

ภาคผนวก ง

ใบรับรองผลการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม
ระหว่างเดือนกรกฎาคม ถึงธันวาคม พ.ศ.2566

ภาคผนวก ง.1

ใบรับรองผลการตรวจวัดคุณภาพอากาศจากแหล่งกำเนิด

The Monitoring Result of Emission Concentration
100-H1
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 10, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.45	5.51	44.01	44.05	39.79
2	5.35	5.41	43.22	43.26	38.82
3	5.69	5.75	43.90	43.95	40.32
Average	5.50	5.56	43.71	43.75	39.64

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.45	5.51	7.42	7.40	6.68
2	5.35	5.41	7.66	7.64	6.86
3	5.69	5.75	6.88	6.85	6.28
Average	5.50	5.56	7.32	7.30	6.61

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
Start time: 10:50 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 1
Location : 100-H1
Finish time : 11:10 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:50 AM	5.41	43.81	6.90
10:51 AM	5.40	44.04	6.95
10:52 AM	5.40	43.64	7.00
10:53 AM	5.38	43.30	7.06
10:54 AM	5.52	43.64	7.04
10:55 AM	5.57	44.37	7.19
10:56 AM	5.60	44.83	7.26
10:57 AM	5.49	44.75	7.41
10:58 AM	5.49	44.36	7.43
10:59 AM	5.50	44.06	7.51
11:00 AM	5.50	43.72	7.43
11:01 AM	5.50	43.85	7.31
11:02 AM	5.47	44.16	7.42
11:03 AM	5.48	44.19	7.55
11:04 AM	5.44	44.03	7.62
11:05 AM	5.42	43.78	7.61
11:06 AM	5.43	43.74	7.72
11:07 AM	5.42	44.10	7.91
11:08 AM	5.34	44.15	7.89
11:09 AM	5.34	43.99	7.85
11:10 AM	5.29	43.76	7.83
Average	5.45	44.01	7.42

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
Start time: 11:11 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 100-H1
Finish time : 11:31 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:11 AM	5.33	43.34	7.83
11:12 AM	5.35	43.33	7.73
11:13 AM	5.37	43.47	7.72
11:14 AM	5.36	43.46	7.64
11:15 AM	5.37	43.47	7.69
11:16 AM	5.35	43.77	7.65
11:17 AM	5.30	43.82	7.56
11:18 AM	5.33	43.53	7.53
11:19 AM	5.28	43.25	7.64
11:20 AM	5.25	43.11	7.57
11:21 AM	5.25	43.05	7.64
11:22 AM	5.22	42.77	7.71
11:23 AM	5.18	42.55	7.81
11:24 AM	5.18	42.48	7.73
11:25 AM	5.20	42.45	7.76
11:26 AM	5.32	42.60	7.73
11:27 AM	5.43	42.91	7.68
11:28 AM	5.49	43.09	7.67
11:29 AM	5.55	43.46	7.60
11:30 AM	5.57	43.66	7.54
11:31 AM	5.64	44.07	7.38
Average	5.35	43.22	7.66

Signature 
 (Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
Start time: 11:32 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 100-H1
Finish time : 11:52 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:32 AM	5.74	44.57	7.45
11:33 AM	5.75	44.65	7.47
11:34 AM	5.74	44.54	7.46
11:35 AM	5.73	44.22	7.38
11:36 AM	5.70	43.88	7.46
11:37 AM	5.69	43.81	7.37
11:38 AM	5.65	43.91	7.35
11:39 AM	5.63	43.85	7.31
11:40 AM	5.67	43.78	7.21
11:41 AM	5.75	44.00	7.31
11:42 AM	5.81	44.22	7.30
11:43 AM	5.72	44.23	7.16
11:44 AM	5.69	44.02	6.98
11:45 AM	5.71	43.83	6.76
11:46 AM	5.66	43.64	6.61
11:47 AM	5.62	43.36	6.37
11:48 AM	5.66	43.37	6.21
11:49 AM	5.85	43.89	6.25
11:50 AM	5.65	43.44	5.98
11:51 AM	5.59	43.28	5.71
11:52 AM	5.57	43.33	5.44
Average	5.69	43.90	6.88

Signature 
 (Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด
SECOT CO.,LTD.

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/100-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 100-H1	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 52.61	m	Gas Velocity	: 5.7	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 335	Ncu.m/min
Temperature	: 158.7	°C	Excess Oxygen	: 5.6	%
Moisture	: 11.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		5.6%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Sulfur Dioxide	ppm	7.30	6.61	0.11	60*/12.69**	0.17**	US EPA Method 6C
Oxide of Nitrogen	ppm	43.75	39.64	0.46	200*/59.19**	0.57**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
 4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).
 5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/100-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 11/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 100-H1	OPERATOR	: Mr. Pisanu Seenampeng
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 52.61	m	Gas Velocity	: 5.7	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 335	Ncu.m/min
Temperature	: 158.7	°C	Excess Oxygen	: 5.6	%
Moisture	: 11.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		5.6%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Total Volatile Organic Compounds	ppm	1.40	1.27	0.014	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)
Analyst

(Miss Narisa Poowasanetch)
Technical Management Team

- Remark :**
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 3. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

The Monitoring Result of Emission Concentration
100-H1A
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 10, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.36	5.40	9.04	9.01	8.08
2	5.51	5.55	8.93	8.90	8.06
3	5.46	5.49	8.99	8.97	8.09
Average	5.44	5.48	8.98	8.96	8.08

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.36	5.40	6.48	6.44	5.78
2	5.51	5.55	6.74	6.71	6.08
3	5.46	5.49	6.82	6.80	6.13
Average	5.44	5.48	6.68	6.65	5.99

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
 Start time: 10:50 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas

Run # : 1
 Location : 100-H1A
 Finish time : 11:10 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:50 AM	5.17	9.27	6.23
10:51 AM	5.14	9.21	6.40
10:52 AM	5.16	9.32	6.41
10:53 AM	5.22	9.26	6.31
10:54 AM	5.69	9.37	6.46
10:55 AM	5.44	9.28	6.47
10:56 AM	5.33	9.12	6.49
10:57 AM	5.27	8.92	6.46
10:58 AM	5.22	9.00	6.48
10:59 AM	5.23	9.10	6.48
11:00 AM	5.24	8.35	6.60
11:01 AM	5.23	8.52	6.71
11:02 AM	5.21	8.68	6.55
11:03 AM	5.23	8.80	6.63
11:04 AM	5.39	9.13	6.53
11:05 AM	5.66	9.23	6.57
11:06 AM	5.58	9.20	6.40
11:07 AM	5.57	9.01	6.51
11:08 AM	5.56	8.95	6.51
11:09 AM	5.50	8.98	6.39
11:10 AM	5.47	9.04	6.49
Average	5.36	9.04	6.48

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
Start time: 11:11 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 100-H1A
Finish time : 11:31 AM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:11 AM	5.55	8.91	6.59
11:12 AM	5.55	8.98	6.54
11:13 AM	5.54	9.03	6.51
11:14 AM	5.57	8.99	6.38
11:15 AM	5.59	9.04	6.54
11:16 AM	5.54	8.88	6.65
11:17 AM	5.58	8.99	6.76
11:18 AM	5.58	8.75	6.90
11:19 AM	5.59	8.75	6.97
11:20 AM	5.55	8.84	6.87
11:21 AM	5.50	8.85	6.96
11:22 AM	5.43	8.82	7.07
11:23 AM	5.43	8.62	7.48
11:24 AM	5.44	8.68	7.01
11:25 AM	5.40	8.91	6.62
11:26 AM	5.46	8.97	6.82
11:27 AM	5.46	9.09	6.86
11:28 AM	5.47	9.15	6.25
11:29 AM	5.45	9.14	6.49
11:30 AM	5.54	9.09	6.69
11:31 AM	5.46	9.01	6.54
Average	5.51	8.93	6.74

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
Start time: 11:32 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 100-H1A
Finish time : 11:52 AM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:32 AM	5.50	8.79	6.60
11:33 AM	5.58	8.71	6.65
11:34 AM	5.51	8.81	6.83
11:35 AM	5.48	9.16	6.40
11:36 AM	5.55	9.32	6.72
11:37 AM	5.44	8.99	6.76
11:38 AM	5.38	8.70	6.97
11:39 AM	5.45	8.60	6.92
11:40 AM	5.43	8.68	7.41
11:41 AM	5.43	8.88	7.47
11:42 AM	5.50	9.28	7.32
11:43 AM	5.53	9.32	6.78
11:44 AM	5.42	9.37	6.73
11:45 AM	5.36	9.35	6.75
11:46 AM	5.38	9.15	6.79
11:47 AM	5.43	9.09	6.87
11:48 AM	5.43	9.03	6.81
11:49 AM	5.44	8.98	6.59
11:50 AM	5.50	8.91	6.65
11:51 AM	5.47	8.88	6.60
11:52 AM	5.43	8.70	6.56
Average	5.46	8.99	6.82

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/100-H1A
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 100-H1A	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 52.61	m	Gas Velocity	: 3.6	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 171	Ncu.m/min
Temperature	: 243.3	°C	Excess Oxygen	: 5.5	%
Moisture	: 14.6	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		5.5%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	6.65	5.99	0.05	60*/14.89**	0.11**	US EPA Method 6C
Oxide of Nitrogen	ppm	8.96	8.08	0.05	200*/99.84**	0.53**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

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. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/100-H1A
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 11/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 100-H1A	OPERATOR	: Mr. Pisanu Seenampeng
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 52.61	m	Gas Velocity	: 3.6	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 171	Ncu.m/min
Temperature	: 243.3	°C	Excess Oxygen	: 5.5	%
Moisture	: 14.6	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		5.5%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	0.92	0.83	0.005	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(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.

The Monitoring Result of Emission Concentration
150-H1/H2
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 11, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.79	3.74	25.83	25.84	20.93
2	3.59	3.54	25.41	25.42	20.35
3	3.63	3.59	25.81	25.82	20.73
Average	3.67	3.62	25.68	25.69	20.67

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.79	3.74	5.53	5.52	4.47
2	3.59	3.54	5.50	5.48	4.39
3	3.63	3.59	5.53	5.50	4.42
Average	3.67	3.62	5.52	5.50	4.43

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
 Start time: 10:40 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas

Run # : 1
 Location : 150-H1/H2
 Finish time : 11:00 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:40 AM	3.79	26.16	5.53
10:41 AM	3.79	26.01	5.51
10:42 AM	3.80	25.96	5.46
10:43 AM	3.80	26.26	5.47
10:44 AM	3.81	26.16	5.53
10:45 AM	3.81	26.31	5.49
10:46 AM	3.81	26.41	5.43
10:47 AM	3.83	26.01	5.44
10:48 AM	3.80	25.86	5.55
10:49 AM	3.85	25.96	5.62
10:50 AM	3.75	26.01	5.62
10:51 AM	3.73	25.86	5.61
10:52 AM	3.74	25.51	5.61
10:53 AM	3.74	25.41	5.61
10:54 AM	3.76	25.56	5.63
10:55 AM	3.78	25.36	5.60
10:56 AM	3.83	25.11	5.51
10:57 AM	3.82	25.11	5.48
10:58 AM	3.78	25.61	5.48
10:59 AM	3.76	25.86	5.50
11:00 AM	3.71	25.91	5.49
Average	3.79	25.83	5.53

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
Start time: 11:01 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 150-H1/H2
Finish time : 11:21 AM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:01 AM	3.69	25.96	5.50
11:02 AM	3.70	25.76	5.44
11:03 AM	3.65	25.66	5.38
11:04 AM	3.63	25.51	5.35
11:05 AM	3.58	25.36	5.47
11:06 AM	3.56	25.31	5.52
11:07 AM	3.53	25.31	5.49
11:08 AM	3.62	25.26	5.47
11:09 AM	3.64	25.36	5.45
11:10 AM	3.63	25.61	5.47
11:11 AM	3.60	25.51	5.42
11:12 AM	3.58	25.31	5.45
11:13 AM	3.56	25.31	5.50
11:14 AM	3.58	25.36	5.57
11:15 AM	3.56	25.11	5.49
11:16 AM	3.53	25.36	5.51
11:17 AM	3.58	25.36	5.54
11:18 AM	3.58	25.21	5.58
11:19 AM	3.52	25.31	5.59
11:20 AM	3.50	25.36	5.67
11:21 AM	3.55	25.36	5.66
Average	3.59	25.41	5.50

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
Start time: 11:22 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 150-H1/H2
Finish time : 11:42 AM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:22 AM	3.52	25.66	5.64
11:23 AM	3.60	25.71	5.47
11:24 AM	3.59	25.76	5.49
11:25 AM	3.59	25.46	5.58
11:26 AM	3.60	25.36	5.59
11:27 AM	3.60	25.61	5.61
11:28 AM	3.65	26.01	5.62
11:29 AM	3.70	26.06	5.58
11:30 AM	3.67	26.16	5.58
11:31 AM	3.69	26.16	5.52
11:32 AM	3.65	25.86	5.49
11:33 AM	3.64	25.86	5.53
11:34 AM	3.65	25.86	5.63
11:35 AM	3.64	25.96	5.57
11:36 AM	3.64	25.86	5.49
11:37 AM	3.65	25.86	5.51
11:38 AM	3.64	25.81	5.52
11:39 AM	3.62	25.66	5.50
11:40 AM	3.63	25.66	5.42
11:41 AM	3.60	25.66	5.40
11:42 AM	3.56	25.96	5.39
Average	3.63	25.81	5.53

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/150-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 11/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 150-H1/H2	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 35.70	m	Gas Velocity	: 5.8	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 309	Ncu.m/min
Temperature	: 187.0	°C	Excess Oxygen	: 3.6	%
Moisture	: 14.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		3.6%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	5.50	4.43	0.07	60*/10.37**	0.19**	US EPA Method 6C
Oxide of Nitrogen	ppm	25.69	20.67	0.25	200*/60.74**	0.80**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/150-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 11/10/2023
RECEIVED DATE	: 12/10/2023	ANALYTICAL DATE	: 16/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 150-H1/H2	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 35.70	m	Gas Velocity	: 5.8	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 309	Ncu.m/min
Temperature	: 187.0	°C	Excess Oxygen	: 3.6	%
Moisture	: 14.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		3.6%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	5.77	4.64	0.054	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(Miss Narisa Poowasanpet)

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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

The Monitoring Result of Emission Concentration
200-H1/H2/H3/H4/H5
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 11, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.87	5.78	39.77	39.79	36.58
2	5.85	5.76	39.52	39.54	36.30
3	5.87	5.78	39.96	40.00	36.77
Average	5.86	5.77	39.75	39.78	36.55

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.87	5.78	4.68	4.65	4.27
2	5.85	5.76	4.97	4.94	4.54
3	5.87	5.78	5.06	5.04	4.63
Average	5.86	5.77	4.91	4.88	4.48

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
 Start time: 10:40 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: Teledyne 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type: Natural Gas

Run # : 1
 Location : 200-H1/H2/H3/H4/H5
 Finish time : 11:00 AM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 1070
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:40 AM	5.93	39.76	4.35
10:41 AM	5.91	39.72	4.46
10:42 AM	5.92	39.74	4.53
10:43 AM	5.97	39.70	4.63
10:44 AM	5.99	39.75	4.68
10:45 AM	5.90	39.87	4.74
10:46 AM	5.84	39.93	4.81
10:47 AM	5.81	39.90	4.84
10:48 AM	5.84	39.75	4.58
10:49 AM	5.85	39.68	4.59
10:50 AM	5.83	39.76	4.59
10:51 AM	5.81	39.78	4.60
10:52 AM	5.88	39.72	4.72
10:53 AM	5.87	39.77	4.69
10:54 AM	5.88	39.84	4.73
10:55 AM	5.87	39.79	4.75
10:56 AM	5.86	39.76	4.78
10:57 AM	5.90	39.81	4.83
10:58 AM	5.90	39.78	4.81
10:59 AM	5.81	39.76	4.81
11:00 AM	5.79	39.66	4.84
Average	5.87	39.77	4.68

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
Start time: 11:01 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EM
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 200-H1/H2/H3/H4/H5
Finish time : 11:21 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 1070
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:01 AM	5.78	39.60	4.88
11:02 AM	5.78	39.58	4.84
11:03 AM	5.85	39.63	4.84
11:04 AM	5.86	39.55	4.79
11:05 AM	5.82	39.43	4.86
11:06 AM	5.83	39.46	4.91
11:07 AM	5.84	39.58	4.88
11:08 AM	5.84	39.62	4.93
11:09 AM	5.86	39.55	4.92
11:10 AM	5.82	39.51	4.92
11:11 AM	5.85	39.44	4.92
11:12 AM	5.84	39.40	4.93
11:13 AM	5.88	39.40	5.01
11:14 AM	5.90	39.34	5.00
11:15 AM	5.86	39.42	5.09
11:16 AM	5.81	39.47	5.12
11:17 AM	5.83	39.47	5.09
11:18 AM	5.87	39.48	5.06
11:19 AM	5.92	39.50	5.16
11:20 AM	5.87	39.61	5.11
11:21 AM	5.87	39.84	5.15
Average	5.85	39.52	4.97

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 11, 2023
Start time: 11:22 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EM
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 200-H1/H2/H3/H4/H5
Finish time : 11:42 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 1070
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:22 AM	5.87	39.86	5.20
11:23 AM	5.82	39.83	5.12
11:24 AM	5.80	39.78	5.27
11:25 AM	5.85	39.70	4.92
11:26 AM	5.87	39.60	5.17
11:27 AM	5.90	39.68	5.20
11:28 AM	5.84	39.88	5.04
11:29 AM	5.88	40.11	5.13
11:30 AM	5.92	40.12	5.08
11:31 AM	5.95	40.09	5.14
11:32 AM	5.90	40.16	5.07
11:33 AM	5.85	40.34	5.04
11:34 AM	5.86	40.33	5.02
11:35 AM	5.87	40.05	5.05
11:36 AM	5.88	39.94	5.04
11:37 AM	5.95	39.84	5.01
11:38 AM	5.94	39.76	4.98
11:39 AM	5.87	39.94	4.96
11:40 AM	5.82	40.08	5.00
11:41 AM	5.77	40.06	4.93
11:42 AM	5.78	40.00	4.91
Average	5.87	39.96	5.06

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/200-H1/H2/H3/H4/H5
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 11/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 200-H1/H2/H3/H4/H5	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 84.00	m	Gas Velocity	: 6.5	m/s
Diameter	: 3.42	m	Flow rate ^{1/}	: 1,798	Ncu.m/min
Temperature	: 234.0	°C	Excess Oxygen	: 5.8	%
Moisture	: 13.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		5.8%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Sulfur Dioxide	ppm	4.88	4.48	0.38	60*/26.62**	0.96**	US EPA Method 6C
Oxide of Nitrogen	ppm	39.78	36.55	2.24	200*/145.46**	3.77**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

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. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/200-H1/H2/H3/H4/H5
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 11/10/2023
RECEIVED DATE	: 12/10/2023	ANALYTICAL DATE	: 16/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 200-H1/H2/H3/H4/H5	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 84.00	m	Gas Velocity	: 6.5	m/s
Diameter	: 3.42	m	Flow rate ^{1/}	: 1,798	Ncu.m/min
Temperature	: 234.0	°C	Excess Oxygen	: 5.8	%
Moisture	: 13.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		5.8%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Total Volatile Organic Compounds	ppm	8.54	7.85	0.462	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(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.

