62	-0.33	0.12
684.49	684.85	-0.36	0.12
740.18	740.55	-0.37	0.12
748.48	748.54	-0.06	0.12
807.03	807.22	-0.19	0.12
879.27	879.46	-0.19	0.12

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4. *Stray Light

CRMs: Potassium Chloride aqueous solution

CRMs Serial Number: 5469 **Blank Serial Number: 8745**

Traceability Traceable to NIST, U.S.A. potassium chloride NIST SRM2032, through Starna certificate report no. 127614

Spectral slit width : 2.00 nm

Wavelength (nm)	Certificate	Average Measured
201.55	>2A	2.090
201.55	<1%T	0.97

5. *Spectral Resolution

CRMs: Toluene in Hexane

CRMs Serial Number: 8697 **Blank Serial Number: 8716**

Traceability Traceable to toluene in hexane NIST SRM2034, through Starna certificate report no. 127615

Spectral slit width (nm)	Abs Ratio
0.5	#N/A
1.0	#N/A
1.5	#N/A
2.0	1.441
3.0	#N/A

Note : * "Not TISI Accredited" in this certificate have been included for completeness

Remark: Calibrate Method

1.1 Photometric and Wavelength accuracy: In-house method W-SER-001 based on ASTM E925-02 and ASTM E275-01

1.2 Stray light: Measuring the CRMs in both absorbance and transmittance unit at wavelength 201.23 nm. Base on European Pharmacopoeia V.6.19.3 1984

1.3 Spectral resolution: Measuring the CRMs.The maximum absorbance values were read at closest to 268.7nm and the minimum absorbance values were read at closest 267.0 nm. Refer to European Pharmacopoeia V.6.19.3 1984

2. N/A = not available.
3. Uncertainty of Measurement: The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
4. This result of calibration was found accurate as shown on date and place of calibration only.
5. This report will certify of calibrated equipment only.

- End of Report -

nfi national food institute ministry of industry
อุตสาหกรรมฟู้ดอินนาลูสถิติเพื่อสถาบันอาหาร
ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

ilac-MRA THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2503897-003-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Equipment: CHAMBER (Hot Air Oven)
Manufacturer: BINDER
Model: ED 53
Serial No.: 01-27152
ID No.: N/A
Order No.: 2503897
Operation No.: 2503897-003
Date of Receipt: 14 July 2025
Date of Calibration: 14 July 2025

Calibrated by Mr.Yothin Charoensuk
Scientist

Approved by
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 17 July 2025

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.

2008 ซอยอรุณอมรินทร์ 36 แขวงอรุณอมรินทร์ เขตบางกอกน้อย กรุงเทพมหานคร 10700
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ศูนย์บริการห้องปฏิบัติการสถาบันอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-003-01

Equipment: CHAMBER (Hot Air Oven)

Model: ED 53 Serial No.: 01-27152

Resolution: 1 °C ID No.: N/A

Manufacturer: BINDER

Date of Calibration: 14 July 2025

Location: Laboratory, SECOT CO., LTD.

Environment Condition:

Ambient Temperature (32.0 ± 1) °C

Relative Humidity (60.9 ± 1) %

Line Voltage (222.5 ± 3) Volt

Condition of this results of Calibration:

1. 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	MY57003188	2503175-002	2 June 2026	NATIONAL FOOD INSTITUTE
	RTD	CH#101-109/ RTD#101-109			

3. This certificate is traceable to International System of Units (SI Units).
4. This certificate was certified only for the instrument we calibrated.
5. This result of calibration was found accurate as shown on date and place of calibration only.
6. 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 [-]

   [X] Close Fan [-]

   [-] Not Available
7. Result of Calibration : [X] Without adjustment [ ] After adjustment

2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพมหานคร 10700
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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-003-01

Equipment: CHAMBER (Hot Air Oven)

Model: ED 53 Serial No.: 01-27152

Resolution: 1 °C ID No.: N/A

Manufacturer: BINDER

Date of Calibration: 14 July 2025

Calibration point: 104,110 and 180 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	31.2	60.3	220.0
MAX	32.5	61.5	225.0

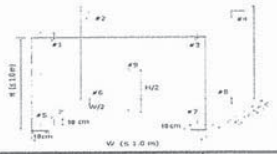

Table1 : Reporting of Temperature

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	104.25	104.72	104.26	104.20	103.90	103.85	103.76	103.75	103.82	0.72
110	110.30	110.88	110.27	110.23	110.07	110.04	109.87	109.92	109.54	0.79
180	180.48	180.72	179.88	180.30	179.84	180.53	179.82	180.16	179.38	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	0.12	0.90	1.2
110	110	110	110	0.23	1.3	1.6
176	176	176	176	0.23	1.3	1.8

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 througout 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 ---------

F-CS-012 Revision: 01 Date: 20-04-65

2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพมหานคร 10700
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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.0-2717-3000-29 FAX.0-2719-9484

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NSC-TISI-TIS17025
CALIBRATION 0008

Certificate of Calibration

Cert.No.: 25CH1009
Page.: 1 of 3

Equipment :	pH Meter
Manufacturer :	Mettler Toledo
Model :	Seven2Go
Serial No. :	B924795409
ID No. :	ID.12
Condition As-Received:	Used Item
Received Date :	26 August 2025
Calibration Date :	27 August 2025
Reference :	2508-0784DN-3
Submitted by :	Secot Co.,Ltd. 239 Rimklongprapa Road, Bangsue, Bangkok 10800
Ambient Temperature :	(25 ± 2.5) °C
Relative Humidity :	(50 ± 15) %
Calibration Procedure :	In - house method : - CP-CH5 by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM) - CP-CH8 by comparison with temperature standard
Calibrated by :	Walalak Sirithean
Approved by :	Saithip Approved Signatory

( ) Chakrit Waewwanjua
( ) Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 28 August 2025

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 head of Corporate Services 3 : Equipment Calibration and Testing Services.

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	58440003	130RC120	24E3731	25 Nov 2025
2) Ref. Standard Thermometer	4982054	110RC044	25I708	03 July 2026

- This measurement result is traceable to SI throught Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.007	CPA chem	1114384	12 June 2027
pH 6.987	CPA chem	1034204	27 Sep 2025
pH 10.010	CPA chem	1114385	08 June 2026

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function : mV Measurement

Performing standard curve by Document Process Calibrator at pH (4,7,10)

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement (±mV)	Coverage factor *k*
	pH	mV	mV	pH		
pH Meter	4.00	177.48	177	4.00	0.58	2.00
S/N.: B924795409	7.00	0.00	0	7.00	0.58	2.00
	10.00	-177.48	-177	10.00	0.58	2.00

Calibration Results

Function : pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4,7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (±)	Coverage factor *k*
pH Electrode	4.007	4.02	182	0.0071	2.00
S/N.: 4320459	6.987	7.00	6	0.0095	2.00
	10.010	10.01	-167	0.0092	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab Expert Go
- Serial No. : 4320459

Dimension of probe

- Length : 120 mm.
- Diameter : 12 mm.
- Immersion Depth : 100 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor *k*
25.0	24.999	25.1	0.101	0.13	2.00
30.0	30.001	30.2	0.199	0.13	2.00
35.0	35.001	35.2	0.199	0.13	2.00

Remark - UUC* = Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

-o0o-

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2503897-001-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Equipment: CHAMBER (Incubator)

Manufacturer: MEMMERT

Model: ICP 400

Serial No.: K406.0004

ID No.: N/A

Order No.: 2503897

Operation No.: 2503897-001

Date of Receipt: 14 July 2025

Date of Calibration: 14 July 2025

Calibrated by Mr.Yothin Charoensuk
Scientist

Approved by
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 17 July 2025

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.

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-001-01

Equipment: CHAMBER (Incubator)

Model: ICP 400 Serial No.: K406.0004

Resolution: 0.1 °C ID No.: N/A

Manufacturer: MEMMERT

Date of Calibration: 14 July 2025

Location: Laboratory, SECOT CO., LTD.

Environment Condition:

Ambient Temperature (30.8 ± 1) °C

Relative Humidity (60.9 ± 1) %

Line Voltage (222.5 ± 3) Volt

Condition of this results of Calibration:

1. 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	MY57003188	2503175-002	2 June 2026	NATIONAL FOOD INSTITUTE
	RTD	CH#201-209/ RTD#201-209			

3. This certificate is traceable to International System of Units (SI Units).
4. This certificate was certified only for the instrument we calibrated.
5. This result of calibration was found accurate as shown on date and place of calibration only.
6. Condition of Calibrated item : Good

   UUC Description :

   Time of Record 1 Hour 9 Minute At 20.0 °C

   Fresh air Damper [-] Open Position [-]

   [X] Close Fan [10%]

   [-] Not Available
7. Result of Calibration : [X] Without adjustment [ ] After adjustment

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-001-01

Equipment: CHAMBER (Incubator)

Model: ICP 400 Serial No.: K406.0004

Resolution: 0.1 °C ID No.: N/A

Manufacturer: MEMMERT

Date of Calibration: 14 July 2025

Calibration point: 20.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	29.6	60.3	220.0
MAX	32.3	61.5	225.0

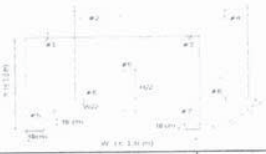

Table1 : Reporting of Temperature

Calibration point	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty
(°C)	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	± (°C)
20.0	20.00	20.16	20.08	20.11	20.28	20.12	20.03	20.05	20.14	0.28

Table 2 : Reporting of Characterization Result

UUC* Setting	UUC* Reading (°C)			Stability	Uniformity	Overall Variation
(°C)	MIN	MAX	Average	± (°C)	(°C)	(°C)
20.0	20.0	20.0	20.0	0.14	0.15	0.53

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 througout 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 ---------

F-CS-012 Revision: 01 Date: 20-04-65

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2503897-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Equipment: Water Bath

Manufacturer: MEMMERT

Model: WB 29

Serial No.: I698.0051

ID No.: N/A

Order No.: 2503897

Operation No.: 2503897-002

Date of Receipt: 14 July 2025

Date of Calibration: 14 July 2025

Calibrated by Mr.Yothin Charoensuk
Scientist

Approved by
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 17 July 2025

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.

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-002-01
Equipment: Water Bath
Model: WB 29 Serial No.: I698.0051
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT
Date of Calibration: 14 July 2025

Location: Laboratory, SECOT CO., LTD.
Environment Condition:
Ambient Temperature (31 ± 1) °C
Relative Humidity (61 ± 1) %
Line Voltage (228 ± 3) Volt

Condition of this results of Calibration:

1. This instrument was calibrated by insert 5 standard thermometer into its liquid bath and calibration according to W-TE-011 based on ASTM E715-80 (Re-approved-2016): Standard Specification for Gravity-Convection and Forced-Circulation Water Baths.
   - The temperature scale used is 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	MY57003188	2503175-002	2-Jun-26	NATIONAL FOOD INSTITUTE
	RTD	RTD#301-305 / CH#301-305			

3. This certificate is traceable to International System of Units (SI Units).
4. This certificate was certified only for the instrument we calibrated.
5. This result of calibration was found accurate as shown on date and place of calibration only.
6. Condition of Calibrated item : Good
   UUC Description:
   Time of Record 1 Hour 9 Minute At 95.0 °C
7. Result of Calibration :
   [X] Without adjustment
   [ ] After adjustment

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: 2503897-002-01

Equipment: Water Bath

Model: WB 29 Serial No.: I698.0051

Resolution: 0.1 °C ID No.: N/A

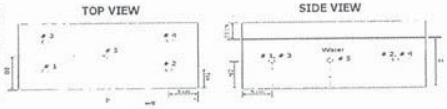
Manufacturer: MEMMERT

Date of Calibration: 14 July 2025

Calibration point: 95.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
Min	29.6	62	225.0
Max	32.3	60	230.0



Sensor Installation Location

Table1 : Reporting of Temperature

Calibration Point	Measured Temperature (°C) @ Sensor No. (Sensor No.5 is REF)					Uncertainty
(°C)	# 1	# 2	# 3	# 4	# 5	± (°C)
95.0	95.15	95.11	95.14	94.96	94.99	0.36

Table 2 : Reporting of Characterization Result

UUC* Setting	UUC* Reading (°C)			Stability	Uniformity	Overall Variation
(°C)	MIN	MAX	Average	± (°C)	(°C)	(°C)
95.0	94.9	95.2	95.0	0.21	0.16	0.58

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 througout 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 ---------

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3890 B GC T13 (HEC)

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

Agilent 7890 Gas Chromatograph

Preventive Maintenance Checklist

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results.

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak. This checklist will be completed at the end of the service and provided to you as a record of the preventive maintenance activities.