The Monitoring Result of Emission Concentration
430-H1
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 9, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.45	4.36	54.63	54.69	45.96
2	4.49	4.41	56.48	56.57	47.68
3	4.37	4.30	56.75	56.87	47.62
Average	4.43	4.36	55.95	56.04	47.09

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.45	4.36	3.29	3.25	2.73
2	4.49	4.41	3.29	3.24	2.73
3	4.37	4.30	3.62	3.57	2.99
Average	4.43	4.36	3.40	3.35	2.82

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023
 Start time: 1:00 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: Teledyne 200 EH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas

Run # : 1
 Location : 430-H1
 Finish time : 1:20 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:00 PM	4.55	53.13	3.45
1:01 PM	4.46	53.71	3.82
1:02 PM	4.42	53.61	3.56
1:03 PM	4.55	53.41	3.74
1:04 PM	4.66	53.49	4.01
1:05 PM	4.54	53.80	3.54
1:06 PM	4.48	54.22	3.69
1:07 PM	4.39	54.15	3.84
1:08 PM	4.40	54.12	3.54
1:09 PM	4.42	54.54	3.46
1:10 PM	4.43	55.00	3.59
1:11 PM	4.49	55.22	2.70
1:12 PM	4.46	55.58	2.83
1:13 PM	4.33	55.66	2.97
1:14 PM	4.26	55.29	2.92
1:15 PM	4.39	55.18	2.95
1:16 PM	4.40	55.10	2.91
1:17 PM	4.30	55.14	2.88
1:18 PM	4.39	55.28	2.90
1:19 PM	4.50	55.58	2.94
1:20 PM	4.57	55.98	2.92
Average	4.45	54.63	3.29

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023
Start time: 1:21 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 430-H1
Finish time : 1:41 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:21 PM	4.48	56.05	3.00
1:22 PM	4.33	55.73	3.05
1:23 PM	4.51	55.78	3.03
1:24 PM	4.64	56.13	3.14
1:25 PM	4.44	56.33	3.15
1:26 PM	4.38	56.06	3.12
1:27 PM	4.55	56.13	3.14
1:28 PM	4.62	56.56	3.21
1:29 PM	4.49	56.94	3.14
1:30 PM	4.41	56.83	3.23
1:31 PM	4.54	56.44	3.35
1:32 PM	4.64	56.55	3.34
1:33 PM	4.52	56.91	3.38
1:34 PM	4.31	57.36	3.42
1:35 PM	4.34	57.36	3.45
1:36 PM	4.36	57.01	3.46
1:37 PM	4.46	56.68	3.44
1:38 PM	4.49	56.51	3.49
1:39 PM	4.51	56.44	3.49
1:40 PM	4.59	56.20	3.51
1:41 PM	4.64	56.07	3.55
Average	4.49	56.48	3.29

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

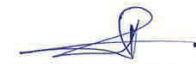
PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023
Start time: 1:42 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 430-H1
Finish time : 2:02 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:42 PM	4.55	56.43	3.42
1:43 PM	4.44	56.81	3.45
1:44 PM	4.47	56.90	3.45
1:45 PM	4.39	56.84	3.47
1:46 PM	4.33	56.72	3.54
1:47 PM	4.40	56.63	3.51
1:48 PM	4.56	56.83	3.59
1:49 PM	4.49	57.24	3.61
1:50 PM	4.35	57.52	3.63
1:51 PM	4.37	57.58	3.67
1:52 PM	4.41	57.23	3.67
1:53 PM	4.32	56.81	3.71
1:54 PM	4.30	56.33	3.65
1:55 PM	4.28	55.98	3.71
1:56 PM	4.36	56.10	3.67
1:57 PM	4.34	56.68	3.67
1:58 PM	4.30	57.21	3.75
1:59 PM	4.25	56.99	3.73
2:00 PM	4.27	56.58	3.75
2:01 PM	4.27	56.32	3.74
2:02 PM	4.26	56.06	3.73
Average	4.37	56.75	3.62

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด
SECOT CO.,LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/430-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 430-H1	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 45.00	m	Gas Velocity	: 7.5	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 347	Ncu.m/min
Temperature	: 265.1	°C	Excess Oxygen	: 4.4	%
Moisture	: 14.0	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.4%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	3.35	2.82	0.05	60*/14.93**	0.25**	US EPA Method 6C
Oxide of Nitrogen	ppm	56.04	47.09	0.61	200*/93.89**	1.13**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
 4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).
 5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/430-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 10/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 11/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 430-H1	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 45.00	m	Gas Velocity	: 7.5	m/s
Diameter	: 1.44	m	Flow rate ^{1/}	: 347	Ncu.m/min
Temperature	: 265.1	°C	Excess Oxygen	: 4.4	%
Moisture	: 14.0	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.4%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	3.44	2.89	0.036	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)
Analyst

(Miss Narisa Poowasanpetch)
Technical Management Team

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

The Monitoring Result of Emission Concentration
380-H1/H2
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 9, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.45	3.47	35.08	35.11	28.00
2	3.43	3.43	35.10	35.13	27.95
3	3.47	3.44	35.06	35.08	27.93
Average	3.45	3.45	35.08	35.11	27.96

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.45	3.47	2.31	2.28	1.82
2	3.43	3.43	2.45	2.40	1.91
3	3.47	3.44	2.99	2.93	2.33
Average	3.45	3.45	2.58	2.54	2.02

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023
 Start time: 10:50 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas

Run # : 1
 Location : 380-H1/H2
 Finish time : 11:10 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:50 AM	3.54	34.98	2.30
10:51 AM	3.51	35.04	2.32
10:52 AM	3.54	35.07	2.39
10:53 AM	3.57	35.12	2.42
10:54 AM	3.56	35.12	2.38
10:55 AM	3.53	35.09	2.39
10:56 AM	3.47	35.09	2.29
10:57 AM	3.40	35.11	2.18
10:58 AM	3.38	35.05	2.16
10:59 AM	3.37	35.05	2.21
11:00 AM	3.35	35.04	2.24
11:01 AM	3.41	35.06	2.26
11:02 AM	3.41	35.04	2.28
11:03 AM	3.38	35.10	2.24
11:04 AM	3.42	35.08	2.26
11:05 AM	3.43	35.10	2.28
11:06 AM	3.44	35.12	2.42
11:07 AM	3.45	35.12	2.48
11:08 AM	3.44	35.14	2.40
11:09 AM	3.39	35.16	2.35
11:10 AM	3.37	35.10	2.30
Average	3.45	35.08	2.31

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Run # : 2
 Date: October 9, 2023
 Start time: 11:11 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas
 Location : 380-H1/H2
 Finish time : 11:31 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:11 AM	3.35	35.12	2.38
11:12 AM	3.35	35.12	2.45
11:13 AM	3.37	35.09	2.46
11:14 AM	3.39	35.09	2.37
11:15 AM	3.44	35.15	2.30
11:16 AM	3.44	35.10	2.14
11:17 AM	3.42	35.15	2.06
11:18 AM	3.49	35.17	1.97
11:19 AM	3.47	35.10	1.95
11:20 AM	3.43	35.09	2.12
11:21 AM	3.42	35.12	2.27
11:22 AM	3.43	35.11	2.42
11:23 AM	3.42	35.06	2.56
11:24 AM	3.41	35.08	2.74
11:25 AM	3.42	35.07	2.73
11:26 AM	3.44	35.08	2.71
11:27 AM	3.46	35.09	2.70
11:28 AM	3.47	35.10	2.71
11:29 AM	3.51	35.11	2.71
11:30 AM	3.45	35.10	2.80
11:31 AM	3.46	35.10	2.80
Average	3.43	35.10	2.45

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Run # : 3
 Date: October 9, 2023
 Start time: 11:32 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas
 Location : 380-H1/H2
 Finish time : 11:52 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:32 AM	3.47	35.06	2.83
11:33 AM	3.45	35.02	2.87
11:34 AM	3.45	35.05	3.02
11:35 AM	3.48	35.06	3.12
11:36 AM	3.51	35.07	3.18
11:37 AM	3.51	35.08	3.22
11:38 AM	3.56	35.08	3.26
11:39 AM	3.54	35.13	3.24
11:40 AM	3.45	35.06	3.24
11:41 AM	3.42	34.98	3.16
11:42 AM	3.39	35.04	3.04
11:43 AM	3.45	34.99	2.83
11:44 AM	3.47	34.99	2.77
11:45 AM	3.46	35.06	2.80
11:46 AM	3.46	35.14	2.85
11:47 AM	3.50	35.10	2.76
11:48 AM	3.51	35.10	2.80
11:49 AM	3.47	35.09	2.94
11:50 AM	3.46	35.13	3.00
11:51 AM	3.43	35.08	2.92
11:52 AM	3.45	35.05	2.90
Average	3.47	35.06	2.99

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/380-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 380-H1/H2	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 37.50	m	Gas Velocity	: 6.0	m/s
Diameter	: 1.88	m	Flow rate ^{1/}	: 442	Ncu.m/min
Temperature	: 295.8	°C	Excess Oxygen	: 3.5	%
Moisture	: 15.3	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		3.5%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	2.54	2.02	0.05	60*/11.61**	0.27**	US EPA Method 6C
Oxide of Nitrogen	ppm	35.11	27.96	0.49	200*/59.25**	0.99**	US EPA Method 7E


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

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 5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/380-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 10/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 11/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 380-H1/H2	OPERATOR	: Mr. Pisanu Seenampeng
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 37.50	m	Gas Velocity	: 6.0	m/s
Diameter	: 1.88	m	Flow rate ^{1/}	: 442	Ncu.m/min
Temperature	: 295.8	°C	Excess Oxygen	: 3.5	%
Moisture	: 15.3	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		3.5%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	1.71	1.36	0.023	-	-	US EPA Method 25A


(Miss Sudaporn Soonthorn)
Analyst


(Miss Narisa Poowasanpetch)
Technical Management Team

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The Monitoring Result of Emission Concentration
432-H1
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 6, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.47	4.47	59.13	59.22	50.10
2	4.35	4.32	59.12	59.23	49.66
3	4.52	4.46	59.65	59.78	50.54
Average	4.45	4.42	59.30	59.41	50.10

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.47	4.47	5.43	5.40	4.57
2	4.35	4.32	5.31	5.28	4.43
3	4.52	4.46	5.31	5.28	4.46
Average	4.45	4.42	5.35	5.32	4.49

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 6, 2023
Start time: 1:30 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 1
Location : 432-H1
Finish time : 1:50 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:30 PM	4.49	57.36	5.57
1:31 PM	4.45	57.51	5.49
1:32 PM	4.46	58.02	5.59
1:33 PM	4.52	58.79	5.64
1:34 PM	4.52	59.35	5.62
1:35 PM	4.49	59.63	5.47
1:36 PM	4.48	59.62	5.45
1:37 PM	4.42	59.49	5.44
1:38 PM	4.43	59.52	5.42
1:39 PM	4.42	59.45	5.41
1:40 PM	4.49	59.31	5.46
1:41 PM	4.48	59.17	5.36
1:42 PM	4.43	59.08	5.40
1:43 PM	4.46	59.20	5.29
1:44 PM	4.47	59.24	5.37
1:45 PM	4.51	59.42	5.29
1:46 PM	4.52	59.77	5.37
1:47 PM	4.49	59.75	5.36
1:48 PM	4.44	59.53	5.20
1:49 PM	4.41	59.37	5.32
1:50 PM	4.41	59.25	5.46
Average	4.47	59.13	5.43

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 6, 2023
Start time: 1:51 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 432-H1
Finish time : 2:11 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:51 PM	4.38	59.11	5.34
1:52 PM	4.41	58.97	5.39
1:53 PM	4.40	58.99	5.29
1:54 PM	4.39	58.76	5.43
1:55 PM	4.41	58.79	5.39
1:56 PM	4.40	59.16	5.22
1:57 PM	4.40	59.33	5.23
1:58 PM	4.41	59.35	5.31
1:59 PM	4.32	59.21	5.25
2:00 PM	4.34	59.19	5.21
2:01 PM	4.33	59.40	5.27
2:02 PM	4.28	59.46	5.33
2:03 PM	4.26	59.24	5.17
2:04 PM	4.22	58.94	5.19
2:05 PM	4.23	58.78	5.37
2:06 PM	4.34	58.78	5.34
2:07 PM	4.37	58.91	5.35
2:08 PM	4.33	59.22	5.35
2:09 PM	4.40	59.26	5.39
2:10 PM	4.37	59.31	5.43
2:11 PM	4.33	59.32	5.30
Average	4.35	59.12	5.31

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 6, 2023
Start time: 2:12 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 432-H1
Finish time : 2:32 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:12 PM	4.38	58.96	5.20
2:13 PM	4.37	58.76	5.18
2:14 PM	4.34	58.79	5.29
2:15 PM	4.33	58.85	5.28
2:16 PM	4.38	59.05	5.35
2:17 PM	4.45	59.34	5.31
2:18 PM	4.43	59.44	5.32
2:19 PM	4.37	59.44	5.31
2:20 PM	4.39	59.40	5.27
2:21 PM	4.41	59.34	5.25
2:22 PM	4.35	59.13	5.37
2:23 PM	4.38	58.98	5.31
2:24 PM	4.39	59.04	5.35
2:25 PM	4.35	59.11	5.33
2:26 PM	4.32	58.97	5.22
2:27 PM	4.56	59.63	5.33
2:28 PM	5.22	62.58	5.38
2:29 PM	5.29	62.68	5.27
2:30 PM	5.01	61.78	5.38
2:31 PM	4.67	59.94	5.44
2:32 PM	4.58	59.50	5.37
Average	4.52	59.65	5.31

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/432-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 06/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 432-H1	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 40.84	m	Gas Velocity	: 4.8	m/s
Diameter	: 2.03	m	Flow rate ^{1/}	: 439	Ncu.m/min
Temperature	: 268.1	°C	Excess Oxygen	: 4.4	%
Moisture	: 14.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.4%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	5.32	4.49	0.10	60*/11.33**	0.31**	US EPA Method 6C
Oxide of Nitrogen	ppm	59.41	50.10	0.82	200*/88.50**	1.74**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

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. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/432-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 06/10/2023
RECEIVED DATE	: 07/10/2023	ANALYTICAL DATE	: 07/10/2023
REPORT DATE	: 11/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 432-H1	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas

STACK DESCRIPTION

Height	: 40.84	m	Gas Velocity	: 4.8	m/s
Diameter	: 2.03	m	Flow rate ^{1/}	: 439	Ncu.m/min
Temperature	: 268.1	°C	Excess Oxygen	: 4.4	%
Moisture	: 14.7	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.4%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	1.26	1.06	0.017	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(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.

The Monitoring Result of Emission Concentration
432-H2
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 6, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.10	4.09	24.42	24.43	20.20
2	4.01	4.01	25.19	25.20	20.74
3	4.03	4.04	25.58	25.59	21.10
Average	4.05	4.05	25.06	25.07	20.68

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.10	4.09	3.50	3.45	2.85
2	4.01	4.01	3.33	3.29	2.71
3	4.03	4.04	3.08	3.05	2.51
Average	4.05	4.05	3.30	3.26	2.69

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 6, 2023
Start time: 11:10 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 1
Location : 432-H2
Finish time : 11:30 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:10 AM	4.12	23.94	3.62
11:11 AM	4.17	24.28	3.65
11:12 AM	4.08	24.56	3.70
11:13 AM	4.16	24.40	3.57
11:14 AM	4.11	24.11	3.67
11:15 AM	4.10	24.39	3.87
11:16 AM	4.11	24.65	3.87
11:17 AM	4.20	24.59	3.76
11:18 AM	4.21	24.43	3.76
11:19 AM	4.19	24.27	3.69
11:20 AM	4.19	24.13	3.52
11:21 AM	4.11	24.39	3.58
11:22 AM	4.09	24.32	3.39
11:23 AM	4.02	24.00	3.34
11:24 AM	4.06	23.80	3.33
11:25 AM	4.06	24.04	3.11
11:26 AM	4.07	24.37	3.17
11:27 AM	4.04	24.73	3.31
11:28 AM	4.01	24.94	3.22
11:29 AM	4.08	25.15	3.21
11:30 AM	3.95	25.30	3.25
Average	4.10	24.42	3.50

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 6, 2023
Start time: 11:31 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 432-H2
Finish time : 11:51 AM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:31 AM	3.99	25.14	3.22
11:32 AM	3.96	25.05	3.68
11:33 AM	3.93	25.04	3.59
11:34 AM	3.91	24.91	3.56
11:35 AM	3.93	24.79	3.31
11:36 AM	3.97	24.85	3.16
11:37 AM	3.93	24.94	2.99
11:38 AM	3.96	25.06	3.11
11:39 AM	3.98	25.09	3.30
11:40 AM	4.02	25.11	3.39
11:41 AM	4.08	25.19	3.43
11:42 AM	4.11	25.30	3.50
11:43 AM	4.04	25.34	3.58
11:44 AM	4.00	25.32	3.41
11:45 AM	3.97	25.26	3.43
11:46 AM	4.02	25.23	3.50
11:47 AM	4.07	25.37	3.36
11:48 AM	4.06	25.39	3.26
11:49 AM	4.14	25.42	3.16
11:50 AM	4.09	25.55	2.91
11:51 AM	4.08	25.56	3.02
Average	4.01	25.19	3.33

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 6, 2023
Start time: 11:52 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 432-H2
Finish time : 12:12 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:52 AM	4.06	25.50	3.18
11:53 AM	3.98	25.51	3.30
11:54 AM	3.87	25.52	3.42
11:55 AM	4.04	25.44	3.52
11:56 AM	3.97	25.43	3.35
11:57 AM	3.87	25.43	3.09
11:58 AM	3.86	25.27	2.83
11:59 AM	3.99	25.38	2.65
12:00 PM	4.01	25.45	2.80
12:01 PM	4.08	25.43	3.02
12:02 PM	4.17	25.53	2.94
12:03 PM	4.07	25.80	2.92
12:04 PM	4.14	25.91	2.77
12:05 PM	4.09	25.96	2.80
12:06 PM	4.05	25.85	2.91
12:07 PM	3.95	25.66	3.13
12:08 PM	4.03	25.60	3.08
12:09 PM	4.08	25.66	3.24
12:10 PM	4.06	25.61	3.44
12:11 PM	4.04	25.53	3.38
12:12 PM	4.17	25.63	2.96
Average	4.03	25.58	3.08

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. **REFERENCE NO.** : 223096MON2H-Stk/432-H2
Branch 4 (Aromatics 1 Plant)
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE** : 06/10/2023
RECEIVED DATE : 16/10/2023 **ANALYTICAL DATE** : 19-24/10/2023
REPORT DATE : 27/10/2023 **SAMPLE CONDITION** : Normal
STACK LOCATION : 432-H2 **OPERATOR** : Mr. Song Hengchwankul
SOURCE DESCRIPTION : Combustion **FUEL TYPE** : Fuel gas

STACK DESCRIPTION

Height : 32.06 m **Gas Velocity** : 6.1 m/s
Diameter : 1.28 m **Flow rate^{1/}** : 215 Ncu.m/min
Temperature : 278.0 °C **Excess Oxygen** : 4.1 %
Moisture : 15.0 %

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.1%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Sulfur Dioxide	ppm	3.26	2.69	0.03	60*/11.56**	0.08**	US EPA Method 6C
Oxide of Nitrogen	ppm	25.07	20.68	0.17	200*/84.46**	0.42**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

Technical Management Team

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

4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. **REFERENCE NO.** : 223096MON2H-Stk/432-H2
Branch 4 (Aromatics 1 Plant)
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE** : 06/10/2023
RECEIVED DATE : 07/10/2023 **ANALYTICAL DATE** : 07/10/2023
REPORT DATE : 11/10/2023 **SAMPLE CONDITION** : Normal
STACK LOCATION : 432-H2 **OPERATOR** : Mr. Pisanu Seenampeng
SOURCE DESCRIPTION : Combustion **FUEL TYPE** : Fuel gas

STACK DESCRIPTION

Height : 32.06 m **Gas Velocity** : 6.1 m/s
Diameter : 1.28 m **Flow rate^{1/}** : 215 Ncu.m/min
Temperature : 278.0 °C **Excess Oxygen** : 4.1 %
Moisture : 15.0 %

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		4.1%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Total Volatile Organic Compounds	ppm	1.31	1.08	0.008	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(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.

The Monitoring Result of Emission Concentration
432-H3
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 6, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.45	6.37	62.27	62.33	59.63
2	6.27	6.23	62.57	62.61	59.32
3	6.29	6.30	62.31	62.34	59.35
Average	6.33	6.30	62.38	62.43	59.43

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.45	6.37	3.24	3.19	3.05
2	6.27	6.23	3.21	3.17	3.00
3	6.29	6.30	3.20	3.17	3.02
Average	6.33	6.30	3.22	3.18	3.02

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 6, 2023
 Start time: 11:10 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type: Natural Gas

Run #: 1
 Location: 432-H3
 Finish time: 11:30 AM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator: Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:10 AM	6.62	61.89	3.22
11:11 AM	6.59	61.97	3.32
11:12 AM	6.56	62.05	3.32
11:13 AM	6.54	62.01	3.27
11:14 AM	6.56	61.88	3.26
11:15 AM	6.54	61.89	3.24
11:16 AM	6.52	62.00	3.24
11:17 AM	6.48	61.98	3.19
11:18 AM	6.55	62.10	3.17
11:19 AM	6.60	62.11	3.20
11:20 AM	6.45	62.29	3.25
11:21 AM	6.35	62.37	3.23
11:22 AM	6.31	62.40	3.28
11:23 AM	6.31	62.44	3.31
11:24 AM	6.34	62.44	3.29
11:25 AM	6.34	62.48	3.23
11:26 AM	6.36	62.60	3.20
11:27 AM	6.36	62.67	3.21
11:28 AM	6.33	62.68	3.21
11:29 AM	6.33	62.71	3.20
11:30 AM	6.33	62.78	3.28
Average	6.45	62.27	3.24

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 6, 2023
Start time: 11:31 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 432-H3
Finish time : 11:51 AM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:31 AM	6.36	62.79	3.28
11:32 AM	6.38	62.79	3.27
11:33 AM	6.39	62.75	3.27
11:34 AM	6.33	62.76	3.31
11:35 AM	6.26	62.74	3.25
11:36 AM	6.23	62.71	3.21
11:37 AM	6.22	62.68	3.10
11:38 AM	6.22	62.72	3.10
11:39 AM	6.23	62.65	3.16
11:40 AM	6.22	62.54	3.25
11:41 AM	6.28	62.44	3.25
11:42 AM	6.27	62.47	3.22
11:43 AM	6.26	62.50	3.17
11:44 AM	6.25	62.45	3.17
11:45 AM	6.21	62.46	3.18
11:46 AM	6.21	62.43	3.18
11:47 AM	6.25	62.38	3.18
11:48 AM	6.22	62.41	3.24
11:49 AM	6.26	62.38	3.23
11:50 AM	6.27	62.40	3.18
11:51 AM	6.26	62.46	3.26
Average	6.27	62.57	3.21

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 6, 2023
Start time: 11:52 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 432-H3
Finish time : 12:12 PM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:52 AM	6.21	62.51	3.32
11:53 AM	6.26	62.48	3.25
11:54 AM	6.30	62.50	3.22
11:55 AM	6.22	62.53	3.25
11:56 AM	6.26	62.45	3.27
11:57 AM	6.31	62.44	3.14
11:58 AM	6.31	62.42	3.16
11:59 AM	6.22	62.30	3.17
12:00 PM	6.24	62.24	3.18
12:01 PM	6.21	62.12	3.15
12:02 PM	6.20	62.11	3.13
12:03 PM	6.28	62.11	3.20
12:04 PM	6.29	62.13	3.20
12:05 PM	6.31	62.25	3.14
12:06 PM	6.33	62.28	3.14
12:07 PM	6.30	62.34	3.13
12:08 PM	6.27	62.26	3.26
12:09 PM	6.27	62.19	3.14
12:10 PM	6.36	62.19	3.23
12:11 PM	6.45	62.29	3.32
12:12 PM	6.41	62.33	3.17
Average	6.29	62.31	3.20

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 223096MON2H-Stk/432-H3
Branch 4 (Aromatics 1 Plant)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 06/10/2023
RECEIVED DATE : 16/10/2023 ANALYTICAL DATE : 19-24/10/2023
REPORT DATE : 27/10/2023 SAMPLE CONDITION : Normal
STACK LOCATION : 432-H3 OPERATOR : Mr. Song Hengchwankul
SOURCE DESCRIPTION : Combustion FUEL TYPE : Fuel gas

STACK DESCRIPTION

Height : 46.05 m Gas Velocity : 8.5 m/s
Diameter : 2.66 m Flow rate ^{1/} : 1,491 Ncu.m/min
Temperature : 218.3 °C Excess Oxygen : 6.3 %
Moisture : 13.2 %

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		6.3%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Sulfur Dioxide	ppm	3.18	3.02	0.21	60*/12.88**	0.61**	US EPA Method 6C
Oxide of Nitrogen	ppm	62.43	59.43	2.92	200*/94.63**	3.22**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

Technical Management Team

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

4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment,
B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 223096MON2H-Stk/432-H3
Branch 4 (Aromatics 1 Plant)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 06/10/2023
RECEIVED DATE : 07/10/2023 ANALYTICAL DATE : 07/10/2023
REPORT DATE : 11/10/2023 SAMPLE CONDITION : Normal
STACK LOCATION : 432-H3 OPERATOR : Mr. Pisanu Seenampeng
SOURCE DESCRIPTION : Combustion FUEL TYPE : Fuel gas

STACK DESCRIPTION

Height : 46.05 m Gas Velocity : 8.5 m/s
Diameter : 2.66 m Flow rate ^{1/} : 1,491 Ncu.m/min
Temperature : 218.3 °C Excess Oxygen : 6.3 %
Moisture : 13.2 %

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE METHOD
		6.3%O ₂	7%O ₂	g/s	7%O ₂	g/s	
Total Volatile Organic Compounds	ppm	1.89	1.80	0.085	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(Miss Narisa Poowasanpetch)

Technical Management Team

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

2. This report shall not be reproduced, except in full, without official approval.

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

The Monitoring Result of Emission Concentration
320-H1/H2
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 9, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	2.86	2.84	31.46	31.47	24.22
2	2.85	2.80	31.06	31.07	23.86
3	2.84	2.77	31.11	31.13	23.87
Average	2.85	2.80	31.21	31.22	23.98

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	2.86	2.84	3.46	3.43	2.64
2	2.85	2.80	4.26	4.23	3.25
3	2.84	2.77	4.43	4.40	3.37
Average	2.85	2.80	4.05	4.02	3.09

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023
 Start time: 10:50 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: Teledyne 200 EM
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas

Run # : 1
 Location : 320-H1/H2
 Finish time : 11:10 AM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:50 AM	2.85	31.65	3.21
10:51 AM	2.85	31.62	2.45
10:52 AM	2.89	31.70	3.28
10:53 AM	2.89	31.77	3.34
10:54 AM	2.84	31.70	3.19
10:55 AM	2.91	31.60	2.87
10:56 AM	2.81	31.41	3.82
10:57 AM	2.74	31.14	3.82
10:58 AM	2.80	31.01	3.48
10:59 AM	2.83	31.15	3.72
11:00 AM	2.88	31.20	4.12
11:01 AM	2.84	31.19	4.04
11:02 AM	2.72	31.11	3.75
11:03 AM	2.79	31.17	3.11
11:04 AM	2.89	31.31	3.23
11:05 AM	3.03	31.57	3.37
11:06 AM	3.07	31.80	3.45
11:07 AM	2.85	32.02	3.49
11:08 AM	2.90	31.93	3.56
11:09 AM	2.84	31.51	3.68
11:10 AM	2.80	31.19	3.77
Average	2.86	31.46	3.46

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023 **Run # :** 2
Start time: 11:11 AM **Location :** 320-H1/H2
O₂ instrument Model: AMI 70 **Finish time :** 11:31 AM
NO_x instrument Model: Teledyne 200 EM **Serial No.:** 161212-14
SO₂ instrument Model: API 100 AH **Serial No.:** 435
Fuel Type : Natural Gas **Serial No.:** 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:11 AM	2.80	31.09	3.81
11:12 AM	2.85	31.02	3.96
11:13 AM	2.94	31.13	3.98
11:14 AM	2.92	31.27	4.00
11:15 AM	2.89	31.30	4.04
11:16 AM	2.90	31.27	4.08
11:17 AM	2.88	31.22	4.17
11:18 AM	2.88	31.27	4.20
11:19 AM	2.86	31.30	4.30
11:20 AM	2.87	31.12	4.27
11:21 AM	2.85	31.13	4.31
11:22 AM	2.85	31.08	4.32
11:23 AM	2.84	30.92	4.33
11:24 AM	2.84	30.91	4.36
11:25 AM	2.78	30.98	4.40
11:26 AM	2.78	30.97	4.42
11:27 AM	2.83	30.92	4.42
11:28 AM	2.81	30.94	4.48
11:29 AM	2.85	30.76	4.48
11:30 AM	2.86	30.73	4.59
11:31 AM	2.81	30.94	4.55
Average	2.85	31.06	4.26

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 9, 2023 **Run # :** 3
Start time: 11:32 AM **Location :** 320-H1/H2
O₂ instrument Model: AMI 70 **Finish time :** 11:52 AM
NO_x instrument Model: Teledyne 200 EM **Serial No.:** 161212-14
SO₂ instrument Model: API 100 AH **Serial No.:** 435
Fuel Type : Natural Gas **Serial No.:** 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:32 AM	2.80	30.96	4.59
11:33 AM	2.79	30.84	4.55
11:34 AM	2.86	30.81	4.59
11:35 AM	2.84	30.97	4.64
11:36 AM	2.75	30.95	4.58
11:37 AM	2.75	30.84	4.60
11:38 AM	2.84	30.86	4.65
11:39 AM	2.89	30.88	4.63
11:40 AM	2.86	30.89	4.29
11:41 AM	2.92	31.08	4.32
11:42 AM	3.06	31.39	4.33
11:43 AM	2.96	31.54	4.31
11:44 AM	2.90	31.41	4.30
11:45 AM	2.89	31.27	4.27
11:46 AM	2.89	31.29	4.26
11:47 AM	2.77	31.28	4.28
11:48 AM	2.78	31.17	4.31
11:49 AM	2.80	31.13	4.34
11:50 AM	2.81	31.27	4.37
11:51 AM	2.81	31.28	4.44
11:52 AM	2.74	31.26	4.40
Average	2.84	31.11	4.43

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/320-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 320-H1/H2	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 43.20	m	Gas Velocity	: 9.9	m/s
Diameter	: 1.74	m	Flow rate ^{1/}	: 577	Ncu.m/min
Temperature	: 350.7	°C	Excess Oxygen	: 2.8	%
Moisture	: 14.0	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		2.8%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	4.02	3.09	0.10	60*/12.39**	0.28**	US EPA Method 6C
Oxide of Nitrogen	ppm	31.22	23.98	0.56	200*/66.49**	1.08**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Preeda Somjai)

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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).