Agilent

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Important Customer Web Links

- For more information about ***Agilent Technologies services***, please visit our website using the following URL: http://www.agilent.com/en-us/products/crosslab-instrument-services/service-repair
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome.
- To access **Agilent University,** visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- A useful **Agilent Resource Center** web page is available, which includes short videos on maintenance, quick lists of consumables for new instruments, and other valuable information. Check out the Resource Page here: https://www.agilent.com/en-us/agilentresources.
- Need technical support, FAQs, supplies? – visit our **Support Home page** http://www.agilent.com/search/support.
- **Videos** about specific preparation requirements for your instrument can be found by searching the *Agilent YouTube* **channel at** https://www.youtube.com/user/agilent.
- **7890B Manuals** are also available on Agilent.com:
  - **Safety**
    https://www.agilent.com/cs/library/usermanuals/public/7890B_Safety.pdf
  - **Installation and First Startup**
    https://www.agilent.com/cs/library/usermanuals/Public/7890B_Installation.pdf
  - **Operation Manual**
    https://www.agilent.com/cs/library/usermanuals/Public/7890B_Operation.pdf
  - **Maintaining Your GC**
    https://www.agilent.com/cs/library/usermanuals/public/G3430-90052%207890B_Maintaining%20Guide.pdf

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Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check **"Section not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Complete the total number of pages field in the Service Completion section
- ***Ask the customer to sign the Service Completion section including the customer's and your signature.***

Additional Instruction Notes

- Check for any active service notes for this unit. If there are any applicable "Safety" or "Modification Recommended" Service notes, plan to implement the changes on this unit before doing any qualification service.
- Do not implement firmware updates, unless you get approval from the customer and are sure that they are compatible with the instrument control software.

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System Information

☑ Check this box if an instrument configuration report is attached instead of completing the table below.

Instrument System Name and ID	GC7890B / CN15343147
Instrument System Site and Location	SECUT ltd / Lab

	List System Component Product Numbers	List the Serial Numbers of each Component
1.	G3440B	CN15343147
2.	G4513A	CN11350133
3.	G4514A	CN13085 6
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☐ Check system for required installation of components, settings as defined by current Service Notes.
- ☑ Check for required firmware updates and verify with customers if they would like them installed.
- ☑ Before starting the following procedures, record the Detector Signal Output(s) in the results table. If the GC is turned OFF or in a service mode, comparing the detector outputs before and after the service is not possible.

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Preventive Maintenance Procedure

Clean and inspect GC

- ☑ Unplug power cord from the power source.
- ☑ Open GC covers and vacuum/remove any dust/debris. Pay particular attention to cooling fans.
- ☐ Inspect internal connectors for proper contact and placement.
- ☐ Reconnect Power to the GC. Power the GC on and verify the power on self-test passed.
- ☐ Verify oven motor spins freely and turns on with the oven door closed; off when the door is opened.
- ☑ Verify operation of all other fans - the inlet and EPC cooling fans.
- ☑ Verify oven intake/outlet flap assembly is operating smoothly while heating and cooling the oven

Inlet and detector consumable replacement

- ☑ For the inlets installed, perform inlet maintenance as defined in the 7890 manual – "Maintaining Your GC" - for the inlet(s) installed.
- ☑ Replace the split vent trap cartridge filter on units with these inlets: Split/Splitless Capillary (SSL), Multi-Mode Inlet (MMI), Programmed Temperature Vaporizer (PTV), Volatiles Interface (VI).
- ☑ If the inlet system is used in Split Mode with viscous samples, inspect and clean the split vent tube on the inlet and flush or replace the tubing between the inlet and the split vent trap.
- ☑ If the GC includes a Flame Ionization Detector (FID), replace the jet. If the ignitor shows any buildup of sample or corrosion, replace the ignitor. Examine the FID collector and castle assemblies for contamination – clean as necessary.

Zero Sensors and Leak test

- ☑ Zero all pressure sensors per the procedure in the 7890 "Advanced User Guide".
- ☑ Perform inlet pressure decay test(s) as defined in the 7890 "Troubleshooting Manual". If the PM is done in preparation for an Operational Qualification, then the pressure decay test defined within that protocol can be used for the PM.
- ☑ Record if test passed or failed in the results table.

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ALS Maintenance

- ☐ **Section NOT applicable**
- ☑ Check all cabling and configuration settings between GC, tray, and injectors.
- ☑ Vacuum or remove any dust, especially around fans.
- ☑ Check operation of all fans.
- ☑ Check syringe for smooth plunger operation.
- ☑ Check for smooth operation of the needle support – clean if necessary

Restore Instrument

- ☑ Restore the normal operating conditions or customer method using the Data System.
- ☑ Purge the system with carrier flow for 15 minutes
- ☑ Bake out the system, then restore the normal operating conditions
- ☑ After equilibration, check and record the post PM detector signal output values. Results should be similar or lower than the detector outputs recorded prior to PM.
- ☑ Perform a chemical checkout. If this is a routine PM, inject the customer's sample using the ALS if applicable. This will act as a final checkout of both the ALS and the GC.

Note: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Signature Page

Service Review

- ☐ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review with the customer this service, parts replaced, and test results obtained.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box or if necessary, in the customer's IQ records.
- ☐ Supply the customer with a copy of the Smart Alerts flyer.
- ☐ Describe Smart Alerts to the customer.
- ☐ Install Smart Alerts if requested.

7890 GC Test Results Table

Detector Signal Outputs	Before PM Service	After PM Service
Front detector output	N/A	335.2
Back detector output	N/A	15.2
AUX detector output	N/A	N/A
Pressure decay test	**Expected test result**	**Actual test result**
Front inlet pressure decay test	Pass	PASS
Back inlet pressure decay test	Pass	PASS

7890 Parts List Table

The following kits are recommended for capillary and purged packed inlets. If this is a general PM and the customer has a preferred set of consumables, you may use the customer's consumables.

Part description	Part number	Product or model# where used	Quantity consumed
SSL Capillary Inlet PM kit, Splitless	5188-6497	7890A/B	N/A
SSL Capillary Inlet PM kit, split	5188-6496	7890A/B	2
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Low Pressure Drop Split Liner - with Glass Wool	5190-2295	7890A/B	N/A
PP Inlet PM kit	5188-6498	7890A/B	N/A
Split vent trap PM kit, single cartridge (for MMI, PTV & VI)	5188-6495	7890A/B	N/A
MMI Cleaning Kit	G3510-60820	7890A/B	N/A
PTV Septumless Head Rebuild Kit	5182-9747	7890A/B	N/A
PTV Septumless Head Teflon Guide	5182-9748	7890A/B	N/A
Ignitor (glow plug) assembly with O-ring	19231-60680	7890A/B	1
FID Collector Rebuild/Cleaning Kit	G1531-67000	7890A/B	N/A
Standard .011-inch FID Jet for capillary FID base	G1531-80560	7890A/B	1
High Temperature .018-inch FID Jet for capillary FID base	G1531-80620	7890A/B	N/A
Standard .018-inch FID Jet for packed column with packed FID base	18710-20119	7890A/B	N/A
Standard .011-inch FID Jet for capillary column with packed/adaptable FID base	19244-80560	7890A/B	N/A
High Temperature .018-inch FID Jet for capillary column with packed/adaptable FID base	19244-80620	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID	G1534-80580	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID Extended tip	G1534-80590	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
**FID Collector Replacement Kit, if needed	G1531-67001	7890A/B	N/A

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Service Engineer Comments

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write include them in this box.

Service Completion

Service request number 6008977823 Date service completed 27 April 2026

Agilent signature [signature] Customer signature [signature]

Total number of pages in this document 6 pages

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Agilent CrossLab Start Up Services

Agilent 8890 Gas Chromatograph Preventive Maintenance Checklist

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results.

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak. This checklist will be completed at the end of the service and provided to you as a record of the preventive maintenance activities.

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Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Important Customer Web Links

- For more information about ***Agilent Technologies services***, please visit our website using the following URL: http://www.agilent.com/en-us/products/crosslab-instrument-services/service-repair
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome.
- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- A useful **Agilent Resource Center** web page is available, which includes short videos on maintenance, quick lists of consumables for new instruments, and other valuable information. Check out the Resource Page here: https://www.agilent.com/en-us/agilentresources.
- Need technical support, FAQs, supplies? – visit our **Support Home page** http://www.agilent.com/search/support.
- Videos about specific preparation requirements for your instrument can be found by searching the ***Agilent YouTube*** channel at https://www.youtube.com/user/agilent.

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Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check **"Section not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Complete the total number of pages field in the Service Completion section
- ***Ask the customer to sign the Service Completion section including the customer's and your signature.***

Additional Instruction Notes

- Check for any active service notes for this unit. If there are any applicable "Safety" or "Modification Recommended" Service notes, plan to implement the changes on this unit before doing any qualification service.
- Do not implement firmware updates, unless you get approval from the customer and are sure that they are compatible with the instrument control software.

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Agilent 8890 GC Preventive Maintenance Checklist

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table below.

Instrument System Name and ID	CN2508A105
Instrument System Site and Location	Air Toxic Room

List System Component Product Numbers	**List the Serial Numbers of each Component**
1. G3540A	CN2508A105
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Preparation

☑ Discuss any specific issues with the customer before starting.
☑ Review the instrument logbook for recorded problems and comments.
☑ Save instrument control settings before starting the procedure.
☑ Perform a general inspection of the system for cleanliness.
☑ Check for proper installation of parts, assemblies, sensors etc.
☐ Check system for required installation of components, settings as defined by current Service Notes.
☐ Check for required firmware updates and verify with customers if they would like them installed.
☐ Before starting the following procedures, record the Detector Signal Output(s) in the results table. If the GC is turned OFF or in a service mode, comparing the detector outputs before and after the service is not possible.

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Preventive Maintenance Procedure

Clean and inspect GC

- ☑ Unplug power cord from the power source.
- ☑ Open GC covers and vacuum/remove any dust/debris. Pay particular attention to cooling fans.
- ☑ Inspect internal connectors for proper contact and placement.
- ☑ Reconnect Power to the GC. Power the GC on and verify the power on self-test passed.
- ☑ Verify oven motor spins freely and turns on with the oven door closed; off when the door is opened.
- ☑ Verify operation of all other fans - the inlet and EPC cooling fans.
- ☑ Verify oven intake/outlet flap assembly is operating smoothly while heating and cooling the oven

Inlet and detector consumable replacement

- ☑ Replace the split vent trap cartridge filter using the Maintenance procedure from either the Browser User interfaces on units with these inlets: Split/Splitless Capillary (SSL), Multi-Mode Inlet (MMI), Programmed Temperature Vaporizer (PTV), Volatiles Interface (VI).
- ☑ If the inlet system is used in Split Mode with viscous samples, inspect and clean the split vent tube on the inlet and flush or replace the tubing between the inlet and the split vent trap.
- ☑ For the inlets installed, perform inlet maintenance using the Maintenance procedure from the Browser User interfaces. Record the results. (Leak and Restriction Test)
- ☐ If the GC includes a Flame Ionization Detector (FID), replace the jet. If the ignitor shows any buildup of sample or corrosion, replace the ignitor. Examine the FID collector and castle assemblies for contamination – clean as necessary.

Zero Sensors and Leak test

- ☑ Zero all pressure sensors using the Browser interface.
- ☑ Perform inlet pressure decay test(s) from the diagnostics screen on the Browser User interface. Record if test passed or failed in the results table.

Note: If the PM is done in preparation for an Operational Qualification, then the pressure decay test defined within that protocol can be used for the PM.

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Agilent CrossLab
Agilent 8890 GC Preventive Maintenance Checklist

ALS Maintenance

- ☑ **Section NOT applicable**
- ☐ Check all cabling and configuration settings between GC, tray, and injectors.
- ☐ Vacuum or remove any dust, especially around fans.
- ☐ Check operation of all fans.
- ☐ Check syringe for smooth plunger operation.
- ☐ Check for smooth operation of the needle support – clean if necessary

Restore Instrument

- ☑ Restore the normal operating conditions or customer method using the Browser interface or Data System.
- ☑ Purge the system with carrier flow for 15 minutes
- ☑ Bake out the system, then restore the normal operating conditions
- ☐ After equilibration, check and record the post PM detector signal output values. Results should be similar or lower than the detector outputs recorded prior to PM.
- ☐ Perform a chemical checkout. If this is a routine PM, inject the customer's sample using the ALS if applicable. This will act as a final checkout of both the ALS and the GC.

Note: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

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Signature Page

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review with the customer this service, parts replaced, and test results obtained.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box or if necessary, in the customer's IQ records.
- ☐ Supply the customer with a copy of the Smart Alerts flyer.
- ☐ Describe Smart Alerts to the customer.
- ☐ Install Smart Alerts if requested.

PM Test Results Table

Test description	Before PM Service	After PM Service
Front detector output	—	—
Back detector output	—	—
AUX 1 detector output	—	—
AUX 2 detector output	—	—
Test description	**Expected test result**	**Actual test result**
Leak and Restriction Test after front inlet maintenance	Pass	Pass
Leak and Restriction Test after back inlet maintenance	Pass	—
Leak and Restriction Test after front inlet Split Vent Trap replacement	Pass	Pass
Leak and Restriction Test after back inlet Split Vent Trap replacement	Pass	—
Front inlet pressure decay test	Pass	Pass
Back inlet pressure decay test	Pass	—

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From Insight to Outcome
Agilent 8890 GC Preventive Maintenance Checklist

PM Parts List Table

Note: The following kits are recommended for capillary and purged packed inlets. If this is a general PM and the customer has a preferred set of consumables, you may use the customer's consumables.