5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/320-H1/H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 09/10/2023
RECEIVED DATE	: 10/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 11/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 320-H1/H2	OPERATOR	: Mr. Pisanu Seenampeng
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 43.20	m	Gas Velocity	: 9.9	m/s
Diameter	: 1.74	m	Flow rate ^{1/}	: 577	Ncu.m/min
Temperature	: 350.7	°C	Excess Oxygen	: 2.8	%
Moisture	: 14.0	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		2.8%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	1.81	1.39	0.031	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(Miss Narisa Poowasanpetch)

Technical Management Team

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

2. This report shall not be reproduced, except in full, without official approval.

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

The Monitoring Result of Emission Concentration
390-H1
PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
October 10, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.98	6.01	25.23	25.24	23.56
2	5.90	5.95	25.91	25.92	24.10
3	6.01	6.07	25.74	25.74	24.13
Average	5.96	6.01	25.63	25.63	23.93

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.98	6.01	1.27	1.26	1.18
2	5.90	5.95	1.30	1.28	1.19
3	6.01	6.07	1.37	1.34	1.26
Average	5.96	6.01	1.31	1.29	1.21

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Date: October 10, 2023
 Start time: 1:10 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type: Natural Gas

Run # : 1
 Location : 390-H1
 Finish time : 1:30 PM
 Serial No.: 121121-10
 Serial No.: 314
 Serial No.: 132
 Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:10 PM	6.05	25.98	1.31
1:11 PM	5.99	25.42	1.31
1:12 PM	5.97	24.87	1.30
1:13 PM	5.96	24.73	1.35
1:14 PM	5.91	24.60	1.23
1:15 PM	5.99	25.10	1.25
1:16 PM	5.93	25.70	1.20
1:17 PM	5.88	25.10	1.22
1:18 PM	5.81	26.50	1.16
1:19 PM	5.82	26.05	1.26
1:20 PM	5.83	25.05	1.32
1:21 PM	5.86	24.60	1.32
1:22 PM	5.87	24.35	1.28
1:23 PM	5.91	24.50	1.18
1:24 PM	6.03	24.70	1.28
1:25 PM	6.08	24.80	1.24
1:26 PM	6.09	25.10	1.33
1:27 PM	6.13	25.35	1.28
1:28 PM	6.16	25.60	1.28
1:29 PM	6.19	25.75	1.20
1:30 PM	6.20	25.95	1.28
Average	5.98	25.23	1.27

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Run # : 2
Date: October 10, 2023
Start time: 1:31 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Location : 390-H1
Finish time : 1:51 PM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:31 PM	6.21	25.85	1.17
1:32 PM	6.12	25.85	1.25
1:33 PM	5.85	25.95	1.33
1:34 PM	5.81	26.00	1.28
1:35 PM	5.95	25.80	1.30
1:36 PM	5.92	25.80	1.20
1:37 PM	5.86	25.75	1.28
1:38 PM	5.83	25.80	1.27
1:39 PM	5.83	25.85	1.33
1:40 PM	5.86	25.80	1.27
1:41 PM	5.87	25.60	1.31
1:42 PM	5.83	25.65	1.26
1:43 PM	5.86	25.65	1.31
1:44 PM	5.87	25.75	1.38
1:45 PM	5.94	25.90	1.32
1:46 PM	5.86	25.95	1.38
1:47 PM	5.94	25.95	1.29
1:48 PM	5.98	26.20	1.30
1:49 PM	5.86	26.40	1.29
1:50 PM	5.80	26.35	1.35
1:51 PM	5.81	26.30	1.33
Average	5.90	25.91	1.30

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited
EMISSION TEST RESULT

Run # : 3
Date: October 10, 2023
Start time: 1:52 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Location : 390-H1
Finish time : 2:12 PM
Serial No.: 121121-10
Serial No.: 314
Serial No.: 132
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:52 PM	5.89	26.60	1.42
1:53 PM	6.05	26.60	1.40
1:54 PM	6.02	26.30	1.37
1:55 PM	6.00	26.15	1.39
1:56 PM	6.06	26.10	1.30
1:57 PM	5.96	25.90	1.39
1:58 PM	6.02	25.80	1.30
1:59 PM	6.09	25.70	1.46
2:00 PM	6.07	25.65	1.48
2:01 PM	6.00	25.75	1.51
2:02 PM	5.96	25.75	1.52
2:03 PM	5.99	25.60	1.49
2:04 PM	6.07	25.30	1.34
2:05 PM	6.07	25.10	1.28
2:06 PM	6.10	25.30	1.26
2:07 PM	6.13	25.20	1.28
2:08 PM	6.14	25.20	1.33
2:09 PM	6.05	25.45	1.19
2:10 PM	5.89	25.80	1.33
2:11 PM	5.82	25.85	1.34
2:12 PM	5.83	25.50	1.33
Average	6.01	25.74	1.37

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/390-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 390-H1	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 34.80	m	Gas Velocity	: 9.8	m/s
Diameter	: 0.89	m	Flow rate ^{1/}	: 149	Ncu.m/min
Temperature	: 350.7	°C	Excess Oxygen	: 6.0	%
Moisture	: 14.5	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		6.0%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	1.29	1.21	0.008	60*/11.50**	0.03**	US EPA Method 6C
Oxide of Nitrogen	ppm	25.63	23.93	0.12	200*/79.99**	0.15**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
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. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).
 5. ** The assigned value in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/390-H1
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 11/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 390-H1	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 34.80	m	Gas Velocity	: 9.8	m/s
Diameter	: 0.89	m	Flow rate ^{1/}	: 149	Ncu.m/min
Temperature	: 350.7	°C	Excess Oxygen	: 6.0	%
Moisture	: 14.5	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		6.0%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	1.18	1.10	0.005	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)
Analyst

(Miss Narisa Poowasanpet)
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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

**The Monitoring Result of Emission Concentration
390-H2**

PTT Global Chemical Public Co., Ltd.

(Branch 4 : Aromatics 1 Plant)

October 10, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.90	5.94	35.99	36.03	33.48
2	5.91	5.89	36.26	36.30	33.62
3	5.84	5.77	35.91	35.96	33.04
Average	5.88	5.87	36.05	36.10	33.38

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.90	5.94	4.42	4.39	4.08
2	5.91	5.89	4.44	4.41	4.08
3	5.84	5.77	4.47	4.44	4.08
Average	5.88	5.87	4.44	4.41	4.08

**PTT Global Chemical Public Company Limited
EMISSION TEST RESULT**

Date:	October 10, 2023	Run # :	1
Start time:	1:10 PM	Location :	390-H2
O₂ instrument Model:	AMI 70	Finish time :	1:30 PM
NO_x instrument Model:	Teledyne 200 EH	Serial No.:	161212-14
SO₂ instrument Model:	API 100 AH	Serial No.:	435
Fuel Type :	Natural Gas	Serial No.:	058
		Test Operator :	Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:10 PM	5.83	35.33	4.66
1:11 PM	5.92	35.36	4.38
1:12 PM	6.03	35.48	4.76
1:13 PM	5.82	35.58	4.23
1:14 PM	5.89	35.79	3.78
1:15 PM	5.90	35.82	3.68
1:16 PM	5.77	35.98	4.08
1:17 PM	5.80	36.25	4.30
1:18 PM	5.83	36.25	4.50
1:19 PM	5.85	35.91	4.62
1:20 PM	5.94	36.00	4.67
1:21 PM	5.93	36.18	4.66
1:22 PM	5.89	36.34	4.54
1:23 PM	5.89	36.53	4.48
1:24 PM	5.92	36.37	4.50
1:25 PM	5.93	36.20	4.37
1:26 PM	5.94	36.15	4.41
1:27 PM	5.92	36.22	4.41
1:28 PM	6.02	36.18	4.55
1:29 PM	5.94	35.99	4.63
1:30 PM	5.91	35.96	4.68
Average	5.90	35.99	4.42

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 10, 2023
Start time: 1:31 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 2
Location : 390-H2
Finish time : 1:51 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:31 PM	5.89	35.94	4.75
1:32 PM	5.86	36.17	4.85
1:33 PM	5.85	36.34	4.83
1:34 PM	5.89	36.39	4.86
1:35 PM	6.00	36.24	4.90
1:36 PM	5.90	36.09	4.86
1:37 PM	5.89	36.06	4.94
1:38 PM	5.84	36.15	4.15
1:39 PM	5.85	36.25	4.14
1:40 PM	6.00	36.27	4.14
1:41 PM	6.01	36.23	4.15
1:42 PM	5.79	36.38	4.15
1:43 PM	5.87	36.49	4.23
1:44 PM	5.94	36.48	4.29
1:45 PM	5.96	36.47	4.33
1:46 PM	5.92	36.54	4.31
1:47 PM	6.01	36.24	4.27
1:48 PM	5.94	36.07	4.22
1:49 PM	5.91	36.15	4.24
1:50 PM	5.83	36.27	4.29
1:51 PM	5.94	36.28	4.36
Average	5.91	36.26	4.44

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Company Limited EMISSION TEST RESULT

Date: October 10, 2023
Start time: 1:52 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EH
SO₂ instrument Model: API 100 AH
Fuel Type : Natural Gas

Run # : 3
Location : 390-H2
Finish time : 2:12 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Song H.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:52 PM	5.89	36.31	4.34
1:53 PM	5.85	36.28	4.31
1:54 PM	5.81	36.16	4.37
1:55 PM	5.76	36.11	4.39
1:56 PM	5.84	36.23	4.35
1:57 PM	5.84	36.06	4.38
1:58 PM	5.76	35.93	4.36
1:59 PM	5.83	35.89	4.47
2:00 PM	5.81	35.84	4.47
2:01 PM	5.86	35.85	4.44
2:02 PM	5.85	35.77	4.45
2:03 PM	5.91	35.73	4.46
2:04 PM	5.78	35.76	4.52
2:05 PM	5.77	35.92	4.65
2:06 PM	5.81	35.95	4.49
2:07 PM	5.87	35.82	4.48
2:08 PM	5.84	35.52	4.55
2:09 PM	5.83	35.64	4.58
2:10 PM	5.85	35.84	4.59
2:11 PM	5.88	35.85	4.64
2:12 PM	5.90	35.57	4.59
Average	5.84	35.91	4.47

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/390-H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 16/10/2023	ANALYTICAL DATE	: 19-24/10/2023
REPORT DATE	: 27/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 390-H2	OPERATOR	: Mr. Song Hengchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 30.00	m	Gas Velocity	: 6.5	m/s
Diameter	: 0.94	m	Flow rate ^{1/}	: 131	Ncu.m/min
Temperature	: 253.8	°C	Excess Oxygen	: 5.9	%
Moisture	: 14.2	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		5.9%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Sulfur Dioxide	ppm	4.41	4.08	0.03	60*/12.26**	0.06**	US EPA Method 6C
Oxide of Nitrogen	ppm	36.10	33.38	0.15	200*/59.71**	0.21**	US EPA Method 7E

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
 4. * Notification of Ministry of Industry, B.E.2549 (2006) and Notification of Ministry of Natural Resource and Environment, B.E.2549 (2006) (at 7 % O₂).
 5. ** The assigned value in EIA report.



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SECOT CO.,LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096MON2H-Stk/390-H2
	Branch 4 (Aromatics 1 Plant)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 10/10/2023
RECEIVED DATE	: 11/10/2023	ANALYTICAL DATE	: 11/10/2023
REPORT DATE	: 17/10/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: 390-H2	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Fuel gas
STACK DESCRIPTION			

Height	: 30.00	m	Gas Velocity	: 6.5	m/s
Diameter	: 0.94	m	Flow rate ^{1/}	: 131	Ncu.m/min
Temperature	: 253.8	°C	Excess Oxygen	: 5.9	%
Moisture	: 14.2	%			

PARAMETER	UNIT	RESULT ^{1/}			STANDARD		REFERENCE
		5.9%O ₂	7%O ₂	g/s	7%O ₂	g/s	
							METHOD
Total Volatile Organic Compounds	ppm	13.33	12.33	0.053	-	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)
Analyst

(Miss Narisa Poowasanpet)
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. ^{1/} At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

ภาคผนวก ง.2

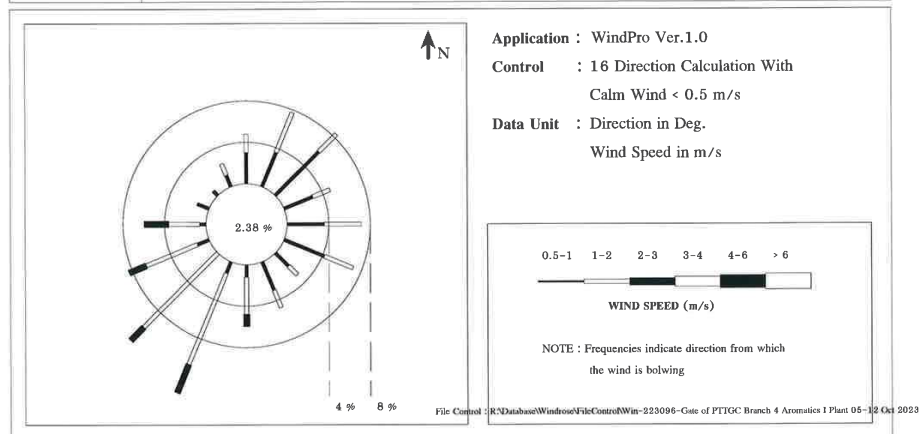
ใบรับรองผลการตรวจวัดคุณภาพอากาศในบรรยากาศ



Meteorological Monitoring Results : Wind Rose MTR-PTTGC4

Location : Gate of PTTGC Branch 4 Aromatics I Plant Monitor period : 05-12 Oct 2023
Wind Speed Model : NRG Symphonie Serial No : 5086
Wind Direction Model : NRG Symphonie Serial No : 5086

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	0.0298	0.0179	0.0000	0.0000	0.0000	0.0000	0.0476
NNE	0.0357	0.0417	0.0000	0.0000	0.0000	0.0000	0.0774
NE	0.0595	0.0238	0.0000	0.0000	0.0000	0.0000	0.0833
ENE	0.0298	0.0179	0.0000	0.0000	0.0000	0.0000	0.0476
E	0.0357	0.0357	0.0000	0.0000	0.0000	0.0000	0.0714
ESE	0.0417	0.0298	0.0000	0.0000	0.0000	0.0000	0.0714
SE	0.0179	0.0119	0.0000	0.0000	0.0000	0.0000	0.0298
SSE	0.0298	0.0179	0.0000	0.0000	0.0000	0.0000	0.0476
S	0.0119	0.0357	0.0119	0.0000	0.0000	0.0000	0.0595
SSW	0.0119	0.0952	0.0298	0.0000	0.0000	0.0000	0.1369
SW	0.0000	0.1012	0.0179	0.0000	0.0000	0.0000	0.1190
WSW	0.0119	0.0536	0.0179	0.0000	0.0000	0.0000	0.0833
W	0.0060	0.0298	0.0238	0.0000	0.0000	0.0000	0.0595
WNW	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0119
NW	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
NNW	0.0119	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
CALM	0.0238						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC4

Location : Gate of PTTGC Branch 4 Aromatics I Plant Monitor period : 05-12 Oct 2023
Wind Speed Model : NRG Symphonie Serial No : 5086
Wind Direction Model : NRG Symphonie Serial No : 5086

Time	05-06 Oct 2023		06-07 Oct 2023		07-08 Oct 2023		08-09 Oct 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
08:00 - 09:00	0.8	E	1.8	SW	1.3	W	1.6	SW
09:00 - 10:00	0.8	SE	2.1	SSW	1.7	S	1.7	WSW
10:00 - 11:00	0.8	ESE	2.4	W	1.8	SW	2.1	SSW
11:00 - 12:00	0.9	ENE	2.4	SW	2.5	W	2.2	WSW
12:00 - 13:00	1.1	E	2.4	SSW	2.4	W	1.8	S
13:00 - 14:00	0.7	NE	2.3	SW	2.1	S	1.9	SW
14:00 - 15:00	0.6	NNE	1.8	SSW	1.5	SSW	1.6	WSW
15:00 - 16:00	0.9	SSE	1.4	S	1.5	WSW	1.6	SSW
16:00 - 17:00	1.0	ESE	1.6	SSW	2.4	SSW	1.7	SSW
17:00 - 18:00	0.8	SSE	1.6	SW	2.1	W	1.8	S
18:00 - 19:00	0.8	SSE	1.7	SW	1.7	SSW	0.9	S
19:00 - 20:00	0.9	ESE	1.7	SSW	1.8	SW	1.5	SSW
20:00 - 21:00	0.6	ESE	1.3	W	1.6	SSW	1.4	SW
21:00 - 22:00	1.2	SE	1.7	WSW	1.7	SW	1.3	W
22:00 - 23:00	1.4	SW	1.7	SW	1.1	SSW	0.7	SSW
23:00 - 24:00	1.2	SW	1.6	S	1.5	W	0.4	SSW
00:00 - 01:00	2.2	S	2.2	SSW	1.6	SSW	1.3	SSW
01:00 - 02:00	2.1	WSW	1.9	SW	1.5	SW	1.3	SSW
02:00 - 03:00	2.1	WSW	1.5	WSW	1.3	SSW	0.9	SSW
03:00 - 04:00	2.2	SW	1.4	SSW	1.3	WSW	0.6	E
04:00 - 05:00	1.9	SW	1.3	SW	0.7	ENE	0.8	NE
05:00 - 06:00	1.8	SSW	1.1	WSW	0.5	NNW	0.7	ENE
06:00 - 07:00	1.8	WSW	0.6	WSW	0.8	NNE	0.6	NE
07:00 - 08:00	1.9	WSW	0.9	WSW	1.0	S	0.8	ENE



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

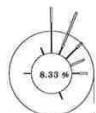


Meteorological Monitoring Results : Wind Rose MTR-PTTGC4

Location : Gate of PTTGC Branch 4 Aromatics I Plant Monitor period : 05-12 Oct 2023
Wind Speed Model : NRG Symphonie Serial No : 5086
Wind Direction Model : NRG Symphonie Serial No : 5086

Time	09-10 Oct 2023		10-11 Oct 2023		11-12 Oct 2023		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
08:00 - 09:00	0.7	NE	1.4	NNE	1.2	E	
09:00 - 10:00	0.5	SE	1.4	NNE	0.6	ESE	
10:00 - 11:00	0.6	ESE	0.4	NW	0.9	S	
11:00 - 12:00	1.4	E	0.7	NNW	1.7	ESE	
12:00 - 13:00	1.2	ESE	0.7	W	1.5	ESE	
13:00 - 14:00	1.2	SE	0.6	N	1.5	SSE	
14:00 - 15:00	1.8	SW	0.8	E	1.1	NE	
15:00 - 16:00	1.8	W	0.9	SSE	0.9	ENE	
16:00 - 17:00	1.0	SSE	0.8	N	0.6	N	
17:00 - 18:00	0.7	SE	1.5	N	0.7	WNW	
18:00 - 19:00	1.0	SSE	1.1	ENE	0.6	NNE	
19:00 - 20:00	0.5	E	1.2	NE	0.7	NE	
20:00 - 21:00	0.4	S	1.0	NNE	0.7	NE	
21:00 - 22:00	0.7	SSE	1.0	NNE	1.0	ENE	
22:00 - 23:00	0.9	ESE	0.8	NE	0.7	NW	
23:00 - 24:00	0.8	E	0.9	N	1.1	E	
00:00 - 01:00	0.9	E	1.0	E	0.8	NNE	
01:00 - 02:00	0.9	NE	0.4	NNE	0.8	ESE	
02:00 - 03:00	0.9	NNE	1.0	NNE	0.6	WNW	
03:00 - 04:00	1.0	NE	0.8	NE	0.9	NE	
04:00 - 05:00	1.0	N	0.9	NNE	1.1	ESE	
05:00 - 06:00	1.5	E	0.7	N	1.1	NNW	
06:00 - 07:00	1.4	NE	1.1	ENE	1.1	NNW	
07:00 - 08:00	1.2	NNE	1.1	N	1.3	NNE	

Wind Rose



12 %



File Control : R:\Database\Windrose\FileControl\Win-223096-Gate of PTTGC Branch 4 Aromatics I Plant 05-12 Oct 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC4

Location : Gate of PTTGC Branch 4 Aromatics I Plant Monitor Period : 05-12 Oct 2023
Analyzer Model : API 100A Station No : Shelter 16
Serial No : 906 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0108319
Certified Date : 09 Jan 2023 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 08 Jan 2024

Time	SO2 Concentration (ppb)						
	05-06 Oct 2023	06-07 Oct 2023	07-08 Oct 2023	08-09 Oct 2023	09-10 Oct 2023	10-11 Oct 2023	11-12 Oct 2023
08:00 - 09:00	2.0	7.3	12.6	4.9	3.2	3.5	3.8
09:00 - 10:00	2.0	4.3	14.6	2.9	3.2	3.5	3.8
10:00 - 11:00	2.0	6.3	7.6	2.9	6.2	3.5	3.8
11:00 - 12:00	2.0	8.3	3.6	2.9	4.2	3.5	3.8
12:00 - 13:00	2.1	7.4	2.6	2.9	18.2	3.5	3.8
13:00 - 14:00	2.1	3.4	2.7	2.9	7.2	9.5	3.8
14:00 - 15:00	2.1	2.4	4.7	4.0	14.2	4.5	3.8
15:00 - 16:00	2.1	4.4	7.7	5.0	10.3	6.5	3.8
16:00 - 17:00	2.1	5.4	10.7	3.0	6.3	4.6	3.9
17:00 - 18:00	2.1	5.4	4.7	3.0	4.3	3.6	3.9
18:00 - 19:00	2.1	5.4	2.7	3.0	3.3	3.6	3.9
19:00 - 20:00	2.1	6.4	2.7	3.0	3.3	4.6	3.9
20:00 - 21:00	2.2	8.4	2.7	3.0	3.3	5.6	3.9
21:00 - 22:00	2.2	12.5	2.8	3.0	3.3	4.6	3.9
22:00 - 23:00	2.2	2.5	2.8	3.1	3.3	4.6	4.9
23:00 - 00:00	2.2	2.5	2.8	3.1	3.4	3.6	3.9
00:00 - 01:00	3.2	2.5	2.8	6.1	3.4	4.7	4.9
01:00 - 02:00	4.2	2.5	2.8	3.1	3.4	3.7	4.0
02:00 - 03:00	10.2	2.5	2.8	3.1	3.4	3.7	4.0
03:00 - 04:00	9.2	2.5	2.8	3.1	3.4	4.7	4.0
04:00 - 05:00	4.3	2.5	2.8	3.1	4.4	5.7	4.0
05:00 - 06:00	8.3	2.6	2.8	3.1	3.4	3.7	4.0
06:00 - 07:00	5.3	2.6	2.9	3.1	3.4	4.7	4.0
07:00 - 08:00	9.3	3.6	12.9	3.2	3.5	4.7	4.0
Average-24Hr*	3.7	4.7	5.0	3.4	5.2	4.5	4.0
Max-1Hr	10.2	12.5	14.6	6.1	18.2	9.5	4.9
Min-1Hr	2.0	2.4	2.6	2.9	3.2	3.5	3.8
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

Remark : * Average time between 08:00-08:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC4

Location : Chaklukya Community Monitor Period : 05-12 Oct 2023
Analyzer Model : API 100A Station No : Shelter 14
Serial No : 238 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0108319
Certified Date : 09 Jan 2023 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 08 Jan 2024

Time	SO2 Concentration (ppb)						
	05-06 Oct 2023	06-07 Oct 2023	07-08 Oct 2023	08-09 Oct 2023	09-10 Oct 2023	10-11 Oct 2023	11-12 Oct 2023
08:00 - 09:00	2.4	2.5	3.2	3.2	2.7	2.5	2.9
09:00 - 10:00	2.5	2.5	3.1	3.2	2.7	2.6	3.1
10:00 - 11:00	2.2	2.6	2.9	3.1	2.9	2.4	3.1
11:00 - 12:00	2.6	2.4	2.9	2.8	2.7	2.4	2.6
12:00 - 13:00	2.6	2.5	2.7	2.8	3.0	2.4	2.4
13:00 - 14:00	2.4	2.5	2.4	2.8	2.6	2.1	2.3
14:00 - 15:00	2.3	2.1	2.0	2.6	2.5	2.1	1.9
15:00 - 16:00	2.2	2.2	2.1	2.3	2.4	2.0	2.1
16:00 - 17:00	2.2	2.2	2.4	2.3	2.3	2.1	2.0
17:00 - 18:00	2.3	2.2	2.6	2.2	2.3	1.8	2.0
18:00 - 19:00	2.1	2.1	2.3	2.6	2.4	2.2	2.1
19:00 - 20:00	1.9	2.1	2.5	2.6	2.2	2.1	2.5
20:00 - 21:00	2.3	2.4	2.5	2.7	2.7	2.2	2.2
21:00 - 22:00	2.1	2.2	2.4	2.7	2.6	2.5	2.1
22:00 - 23:00	2.0	2.8	2.8	2.3	3.1	2.8	2.6
23:00 - 00:00	3.0	2.8	2.3	2.7	3.5	3.5	2.5
00:00 - 01:00	3.5	2.8	2.6	2.8	3.8	3.4	3.0
01:00 - 02:00	3.7	2.9	2.7	2.9	3.4	4.2	2.2
02:00 - 03:00	3.1	2.5	2.3	2.7	3.1	4.4	2.2
03:00 - 04:00	2.9	2.7	2.2	2.5	2.9	4.3	1.9
04:00 - 05:00	2.7	2.6	2.8	2.7	3.1	3.9	2.3
05:00 - 06:00	2.3	2.1	2.8	2.7	2.9	3.8	2.4
06:00 - 07:00	2.2	2.9	3.2	2.6	2.7	2.8	2.3
07:00 - 08:00	2.6	2.6	2.9	2.8	2.5	2.9	3.0
Average-24Hr*	2.5	2.5	2.6	2.7	2.8	2.8	2.4
Max-1Hr	3.7	2.9	3.2	3.2	3.8	4.4	3.1
Min-1Hr	1.9	2.1	2.0	2.2	2.2	1.8	1.9
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

Remark : * Average time between 08:00-08:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด SECOT CO., LTD.

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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. : 1094/66
(Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 09-10/07/2023
SAMPLING DATE : 03-04/07/2023 SAMPLE CONDITION : Normal
SAMPLING TIME : 10:14-10:07 FILE CODE : 223096_TO-15_July
RECEIVED DATE : 05/07/2023
REPORT DATE : 11/07/2023

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 4 : North		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.35	1.12	-
Cyclohexane	0.02	0.07	32.67	112.5	-
Toluene	0.02	0.08	1.13	4.26	-
m,p-xylene	0.04	0.17	0.17	0.74	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.23	1.00	-

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

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparak)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduce, except in full, without official approval.
3. - Not available.



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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.	: 1094/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 09-10/07/2023
SAMPLING DATE	: 03-04/07/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:33-10:22	FILE CODE	: 223096_TO-15_July
RECEIVED DATE	: 05/07/2023		
REPORT DATE	: 11/07/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 4 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.09	0.29	-
Cyclohexane	0.02	0.07	0.18	0.62	-
Toluene	0.02	0.08	0.15	0.57	-
m,p-xylene	0.04	0.17	0.08	0.35	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.12	0.52	-

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

Jutarat Jaemuen

(Miss Jutarat Jaemuen)

Analyst

M

(Mrs. Araya Tipparuk)

Technical Management Team

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2. This report shall not be reproduce, except in full, without official approval.
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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.	: 1094/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 09-10/07/2023
SAMPLING DATE	: 03-04/07/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:14-12:00	FILE CODE	: 223096_TO-15_July
RECEIVED DATE	: 05/07/2023		
REPORT DATE	: 11/07/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	3.76	12.01	-
Cyclohexane	0.02	0.07	15.44	53.17	-
Toluene	0.02	0.08	1.61	6.06	-
m,p-xylene	0.04	0.17	0.19	0.83	-
o-xylene	0.02	0.09	0.40	1.74	-
Total xylene	0.06	0.26	0.59	2.57	-

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

Jutarat Jaemuen

(Miss Jutarat Jaemuen)

Analyst

M

(Mrs. Araya Tipparuk)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1094/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 09-10/07/2023
SAMPLING DATE	: 03-04/07/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:24-12:14	FILE CODE	: 223096_TO-15_July
RECEIVED DATE	: 05/07/2023		
REPORT DATE	: 11/07/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
	ppbv	$\mu\text{g}/\text{m}^3$	Branch 8 : South	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.15	0.48	-
Cyclohexane	0.02	0.07	19.36	66.67	-
Toluene	0.02	0.08	0.98	3.69	-
m,p-xylene	0.04	0.17	0.13	0.56	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.17	0.73	-

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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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1290/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 08-09/08/2023
SAMPLING DATE	: 03-04/08/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:04-09:42	FILE CODE	: 223096_TO-15_August
RECEIVED DATE	: 05/08/2023		
REPORT DATE	: 15/08/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
	ppbv	$\mu\text{g}/\text{m}^3$	Branch 4 : North	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.15	0.48	-
Cyclohexane	0.02	0.07	35.29	121.5	-
Toluene	0.02	0.08	0.72	2.71	-
m,p-xylene	0.04	0.17	0.13	0.56	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.17	0.73	-

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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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1290/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 08-09/08/2023
SAMPLING DATE	: 03-04/08/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 09:27-10:13	FILE CODE	: 223096_TO-15_August
RECEIVED DATE	: 05/08/2023		
REPORT DATE	: 15/08/2023		

Compound	SAMPLING LOCATION				STANDARD (µg/m ³)
	Non Detection		Branch 4 : South		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.15	0.48	-
Cyclohexane	0.02	0.07	0.07	0.24	-
Toluene	0.02	0.08	0.31	1.17	-
m,p-xylene	0.04	0.17	0.17	0.74	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.23	1.00	-

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

Jutarat Jaemruen

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Analyst

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1290/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 08-09/08/2023
SAMPLING DATE	: 03-04/08/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:37-10:54	FILE CODE	: 223096_TO-15_August
RECEIVED DATE	: 05/08/2023		
REPORT DATE	: 15/08/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.48	1.53	-
Cyclohexane	0.02	0.07	1.45	4.99	-
Toluene	0.02	0.08	0.76	2.86	-
m,p-xylene	0.04	0.17	0.08	0.35	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.14	0.61	-

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

Jutarat Jaemruen

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1290/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 08-09/08/2023
SAMPLING DATE	: 03-04/08/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:54-11:00	FILE CODE	: 223096_TO-15_August
RECEIVED DATE	: 05/08/2023		
REPORT DATE	: 15/08/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : South		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.11	0.35	-
Cyclohexane	0.02	0.07	17.62	60.68	-
Toluene	0.02	0.08	0.44	1.66	-
m,p-xylene	0.04	0.17	0.11	0.48	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.15	0.65	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1531/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 12/09/2023
SAMPLING DATE	: 04-05/09/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:02-10:56	FILE CODE	: 223096_TO-15_September
RECEIVED DATE	: 06/09/2023		
REPORT DATE	: 15/09/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 4 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.22	0.70	-
Cyclohexane	0.02	0.07	35.86	123.5	-
Toluene	0.02	0.08	1.66	6.25	-
m,p-xylene	0.04	0.17	0.15	0.65	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.21	0.91	-

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

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Analyst

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(Mrs. Araya Tipparuk)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1531/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 12/09/2023
SAMPLING DATE	: 04-05/09/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:49-10:47	FILE CODE	: 223096_TO-15_September
RECEIVED DATE	: 06/09/2023		
REPORT DATE	: 15/09/2023		

Compound	SAMPLING LOCATION				STANDARD ($\mu\text{g}/\text{m}^3$)
	Non Detection		Branch 4 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.13	0.42	-
Cyclohexane	0.02	0.07	0.11	0.38	-
Toluene	0.02	0.08	0.24	0.90	-
m,p-xylene	0.04	0.17	0.08	0.35	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.12	0.52	-

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

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Analyst

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(Mrs. Araya Tipparuk)

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1531/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 12/09/2023
SAMPLING DATE	: 04-05/09/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:38-11:17	FILE CODE	: 223096_TO-15_September
RECEIVED DATE	: 06/09/2023		
REPORT DATE	: 15/09/2023		

Compound	SAMPLING LOCATION				STANDARD (µg/m ³)
	Non Detection		Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	3.13	10.00	-
Cyclohexane	0.02	0.07	5.94	20.46	-
Toluene	0.02	0.08	2.16	8.14	-
m,p-xylene	0.04	0.17	0.11	0.48	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.17	0.74	-

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

Siriwan Chimsa-nga

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. (Branch 4 : Aromatics 1 Plant)	REQUEST SERVICE No.	: 1531/66
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 04-05/09/2023	ANALYTICAL DATE	: 12/09/2023
SAMPLING TIME	: 11:47-11:22	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 06/09/2023	FILE CODE	: 223096_TO-15_September
REPORT DATE	: 15/09/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : South		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.13	0.42	-
Cyclohexane	0.02	0.07	16.04	55.24	-
Toluene	0.02	0.08	2.09	7.87	-
m,p-xylene	0.04	0.17	0.08	0.35	-
o-xylene	0.02	0.09	0.04	0.17	-
Total xylene	0.06	0.26	0.12	0.52	-

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

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Analyst

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. (Branch 4 : Aromatics 1 Plant)	REQUEST SERVICE No.	: 1708/66
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 02-03/10/2023	ANALYTICAL DATE	: 10/10/2023
SAMPLING TIME	: 10:08-10:20	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 04/10/2023	FILE CODE	: 223096_TO-15_October
REPORT DATE	: 16/10/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 4 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	0.28	0.89	-
Cyclohexane	0.02	0.07	4.77	16.43	-
Toluene	0.02	0.08	1.85	6.97	-
m,p-xylene	0.04	0.17	0.36	1.56	-
o-xylene	0.02	0.09	0.13	0.56	-
Total xylene	0.06	0.26	0.49	2.12	-

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

Siriwan Chimsa-nga

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1708/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 10/10/2023
SAMPLING DATE	: 02-03/10/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 09:52-10:06	FILE CODE	: 223096_TO-15_October
RECEIVED DATE	: 04/10/2023		
REPORT DATE	: 16/10/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 4 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.28	0.89	-
Cyclohexane	0.02	0.07	1.12	3.86	-
Toluene	0.02	0.08	2.40	9.04	-
m,p-xylene	0.04	0.17	0.44	1.91	-
o-xylene	0.02	0.09	0.06	0.26	-
Total xylene	0.06	0.26	0.50	2.17	-

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

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Analyst

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1708/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 10/10/2023
SAMPLING DATE	: 02-03/10/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:56-10:49	FILE CODE	: 223096_TO-15_October
RECEIVED DATE	: 04/10/2023		
REPORT DATE	: 16/10/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	7.58	24.21	-
Cyclohexane	0.02	0.07	12.52	43.12	-
Toluene	0.02	0.08	2.03	7.65	-
m,p-xylene	0.04	0.17	2.77	12.03	-
o-xylene	0.02	0.09	0.15	0.65	-
Total xylene	0.06	0.26	2.92	12.68	-

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

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1708/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 10/10/2023
SAMPLING DATE	: 02-03/10/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:58-10:57	FILE CODE	: 223096_TO-15_October
RECEIVED DATE	: 04/10/2023		
REPORT DATE	: 16/10/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 8 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.76	2.43	-
Cyclohexane	0.02	0.07	7.17	24.69	-
Toluene	0.02	0.08	2.70	10.17	-
m,p-xylene	0.04	0.17	1.95	8.47	-
o-xylene	0.02	0.09	0.17	0.74	-
Total xylene	0.06	0.26	2.12	9.21	-

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

Sirivan Chimsa-nga

(Miss Sirivan Chimsa-nga)

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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.	: 1906/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 04/11/2023
SAMPLING DATE	: 01-02/11/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:08-09:54	FILE CODE	: 223096_TO-15_November
RECEIVED DATE	: 03/11/2023		
REPORT DATE	: 09/11/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 4 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	2.61	8.34	-
Cyclohexane	0.02	0.07	1.56	5.37	-
Toluene	0.02	0.08	4.99	18.80	-
m,p-xylene	0.04	0.17	1.03	4.47	-
o-xylene	0.02	0.09	0.36	1.56	-
Total xylene	0.06	0.26	1.39	6.03	-

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

Jutarat Jaemruen

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1906/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 04/11/2023
SAMPLING DATE	: 01-02/11/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 09:52-09:39	FILE CODE	: 223096_TO-15_November
RECEIVED DATE	: 03/11/2023		
REPORT DATE	: 09/11/2023		

Compound	SAMPLING LOCATION				STANDARD ($\mu\text{g}/\text{m}^3$)
	Non Detection		Branch 4 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	1.12	3.58	-
Cyclohexane	0.02	0.07	0.48	1.65	-
Toluene	0.02	0.08	1.70	6.40	-
m,p-xylene	0.04	0.17	0.61	2.65	-
o-xylene	0.02	0.09	0.15	0.65	-
Total xylene	0.06	0.26	0.76	3.30	-

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

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1906/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 04/11/2023
SAMPLING DATE	: 01-02/11/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:31-10:27	FILE CODE	: 223096_TO-15_November
RECEIVED DATE	: 03/11/2023		
REPORT DATE	: 09/11/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	3.78	12.07	-
Cyclohexane	0.02	0.07	1.14	3.93	-
Toluene	0.02	0.08	2.83	10.66	-
m,p-xylene	0.04	0.17	0.63	2.74	-
o-xylene	0.02	0.09	0.19	0.83	-
Total xylene	0.06	0.26	0.82	3.57	-