Part description	Part number	Product or model# where used	Quantity consumed
SSL Capillary Inlet PM kit, Splitless	5188-6497	8890 GC	/
SSL Capillary Inlet PM kit, Split	5188-6496	8890 GC	—
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	8890 GC	—
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	8890 GC	—
SSL Capillary Ultra Inert Inlet Low Pressure Drop Split Liner - with Glass Wool	5190-2295	8890 GC	—
PP Inlet PM kit	5188-6498	8890 GC	—
Split vent trap PM kit, single cartridge (for MMI, PTV & VI)	5188-6495	8890 GC	—
MMI Cleaning Kit	G3510-60820	8890 GC	—
PTV Septumless Head Rebuild Kit	5182-9747	8890 GC	—
PTV Septumless Head Teflon Guide	5182-9748	8890 GC	—
Ignitor (glow plug) assembly with O-ring	19231-60680	8890 GC	—
FID Collector Rebuild/Cleaning Kit	G1531-67000	8890 GC	—
FID Collector Replacement Kit	G1531-67001	8890 GC	—
Standard .011-inch FID Jet	5200-0176	8890 GC	—
Universal .018-inch FID Jet	5200-0177	8890 GC	—

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Service Engineer Comments

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write include them in this box.

Service Completion

Service request number 6008577184 Date service completed April 16, 2026

Agilent signature Christian I. Customer signature Shivam C.

Total number of pages in this document 3 Page.

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Agilent Preventive Maintenance Services

Agilent GCMS Preventive Maintenance

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

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Introduction

This checklist covers the following model(s):

Type	Model
SQ	5973 Series MSD
SQ	5975 Series MSD
SQ	5977 Series MSD
TQ	7000 Series MS/MS
TQ	7010 Series MS/MS
QTOF	7200 Series QTOF
QTOF	7250 Series QTOF

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Customer Responsibilities

Customers should ensure that all necessary operating supplies, consumables, and usage-dependent items such as gases, vials, syringes, calibrant solution and solvents required for successful preventive maintenance are available. A customer representative should be available while the preventive maintenance is being performed.

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Important notice for customers

The customer should complete the following before the Support Provider arrives on site:

- ☑ Perform an autotune and retain the printed tune report just prior to the start of the PM to verify performance of the equipment.

  Note: it is recommended to have the customer run the autotune and tune evaluation prior to the PM and then start the vent cycle so that the instrument will be ready for the service representative.

Important Customer Web Links

- To access Agilent training and education, visit http://www.agilent.com/chem/training to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.

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- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in order by sections: Review, System Checks, Pump maintenance, Cleaning System and Filters, then System Post Check.
    - The tasks in each section may be completed in the most logical order relevant to the system. Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Verification section
- Complete Signature Page and attach Signature Page to Service Order.

Additional Instruction Notes

- Preventive maintenance is a factory recommended procedure designed to reduce the likelihood of electromechanical failures. Failure to perform preventive maintenance may reduce the long-term reliability of certain instruments and systems. **Two preventative maintenances (PMs) per year are recommended, the Major PM Service will be performed annually with an Interim PM performed 6 months after the Major PM.**

Definition of the Task/Recommended items within the document

Task		Recommended			
Yes	No	Interim	Major	As Needed	
✓					**Yes** selected means that the task was done or the part was required
	✓				**No** selected means that the task was not done or the part was not required.
		✓			**Interim** selected means that this task is recommended to be done at 6-month intervals
			✓		**Major** selected means that this task is recommended to be done yearly; if the customer would like a service to be done at the 6-month interval then the service could be purchased
				✓	**As needed** selected means that the task was done, or the part was used as needed. For example, there could be two types of filters that could be used, and this was the one selected.

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Instrument Maintenance

Select the appropriate service to be performed.

- ☐ Interim Preventive Maintenance (when available, is typically 6 months or at the request of the customer)
- ☑ Major Preventive Maintenance (Yearly)
- ☐ Enhanced Preventive Maintenance (when available, is provided "As needed")

System Information

- ☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	US2509MA07
Instrument System Site and Location	Air Toxic Room

	List System Component Product Numbers	List the Serial Numbers of each Component
1.	G7077C	US2509MA07
2.	IDP 3 G7077-80057	MY25055096
3.		
4.		
5.		
6.		

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☐ Check system for required installation of components and implementation of Service Notes
- ☐ Check firmware version(s). Updating to the most current versions is strongly recommended. Verify with the customer before updating.

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Preventive Maintenance Procedures

☐ Service Not Applicable

Interim / Major Preventive Maintenance – GCMS

Yes/No		Interim/Major		Description
☑	☐	☑	☑	Perform general inspection of system for cleanliness
☑	☐	☑	☑	Discuss any problems the customer is having with the instrument
☑	☐	☑	☑	Review customer maintenance records and exclude maintenance on recently serviced items
☑	☐	☑	☑	Review the most recent autotune report. This will give a starting point for evaluating spectral peaks, baseline noise, peak shape, mass assignments and resolution.

Interim / Major Preventive Maintenance – System Checks

☐ Service Not Applicable

				System Checks
Yes/No		Interim/Major		Description
☑	☐	☑	☑	Verify that calibration peaks were seen prior to starting the PM
☑	☐	☑	☑	Vent the instrument
☑	☐	☑	☑	Inspect vacuum hoses, pump, exhaust tubing, and power cords for excessive wear.
☑	☐	☑	☑	Visually inspect calibrant levels – PFTBA PFDTD (if appl.), IRM (if appl.). Refill if available.
☑	☐	☑	☑	Look for any obvious external damage or problems.
☑	☐	☑	☑	Clean air intake(s). Cosmetic cover(s) may need to be removed.
☑	☐	☑	☑	Verify system line voltage meets instrument specifications: Yes ☐ No ☐
☐	☑	☑	☑	For HydroInert systems, verify customer is running hydrogen: Yes ☐ No ☐

Interim / Major Preventive Maintenance – Wet Mechanical vacuum pumps

☑ Service Not Applicable

Yes/No				Wet Mechanical vacuum pumps
Yes/No		Interim/Major		Description
☐	☐	☑	☑	Check for evidence of oil leakage. Check pump gasket for leakage.
☐	☐	☐	☑	GC/MS SQ with diffusion pump; drain and replace diffusion pump oil.
☐	☐	☑	☑	Drain and replace mechanical pump oil.
☐	☐	☑	☑	Replace Oil Mist Filter if applicable.

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Yes/No				Wet Mechanical vacuum pumps
☐	☐	☑	☑	Discuss with customer the need for more frequent oil changes if the oil is dirty
☐	☐	☑	☑	Don't use mist filters with Chemical Ionization.
☐	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed. Visually confirm that no oil returns up vacuum hose.

Interim / Major Preventive Maintenance – Dry Mechanical vacuum pumps - Diaphragm

☑ Service Not Applicable

Yes/No				Dry Mechanical vacuum pumps - Diaphragm
Yes/No		Interim/Major		Description
☐	☐	☑	☑	Check for evidence of poor vacuum – Turbo power demand, poor manifold vacuum, etc.
☐	☐	☑	☑	Clear air flow paths of dust.
☐	☐	☑	☑	If vacuum is poor, then replace the diaphragm pump.
☐	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

Interim / Major Preventive Maintenance – Dry Mechanical vacuum pumps - Scroll

☐ Service Not Applicable

Yes/No				Dry Mechanical vacuum pumps - Scroll
Yes/No		Interim/Major		Description
☐	☑	☑	☑	Replace the tips seal on the IDP pump.
☑	☐	☑	☑	Check for evidence of poor vacuum – Rough vac pressure, turbo power demand, poor manifold vacuum, etc.
☐	☑	☑	☑	Replace the Exhaust Filter if required.
☑	☐	☑	☑	Discuss with customer the need for more frequent changes, if needed.
☑	☐	☑	☑	Inform customer that pump gas ballast should be installed all the time.
☑	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

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Interim / Major Preventive Maintenance – Cleaning System and Filters

☐ Service Not Applicable

		Cleaning System and Filters	
Yes/No	Interim/Major	Description	
		Fans	
☑ ☐	☑ ☑		Remove dust from fans and vent covers.
☑ ☐	☑ ☑		Verify fans are functional and that there is enough space around the instrument for proper cooling.
		Source cleaning (all sources **except** HydroInert)	
☑ ☐	☐ ☑		Open analyzer and remove the source.
☑ ☐	☐ ☑		Disassemble, Clean, Re-assemble source. (7200, also, remove and clean entrance lens)
☑ ☐	☐ ☑		Re-install source and close analyzer.
		HydroInert Source	
☐ ☑	☐ ☐		Source **NOT** to be abrasively cleaned. No cleaning required at PM. If a decrease in performance is observed, recommend to the customer that filaments, insulators (repeller and extractor), extractor lens, and repeller lens may need to be replaced to restore performance. HydroInert source should not be run with helium carrier.
		Filters	
☐ ☐	☐ ☑		Replace RMSH-2 Helium gas filter (collision cell gas) – if applicable.
☐ ☐	☐ ☑		Replace RMSN-2 Nitrogen gas filter (collision cell gas) – if applicable.
☐ ☑	☐ ☑		Replace RMSHY-2 Hydrogen gas filter (HydroInert and JetClean) – if applicable.
☐ ☑	☐ ☑		CP17973 – Gas Clean GS/MS Filter (for He, N2 or H2 carrier) – if required
☐ ☑	☐ ☑		5190-9071 – Methane Gas Filter (CI systems) – if applicable

Guidance: Gas filters need to be changed only if required (ie indicating traps show color change, or if Big Universal Trap are approaching saturation based on time installed or number of gas cylinders changed for that trap)

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Interim / Major Preventive Maintenance – System Post Check

☐ Service Not Applicable

		System post-check	
Yes/No	Interim/Major	Description	
☑ ☐	☑ ☑	Pump system back down. Wait until system stability has been achieved.	
☑ ☐	☑ ☑	Verify system vacuum reading(s) via the gauge controller.	
☑ ☐	☑ ☑	Leak Check	
☑ ☐	☑ ☑		Verify system in manual tune
☑ ☐	☑ ☑		Compare against previous tune file report(s)
☑ ☐	☑ ☑	Change to Tune and verify that all temperatures, pressures, and gas flows reach method set points	
☑ ☐	☑ ☑	Check manually that you have calibration peaks.	
☑ ☐	☑ ☑	EI Autotune Performed	

Guidance: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument setup and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☐ Complete Signature Page and attach Signature Page to Service Order.

Test Results

Test Description	Expected Test Result	Actual Test Result

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Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the service review or other items of interest for the customer, please write in this box.

Service Verification

Service Request Number:
6008577184

Date of Service Completion:
April 16, 2026

Service Engineer Name:
Chaiyasit Innam.

Customer Name:
Sitthan C.

Service Engineer Signature:
Chaiyasit I.

Total number of pages in this document:
10 page.

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Agilent CrossLab Start Up Services

Agilent 7890 Gas Chromatograph
Preventive Maintenance Checklist

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results.

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak. This checklist will be completed at the end of the service and provided to you as a record of the preventive maintenance activities.

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Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Important Customer Web Links

- For more information about ***Agilent Technologies services***, please visit our website using the following URL: http://www.agilent.com/en-us/products/crosslab-instrument-services/service-repair
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome.
- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- A useful **Agilent Resource Center** web page is available, which includes short videos on maintenance, quick lists of consumables for new instruments, and other valuable information. Check out the Resource Page here: https://www.agilent.com/en-us/agilentresources.
- Need technical support, FAQs, supplies? – visit our **Support Home page** http://www.agilent.com/search/support.
- **Videos** about specific preparation requirements for your instrument can be found by searching the *Agilent YouTube* channel at https://www.youtube.com/user/agilent.
- **7890B Manuals** are also available on Agilent.com:
  - **Safety**
    https://www.agilent.com/cs/library/usermanuals/public/7890B_Safety.pdf
  - **Installation and First Startup**
    https://www.agilent.com/cs/library/usermanuals/Public/7890B_Installation.pdf
  - **Operation Manual**
    https://www.agilent.com/cs/library/usermanuals/Public/7890B_Operation.pdf
  - **Maintaining Your GC**
    https://www.agilent.com/cs/library/usermanuals/public/G3430-90052%207890B_Maintaining%20Guide.pdf

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Agilent 7890 GC Preventive Maintenance Checklist

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check **"Section not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Complete the total number of pages field in the Service Completion section
- ***Ask the customer to sign the Service Completion section including the customer's and your signature.***

Additional Instruction Notes

- Check for any active service notes for this unit. If there are any applicable "Safety" or "Modification Recommended" Service notes, plan to implement the changes on this unit before doing any qualification service.
- Do not implement firmware updates, unless you get approval from the customer and are sure that they are compatible with the instrument control software.