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

Jutarat Jaemruen

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 1906/66
(Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 04/11/2023
SAMPLING DATE : 01-02/11/2023 SAMPLE CONDITION : Normal
SAMPLING TIME : 10:38-10:35 FILE CODE : 223096_TO-15_November
RECEIVED DATE : 03/11/2023
REPORT DATE : 09/11/2023

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : South		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	3.20	10.22	-
Cyclohexane	0.02	0.07	2.38	8.20	-
Toluene	0.02	0.08	5.04	18.99	-
m,p-xylene	0.04	0.17	1.03	4.47	-
o-xylene	0.02	0.09	0.53	2.30	-
Total xylene	0.06	0.26	1.56	6.77	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 2181/66
(Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 15/12/2023
SAMPLING DATE : 06-07/12/2023 SAMPLE CONDITION : Normal
SAMPLING TIME : 10:40-10:32 FILE CODE : 223096_TO-15_December
RECEIVED DATE : 08/12/2023
REPORT DATE : 18/12/2023

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 4 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	1.19	3.80	-
Cyclohexane	0.02	0.07	1.72	5.92	-
Toluene	0.02	0.08	2.73	10.28	-
m,p-xylene	0.04	0.17	0.74	3.21	-
o-xylene	0.02	0.09	0.28	1.22	-
Total xylene	0.06	0.26	1.02	4.43	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 2181/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 15/12/2023
SAMPLING DATE	: 06-07/12/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 10:22-10:11	FILE CODE	: 223096_TO-15_December
RECEIVED DATE	: 08/12/2023		
REPORT DATE	: 18/12/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 4 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	0.60	1.92	-
Cyclohexane	0.02	0.07	0.51	1.76	-
Toluene	0.02	0.08	1.94	7.31	-
m,p-xylene	0.04	0.17	0.32	1.39	-
o-xylene	0.02	0.09	0.11	0.48	-
Total xylene	0.06	0.26	0.43	1.87	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

MR

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 2181/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 15/12/2023
SAMPLING DATE	: 06-07/12/2023	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:18-10:57	FILE CODE	: 223096_TO-15_December
RECEIVED DATE	: 08/12/2023		
REPORT DATE	: 18/12/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD (µg/m ³)
			Branch 8 : North		
	ppbv	µg/m ³	ppbv	µg/m ³	
Benzene	0.004	0.013	6.35	20.28	-
Cyclohexane	0.02	0.07	3.26	11.23	-
Toluene	0.02	0.08	5.80	21.85	-
m,p-xylene	0.04	0.17	0.44	1.91	-
o-xylene	0.02	0.09	0.19	0.83	-
Total xylene	0.06	0.26	0.63	2.74	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

MR

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. (Branch 4 : Aromatics 1 Plant)	REQUEST SERVICE No.	: 2181/66
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 06-07/12/2023	ANALYTICAL DATE	: 15/12/2023
SAMPLING TIME	: 11:32-11:06	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 08/12/2023	FILE CODE	: 223096_TO-15_December
REPORT DATE	: 18/12/2023		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ($\mu\text{g}/\text{m}^3$)
			Branch 8 : South		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
Benzene	0.004	0.013	2.44	7.79	-
Cyclohexane	0.02	0.07	3.59	12.36	-
Toluene	0.02	0.08	4.21	15.86	-
m,p-xylene	0.04	0.17	0.53	2.30	-
o-xylene	0.02	0.09	0.30	1.30	-
Total xylene	0.06	0.26	0.83	3.60	-

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Araya Tippasuk

(Mrs. Araya Tippasuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1112/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:27
SAMPLING DATE	: 05/07/2023	ANALYTICAL DATE	: 06-14/07/2023
RECEIVED DATE	: 06/07/2023	SITE OPERATOR	: Mr. Watcharakan Pramakhate
REPORT DATE	: 14/07/2023	FILE CODE	: 223096_WW_July
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD
		METHODS	(non-detectable)	Equalization Tank	
pH	-	4500-H ⁺ B	< 0.10	7.55	-
Color	ADMI	2120 F	< 6.0	39.5	-
Total Suspended Solids	mg/l	2540 D	< 5	73	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	0.67	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	3.5	-
BOD ₅	mg/l	5210 B	< 1.0	40.2	-
COD	mg/l	5220 C	< 15.00	97.85	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0339	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

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REG. NO. 7-239-ก-5863

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1112/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:06
SAMPLING DATE	: 05/07/2023	ANALYTICAL DATE	: 06-14/07/2023
RECEIVED DATE	: 06/07/2023	SITE OPERATOR	: Mr. Watcharakan Pramakhate
REPORT DATE	: 14/07/2023	FILE CODE	: 223096_WW_July
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ¹⁾
		METHODS	(non-detectable)	Effluent from Final Effluent Basin	
pH	-	4500-H ⁺ B	< 0.10	7.73	5.5-9.0
Color	ADMI	2120 F	< 6.0	18.5	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

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 3. ¹⁾ Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of the Ministry of Industry, B.E.2560 (2017).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1112/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:50
SAMPLING DATE	: 05/07/2023	ANALYTICAL DATE	: 06-14/07/2023
RECEIVED DATE	: 06/07/2023	SITE OPERATOR	: Mr. Watcharakon Pramakhate
REPORT DATE	: 14/07/2023	FILE CODE	: 223096_WW_July
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from 940-XC1	
pH	-	4500-H ⁺ B	< 0.10	7.88	5.5-9.0
Color	ADMI	2120 F	< 6.0	20.2	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,330	≤ 43,020 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	22.79	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
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 3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of the Ministry of Industry, B.E.2560 (2017).
 4. ^{2/} Total Dissolved Solids (TDS) shall be increased from TDS in receiving water not exceeding 5,000 mg/l (TDS valve in the last month in receiving water = 38,020 mg/l).
 5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1263/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:51
SAMPLING DATE	: 02/08/2023	ANALYTICAL DATE	: 03-10/08/2023
RECEIVED DATE	: 03/08/2023	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 10/08/2023	FILE CODE	: 223096_WW_August
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				Equalization Tank	
pH	-	4500-H ⁺ B	< 0.10	7.75	-
Color	ADMI	2120 F	< 6.0	27.7	-
Total Suspended Solids	mg/l	2540 D	< 5	10	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	33.2	-
COD	mg/l	5220 C	< 15.00	148	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0048	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1263/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:47
SAMPLING DATE	: 02/08/2023	ANALYTICAL DATE	: 03-10/08/2023
RECEIVED DATE	: 03/08/2023	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 10/08/2023	FILE CODE	: 223096_WW_August
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from Final Effluent Basin	
pH		4500-H ⁺ B	< 0.10	7.95	5.5-9.0
Color	ADMI	2120 F	< 6.0	18.2	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	43.74	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

Araya Tipparuk

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 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1542/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:30
SAMPLING DATE	: 06/09/2023	ANALYTICAL DATE	: 07-14/09/2023
RECEIVED DATE	: 07/09/2023	SITE OPERATOR	: Mr. Suphachai Sukmai
REPORT DATE	: 15/09/2023	FILE CODE	: 223096_WW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				Equalization Tank	
pH		4500-H ⁺ B	< 0.10	7.68	-
Color	ADMI	2120 F	< 6.0	24.2	-
Total Suspended Solids	mg/l	2540 D	< 5	130	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	1.2	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	43.0	-
COD	mg/l	5220 C	< 15.00	80.14	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0547	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

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Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1542/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:25
SAMPLING DATE	: 06/09/2023	ANALYTICAL DATE	: 07-14/09/2023
RECEIVED DATE	: 07/09/2023	SITE OPERATOR	: Mr.Suphachai Sukmai
REPORT DATE	: 15/09/2023	FILE CODE	: 223096_WW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from Final Effluent Basin	
pH	-	4500-H ⁺ B	< 0.10	7.83	5.5-9.0
Color	ADMI	2120 F	< 6.0	21.5	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	6	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1692/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:44
SAMPLING DATE	: 29/09/2023	ANALYTICAL DATE	: 30/09/2023-07/010/2023
RECEIVED DATE	: 30/09/2023	SITE OPERATOR	: Miss Salisa Ainree
REPORT DATE	: 09/10/2023	FILE CODE	: 223096_WW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from 940-XC1	
pH	-	4500-H ⁺ B	< 0.10	8.24	5.5-9.0
Color	ADMI	2120 F	< 6.0	23.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,434	≤ 38,060 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	1.3	≤ 20
COD	mg/l	5220 C	< 15.00	15.57	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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 4. ^{2/} Total Dissolved Solids (TDS) shall be increased from TDS in receiving water not exceeding 5,000 mg/l (TDS valve in the last month in receiving water = 33,060 mg/l).
 5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1725/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:50
SAMPLING DATE	: 04/10/2023	ANALYTICAL DATE	: 05-11/10/2023
RECEIVED DATE	: 05/10/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 12/10/2023	FILE CODE	: 223096_WW_October
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				Equalization Tank	
pH	-	4500-H ⁺ B	< 0.10	8.16	-
Color	ADMI	2120 F	< 6.0	25.6	-
Total Suspended Solids	mg/l	2540 D	< 5	10	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	0.40	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	21.8	-
COD	mg/l	5220 C	< 15.00	45.36	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0006	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED., 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1725/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:35
SAMPLING DATE	: 04/10/2023	ANALYTICAL DATE	: 05-11/10/2023
RECEIVED DATE	: 05/10/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 12/10/2023	FILE CODE	: 223096_WW_October
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from Final Effluent Basin	
pH	-	4500-H ⁺ B	< 0.10	7.82	5.5-9.0
Color	ADMI	2120 F	< 6.0	21.8	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED., 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1725/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:45
SAMPLING DATE	: 04/10/2023	ANALYTICAL DATE	: 05-11/10/2023
RECEIVED DATE	: 05/10/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 12/10/2023	FILE CODE	: 223096_WW_October
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from 940-XC1	
pH	-	4500-H ⁺ B	< 0.10	7.37	5.5-9.0
Color	ADMI	2120 F	< 6.0	25.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	1,264	≤ 34,380 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

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4. ^{2/} Total Dissolved Solids (TDS) shall be increased from TDS in receiving water not exceeding 5,000 mg/l
(TDS valve in the last month in receiving water = 29,380 mg/l).

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1882/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:07
SAMPLING DATE	: 01/11/2023	ANALYTICAL DATE	: 02-08/11/2023
RECEIVED DATE	: 02/11/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 09/11/2023	FILE CODE	: 223096_WW_November
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				Equalization Tank	
pH	-	4500-H ⁺ B	< 0.10	7.38	-
Color	ADMI	2120 F	< 6.0	18.8	-
Total Suspended Solids	mg/l	2540 D	< 5	8	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	3.1	-
COD	mg/l	5220 C	< 15.00	24.16	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0009	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

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Technical Management Team

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3. - Not available.



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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.	REQUEST SERVICE No.	: 1882/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:59
SAMPLING DATE	: 01/11/2023	ANALYTICAL DATE	: 02-08/11/2023
RECEIVED DATE	: 02/11/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 09/11/2023	FILE CODE	: 223096_WW_November
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from Final Effluent Basin	
pH	-	4500-H ⁺ B	< 0.10	7.71	5.5-9.0
Color	ADMI	2120 F	< 6.0	16.3	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insom

(Miss Khemchuda Insom)

Analyst

REG. NO. ว-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ว-239-ก-0004

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of the Ministry of Industry, B.E.2560 (2017).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1882/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:18
SAMPLING DATE	: 01/11/2023	ANALYTICAL DATE	: 02-08/11/2023
RECEIVED DATE	: 02/11/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 09/11/2023	FILE CODE	: 223096_WW_November
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from 940-XC1	
pH	-	4500-H ⁺ B	< 0.10	7.61	5.5-9.0
Color	ADMI	2120 F	< 6.0	17.2	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 50	892	≤ 15,240 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insom

(Miss Khemchuda Insom)

Analyst

REG. NO. ว-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ว-239-ก-0004

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 3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of the Ministry of Industry, B.E.2560 (2017).
 4. ^{2/} Total Dissolved Solids (TDS) shall be increased from TDS in receiving water not exceeding 5,000 mg/l (TDS valve in the last month in receiving water = 10,240 mg/l).
 5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 2146/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:25
SAMPLING DATE	: 06/12/2023	ANALYTICAL DATE	: 07-13/12/2023
RECEIVED DATE	: 07/12/2023	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 13/12/2023	FILE CODE	: 223096_WW_December
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				Equalization Tank	
pH	-	4500-H ⁺ B	< 0.10	7.29	-
Color	ADMI	2120 F	< 6.0	21.5	-
Total Suspended Solids	mg/l	2540 D	< 5	12	-
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	154	-
COD	mg/l	5220 C	< 15.00	439	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0011	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๖-239-ก-0004

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 2146/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:35
SAMPLING DATE	: 06/12/2023	ANALYTICAL DATE	: 07-13/12/2023
RECEIVED DATE	: 07/12/2023	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 13/12/2023	FILE CODE	: 223096_WW_December
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				Effluent from Final Effluent Basin	
pH	-	4500-H ⁺ B	< 0.10	7.86	5.5-9.0
Color	ADMI	2120 F	< 6.0	22.6	≤ 300
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Sulfide as H ₂ S	mg/l	4500-S ²⁻ F	< 0.20	ND	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
REQUEST SERVICE No. : 1882/66
SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd.
SAMPLING TIME : 14:47
SAMPLING DATE : 01/11/2023
ANALYTICAL DATE : 02-08/11/2023
RECEIVED DATE : 02/11/2023
SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 09/11/2023
FILE CODE : 223096_WW_November
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)		
pH	-	4500-H ⁺ B	< 0.10	8.91	-
Color	ADMI	2120 F	< 6.0	31.6	-
Total Suspended Solids	mg/l	2540 D	< 5	46	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	1.9	-
COD	mg/l	5220 C	< 15.00	22.78	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA.APHA.WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ท-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ท-0004

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

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3. ^{1/} The Standard Values of Surface Water Quality for Class 5, Notification by the National Environment Board No.8, B.E.2537 (1994).

4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd.
(Branch 4 : Aromatics 1 Plant)
REQUEST SERVICE No. : 1882/66
SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd.
SAMPLING TIME : 14:40
SAMPLING DATE : 01/11/2023
ANALYTICAL DATE : 02-08/11/2023
RECEIVED DATE : 02/11/2023
SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 09/11/2023
FILE CODE : 223096_WW_November
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)		
pH	-	4500-H ⁺ B	< 0.10	8.87	-
Color	ADMI	2120 F	< 6.0	32.9	-
Total Suspended Solids	mg/l	2540 D	< 5	34	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
BOD ₅	mg/l	5210 B	< 1.0	2.4	-
COD	mg/l	5220 C	< 15.00	24.16	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA.APHA.WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ท-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ท-0004

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4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 1184/66
: (Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:38
SAMPLING DATE : 13/07/2023 ANALYTICAL DATE : 14-15/07/2023
RECEIVED DATE : 14/07/2023 SITE OPERATOR : Mr. Watcharakon Pramakhate
REPORT DATE : 18/07/2023 FILE CODE : 223096_CW_July
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมฯมาบตาพุด (ปากคลองชากหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	31,980	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)


(Miss Pornnapa Budthum)

Analyst


(Miss Khemchuda Insorn)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

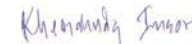
CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 1337/66
: (Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:24
SAMPLING DATE : 10/08/2023 ANALYTICAL DATE : 15-16/08/2023
RECEIVED DATE : 11/08/2023 SITE OPERATOR : Mr. Baworn Deechaiya
REPORT DATE : 18/08/2023 FILE CODE : 223096_CW_August
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมฯมาบตาพุด (ปากคลองชากหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	33,060	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)


(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.	REQUEST SERVICE No.	: 1604/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 16:24
SAMPLING DATE	: 14/09/2023	ANALYTICAL DATE	: 15-16/09/2023
RECEIVED DATE	: 15/09/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 18/09/2023	FILE CODE	: 223096_CW_August
SAMPLE CONDITION	: Normal		

LOCATION DESCRIPTION 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมมาบตาพุด (ปากคลองชักหาหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	29,380	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

NT

(Mrs. Araya Tipparuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1792/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 12:20
SAMPLING DATE	: 12/10/2023	ANALYTICAL DATE	: 16-17/10/2023
RECEIVED DATE	: 13/10/2023	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 18/10/2023	FILE CODE	: 223096_CW_October
SAMPLE CONDITION	: Normal		

LOCATION DESCRIPTION 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมมาบตาพุด (ปากคลองชักหาหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	10,240	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

NT

(Mrs. Araya Tipparuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1964/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 12:10
SAMPLING DATE	: 09/11/2023	ANALYTICAL DATE	: 13-14/11/2023
RECEIVED DATE	: 10/11/2023	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 15/11/2023	FILE CODE	: 223096_CW_November
SAMPLE CONDITION	: Normal		

LOCATION DESCRIPTION 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมฯมาบตาพุด (ปากคลองชักหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	32,260	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 2174/66
	: (Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:40
SAMPLING DATE	: 07/12/2023	ANALYTICAL DATE	: 11-12/12/2023
RECEIVED DATE	: 08/12/2023	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 13/12/2023	FILE CODE	: 223096_CW_November
SAMPLE CONDITION	: Normal		

LOCATION DESCRIPTION 1.ระยะห่างจากจุดระบายน้ำทิ้งของนิคมฯมาบตาพุด (ปากคลองชักหมาก) 500 เมตร

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
Total Dissolved Solids	mg/l	2540 C	< 25	26,060	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED., 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

ภาคผนวก ง.4

ใบรับรองผลการตรวจวัดคุณภาพน้ำใต้ดิน



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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:41-11:51
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 11/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-01	STANDARD ^{1/}
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)


(Miss Krisana Chanthoom)

Analyst

REG. NO. 2-239-8-0017


(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-8-0004

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

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 4 : Aromatics 1 Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:41-11:51
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 06/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-01	STANDARD ^{1/}
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)


(Miss Jutarat Jaemruen)

Analyst

REG. NO. 2-239-8-0022


(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-8-0004

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TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 1517/66
(Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:33-10:35
SAMPLING DATE : 05/09/2023 ANALYTICAL DATE : 11/09/2023
RECEIVED DATE : 06/09/2023 SITE OPERATOR : Mr. Aniwat Pimwanna
REPORT DATE : 12/09/2023 FILE CODE : 223096_GW_September
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-06	STANDARD ^{1/}
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)


(Miss Krisana Chanthoom)

Analyst

REG. NO. 2-239-0-0017


(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-0-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REQUEST SERVICE No. : 1517/66
(Branch 4 : Aromatics 1 Plant) SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:33-10:35
SAMPLING DATE : 05/09/2023 ANALYTICAL DATE : 06/09/2023
RECEIVED DATE : 06/09/2023 SITE OPERATOR : Mr. Aniwat Pimwanna
REPORT DATE : 12/09/2023 FILE CODE : 223096_GW_September
SAMPLE CONDITION : Normal

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-06	STANDARD ^{1/}
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)


(Miss Jutarat Jaemruen)

Analyst

REG. NO. 2-239-0-0022


(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-0-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 8 : Tank Farm Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:00-14:05
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 11/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-10	STANDARD ^{1/}
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Krisana Chanthoom)

Analyst

REG. NO. 2-239-ก-0017

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 8 : Tank Farm Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:00-14:05
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 06/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-10	STANDARD ^{1/}
Benzene	mg/l	6200 B	< 0.0002	0.0094	≤ 0.2
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	0.0002	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 2-239-ก-0022

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 8 : Tank Farm Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:29-14:32
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 11/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-13	STANDARD ^U
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

(Miss Krisana Chanthoom)

Analyst

REG. NO. ๓-239-๓-0017

(Mrs. Araya Tipparuk)

Technical Management Team

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1517/66
	(Branch 8 : Tank Farm Plant)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:29-14:32
SAMPLING DATE	: 05/09/2023	ANALYTICAL DATE	: 06/09/2023
RECEIVED DATE	: 06/09/2023	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 12/09/2023	FILE CODE	: 223096_GW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-13	STANDARD ^U
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

(Miss Jutarat Jaemruen)

Analyst

REG. NO. ๓-239-๓-0022

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๓-239-๓-0004

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ภาคผนวก ง.5

ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Northern Area of PTTGC Branch 4 Aramatics Monitor Period : 03-10 Aug 2023

SLM Model : RION NL-21

Serial No : 00187505

Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 13 Jan 2023

SLM Reading / Adjust dB(A) : 93.8/0.2

Expire Date : 12 Jan 2024

Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	65.8	64.5	63.2	61.4	66.0	66.0	69.0
10:00 - 11:00	64.5	65.7	63.7	62.1	65.8	64.4	66.2
11:00 - 12:00	65.1	64.8	62.2	62.3	65.7	65.1	65.8
12:00 - 13:00	65.2	64.9	64.0	62.4	65.6	64.6	64.4
13:00 - 14:00	64.2	63.9	65.8	61.9	68.5	64.4	64.0
14:00 - 15:00	63.7	63.9	63.6	62.1	65.9	65.9	64.8
15:00 - 16:00	64.9	64.5	62.4	62.3	65.5	64.2	64.4
16:00 - 17:00	65.0	65.3	64.1	63.0	66.3	64.5	63.4
17:00 - 18:00	65.2	65.4	62.8	63.2	64.8	65.4	63.9
18:00 - 19:00	63.1	64.2	62.6	64.3	65.5	66.5	65.6
19:00 - 20:00	60.7	61.0	59.6	60.8	65.1	65.2	65.6
20:00 - 21:00	59.7	59.8	58.9	60.5	65.7	64.3	65.0
21:00 - 22:00	58.6	60.0	58.3	58.4	60.3	61.5	62.0
22:00 - 23:00	58.1	58.1	58.8	58.7	60.2	60.6	60.6
23:00 - 00:00	58.7	57.7	58.6	58.3	59.8	60.6	59.9
00:00 - 01:00	57.5	57.2	57.3	58.4	58.6	58.4	59.6
01:00 - 02:00	57.8	57.0	57.5	57.8	57.9	58.9	58.0
02:00 - 03:00	57.4	58.2	56.9	57.7	58.0	57.2	57.2
03:00 - 04:00	58.3	57.3	56.8	57.8	56.9	57.2	56.4
04:00 - 05:00	60.1	58.4	57.4	58.3	57.6	61.3	56.9
05:00 - 06:00	68.1	64.7	61.1	61.0	58.5	57.1	56.7
06:00 - 07:00	68.6	67.4	65.3	68.8	64.1	59.6	58.0
07:00 - 08:00	67.3	65.3	63.7	69.4	70.1	66.7	65.0
08:00 - 09:00	65.9	64.2	62.1	66.9	68.5	69.2	69.1
Leq(24)*	64.0	63.3	62.0	63.0	64.9	64.0	64.1
Ldn	69.8	68.4	66.9	68.5	67.9	67.3	66.9
Lmax **	92.0	95.6	89.9	91.8	95.5	94.6	94.0
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist(Miss Preeda Somjai)
Technical Management Team

Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Northern Area of PTTGC Branch 4 Aramatics

Monitor Period : 03-10 Aug 2023

SLM Model : RION NL-21

Serial No : 00187505

Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 13 Jan 2023

SLM Reading / Adjust dB(A) : 93.8/0.2

Expire Date : 12 Jan 2024

Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	57.6	57.9	55.5	54.9	58.8	58.1	59.9
10:00 - 11:00	57.5	58.1	55.8	55.3	58.5	57.9	58.3
11:00 - 12:00	57.2	57.6	55.5	55.5	59.1	57.9	58.3
12:00 - 13:00	57.6	57.9	56.5	55.5	57.8	57.9	57.3
13:00 - 14:00	57.6	57.6	58.7	55.5	60.3	57.6	55.5
14:00 - 15:00	57.1	57.3	55.3	55.1	59.8	58.0	55.7
15:00 - 16:00	57.7	56.9	55.9	55.5	58.6	57.9	55.4
16:00 - 17:00	56.8	57.7	56.1	55.6	58.2	58.0	55.4
17:00 - 18:00	56.7	56.8	55.2	55.0	57.7	58.9	56.0
18:00 - 19:00	54.8	55.8	55.6	55.3	56.8	58.4	58.2
19:00 - 20:00	54.7	54.8	54.5	54.3	56.3	57.1	56.7
20:00 - 21:00	54.9	54.8	54.3	54.3	55.5	55.3	55.7
21:00 - 22:00	54.7	55.1	54.6	54.4	54.6	54.7	54.4
22:00 - 23:00	54.9	55.1	54.5	54.6	54.5	54.6	54.0
23:00 - 00:00	55.2	54.4	54.8	54.8	54.6	54.7	54.1
00:00 - 01:00	55.2	54.6	55.1	54.9	54.4	54.5	54.0
01:00 - 02:00	55.0	54.7	55.5	55.0	54.4	54.3	54.1
02:00 - 03:00	54.7	54.8	55.0	54.9	54.4	54.1	53.9
03:00 - 04:00	54.5	54.7	54.4	54.4	54.2	54.1	53.8
04:00 - 05:00	54.7	54.8	54.4	54.6	54.3	54.1	53.8
05:00 - 06:00	57.4	55.4	55.0	55.1	54.3	54.2	54.0
06:00 - 07:00	61.4	59.4	57.2	60.2	55.0	54.2	53.9
07:00 - 08:00	59.2	56.6	55.5	61.0	61.8	55.6	54.6
08:00 - 09:00	58.5	55.9	54.9	58.8	60.9	61.8	61.4
L90(avg)*	56.9	56.4	55.5	56.1	57.6	56.9	56.4

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Southern Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00487734
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	59.8	59.4	58.3	58.6	58.8	59.0	59.6
10:00 - 11:00	59.7	59.1	58.6	58.4	58.6	58.8	59.3
11:00 - 12:00	59.4	58.8	58.8	58.4	59.0	58.4	59.7
12:00 - 13:00	59.4	58.7	58.5	59.0	58.9	58.5	59.4
13:00 - 14:00	60.6	58.8	58.1	58.2	58.5	58.6	59.6
14:00 - 15:00	60.3	59.1	58.4	58.2	58.4	57.9	59.6
15:00 - 16:00	59.9	59.2	58.2	58.2	58.2	58.0	59.3
16:00 - 17:00	59.3	58.9	58.5	59.7	58.5	58.3	59.1
17:00 - 18:00	59.1	59.2	58.5	58.5	58.8	58.7	60.7
18:00 - 19:00	59.0	59.1	58.5	58.5	58.9	58.9	62.6
19:00 - 20:00	59.3	59.7	59.1	58.7	59.7	59.6	59.3
20:00 - 21:00	59.6	59.5	58.9	59.4	59.4	58.6	59.4
21:00 - 22:00	59.8	59.3	59.1	60.3	60.4	59.4	59.7
22:00 - 23:00	60.0	59.2	60.0	59.5	60.6	60.5	59.7
23:00 - 00:00	60.4	59.3	60.2	60.5	59.9	61.9	60.3
00:00 - 01:00	59.7	59.2	60.1	60.4	59.8	61.7	60.2
01:00 - 02:00	59.7	59.2	60.1	60.0	60.0	61.4	60.9
02:00 - 03:00	59.6	59.0	60.3	59.2	60.0	61.2	61.0
03:00 - 04:00	59.6	59.1	59.7	59.6	59.4	60.3	60.8
04:00 - 05:00	59.4	58.8	59.5	59.6	59.6	60.2	60.6
05:00 - 06:00	59.2	59.2	59.2	59.1	59.0	60.0	60.4
06:00 - 07:00	59.3	58.9	59.0	59.0	59.0	59.8	60.6
07:00 - 08:00	59.8	59.1	59.5	59.6	59.7	59.8	60.5
08:00 - 09:00	59.5	59.3	59.0	58.8	58.5	59.8	59.8
Leq(24)*	59.7	59.1	59.1	59.2	59.3	59.7	60.2
Ldn	66.1	65.5	66.1	66.0	66.0	67.0	66.8
Lmax **	84.2	79.2	87.3	92.3	82.2	80.8	85.8
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Southern Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00487734
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	57.7	57.4	56.6	56.6	56.8	57.0	58.0
10:00 - 11:00	58.0	57.1	56.7	56.6	56.7	56.7	57.7
11:00 - 12:00	57.6	57.0	56.8	56.6	57.0	56.5	58.0
12:00 - 13:00	57.5	56.8	56.5	57.1	57.0	56.6	57.6
13:00 - 14:00	58.5	56.9	56.3	56.3	56.6	56.6	57.7
14:00 - 15:00	58.4	57.2	56.7	56.4	56.5	56.2	57.5
15:00 - 16:00	58.0	57.5	56.7	56.4	56.5	56.3	57.4
16:00 - 17:00	57.9	57.0	56.7	57.0	56.7	56.7	57.4
17:00 - 18:00	57.6	57.4	56.9	56.7	56.9	56.8	57.7
18:00 - 19:00	57.8	57.5	56.9	56.8	56.9	57.0	58.2
19:00 - 20:00	58.3	58.5	57.6	57.2	57.4	57.3	57.8
20:00 - 21:00	58.3	58.2	57.6	57.8	57.7	57.1	57.8
21:00 - 22:00	58.4	58.1	57.7	58.6	58.2	58.1	58.3
22:00 - 23:00	58.3	58.1	58.1	58.0	58.4	58.4	58.4
23:00 - 00:00	58.5	58.3	58.6	58.7	58.0	60.0	59.2
00:00 - 01:00	58.1	58.0	58.3	58.5	58.4	59.7	59.0
01:00 - 02:00	58.1	57.9	58.3	58.3	58.6	59.6	59.2
02:00 - 03:00	58.1	57.8	58.6	57.8	58.4	59.6	59.4
03:00 - 04:00	58.1	57.8	57.9	58.0	58.1	59.0	59.5
04:00 - 05:00	57.9	57.5	57.7	57.9	58.1	59.1	59.6
05:00 - 06:00	57.7	57.7	57.6	57.7	57.7	58.8	59.6
06:00 - 07:00	57.8	57.3	57.3	57.5	57.6	58.4	59.6
07:00 - 08:00	57.9	57.5	57.6	57.4	57.1	58.4	59.2
08:00 - 09:00	57.8	57.3	56.9	57.0	57.0	58.3	58.1
L90(avg)*	58.0	57.6	57.4	57.4	57.5	58.0	58.5

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4


Location : Eastern Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187511
Site Operator : Mr. Siwanon Kulawong


Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.7/0.3 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	63.8	62.7	61.8	62.4	62.1	62.1	62.2
10:00 - 11:00	63.1	62.0	61.8	62.5	62.2	62.3	62.3
11:00 - 12:00	62.8	62.0	61.9	62.3	62.3	62.4	62.4
12:00 - 13:00	62.8	62.0	61.8	62.2	62.4	62.5	62.2
13:00 - 14:00	62.6	61.9	61.7	62.2	62.3	62.3	62.1
14:00 - 15:00	62.6	61.7	61.6	62.0	62.2	62.3	62.2
15:00 - 16:00	62.3	61.8	61.7	62.1	62.9	62.3	62.1
16:00 - 17:00	62.3	61.8	61.9	62.0	62.9	62.4	62.2
17:00 - 18:00	62.4	62.0	61.7	61.9	62.3	62.4	62.2
18:00 - 19:00	62.2	61.8	61.5	61.8	62.5	62.3	62.2
19:00 - 20:00	62.3	61.5	61.4	61.8	62.2	62.2	62.2
20:00 - 21:00	62.1	61.5	61.4	61.7	62.0	61.9	62.1
21:00 - 22:00	62.1	61.4	61.4	61.7	62.0	61.8	61.9
22:00 - 23:00	62.1	61.2	61.5	61.7	61.9	61.9	61.9
23:00 - 00:00	62.2	61.2	62.3	61.8	61.9	61.8	61.8
00:00 - 01:00	62.1	61.3	62.6	61.9	62.0	61.7	61.7
01:00 - 02:00	62.2	61.3	62.3	61.9	61.9	61.7	61.7
02:00 - 03:00	62.3	61.3	62.4	61.8	61.9	61.8	61.6
03:00 - 04:00	62.3	61.4	62.2	61.8	61.8	61.8	61.6
04:00 - 05:00	62.4	61.5	62.3	61.9	61.8	61.8	61.6
05:00 - 06:00	62.3	61.5	62.5	61.9	61.7	62.2	61.6
06:00 - 07:00	62.2	61.5	62.3	61.8	61.8	62.4	61.6
07:00 - 08:00	62.5	61.7	62.2	61.9	61.9	62.0	61.6
08:00 - 09:00	62.3	61.8	62.7	62.2	62.2	62.0	61.6
Leq(24)*	62.4	61.7	62.0	62.0	62.1	62.1	62.0
Ldn	68.7	67.8	68.6	68.3	68.3	68.4	68.2
Lmax **	91.5	74.7	85.4	71.7	72.0	73.7	75.4
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4


Location : Eastern Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187511
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.7/0.3 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	62.3	62.3	61.6	62.1	61.9	61.8	61.9
10:00 - 11:00	62.6	61.6	61.6	62.3	62.0	62.0	62.0
11:00 - 12:00	62.5	61.6	61.6	62.1	62.1	62.1	61.8
12:00 - 13:00	62.6	61.8	61.5	62.0	62.1	62.1	61.9
13:00 - 14:00	62.1	61.6	61.5	62.0	62.1	62.0	61.8
14:00 - 15:00	62.0	61.4	61.4	61.8	61.9	62.0	61.9
15:00 - 16:00	61.9	61.5	61.4	61.9	62.0	62.0	61.9
16:00 - 17:00	61.9	61.5	61.5	61.8	62.1	62.0	61.9
17:00 - 18:00	62.1	61.6	61.4	61.7	62.0	62.1	62.0
18:00 - 19:00	61.9	61.5	61.3	61.7	62.2	61.9	61.9
19:00 - 20:00	62.0	61.3	61.2	61.6	62.0	61.9	61.9
20:00 - 21:00	61.8	61.2	61.2	61.5	61.7	61.6	61.8
21:00 - 22:00	61.8	61.2	61.2	61.5	61.7	61.6	61.6
22:00 - 23:00	61.8	61.0	61.3	61.6	61.7	61.6	61.6
23:00 - 00:00	61.9	61.0	61.3	61.6	61.7	61.6	61.6
00:00 - 01:00	61.8	61.1	61.9	61.7	61.8	61.5	61.5
01:00 - 02:00	61.9	61.1	62.1	61.7	61.6	61.5	61.5
02:00 - 03:00	62.0	61.1	62.1	61.7	61.7	61.6	61.4
03:00 - 04:00	62.0	61.2	62.0	61.7	61.7	61.6	61.4
04:00 - 05:00	62.0	61.3	61.8	61.7	61.6	61.6	61.4
05:00 - 06:00	62.1	61.3	62.0	61.7	61.5	61.6	61.4
06:00 - 07:00	61.9	61.3	62.0	61.6	61.6	62.0	61.4
07:00 - 08:00	62.1	61.4	61.9	61.7	61.7	61.7	61.4
08:00 - 09:00	61.9	61.5	62.2	61.8	61.8	61.8	61.4
L90(avg)*	62.0	61.4	61.6	61.8	61.8	61.8	61.7