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System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table below.

Instrument System Name and ID	GCMS
Instrument System Site and Location	SECOT Co Ltd

List System Component Product Numbers	List the Serial Numbers of each Component
1. G3442A	CN13201053
2. G4513A	CN13360196
3. G4514A	CN13230031
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components, settings as defined by current Service Notes.
- ☑ Check for required firmware updates and verify with customers if they would like them installed.
- ☑ Before starting the following procedures, record the Detector Signal Output(s) in the results table. If the GC is turned OFF or in a service mode, comparing the detector outputs before and after the service is not possible.

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Agilent 7890 GC Preventive Maintenance Checklist

Preventive Maintenance Procedure

Clean and inspect GC

- ☑ Unplug power cord from the power source.
- ☑ Open GC covers and vacuum/remove any dust/debris. Pay particular attention to cooling fans.
- ☑ Inspect internal connectors for proper contact and placement.
- ☑ Reconnect Power to the GC. Power the GC on and verify the power on self-test passed.
- ☑ Verify oven motor spins freely and turns on with the oven door closed; off when the door is opened.
- ☑ Verify operation of all other fans - the inlet and EPC cooling fans.
- ☑ Verify oven intake/outlet flap assembly is operating smoothly while heating and cooling the oven

Inlet and detector consumable replacement

- ☑ For the inlets installed, perform inlet maintenance as defined in the 7890 manual – "Maintaining Your GC" - for the inlet(s) installed.
- ☑ Replace the split vent trap cartridge filter on units with these inlets: Split/Splitless Capillary (SSL), Multi-Mode Inlet (MMI), Programmed Temperature Vaporizer (PTV), Volatiles Interface (VI).
- ☑ If the inlet system is used in Split Mode with viscous samples, inspect and clean the split vent tube on the inlet and flush or replace the tubing between the inlet and the split vent trap.
- ☐ If the GC includes a Flame Ionization Detector (FID), replace the jet. If the ignitor shows any buildup of sample or corrosion, replace the ignitor. Examine the FID collector and castle assemblies for contamination – clean as necessary.

Zero Sensors and Leak test

- ☑ Zero all pressure sensors per the procedure in the 7890 "Advanced User Guide".
- ☑ Perform inlet pressure decay test(s) as defined in the 7890 "Troubleshooting Manual". If the PM is done in preparation for an Operational Qualification, then the pressure decay test defined within that protocol can be used for the PM.
- ☑ Record if test passed or failed in the results table.

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ALS Maintenance

- ☐ **Section NOT applicable**
- ☑ Check all cabling and configuration settings between GC, tray, and injectors.
- ☑ Vacuum or remove any dust, especially around fans.
- ☑ Check operation of all fans.
- ☑ Check syringe for smooth plunger operation.
- ☑ Check for smooth operation of the needle support – clean if necessary

Restore Instrument

- ☑ Restore the normal operating conditions or customer method using the Browser interface or Data System.
- ☑ Purge the system with carrier flow for 15 minutes
- ☑ Bake out the system, then restore the normal operating conditions
- ☑ After equilibration, check and record the post PM detector signal output values.
  Results should be similar or lower than the detector outputs recorded prior to PM.
- ☐ Perform a chemical checkout. If this is a routine PM, inject the customer's sample using the ALS if applicable. This will act as a final checkout of both the ALS and the GC.

Note: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

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Agilent 7890 GC Preventive Maintenance Checklist

Signature Page

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review with the customer this service, parts replaced, and test results obtained.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box or if necessary, in the customer's IQ records.
- ☐ Supply the customer with a copy of the Smart Alerts flyer.
- ☐ Describe Smart Alerts to the customer.
- ☐ Install Smart Alerts if requested.

7890 GC Test Results Table

Detector Signal Outputs	**Before PM Service**	**After PM Service**
Front detector output	N/A	N/A
Back detector output	N/A	N/A
AUX detector output	N/A	N/A
Pressure decay test	**Expected test result**	**Actual test result**
Front inlet pressure decay test	Pass	Pass
Back inlet pressure decay test	Pass	N/A

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7890 Parts List Table

The following kits are recommended for capillary and purged packed inlets. If this is a general PM and the customer has a preferred set of consumables, you may use the customer's consumables.

Part description	Part number	Product or model# where used	Quantity consumed
SSL Capillary Inlet PM kit, Splitless	5188-6497	7890A/B	N/A
SSL Capillary Inlet PM kit, split	5188-6496	7890A/B	1
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Low Pressure Drop Split Liner - with Glass Wool	5190-2295	7890A/B	N/A
PP Inlet PM kit	5188-6498	7890A/B	N/A
Split vent trap PM kit, single cartridge (for MMI, PTV & VI)	5188-6495	7890A/B	N/A
MMI Cleaning Kit	G3510-60820	7890A/B	N/A
PTV Septumless Head Rebuild Kit	5182-9747	7890A/B	N/A
PTV Septumless Head Teflon Guide	5182-9748	7890A/B	N/A
Ignitor (glow plug) assembly with O-ring	19231-60680	7890A/B	N/A
FID Collector Rebuild/Cleaning Kit	G1531-67000	7890A/B	N/A
Standard .011-inch FID Jet for capillary FID base	G1531-80560	7890A/B	N/A
High Temperature .018-inch FID Jet for capillary FID base	G1531-80620	7890A/B	N/A
Standard .018-inch FID Jet for packed column with packed FID base	18710-20119	7890A/B	N/A
Standard .011-inch FID Jet for capillary column with packed/adaptable FID base	19244-80560	7890A/B	N/A
High Temperature .018-inch FID Jet for capillary column with packed/adaptable FID base	19244-80620	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID	G1534-80580	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID Extended tip	G1534-80590	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
**FID Collector Replacement Kit, if needed	G1531-67001	7890A/B	N/A

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Agilent 7890 GC Preventive Maintenance Checklist

Service Engineer Comments

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write include them in this box.

Service Completion

Service request number 6008100914 Date service completed 13 Feb 2026

Agilent signature [signature] Customer signature Jutarat J.

Total number of pages in this document _____

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Agilent Preventive Maintenance Services

Agilent GCMS Preventive Maintenance

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

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Introduction

This checklist covers the following model(s):

Type	Model
SQ	5973 Series MSD
SQ	5975 Series MSD
SQ	5977 Series MSD
TQ	7000 Series MS/MS
TQ	7010 Series MS/MS
QTOF	7200 Series QTOF
QTOF	7250 Series QTOF

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Customer Responsibilities

Customers should ensure that all necessary operating supplies, consumables, and usage-dependent items such as gases, vials, syringes, calibrant solution and solvents required for successful preventive maintenance are available. A customer representative should be available while the preventive maintenance is being performed.

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Important notice for customers

The customer should complete the following before the Support Provider arrives on site:

- ❑ Perform an autotune and retain the printed tune report just prior to the start of the PM to verify performance of the equipment.

  Note: it is recommended to have the customer run the autotune and tune evaluation prior to the PM and then start the vent cycle so that the instrument will be ready for the service representative.

Important Customer Web Links

- To access Agilent training and education, visit http://www.agilent.com/chem/training to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.

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- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in order by sections: Review, System Checks, Pump maintenance, Cleaning System and Filters, then System Post Check.
  - The tasks in each section may be completed in the most logical order relevant to the system. Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Verification section
- Complete Signature Page and attach Signature Page to Service Order.

Additional Instruction Notes

- Preventive maintenance is a factory recommended procedure designed to reduce the likelihood of electromechanical failures. Failure to perform preventive maintenance may reduce the long-term reliability of certain instruments and systems. Two preventative maintenances (PMs) per year are recommended, the Major PM Service will be performed annually with an Interim PM performed 6 months after the Major PM.

Definition of the Task/Recommended items within the document

Task		Recommended			
Yes	**No**	**Interim**	**Major**	**As Needed**	
✓					Yes selected means that the task was done or the part was required
	✓				No selected means that the task was not done or the part was not required.
		✓			Interim selected means that this task is recommended to be done at 6-month intervals
			✓		Major selected means that this task is recommended to be done yearly; if the customer would like a service to be done at the 6-month interval then the service could be purchased
				✓	As needed selected means that the task was done, or the part was used as needed. For example, there could be two types of filters that could be used, and this was the one selected.

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Instrument Maintenance

Select the appropriate service to be performed.

- ☐ Interim Preventive Maintenance (when available, is typically 6 months or at the request of the customer)
- ☑ Major Preventive Maintenance (Yearly)
- ☐ Enhanced Preventive Maintenance (when available, is provided "As needed")

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	GCMS
Instrument System Site and Location	SECOT Co Ltd

List System Component Product Numbers	List the Serial Numbers of each Component
1. G3172A	US13343B01
2.	
3.	
4.	
5.	
6.	

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check firmware version(s). Updating to the most current versions is strongly recommended. Verify with the customer before updating.

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Preventive Maintenance Procedures

☐ **Service Not Applicable**

Interim / Major Preventive Maintenance – GCMS

Yes/No		Interim/Major		Description
☑	☐	☑	☑	Perform general inspection of system for cleanliness
☑	☐	☑	☑	Discuss any problems the customer is having with the instrument
☑	☐	☑	☑	Review customer maintenance records and exclude maintenance on recently serviced items
☑	☐	☑	☑	Review the most recent autotune report. This will give a starting point for evaluating spectral peaks, baseline noise, peak shape, mass assignments and resolution.

Interim / Major Preventive Maintenance – System Checks

☐ **Service Not Applicable**

				System Checks
Yes/No		Interim/Major		Description
☑	☐	☑	☑	Verify that calibration peaks were seen prior to starting the PM
☑	☐	☑	☑	Vent the instrument
☑	☐	☑	☑	Inspect vacuum hoses, pump, exhaust tubing, and power cords for excessive wear.
☑	☐	☑	☑	Visually inspect calibrant levels – PFTBA PFDTD (if appl.), IRM (if appl.). Refill if available.
☑	☐	☑	☑	Look for any obvious external damage or problems.
☑	☐	☑	☑	Clean air intake(s). Cosmetic cover(s) may need to be removed.
☑	☐	☑	☑	Verify system line voltage meets instrument specifications: **Yes** ☑ **No** ☐
☐	☑	☑	☑	For HydroInert systems, verify customer is running hydrogen: **Yes** ☐ **No** ☐

Interim / Major Preventive Maintenance – Wet Mechanical vacuum pumps

☐ **Service Not Applicable**

Yes/No	☐	☐		Wet Mechanical vacuum pumps
Yes/No		Interim/Major		Description
☑	☐	☑	☑	Check for evidence of oil leakage. Check pump gasket for leakage.
☑	☐	☐	☑	GC/MS SQ with diffusion pump; drain and replace diffusion pump oil.
☑	☐	☑	☑	Drain and replace mechanical pump oil.
☐	☑	☑	☑	Replace Oil Mist Filter if applicable.

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Yes/No ☐ ☐				Wet Mechanical vacuum pumps
☑	☐	☑	☑	Discuss with customer the need for more frequent oil changes if the oil is dirty
☑	☐	☑	☑	Don't use mist filters with Chemical Ionization.
☑	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed. Visually confirm that no oil returns up vacuum hose.

Interim / Major Preventive Maintenance – Dry Mechanical vacuum pumps - Diaphragm

☑ **Service Not Applicable**

Yes/No ☐ ☐				Dry Mechanical vacuum pumps - Diaphragm
Yes/No		Interim/Major		Description
☐	☐	☑	☑	Check for evidence of poor vacuum – Turbo power demand, poor manifold vacuum, etc.
☐	☐	☑	☑	Clear air flow paths of dust.
☐	☐	☑	☑	If vacuum is poor, then replace the diaphragm pump.
☐	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

Interim / Major Preventive Maintenance – Dry Mechanical vacuum pumps - Scroll

☑ **Service Not Applicable**

Yes/No ☐ ☐				Dry Mechanical vacuum pumps - Scroll
Yes/No		Interim/Major		Description
☐	☐	☑	☑	Replace the tips seal on the IDP pump.
☐	☐	☑	☑	Check for evidence of poor vacuum – Rough vac pressure, turbo power demand, poor manifold vacuum, etc.
☐	☐	☑	☑	Replace the Exhaust Filter if required.
☐	☐	☑	☑	Discuss with customer the need for more frequent changes, if needed.
☐	☐	☑	☑	Inform customer that pump gas ballast should be installed all the time.
☐	☐	☑	☑	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

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Interim / Major Preventive Maintenance – Cleaning System and Filters

☐ **Service Not Applicable**

				Cleaning System and Filters
Yes/No		Interim/Major		Description
				Fans
☑	☐	☑	☑	Remove dust from fans and vent covers.
☑	☐	☑	☑	Verify fans are functional and that there is enough space around the instrument for proper cooling.
				Source cleaning (all sources except HydroInert)
☑	☐	☐	☑	Open analyzer and remove the source.
☑	☐	☐	☑	Disassemble, Clean, Re-assemble source. (7200, also, remove and clean entrance lens)
☑	☐	☐	☑	Re-install source and close analyzer.
				HydroInert Source
☐	☑	☐	☐	Source NOT to be abrasively cleaned. No cleaning required at PM. If a decrease in performance is observed, recommend to the customer that filaments, insulators (repeller and extractor), extractor lens, and repeller lens may need to be replaced to restore performance. HydroInert source should not be run with helium carrier.
				Filters
☑	☐	☐	☑	Replace RMSH-2 Helium gas filter (collision cell gas) – if applicable.
☐	☑	☐	☑	Replace RMSN-2 Nitrogen gas filter (collision cell gas) – if applicable.
☐	☑	☐	☑	Replace RMSHY-2 Hydrogen gas filter (HydroInert and JetClean) – if applicable.
☐	☑	☐	☑	CP17973 – Gas Clean GS/MS Filter (for He, N2 or H2 carrier) – if required
☐	☑	☐	☑	5190-9071 – Methane Gas Filter (CI systems) – if applicable

Guidance: Gas filters need to be changed only if required (ie indicating traps show color change, or if Big Universal Trap are approaching saturation based on time installed or number of gas cylinders changed for that trap)

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Interim / Major Preventive Maintenance – System Post Check

☐ **Service Not Applicable**

				System post-check	
Yes/No		Interim/Major		Description	
☑	☐	☑	☑	Pump system back down. Wait until system stability has been achieved.	
☑	☐	☑	☑	Verify system vacuum reading(s) via the gauge controller.	
☑	☐	☑	☑	Leak Check	
☑	☐	☑	☑		Verify system in manual tune
☑	☐	☑	☑		Compare against previous tune file report(s)
☑	☐	☑	☑	Change to Tune and verify that all temperatures, pressures, and gas flows reach method set points	
☑	☐	☑	☑	Check manually that you have calibration peaks.	
☑	☐	☑	☑	EI Autotune Performed	

Guidance: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument setup and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☑ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ Complete Signature Page and attach Signature Page to Service Order.

Test Results

Test Description	Expected Test Result	Actual Test Result

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Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the service review or other items of interest for the customer, please write in this box.

Service Verification

Service Request Number:

6008100914

Service Engineer Name:

Supasak N.

Service Engineer Signature:

Date of Service Completion:

13 Feb 2026

Customer Name:

Jutarat J.

Total number of pages in this document:

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Parts for consumption during PM

Common Oil and MS Gas Filters – 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	Interim	Major	As Needed
Agilent AVF Platinum, 1 quart	5191-5851	✓	✓	✓
Helium gas filter* (collision cell gas) – if required	RMSH-2		✓	✓
Nitrogen gas filter*(collision cell gas) – if required	RMSN-2		✓	✓
Hydrogen gas filter* ^ (HydroInert and JetClean) – if required	RMSHY-2		✓	✓
Chemical Ionization Gas Purifier (CI systems) (Methane) – if required	5190-9071		✓	✓
Gas Clean GS/MS Filter (for He, N2 or H2) – if required	CP17973		✓	✓
# Gas Clean Filter Kit GC/MS 1/8 in (complete replacement kit - bench mounted) – if required	CP17974			✓
# Gas Clean Carrier Gas Kit for 7890 for He, N2 or H2; Bracket, Mount and Filter – if required	CP17988			✓
# Gas Clean Carrier Gas Kit for 8890 & 8860 for He, N2 or H2; Bracket, Mount and Filter – if required	CP179880			✓

Gas filters need to be changed only if required (ie indicating traps show color change, or if Big Universal Trap are approaching saturation based on time installed or number of gas cylinders changed for that trap)

* Big Universal Trap (BUT), 1/8" fittings
^ HydroInert and JetClean Systems
# Alternate Gas Clean kit part numbers. A Gas Clean filter is included in the kits. They are only necessary if replacing carrier gas Big Universal Traps with indicating traps

MS Maintenance Supplies for 5973/5975/5977 Series

Part Description	Part Number	Interim	Major	As Needed
Diffusion pump fluid (Diffusion Pump Models)	6040-0809 Qty 2		✓	✓
Exhaust oil mist trap (threaded) Edwards/Pfeiffer	G1099-80039	✓	✓	✓
DS42 Oil Mist Eliminator 3/4G & 3/8	SR03706556	✓	✓	✓
IDP-3 Tip Seal Replacement Kit (IDP-3 Dry Scroll Pump Models – Includes tip seal, 60mm filter element, tools, mask and cleaning supplies)	G7077-67018	✓	✓	✓
IDP-3 Tip Seal Replacement Kit (no tools – CSD P/N)	5190-9561	✓	✓	✓
IDP-3 Tip Seal Replacement Kit (no tools – VPD P/N)	IDP3TS	✓	✓	✓
Filter element for IDP-3 (diameter: 60mm)	REPLSLRFILTER2	✓	✓	✓

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MS Maintenance Supplies for 7000/7010 Series

Part Description	Part Number	Interim	Major	As Needed
Oil Mist Filter RV5	G6600-80043	✓	✓	✓
IDP-10 Tip Seal Replacement Kit (IDP-10 Dry Scroll Pump Models – Includes tip seal, 102mm filter element, tools, mask and cleaning supplies)	G7004-67023	✓	✓	✓
IDP-10 Tip Seal Replacement Kit (no tools etc. – VPD P/N)	X3807-67000	✓	✓	✓
Filter element for IDP-10/IDP15 (diameter: 102mm)	REPLSLRFILTER	✓	✓	✓
Filter element for IDP-10/IDP15 (diameter: 79mm)	REPLSLRFILTER1	✓	✓	✓

MS Maintenance Supplies for 7200/7250 Series

Part Description	Part Number	Interim	Major	As Needed
RIS Probe Maintenance Kit (7200 Series only)	G7005-60170		✓	✓
DS202 Oil Mist Eliminator	SR03706800	✓	✓	✓
DS202 3/8' Magnetic Plug and Gasket	SR03701824	✓	✓	✓
IDP-15 Tip Seal Replacement Kit (IDP-15 Dry Scroll Pump Models – Includes tip seal, 102mm filter element, tools, mask and cleaning supplies)	5190-9613	✓	✓	✓
IDP-15 Tip Seal Replacement Kit (no tools etc.– VPD P/N)	X3815-67000	✓	✓	✓
Filter element for IDP-10/IDP15 (diameter: 102mm)	REPLSLRFILTER	✓	✓	✓
Filter element for IDP-10/IDP15 (diameter: 79mm)	REPLSLRFILTER1	✓	✓	✓

HydroInert Source Supplies

To determine if replacement of HydroInert parts is required, please review tune history and sample signal intensity performance. If performance is decreasing, the below parts maybe use to restore performance as part of the PM.

One way to determine if the source performance on SQ is being affected is to review the gain factor history in autotune reports or tune history csv file. If the gain factor is increasing the source performance maybe degrading.

Since TQ tunes to a fixed gain factor, review PFTBA abundance. If PFTBA abundance is decreasing over time, the source performance maybe degrading.

Real sample/standard area counts are another way to determine the performance, there could also be other factors that affect compounds abundance such as inlet and column status.

Part Description	Part Number	Interim	Major	As Needed
Repeller Insulator (qty 2)	G1099-20133			✓
Lens insulator for Extractor (ring insulator)	G3870-20445			✓
HydroInert Extractor lens (9mm)	G7078-20909			✓
HydroInert Repeller	G7078-20902			✓

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Common Parts Reference
(Purchased by customer, not included as part of PM)

Filaments and Calibrant Supplies 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	SQ	TQ	QTOF
EI High Temperature Filaments	G7005-60061 Qty 2	597X	7000x	N/A
HES, HES 2.0 EI Filaments	G7002-60001	5977B/C	7010x	N/A
HES 2.0 EI Filament Spacer	G7007-20023	N/A	7010x	N/A
LE-EI Filaments (7250 QTOF)	G3850-60021	N/A	N/A	7250
CI High Temperature Filament – SQ, TQ, 7200 QTOF	G7005-60072	N/A	N/A	7200A/B
Axial CI Filament, W/Re Straight (7250 QTOF)	G7250-60095	N/A	N/A	7250
PFTBA GCMS Tuning Standard calibrant	05971-60571	597X	70X0	72X0
PFDTD calibrant, 1 mL	8500-8510	597X	70X0	72X0
PFET, IRM calibrant for GC QTOF 0.5 mL (7200)	5190-0531	N/A	N/A	7200A/B

Transfer line seals and springs 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	SQ	TQ	QTOF
CI Interface tip seal (ceramic tip and spring combo) (non-captured CI tip seal interface) (5973, 5975, 7000B)	G1999-60412	5973, 5975	7000B	N/A
CI Interface tip seal (ceramic tip and spring low/non-magnetic spring combo) (non-captured CI tip seal interface) (7010A)	G7002-60412	N/A	7010A	N/A
CI Interface tip seal spring (spring only)	G1999-20023	597X	70X0	72X0
CI Interface tip seal (tip only) (captured style)	G3870-20542	5977x	70X0	72X0
Transfer-Line Tip Base, Threaded (captured style)	G3870-20548	5977x	70X0	72X0
Transfer-Line Tip Cap, Threaded (captured style)	G3870-20547	5977x	70X0	72X0
RIS Xfer Tip (7200)	G7005-20542	N/A	N/A	7200A/B
RIS Xfer Tip Spring (7200)	G7005-20024	N/A	N/A	7200A/B

MS Maintenance Supplies for Intuvo 9000 MS Series

Part Description	Part Number	SQ	TQ	QTOF
Swaged MS Tail - Packaged	G4590-60009	5977x	7000	N/A
Swaged MS Tail (HES, HES 2.0) - Packaged	G4590-60109	5977x	7010x	N/A

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Ion source insulators for 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	SQ	TQ	QTOF
Repeller insulator (SQ, TQ)	G1099-20133 Qty 2	597X	7000x	N/A
Lens insulator for extractor lens (ceramic ring insulator) (Extractor source)	G3870-20445	5977x	7000C/D/E	N/A
Lens insulator for Extractor lens (Vespel ring insulator) (7000B extractor ion source)	G7000-20445	N/A	7000B only	N/A
Lens stack insulator for SS, Inert, Extractor sources (captures ion focus and entrance lens) (Vespel)	G3170-20530	597X	7000x	N/A
Lens insulator for Extractor lens for HES/HES 2.0/LEEI (ceramic ring insulator)	G7002-20064	5977B/C	7010x	7250
Lens stack insulator/holder for HES/LLEI (Vespel)	G7002-20074	5977B/C	7010x	7250
Lens stack insulator/holder for HES 2.0 (Vespel)	G7007-20074	N/A	7010x	N/A
CI Repeller Lens Insulator (SQ, TQ)	G1999-20433	597X	70X0x	N/A
CI Lens stack insulator (SQ, TQ) (Vespel)	G3170-20540	597X	70X0x	N/A
Repeller insulator (7200 RIS) (Ceramic)	G7005-20447	N/A	N/A	7200A/B
Extractor Lens Insulator (7200 RIS) (Vespel)	G7005-20133	N/A	N/A	7200A/B
Ion Focus Insulator (7200 RIS) (Vespel)	G7005-20442	N/A	N/A	7200A/B
CI Repeller Insulator/bushing (7200 RIS) (Ceramic)	G7005-20030	N/A	N/A	7200A/B

HydroInert coated lenses for 5977/7000 Series

Part Description	Part Number	SQ	TQ	QTOF
HydroInert Repeller	G7078-20902	5977x	7000C/D/E	N/A
Ext Source Body – HydroInert	G7078-20903	5977x	7000C/D/E	N/A
HydroInert Extractor lens (9mm)	G7078-20909	5977x	7000C/D/E	N/A
Ion Focus Lens – HydroInert	G7078-20905	5977x	7000C/D/E	N/A
Entrance Lens – HydroInert	G7078-20904	5977x	7000C/D/E	N/A

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Heater/Sensor assemblies for 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	SQ	TQ	QTOF
Stainless Steel Heater/Sensor assembly (SST EI 350)	G3870-67180	597X	N/A	N/A
Inert Heater/Sensor assembly (inert EI 350)	G3870-67179	597X	7000A/B	N/A
Extractor Heater/Sensor assembly (Xtr EI 350)	G3870-67177	5977x	7000C/D/E	N/A
H2 EI Heater/Sensor Assembly – HydroInert (H2 EI 350)	G7078-67910	5977x	7000C/D/E	N/A
CI 350 Heater/Sensor Assembly (CI 350)	G3870-67415	597X	70X0x	N/A
Ring heater/sensor assembly (HES, HES 2.0, RIS and LEEI) (ceramic ring)	G7002-60058	5977B/C	7010x	72X0

Rough pump hoses 5973/5975/5977/7000/7010/7200/7250 Series

Part Description	Part Number	SQ	TQ	QTOF
Foreline Hose - imbedded spring	G7077-60119	597X	70X0x	72X0

Common MS Maintenance Supplies

Part Description	Part Number	SQ	TQ	QTOF
Abrasive paper, 30 µm	5061-5896	597X	70X0	72X0
Alumina powder	393706201	597X	70X0	72X0
Cloths, clean (pkg of 15)	05980-60051	597X	70X0	72X0
Cloths, cleaning (pkg of 300)	9310-4828	597X	70X0	72X0
Cotton swabs (pkg of 100)	5080-5400	597X	70X0	72X0
Gloves, clean, large	8650-0030	597X	70X0	72X0
Gloves, clean, small	8650-0029	597X	70X0	72X0

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Teledyne Tekmar ATOMX Purge and Trap Preventive Maintenance Checklist - Standard

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Agilent Preventive Maintenance provides factory recommended service for your analytical systems to assure reliable operation and the accuracy of your results. Delivered by highly-trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak.