Remark : * Average time between 09:00-09:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Western Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00521703
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 94.1/-0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	66.2	65.4	65.2	65.5	65.3	65.8	64.9
10:00 - 11:00	65.4	65.6	65.4	65.3	65.3	66.1	65.8
11:00 - 12:00	65.6	65.3	65.8	66.9	66.5	65.8	66.4
12:00 - 13:00	65.5	66.2	65.6	66.3	65.8	65.3	66.2
13:00 - 14:00	66.1	66.3	65.4	65.8	66.4	65.3	66.9
14:00 - 15:00	65.8	65.4	65.3	66.1	65.9	65.0	65.0
15:00 - 16:00	65.4	65.8	65.6	66.0	65.6	65.1	65.1
16:00 - 17:00	65.6	65.7	65.4	66.3	65.7	65.5	66.3
17:00 - 18:00	66.6	65.6	66.6	65.9	65.4	65.5	66.7
18:00 - 19:00	65.3	65.7	66.5	66.6	66.0	65.1	66.1
19:00 - 20:00	65.8	65.2	66.4	66.7	66.3	65.1	66.3
20:00 - 21:00	65.9	65.7	66.1	66.5	66.2	64.9	65.9
21:00 - 22:00	65.4	66.1	66.1	66.2	65.6	65.3	64.9
22:00 - 23:00	65.6	65.1	65.5	66.1	65.7	65.8	65.4
23:00 - 00:00	65.1	65.4	65.7	64.9	65.2	65.8	64.5
00:00 - 01:00	65.2	65.2	66.1	64.6	64.8	65.0	64.3
01:00 - 02:00	65.3	65.9	66.0	66.0	65.5	65.2	64.5
02:00 - 03:00	65.4	66.5	65.8	66.4	65.9	65.4	65.0
03:00 - 04:00	65.2	66.4	65.3	64.8	64.8	65.0	65.6
04:00 - 05:00	65.9	66.4	65.3	66.4	65.8	64.9	64.2
05:00 - 06:00	65.9	66.3	66.1	66.6	66.0	65.3	65.2
06:00 - 07:00	66.0	66.3	66.1	66.7	65.8	64.7	65.0
07:00 - 08:00	65.7	66.4	65.6	66.4	66.1	65.2	65.3
08:00 - 09:00	65.4	66.2	66.6	65.7	66.1	65.3	65.6
Leq(24)*	65.7	65.9	65.8	66.1	65.8	65.3	65.5
Ldn	72.0	72.4	72.2	72.4	72.0	71.7	71.4
Lmax **	81.4	80.7	76.4	74.7	82.4	81.2	83.2
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Western Area of PTTGC Branch 4 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00521703
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 94.1/-0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
09:00 - 10:00	64.9	64.8	64.5	64.4	64.6	64.8	64.3
10:00 - 11:00	64.7	65.0	64.5	64.4	64.5	64.8	64.6
11:00 - 12:00	64.9	64.7	64.6	66.3	64.7	64.5	65.0
12:00 - 13:00	64.8	64.8	64.7	64.7	64.6	64.2	65.0
13:00 - 14:00	64.8	64.8	64.7	64.5	64.9	64.4	65.0
14:00 - 15:00	64.8	64.6	64.6	65.1	64.5	64.3	64.3
15:00 - 16:00	64.7	64.7	64.7	64.9	64.6	64.4	64.3
16:00 - 17:00	64.8	64.6	64.9	65.3	64.9	64.4	64.6
17:00 - 18:00	65.2	64.7	66.1	64.5	64.4	64.4	65.1
18:00 - 19:00	64.8	64.7	65.7	66.1	65.3	64.3	64.9
19:00 - 20:00	64.9	64.7	65.9	66.2	65.4	64.4	65.0
20:00 - 21:00	64.8	64.7	65.6	66.1	65.5	64.3	64.5
21:00 - 22:00	64.8	64.9	65.7	65.7	65.0	64.5	63.9
22:00 - 23:00	64.8	64.4	64.6	65.7	65.1	64.5	63.8
23:00 - 00:00	64.7	64.5	64.7	64.4	64.6	64.9	63.8
00:00 - 01:00	64.7	64.5	65.7	64.3	64.3	64.3	63.6
01:00 - 02:00	64.7	64.7	65.6	64.5	64.4	64.4	63.7
02:00 - 03:00	64.8	66.0	65.1	65.1	64.8	64.7	63.9
03:00 - 04:00	64.7	65.9	64.9	64.4	64.3	64.3	65.1
04:00 - 05:00	64.8	65.9	65.0	65.1	64.7	64.3	63.7
05:00 - 06:00	65.0	65.7	64.8	66.1	65.2	64.5	63.6
06:00 - 07:00	64.9	65.8	64.5	66.1	65.2	64.1	63.5
07:00 - 08:00	64.8	65.9	64.6	64.7	64.7	64.2	64.7
08:00 - 09:00	64.8	65.0	65.1	64.6	64.8	64.3	65.1
L90(avg)*	64.8	65.0	65.1	65.2	64.8	64.4	64.4

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Gate of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187481
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.7/0.3 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
14:00 - 15:00	61.0	61.3	60.8	60.8	63.7	64.3	62.5
15:00 - 16:00	60.6	64.2	60.4	62.7	61.8	63.6	60.8
16:00 - 17:00	61.2	64.3	61.2	64.7	61.6	59.0	59.1
17:00 - 18:00	61.0	64.6	61.2	65.0	61.8	58.8	59.4
18:00 - 19:00	61.8	64.9	61.1	64.8	61.3	58.7	58.7
19:00 - 20:00	60.2	64.5	61.5	64.8	59.9	63.3	58.6
20:00 - 21:00	60.5	64.0	60.9	64.8	60.1	64.1	58.8
21:00 - 22:00	59.6	63.7	60.0	63.9	59.2	64.0	58.5
22:00 - 23:00	59.1	63.7	59.6	63.8	58.9	63.9	58.6
23:00 - 00:00	59.2	63.6	59.3	63.7	58.5	63.9	58.8
00:00 - 01:00	59.1	63.5	60.2	63.7	58.2	64.4	59.6
01:00 - 02:00	59.1	63.2	61.1	63.6	58.2	64.7	60.9
02:00 - 03:00	59.0	62.9	61.0	63.5	59.3	64.8	61.4
03:00 - 04:00	59.0	62.7	61.0	63.6	59.9	65.0	61.6
04:00 - 05:00	60.0	65.0	60.8	63.8	61.1	64.4	61.0
05:00 - 06:00	60.3	62.6	62.5	63.7	61.8	63.2	60.6
06:00 - 07:00	61.6	63.6	61.6	64.2	60.9	74.4	60.7
07:00 - 08:00	61.5	63.7	62.6	64.8	64.3	62.0	60.8
08:00 - 09:00	61.2	63.1	61.9	64.6	64.1	61.6	60.9
09:00 - 10:00	60.7	61.2	61.3	64.1	64.3	61.8	60.7
10:00 - 11:00	60.9	60.4	61.2	63.8	64.4	61.2	60.8
11:00 - 12:00	61.0	60.7	61.0	64.0	64.4	61.6	60.9
12:00 - 13:00	60.6	60.4	61.4	63.9	64.5	61.8	60.9
13:00 - 14:00	60.9	60.9	60.7	63.6	64.8	61.6	60.9
Leq(24)*	60.5	63.2	61.1	64.0	62.1	64.9	60.4
Ldn	66.3	69.8	67.3	70.2	66.9	73.3	66.9
Lmax**	92.6	94.6	88.6	89.9	91.4	96.1	86.7
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)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Gate of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187481
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.7/0.3 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
14:00 - 15:00	58.5	58.2	58.5	59.7	62.4	63.0	60.1
15:00 - 16:00	58.5	63.2	58.9	59.6	58.9	57.9	57.9
16:00 - 17:00	58.7	63.3	58.9	64.0	58.9	57.6	57.7
17:00 - 18:00	58.6	63.6	59.1	64.1	59.1	57.8	57.7
18:00 - 19:00	58.7	63.6	58.8	63.9	59.0	57.8	57.6
19:00 - 20:00	58.4	63.4	58.9	63.6	58.9	62.9	57.9
20:00 - 21:00	58.6	63.2	58.8	63.4	59.0	63.7	58.0
21:00 - 22:00	58.6	63.2	58.6	63.4	58.2	63.6	57.9
22:00 - 23:00	58.4	63.2	58.9	63.3	58.1	63.5	57.9
23:00 - 00:00	58.3	63.1	58.6	63.3	58.0	63.5	58.2
00:00 - 01:00	58.4	63.0	58.7	63.3	57.7	63.5	58.1
01:00 - 02:00	58.4	62.7	60.6	63.2	57.8	63.6	58.5
02:00 - 03:00	58.4	62.4	60.6	63.2	57.8	63.6	58.7
03:00 - 04:00	58.5	62.1	60.6	63.2	58.1	63.6	58.5
04:00 - 05:00	58.6	61.9	60.3	63.2	58.5	63.4	57.9
05:00 - 06:00	58.5	61.9	60.3	63.3	58.5	59.8	58.0
06:00 - 07:00	58.6	61.8	60.4	63.3	57.9	59.6	57.9
07:00 - 08:00	58.7	61.8	60.3	63.4	63.0	59.3	57.9
08:00 - 09:00	58.3	61.5	60.2	63.0	63.0	59.4	58.0
09:00 - 10:00	58.5	58.8	60.0	62.8	63.0	59.3	58.3
10:00 - 11:00	58.5	58.5	60.0	62.6	63.1	59.2	58.2
11:00 - 12:00	58.5	58.5	59.9	62.5	63.2	59.3	58.2
12:00 - 13:00	58.1	58.4	59.7	62.5	63.4	59.6	58.2
13:00 - 14:00	58.2	58.4	59.6	62.3	63.4	59.6	58.1
L90(avg)*	58.5	62.0	59.6	63.0	60.6	61.6	58.2

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Northern Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00198277
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.8/0.2 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
10:00 - 11:00	66.7	66.1	65.9	65.5	64.9	65.0	65.4
11:00 - 12:00	66.1	65.9	65.8	65.4	64.9	65.5	68.8
12:00 - 13:00	66.1	66.0	65.8	65.5	66.2	65.6	69.4
13:00 - 14:00	66.4	66.1	65.7	65.4	66.3	65.0	65.6
14:00 - 15:00	66.8	66.1	65.8	65.4	66.3	65.0	65.1
15:00 - 16:00	66.9	66.2	66.0	65.4	66.2	64.9	64.9
16:00 - 17:00	66.9	66.1	66.0	65.4	66.3	65.0	64.8
17:00 - 18:00	67.0	66.3	66.2	65.5	66.4	66.3	64.9
18:00 - 19:00	67.1	66.5	66.1	65.7	67.1	65.8	64.8
19:00 - 20:00	66.9	66.8	66.2	65.8	67.2	65.1	64.8
20:00 - 21:00	66.8	67.3	66.3	65.8	67.8	65.2	64.9
21:00 - 22:00	66.7	67.4	66.4	65.6	67.8	65.3	65.3
22:00 - 23:00	66.7	67.2	66.3	65.3	67.8	65.3	65.7
23:00 - 00:00	66.8	67.2	66.4	65.4	67.9	65.3	65.6
00:00 - 01:00	67.0	67.2	66.1	65.8	67.9	65.7	65.4
01:00 - 02:00	67.2	67.2	66.2	66.1	65.4	65.9	65.3
02:00 - 03:00	67.1	67.3	66.5	65.8	65.3	66.0	65.2
03:00 - 04:00	67.1	67.4	66.6	65.9	65.3	65.7	66.6
04:00 - 05:00	67.1	67.5	66.8	66.0	65.3	65.7	66.6
05:00 - 06:00	67.1	67.6	66.6	66.1	65.7	65.7	66.7
06:00 - 07:00	67.2	67.6	66.6	66.2	65.6	65.7	66.9
07:00 - 08:00	67.0	67.6	66.6	66.3	65.7	65.8	67.0
08:00 - 09:00	66.5	67.0	66.4	65.8	65.7	66.1	67.2
09:00 - 10:00	66.5	66.3	65.9	65.3	65.2	66.1	67.0
Leq(24)*	66.8	66.9	66.2	65.7	66.4	65.5	66.2
Ldn	73.4	73.7	72.8	72.2	72.8	72.1	72.5
Lmax **	90.1	80.5	80.0	78.6	79.9	88.8	94.4
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

** Maximum Sound Pressure Level between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Northern Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00198277
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.8/0.2 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
10:00 - 11:00	66.0	65.5	65.3	64.9	64.1	64.2	64.7
11:00 - 12:00	65.5	65.3	65.3	64.8	64.0	64.2	64.7
12:00 - 13:00	65.6	65.4	65.2	64.8	65.0	64.6	64.7
13:00 - 14:00	65.7	65.5	65.1	64.8	65.7	64.3	64.3
14:00 - 15:00	66.0	65.5	65.2	64.7	65.8	64.2	64.0
15:00 - 16:00	66.2	65.6	65.4	64.8	65.6	64.2	64.1
16:00 - 17:00	66.3	65.5	65.4	64.8	65.7	64.2	64.1
17:00 - 18:00	66.4	65.8	65.6	64.9	65.8	64.4	64.2
18:00 - 19:00	66.5	66.0	65.5	65.0	66.5	64.6	64.1
19:00 - 20:00	66.4	66.3	65.6	65.2	66.7	64.4	64.2
20:00 - 21:00	66.3	66.6	65.7	65.2	67.2	64.4	64.3
21:00 - 22:00	66.2	66.9	65.7	65.0	67.3	64.5	64.7
22:00 - 23:00	66.2	66.7	65.8	64.7	67.3	64.6	65.0
23:00 - 00:00	66.3	66.7	65.7	64.8	67.4	64.6	65.0
00:00 - 01:00	66.4	66.7	65.5	65.1	67.4	65.1	64.8
01:00 - 02:00	66.6	66.7	65.6	65.4	64.6	65.2	64.7
02:00 - 03:00	66.5	66.8	65.8	65.2	64.5	65.2	64.5
03:00 - 04:00	66.5	66.9	65.9	65.3	64.5	64.9	65.8
04:00 - 05:00	66.5	67.0	66.1	65.3	64.6	64.9	65.8
05:00 - 06:00	66.6	67.0	66.0	65.4	64.8	65.0	65.9
06:00 - 07:00	66.6	67.1	66.0	65.5	64.8	65.0	66.0
07:00 - 08:00	66.4	67.0	65.8	65.6	64.8	65.0	66.2
08:00 - 09:00	65.9	66.4	65.7	65.0	64.7	65.3	66.4
09:00 - 10:00	65.5	65.5	65.1	64.6	64.4	65.2	66.1
L90(avg)*	66.2	66.3	65.6	65.0	65.7	64.7	65.0

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4

Location : Southern Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187489
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 94.0/0.0 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
10:00 - 11:00	56.7	56.4	56.0	55.5	56.9	56.5	56.7
11:00 - 12:00	56.8	55.8	55.4	55.8	57.4	59.8	66.4
12:00 - 13:00	56.5	55.9	55.0	55.6	57.3	58.5	68.6
13:00 - 14:00	58.2	56.1	55.5	55.4	55.9	55.0	54.9
14:00 - 15:00	56.0	56.3	55.9	55.1	55.6	56.6	54.9
15:00 - 16:00	55.7	55.7	55.3	55.1	56.0	56.3	55.5
16:00 - 17:00	55.5	56.7	55.7	55.7	56.5	56.2	55.6
17:00 - 18:00	55.0	54.9	54.8	55.8	55.8	56.1	56.7
18:00 - 19:00	54.9	55.3	55.6	55.5	55.2	55.7	55.7
19:00 - 20:00	54.4	54.6	54.8	54.2	55.5	55.8	55.7
20:00 - 21:00	54.1	54.4	54.7	53.9	54.9	56.6	58.2
21:00 - 22:00	54.2	54.3	54.3	53.7	54.5	54.5	55.2
22:00 - 23:00	54.0	53.7	53.4	53.8	54.0	54.3	54.4
23:00 - 00:00	54.0	53.9	53.7	54.2	54.2	54.3	54.3
00:00 - 01:00	54.3	54.2	54.0	54.0	54.2	54.1	53.6
01:00 - 02:00	54.2	54.2	54.1	53.8	53.9	53.8	54.0
02:00 - 03:00	54.1	55.1	56.1	53.9	54.0	54.0	54.0
03:00 - 04:00	54.0	54.1	54.1	54.1	54.0	54.0	53.7
04:00 - 05:00	54.2	54.4	54.6	54.4	54.1	54.0	53.5
05:00 - 06:00	58.7	57.5	56.2	55.8	54.7	54.6	53.6
06:00 - 07:00	58.6	57.9	57.2	57.6	56.9	55.7	53.8
07:00 - 08:00	57.9	57.1	56.2	58.1	57.7	58.3	56.1
08:00 - 09:00	56.2	56.5	56.7	57.4	57.8	58.3	56.9
09:00 - 10:00	56.0	55.9	55.7	57.1	56.1	57.1	57.1
Leq(24)*	55.9	55.6	55.3	55.4	55.7	56.2	59.0
Ldn	62.1	61.8	61.5	61.4	61.3	61.2	62.1
Lmax **	86.0	85.3	85.7	79.2	86.5	92.2	86.2
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

** Maximum Sound Pressure Level between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4

Location : Southern Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00187489
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 94.0/0.0 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
10:00 - 11:00	54.4	54.2	54.2	54.1	54.5	54.6	55.0
11:00 - 12:00	54.8	54.0	53.7	53.9	54.5	57.7	64.1
12:00 - 13:00	54.5	54.0	53.7	53.9	54.1	54.4	56.6
13:00 - 