For more information about Agilent Technologies services please visit our web site using the following URL http://www.chem.agilent.com/en-us/products/services/pages/default.aspx

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of additional or special procedures and/or parts for the instrument service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Service Engineer's Responsibilities

- Only complete/printout pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using a "X" or tick mark "✓" in the checkbox.
- Complete Not Applicable check boxes to indicate services not delivered, as needed.
- Complete the PM service in the order of the tasks listed.
- Complete the Service Review section together with the customer.

System Information

Guidance

❑ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument system name and ID	GCMS
Instrument system site and location	SECOT Co Ltd
List system component product numbers	**List the serial numbers of each component**
1. TMR-ATOMX	1. US13296002
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

Preparation

☑ Discuss any specific issues with the customer prior to starting.
☑ Review the instrument logbook.
☑ Save instrument control settings before starting the procedure.
☑ Perform general inspection of system for cleanliness
☑ Check for proper installation of safety-related parts, assemblies , sensors etc
☑ Check for required firmware updates and verify with customers if they would like it installed.

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Check External Supplies

❑ **Section NOT Applicable**
☑ Verify the gas source is supplying an input pressure of 50 - 100 psi to the ATOMX. If the customer is using a gas cylinder, verify the cylinder is at 500+ psi.
☑ Verify that the waste container has sufficient volume to contain the waste generated. Empty if necessary.
☑ Replace the DI water supply with fresh DI water.
  - Make sure the DI water supply is sufficient for sample analysis (1 Liter minimum)
☑ Make sure the methanol supply is sufficient for sample analysis.

Atomx Leak and Pressure Check

❑ **Section NOT Applicable**
☑ Scan through the sample log to verify that the purge pressures are staying consistent throughout the daily runs.
☑ Use the Teklink software to check the standard pressure.
☑ Run a leak check to ensure that the unit is leak tight.

Inspect ATOMX Hardware

❑ **Section NOT Applicable**
☑ Check the tray vial holes for foreign particles. Clean if necessary.
☑ Inspect the needle for particles or sample build up. Clean if necessary.
☑ Inspect the sparger glassware for damage and/or discoloration that could restrict flow or cause contamination. Replace if necessary.
☑ Inspect the drain tubing for clogging. Replace the drain line if necessary.
☑ Lubricate the ATOMX Carousel Drive. Refer to the diagram on page 6-25 of the ATOMX User Manual for lubrication points. Teledyne Tekmar recommends using DuPont Krytox lubrication.
☑ Lubricate the ATOMX Elevator. Refer to the diagram on page 6-32 of the ATOMX User Manual for lubrication points. Teledyne Tekmar recommends using DuPont Krytox lubrication.

Restore Instrument

Guidance

If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

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Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the PM service activity in the customer's instrument records/logbook
- ☑ Update/reset instrument maintenance counters as appropriate
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section below if there are additional comments
- ☑ Review the service and any test results with the customer.
- ☑ If the Instrument firmware was updated, record the details of the change in the Service Engineer's Comments box below or if necessary, in the customer's IQ records.

Product or Product Type Test Results Table

Test Description	Expected Test Result	Actual Test Result
Leak Test	Pass	Pass

Product or Product Type Parts List Table

Part Description	Part Number	Product or Model# where used	Quantity Consumed
Sparger Glassware	Ask the customer what size sparger glassware they are using; refer to the ATOMX parts list for part numbers.	TMR-ATOMX	1
Lubricant, Dupont Krytok	15-0293-000	TMR-ATOMX	1
Tubing, Drain, Self Retracting	15-0087-002	TMR-ATOMX	1

Teledyne Tekmar ATOMX Purge and Trap
Preventive Maintenance Checklist - Standard

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Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write in this box.

Other Important Customer Web Links

- ❑ How to get information on your product: Literature Library - http://www.agilent.com/chem/library
- ❑ Need to know more? - www.agilent.com/chem/education
- ❑ Need technical support, FAQs? - www.agilent.com/chem/techsupp
- ❑ Need supplies? - www.agilent.com/chem/supplies

Service Completion

Service request number 6008100914 Date service completed 13 Feb 2026

Agilent signature [signature] Customer signature Jutarat J.

Number of pages in this document _____

ภาคผนวก ฉ

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน จากกรมโรงงานอุตสาหกรรม

ที่ อก ๐๓๑๐(๑)/ ๔๐๕๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ เขตราชเทวี
กรุงเทพมหานคร ๑๐๔๐๐

๑๙ มิถุนายน ๒๕๖๙

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอท จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๒ เมษายน ๒๕๖๙

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผ่น

ตามคำขอที่อ้างถึง บริษัท ซีคอท จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางขื่อ เขตบางขื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอท จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๙ ราย ตามสิ่งที่ส่งมาด้วย ๑
ข. เจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๔๐ ราย ตามสิ่งที่ส่งมาด้วย ๒
ค. ขอบข่ายชนิดสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำ/น้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๗๓ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๖๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายศิระ จันทร์เฉิด)
นักวิทยาศาสตร์เชี่ยวชาญ รักษาราชการแทน
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

Green Industry
"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙
ที่ อก ๐๓๑๐(๑)/ ๔๐๕๖ ลงวันที่ ๑๙ มิถุนายน ๒๕๖๙

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๙ ราย

๑) นายขรรชัย เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๒
๒) นางสมฤดี เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๓
๓) นางสาวเขมชุดา อินทร์ศร	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๕
๔) นางสาวปรีดา สมใจ	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๖
๕) นางสาวอรัญญา มาตา	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๗
๖) นางสาวลดาวัลย์ วงศ์เจริญ	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๘
๗) นางสาวมณีวรรณ เกตะวันดี	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๙
๘) นางสาวนริสา ภูวสรรเพ็ชญ์	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๑๐
๙) นางสาวศิริวรรณ ฉิมสง่า	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๑๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙
ที่ อก ๐๓๑๐(๑)/๕๐๕๖ ลงวันที่ ๑๙ มิถุนายน ๒๕๖๙

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๔๐ ราย

๑) นางสาวสุดาพร สุนทร ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๑
๒) นางสาวสุธาทิพย์ เทียนเตี้ย ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๓
๓) นางสาวสุนันทา ศิรวุฒินานนท์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๔
๔) นายบวร ดีชัยยะ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๕
๕) นางสาวเกศรินทร์ วรเดชวิทยา ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๖
๖) นายอนิวัฒน์ พิมวันนา ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๗
๗) นายชิตพล สมประสงค์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๘
๘) นางสาวศศิธร พรหมประเสริฐ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๐๙
๙) นายศิวะนนท์ กุลวงษ์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๐
๑๐) นางสาวอลิษา คนิวรานนท์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๑
๑๑) นางสาวสิริวรรณ แก้วชิงดวง ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๒
๑๒) นางสาวปัทมวรรณ สุวรรณวิโรจน์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๓
๑๓) นางสาวกนิษฐา เจริญเชื้อ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๔
๑๔) นายซอง เฮงชวัลกุล ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๖
๑๕) นางสาวพรนภา บุตรธรรม ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๘
๑๖) นางสาวธาริณี อาจปลิว ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๑๙
๑๗) นางสาวจุฑารัตน์ แจ่มเรือน ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๒
๑๘) นางสาวจณิสตา กุ้ยอ่อน ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๓
๑๙) นายกิตติพงศ์ ถะเกิงสุข ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๔
๒๐) นายจีรวัฒน์ โคตรคำหาญ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๕
๒๑) นายชนะพล อัครผล ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๖
๒๒) นางสาวทิพย์สุดา วรรณการ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๗
๒๓) นายสิทธิชัย สว่างวงศ์ไชย ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๘
๒๔) นายพิษณุ สีนามเพ็ง ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๒๙
๒๕) นายธนาวุฒิ ด่วนแสง ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๓๑
๒๖) นายรอมฎอน เหล็มหมาด ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๓๕
๒๗) นางสาววิระยา ปัจฉิมบูรณ์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๓๘
๒๘) นางสาวสุภาพร สุวรรณมณี ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๐
๒๙) นางสาวณัฐณิชา วิลัยทอง ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๑
๓๐) นางสาวนิศารัตน์ พิมจินดา ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๒
๓๑) นายพงศ์ศิริ จักรแก้ว ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๓
๓๒) นายอรรถชัย นวนนิ่ม ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๔
๓๓) นางสาวรัตน์ติยากร ชื่นชม ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๕
๓๔) นางสาวชนิตา หล่ำสาย ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๖
๓๕) นางสาวตวงกมล ทองหิรัญ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๗
๓๖) นายอภิวัฒน์ เมฆสุวรรณ์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๘
๓๗) นางสาวบุณยนุช รุ่นแรก ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๔๙
๓๘) นางสาวปวริศา มากภักดี ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๕๐
๓๙) นางสาว เจตนา กำรัมย์ ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๕๑
๔๐) นายณัฐชัย ไชยโคตร ทะเบียนเลขที่ ว-๒๓๙-๑-๐๐๕๒

ฤทธิ์

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙
ที่ อก ๐๓๑๐(๑)/๕๐๕๖ ลงวันที่ ๑๙ มิถุนายน ๒๕๖๙

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๖๔ รายการ

น้ำ/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, Flame Atomic Absorption Spectrometric 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	γ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
7	δ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
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, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]

ฤทธิ์

10 Chemical...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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, Flame Atomic Absorption Spectrometric 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, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
15	Cyanide	Total Cyanide after 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]
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...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		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]
25	Formaldehyde	Distillation, Colorimetric Method[2]
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, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]

31 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
31	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric 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, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 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 from 103 to 105 °C[4]
44	Trivalent Chromium	Calculation[4]
45	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]

ต่อหน้า
น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 129 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	Aluminum	Digestion, Inductively Coupled Plasma Method[4]
5	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
6	Antimony	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
7	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
8	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
9	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
10	Benzo(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
11	Benzene	Purge and Trap Gas Chromatographic/Mass spectrometric Method[4]
12	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
13	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
14	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
15	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
16	Benzo(ghi)perylene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

ต่อหน้า

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
18	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
19	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
20	Bromodichloromethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
21	Bromoform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
22	Butanol	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
23	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
24	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
25	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
26	Carbon disulfide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
27	Carbon tetrachloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
28	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
29	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
30	Chlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
31	Chlorodibromomethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

ต่อหน้า ๗

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
32	Chloroform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
33	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
34	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
35	Chromium (III)	Calculation[4]
36	Chromium (VI)	1) Colorimetric Method[4] 2) Extraction, Air-Acetylene Flame Method[4]
37	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
38	Copper	Digestion, Inductively Coupled Plasma Method[4]
39	Cyanide	1) Distillation, Titrimetric Method[4] 2) Distillation, Colorimetric Method[4]
40	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
41	DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
42	DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
43	DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
44	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
45	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
46	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

ต่อหน้า ๗

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
47	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
48	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
49	3,3′-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
50	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
51	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
52	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
53	cis-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
54	trans-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
55	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
56	1,2-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
57	1,3-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
58	1,3-Dichloropropene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
59	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
60	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
61	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
62	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
63	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

ต่อไป

64 2,6-Dinitrotoluene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
64	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
65	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
66	Endosulfan	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
67	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
68	Ethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
69	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
70	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
71	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
72	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
73	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
74	Hexachloro-1,3-butadiene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
75	n-Hexane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
76	α-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

ต่อไป

77 β-HCH...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
77	β-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
78	γ-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
79	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
80	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
81	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
82	Iron	Digestion, Inductively Coupled Plasma Method[4]
83	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
84	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
85	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
86	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[4]
87	Methanol	Purge and Trap Gas Chromatographic/Mass spectrometric Method[4]
88	Methoxychlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

89 Methyl bromide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
89	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
90	Methylene chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
91	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
92	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
93	Methyl tert-butyl ether	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
94	Molybdenum	Digestion, Inductively Coupled Plasma Method[4]
95	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
96	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
97	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
98	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
99	N-Nitrosodi-n-propylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
100	PCBs	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
101	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
102	pH	Electrometric method[4]
103	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
104	Phenol	1) Distillation, Chloroform Extraction Method[4] 2) Distillation, Direct Photometric Method[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
105	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

106 Selenium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
106	Selenium	1) Digestion, Hydride Generation Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
107	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
108	Styrene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
109	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
110	Tetrachloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
111	Toluene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
112	TPH (C_5-C_8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[12,26]
113	TPH ($C_{>8}$-C_{16})	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,21] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method[9,27]
114	TPH ($C_{>16}$-C_{35})	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,21] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method[9,27]
115	1,2,4-Trichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
116	1,1,1-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
117	1,1,2-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
118	Trichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
119	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
120	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]

121 1,3,5-Trimethylbenzene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
121	1,3,5-Trimethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
122	Vanadium	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
123	Vinyl acetate	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
124	Vinyl chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
125	m-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
126	o-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
127	p-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
128	Xylene (Total)	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
129	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]

<u>อากาศเสีย (ปล่องระบาย) จำนวน 27 รายการ</u>

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...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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]
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...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
19	Opacity	Ringelmann's Method[1]
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]

<u>สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,6,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,6,9,27]

3) Soxhlet...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		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[3,6,16]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		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[3,6,16]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		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[3,6,15]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15]
		4) Digestion, Inductively Coupled Plasma Method[7,14]
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		2) Digestion, Inductively Coupled Plasma Method[7,14]
6	Cadmium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[3,6,15]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15]
		4) Digestion, Inductively Coupled Plasma Method[7,14]
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,22]

ต่อไป

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		3) Soxhlet Extraction, Gas Chromatographic Method[10,22]
		4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
8	Chromium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[3,6,15]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15]
		4) Digestion, Inductively Coupled Plasma Method[7,14]
9	Chromium (III)	Calculation[3,6,7,8,14,15,17]
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method[3,17]
		2) Alkaline Digestion, Colorimetric Method[8,17]
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		2) Digestion, Inductively Coupled Plasma Method[7,14]
12	Copper	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[3,6,15]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15]
		4) Digestion, Inductively Coupled Plasma Method[7,14]
13	2,4-D	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method[3,25]
		2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[25]
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		3) Soxhlet Extraction, Gas Chromatographic Method[10,22]

ต่อไป

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		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[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		3) Soxhlet Extraction, Gas Chromatographic Method[10,22]
		4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		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[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		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[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]

3) Soxhlet Extraction...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		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[3,6,15]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15]
		4) Digestion, Inductively Coupled Plasma Method[7,14]
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		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[3,18]
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		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[3,9,22]
		2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[3,9,27]
		3) Soxhlet Extraction, Gas Chromatographic Method[10,22]
		4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14]
		2) Digestion, Inductively Coupled Plasma Method[7,14]

25 Nickel...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
25	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[3,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
26	PCBs	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[3,9,23] 2) Soxhlet Extraction, Gas Chromatographic Method[10,23]
27	Pentachlorophenol	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method[3,25] 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[3,6,20] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,20] 4) Digestion, Inductively Coupled Plasma Method[7,14]
30	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
31	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
32	Trichloroethylene	1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[3,12,26] 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[12,26]
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[3,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[3,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]

ดิน จำนวน 129 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
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	Aluminum	Digestion, Inductively Coupled Plasma Method[7,14]
5	Anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
6	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 2) Digestion, Inductively Coupled Plasma Method[7,14]
7	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 2) Digestion, Inductively Coupled Plasma Method[7,14]
8	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method[11,24]
9	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
10	Benzo(a)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
11	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
12	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
13	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
14	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
15	Benzo(a)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
16	Benzo(ghi)perylene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
17	Beryllium	Digestion, Inductively Coupled Plasma Method[7,14]
18	Bis(2-chloroethyl)ether	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
19	Bis(2-ethylhexyl)phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
20	Bromodichloromethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
21	Bromoform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
22	Butanol	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
23	Butyl benzyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
24	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
25	Carbazole	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
26	Carbon disulfide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
27	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
28	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]

29 p-Chloroaniline...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
29	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
30	Chlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
31	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
32	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
33	2-Chlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
34	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
35	Chromium (III)	Calculation[7,8,14,15,17]
36	Chromium (VI)	Alkaline Digestion, Colorimetric Method[8,17]
37	Chrysene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
38	Copper	Digestion, Inductively Coupled Plasma Method[7,14]
39	Cyanide	1) Extraction, Distillation, Titrimetric Method[28,29,30] 2) Extraction, Distillation, Colorimetric Method[28,29,30]
40	2,4-D	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[25]
41	DDD	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
42	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
43	DDT	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
44	Dibenz(a,h)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]

45 Di-n-butyl phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
45	Di-n-butyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
46	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
47	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
48	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
49	3,3′-Dichlorobenzidine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
50	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
51	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
52	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
53	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
54	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
55	2,4-Dichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
56	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
57	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
58	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
59	Dieldrin	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
60	Diethyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
61	2,4-Dimethylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]

ต่อไป

62 2,4-Dinitrophenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
62	2,4-Dinitrophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
63	2,4-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
64	2,6-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
65	Di-n-Octyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
66	Endosulfan	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
67	Endrin	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
68	Ethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
69	Fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
70	Fluorene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
71	Heptachlor	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
72	Heptachlor epoxide	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
73	Hexachlorobenzene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
74	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
75	n-Hexane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]

ต่อไป

76 α-HCH...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	α-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
77	β-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
78	γ-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
79	Hexachlorocyclopentadiene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
80	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
81	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
82	Iron	Digestion, Inductively Coupled Plasma Method[7,14]
83	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
84	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
85	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
86	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[19] 2) Digestion, Inductively Coupled Plasma Method[7,14]
87	Methanol	1) Ultrasonic Extraction, Gas Chromatographic Method[11,21] 2) Equilibrium Headspace, Gas Chromatographic Method[11,21]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
88	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
89	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
90	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
91	Molybdenum	Digestion, Inductively Coupled Plasma Method[2,3]
92	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
93	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
94	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
95	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
96	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
97	Nitrobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
98	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
99	N-Nitrosodi-n-propylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
100	PCBs	Soxhlet Extraction, Gas Chromatographic Method[10,23]
101	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[24]
102	pH	Electrometric Method[4]
103	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
104	Phenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
105	Pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
106	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,20] 2) Digestion, Inductively Coupled Plasma Method[7,14]
107	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
108	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
109	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
110	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
111	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
112	TPH (C_5-C_8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
113	TPH ($C_{>8}$-C_{16})	1) Soxhlet Extraction, Gas Chromatographic Method[10,21] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
114	TPH ($C_{>16}$-C_{35})	1) Soxhlet Extraction, Gas Chromatographic Method[10,21] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
115	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
116	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
117	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
118	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
119	2,4,5-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
120	2,4,6-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]

121 1,3,5-Trimethylbenzene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
121	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
122	Vanadium	Digestion, Inductively Coupled Plasma Method[7,14]
123	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass spectrometric Method[13,26]
124	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
125	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
126	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
127	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
128	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
129	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]

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ภาคผนวก ช

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่ายการรับรองห้องปฏิบัติการทดสอบ ตามมาตรฐาน ISO/IEC 17025 จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)

แบบ กมช./สมอ.๒
Form NSC/TISI 2

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ใบรับรองระบบงาน
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(By Virtue of National Standardization Act B.E. 2551 (2008))

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
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(Issues this certificate to)

บริษัท ซีคอท จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

ตั้งอยู่เลขที่
(Address)

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(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 เพ็งหล้ง)
ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

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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): บริษัท ซีคอท จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม (Secot Company Limited, Environmental Laboratory Division)

หมายเลขการรับรองที่ (Accreditation No.): ทดสอบ 0394 (Testing 0394)

ฉบับที่ 03 (Issue No. 03)

ออกให้ตั้งแต่วันที่ 15 กันยายน พ.ศ. 2568 (Valid from 15 September B.E.2568 (2025))

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)
สาขาสิ่งแวดล้อม (Environmental field) 1. น้ำและน้ำเสีย (Water and wastewater)	- Heavy metals • Arsenic (As) 0.000 5 mg/L to 0.090 0 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, Part 3030 F and Part 3114 C
	• Arsenic (As) 0.05 mg/L to 4.50 mg/L • Barium (Ba) 0.02 mg/L to 4.50 mg/L • Cadmium (Cd) 0.01 mg/L to 4.50 mg/L • Chromium (Cr) 0.01 mg/L to 4.50 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, Part 3030 E and Part 3120 B

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (Environmental field) 1. น้ำและน้ำเสีย (ต่อ) (Water and wastewater) (cont.)	- Heavy metals • Copper (Cu) 0.02 mg/L to 4.50 mg/L • Iron (Fe) 0.05 mg/L to 9.00 mg/L • Lead (Pb) 0.03 mg/L to 4.50 mg/L • Manganese (Mn) 0.01 mg/L to 9.00 mg/L • Nickel (Ni) 0.01 mg/L to 4.50 mg/L • Zinc (Zn) 0.02 mg/L to 9.00 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, Part 3030 E and Part 3120 B
	- Chemical oxygen demand (COD) 10.00 mg/L to 9 000 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, Part 5220 D

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)

ฉบับที่ 03 (Issue No. 03) | ออกให้ตั้งแต่วันที่ 15 กันยายน พ.ศ. 2568 (Valid from 15 September B.E.2568 (2025)) | 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)
สาขาสิ่งแวดล้อม (Environmental field) 2. บริเวณทำงาน (Workplace)	- Total dust 0.10 mg/filter to 2.00 mg/filter	- NIOSH Manual of Analytical Methods (NMAM), Method 0500, 4th edition, 15th August 1994 (Exclude Sampling)
	- Respirable dust 0.10 mg/filter to 2.00 mg/filter	- NIOSH Manual of Analytical Methods (NMAM), Method 0600, 4th edition, 15th January 1998 (Exclude Sampling)
	- Benzene 0.70 µg/tube to 420 µg/tube - Toluene 0.70 µg/tube to 420 µg/tube - Total xylenes 1.40 µg/tube to 840 µg/tube - m, p-Xylene 0.70 µg/tube to 420 µg/tube	- NIOSH Manual of Analytical Methods (NMAM), Method 1501, 4th edition, 15th March 2003 (Exclude Sampling)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (Environmental field)		
2. บริเวณทำงาน (ต่อ) (Workplace) (Cont.)	- o-Xylene 0.70 μg/tube to 420 μg/tube	- NIOSH Manual of Analytical Methods (NMAM), Method 1501, 4th edition, 15th March 2003 (Exclude Sampling)
3. ปล่องระบายอากาศ (Stack)	- Sulfur dioxide 1.00 mg/L to 16 000 mg/L	- US.EPA, Code of Federal Regulations, 40 CFR 60 appendix A, Method 6, July 2024 (Exclude Sampling)
	- Hydrogen fluoride 5 μg/sample to 400 μg/sample	- WI-7.2-1-22 based on US.EPA, Code of Federal Regulations, 40 CFR 60 appendix A, Method 26, 26A, 2024
	- Hydrogen chloride 5 μg/sample to 400 μg/sample	

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
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ฉบับที่ 03 (Issue No. 03) ออกให้ตั้งแต่วันที่ 15 กันยายน พ.ศ. 2568 (Valid from 15 September B.E.2568 (2025)) 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)
สาขาสิ่งแวดล้อม (Environmental field)		
4. บรรยากาศทั่วไป (Ambient air)	- Volatile organic compounds (VOCs) • Chloroethene 0.05 $\mu g/m^3$ to 51.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • 1,3-butadiene 0.04 $\mu g/m^3$ to 44.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Bromomethane 0.08 $\mu g/m^3$ to 77.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Acrolein 0.05 $\mu g/m^3$ to 45.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Acrylonitrile 0.04 $\mu g/m^3$ to 43.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Dichloromethane 0.14 $\mu g/m^3$ to 69.00 $\mu g/m^3$ 0.04 ppbv to 20.00 ppbv)	- WI-7.2-1-24 based on US EPA, Compendium Method TO-15, EPA/625/R-96/010b, Second edition, January 1999

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (Environmental field) 4. บรรยากาศทั่วไป (ต่อ) (Ambient air) (cont.)	- Volatile organic compounds (VOCs) • Carbon disulfide 0.06 $\mu g/m^3$ to 62.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Trichloromethane 0.20 $\mu g/m^3$ to 97.00 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv) • 1,2–dichloroethane 0.08 $\mu g/m^3$ to 80.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Benzene 0.06 $\mu g/m^3$ to 63.00 $\mu g/m^3$ (0.02 ppbv to 20.00 ppbv) • Carbon tetrachloride 0.25 $\mu g/m^3$ to 125 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv) • Trichloroethylene 0.21 $\mu g/m^3$ to 107 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv)	- WI-7.2-1-24 based on US EPA, Compendium Method TO-15, EPA/625/R-96/010b, Second edition, January 1999

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
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ฉบับที่ 03 (Issue No. 03) ออกให้ตั้งแต่วันที่ 15 กันยายน พ.ศ. 2568 (Valid from 15 September B.E.2568 (2025)) 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)
สาขาสิ่งแวดล้อม (environmental field) 4. บรรยากาศทั่วไป (ต่อ) (Ambient air) (Cont.)	- Volatile organic compounds (VOCs) • 1,2–dichloropropane 0.18 $\mu g/m^3$ to 92.00 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv) • Tetrachloroethylene 0.27 $\mu g/m^3$ to 135 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv) • 1,2–dibromoethane 0.31 $\mu g/m^3$ to 153 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv) • 1,1,2,2–tetrachloroethane 0.69 $\mu g/m^3$ to 137 $\mu g/m^3$ (0.10 ppbv to 20.00 ppbv) • Benzyl chloride 0.52 $\mu g/m^3$ to 103 $\mu g/m^3$ (0.10 ppbv to 20.00 ppbv) • 1,4–dichlorobenzene 0.24 $\mu g/m^3$ to 120 $\mu g/m^3$ (0.04 ppbv to 20.00 ppbv)	- WI-7.2-1-24 based on US EPA, Compendium Method TO-15, EPA/625/R-96/010b, Second edition, January 1999

ภาคผนวก ซ

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน จากกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖
ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางขื่อ เขตบางขื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๕ ราย และรายการเครื่องมือตรวจวัด จำนวน ๕๕ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ต-๑๑-๐๒๐๑-๐๕๐-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

๑. นายชิตพล สมประสงค์
๒. นายอนิวัฒน์ พิมวันนา
๓. นายศิวะนนท์ กุลวงษ์
๔. นายธนโชติ ช่างล้อ
๕. นายกิตติพงศ์ ถะเกิงสุข
๖. นายจีรวัฒน์ โคตรคำหาญ
๗. นายศุภกิจ ต๊ะมูกา
๘. นางสาวทิพย์สุดา วรรณการ
๙. นายธนาวุฒิ ด่วนแสง
๑๐. นางสาวศลิษา อินรีย์
๑๑. นางสาววิระยา ปัจฉิมบูรณ์
๑๒. นายณัฐดนัย กฤษณะโลม
๑๓. นายณัฐชัย ไชยโคตร
๑๔. นายพงศ์ศิริ จักรแก้ว
๑๕. นายอรรถชัย นวนนิ่ม

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือตรวจวัดแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	เครื่องมือเก็บตัวอย่างอากาศ (Personal Air Sampling Pump)	ยี่ห้อ	Sensidyne Gilian	๔๖
		รุ่น	BDX II	
		Serial No.	20190401002	
			20190401003	
			20190401006	
			20190401007	
			20190401008	
			20190401013	
			20190401014	
			20190401015	
			20190401019	
			20190504021	
			20190504022	
			20190504023	
			20190504025	
			20190504027	
			20190504028	
			20190504029	
			20190504032	
			20190504034	
			20190504039	
			20190504040	
			20190504042	
			20190504044	
			20210602054	
			20210602055	
			20210701039	
			20210701078	
			20210701079	
			20210701081	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
	เครื่องมือเก็บตัวอย่างอากาศ (ต่อ) (Personal Air Sampling Pump)		20210701082 20210701086 20210701093 20210904100 20211201089 20211201090 20220104039 20220104042 20220104045 20220104086 20220104087 20220104088 20220104089 20220104090 20220104098 20220104099 20220104100 20220104104	
		ยี่ห้อ รุ่น Serial No.	SKC Pocket Pump TOUCH 220-1000TC 221217 221218 221219 221222 221245	๕
๒	เครื่องมือและอุปกรณ์สำหรับปรับความถูกต้อง (Pump calibrator)	ยี่ห้อ รุ่น Serial No.	Mesa Labs Defender 520-L 160100	๑
		ยี่ห้อ รุ่น Serial No.	Mesa Labs Defender 520-H 114069	๑
		ยี่ห้อ รุ่น Serial No.	SKC Chek-mate 375-0550 N 22552891	๑

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
	เครื่องมือและอุปกรณ์สำหรับปรับความถูกต้อง (ต่อ) (Pump calibrator)	ยี่ห้อ รุ่น Serial No.	SKC Chek-mate 375-00205 N 21552177	๑

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๑๐๙๖
ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๐ ราย และรายการเครื่องมือวิเคราะห์ จำนวน ๙ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
๓-๑๑-๐๒๐๒-๐๓๕-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

๑. นางสาวนริสา ภูวสรรเพ็ชญ์
๒. นางอารยา ทิพรักษ์
๓. นางสาวศิริวรรณ ฉิมสง่า
๔. นางสาวสุธาทิพย์ เทียนเตี้ย
๕. นางสาวพรนภา บุตรธรรม
๖. นางสาวธาริณี อาจปลิว
๗. นางสาวจณิสตา กุ้ยอ่อน
๘. นางสาวจุฑารัตน์ แจ่มเรือน
๙. นางสาวสุดาพร สุนทร
๑๐. นางสาวปวริศา มากภักดี

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๑ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือวิเคราะห์แนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	Atomic Absorption Spectrophotometer (AAS)	ยี่ห้อ รุ่น Serial No.	Perkin Elmer PinAAcle 900T PTDS23051001	๑
๒	Inductively Coupled Plasma (ICP-OES)	ยี่ห้อ รุ่น Serial No.	Agilent 5110 MY16230003	๑
๓	Gas Chromatograph Flame Ionization Detecter (GC-FID)	ยี่ห้อ รุ่น Serial No.	Agilent 7890 B CN 15346147	๑
		ยี่ห้อ รุ่น Serial No.	Agilent 7890 A US10943001	๑
๔	Ion Chromatography	ยี่ห้อ รุ่น Serial No.	Dionex ICS-1000 04090295	๑
๕	Electronic Balance	ยี่ห้อ รุ่น Serial No.	Sartorius ME5, 6 digits SWB26602268	๑
		ยี่ห้อ รุ่น Serial No.	Mettler Toledo AG245, 5 digits 1117293916	๑
		ยี่ห้อ รุ่น Serial No.	Mettler Toledo AB204-S, 4 digits 1123163292	๑

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๖	UV/Vis Spectrophotometer	ยี่ห้อ รุ่น Serial No.	Thermo Scientific GENESYS 150 UV-Vis 9A5Y332022	๑

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

ที่ รง ๐๕๐๔/ ๗๖๙๖

กรมสวัสดิการและคุ้มครองแรงงาน
ถนนมิตรไมตรี ดินแดง กรุงเทพฯ ๑๐๔๐๐

๒๐ สิงหาคม ๒๕๖๘

เรื่อง การขอเพิ่มเติมเครื่องมือวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

เรียน กรรมการผู้จัดการบริษัท ซีคอท จำกัด

อ้างถึง หนังสือบริษัท ซีคอท จำกัด ที่ ซค. (๒) ๐๐๒๔/๒๕๖๘ ลงวันที่ ๑๘ มิถุนายน ๒๕๖๘

สิ่งที่ส่งมาด้วย รายการเครื่องมือ (เพิ่มเติม) แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายฯ ลงวันที่ ๒๐ สิงหาคม พ.ศ. ๒๕๖๘ จำนวน ๑ ชุด

ตามหนังสือที่อ้างถึง บริษัท ซีคอท จำกัด ขออนุมัติเพิ่มเติมเครื่องมือวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย จำนวน ๑ เครื่อง สำหรับการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายฯ ตามกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ เพื่อให้กรมสวัสดิการและคุ้มครองแรงงานพิจารณา ความละเอียดแจ้งแล้ว นั้น

กรมสวัสดิการและคุ้มครองแรงงานพิจารณาแล้วเห็นว่า เครื่องมือวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายฯ ที่ขออนุมัติเพิ่มเติม เป็นไปตามกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัยฯ ประกอบกับกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ จึงอนุมัติให้บริษัท ซีคอท จำกัด เพิ่มเติมเครื่องมือวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายฯ ดังกล่าวรายละเอียดปรากฏตามสิ่งที่ส่งมาด้วย ทั้งนี้ ขอให้บริษัทฯ ปฏิบัติตามกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัยฯ อย่างเคร่งครัด

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายศักดิ์ศิลป์ ตุลาธร)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

กองความปลอดภัยแรงงาน
โทรศัพท์ ๐ ๒๔๔๘ ๙๑๒๘ - ๓๙ ต่อ ๗๐๖
ไปรษณีย์อิเล็กทรอนิกส์ Safetyofficer@labour.mail.go.th

รายการเครื่องมือ (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	CO Gas Detector	ยี่ห้อ รุ่น Serial No.	Q-Trak 7575 7575X2017002	๑

ทั้งนี้ ตั้งแต่วันที่ ๒๐ สิงหาคม พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๐ สิงหาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๑๐๙๗๖
ตั้งอยู่เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๗ ราย และรายการเครื่องมือตรวจวัด จำนวน ๖๕ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นางสาวสุนันทา	ศิรวุฒินานนท์
๒. นางสาวกนิษฐา	เจริญเชื้อ
๓. นางสาวอลิษา	คนิวรานนท์
๔. นางสาวชนิตา	หล่ำสาย
๕. นางสาวศลิษา	อินรีย์
๖. นางสาววิระยา	ปัจฉิมบูรณ์
๗. นายพงศ์ศิริ	จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
๓-๑๑-๐๔๐๓-๐๕๓-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายการเครื่องมือตรวจวัดแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	เครื่องวัดเสียง และเครื่องวัดเสียงกระทบหรือเสียงกระแทก	ยี่ห้อ	Cirrus	๑๐
		รุ่น	CR162B	
		Serial No.	G302737 G302738 G302740 G302742 G302743 G301014 G302333 G302330 G302237 G300709	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	Cirrus	๓
		รุ่น	CR162C	
		Serial No.	G300832 G300838 G300841	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	Cirrus	๒
		รุ่น	CR171B	
		Serial No.	G303411 G303415	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	SCARLET TECH	๑๕
		รุ่น	ST-21D	
		Serial No.	820722 820723 820724 820725 820726 820727	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
		Serial No.	820728 820729 820730 820731 821078 821079 821080 821081 821082	
		มาตรฐาน	IEC 61672	
๒	เครื่องวัดปริมาณเสียงสะสม	ยี่ห้อ	Cirrus	๒๐
		รุ่น	CR:110A	
		Serial No.	CB1023 CB1025 CB1026 CB1040 CB1041 CB1042 CB1043 CB1047 CB1048 CB1049 CB1050 CB1052 CB1053 CB1054 CB1055 CB1056 CB1101 CB1102 CB1103 CB1104	
		มาตรฐาน	IEC 61252	
		ยี่ห้อ	Pulsar	๑๐
		รุ่น	Model 22R	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
		Serial No.	PB614 PB617 PB618 PB621 PB632 PB636 PB637 PB638 PB643 PB644	
		มาตรฐาน	IEC 61252	
๓	อุปกรณ์ตรวจสอบความถูกต้อง	ยี่ห้อ	Cirrus	๒
		รุ่น	CR:515	
		Serial No.	94296 97097	
		มาตรฐาน	IEC 60942	
๔	อุปกรณ์ตรวจสอบความถูกต้อง (เสียงสะสม)	ยี่ห้อ	Cirrus	๒
		รุ่น	RC:110A	
		Serial No.	95167 95168	
		มาตรฐาน	IEC 60942	
		ยี่ห้อ	Pulsar	๑
		รุ่น	Model 22R	
		Serial No.	79781	
		มาตรฐาน	IEC 60942	

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับความร้อน

ใบอนุญาตเลขที่ ๑๔๐๑-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๑๐๙๗๖
ตั้งอยู่เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับความร้อน ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๗ ราย และรายการเครื่องมือตรวจวัด จำนวน ๑๕ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับความร้อน
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๑-๐๓-๒๕๖๕-๐๐๔๘

๑. นางสาวสุนันทา	ศิรวุฒินานนท์
๒. นางสาวกนิษฐา	เจริญเชื้อ
๓. นางสาวอลิษา	คนิวรานนท์
๔. นางสาวชนิตา	หล่ำสาย
๕. นางสาวศลิษา	อินรีย์
๖. นางสาววิระยา	ปัจฉิมบูรณ์
๗. นายพงศ์ศิริ	จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
๓-๑๑-๐๔๐๑-๐๕๑-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายการเครื่องมือตรวจวัดแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับความร้อน
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๑-๐๓-๒๕๖๕-๐๐๔๘

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	อุปกรณ์ตรวจวัดระดับความร้อนชนิดอิเล็กทรอนิกส์ที่สามารถอ่านค่าและคำนวณค่าอุณหภูมิเวตบัลป์โกลบ (WBGT)	ยี่ห้อ	JANTYTECH	๑๕
		รุ่น	JT2011-E2A	
		Serial No	3522210172 3522210173 3522210174 3522210175 3522210176 3522210177 3522210178 3522210179 3522210180 3522210181 3522211233 3522211234 3522211235 3522211236 3522211237	
		มาตรฐาน	ISO 7243	

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน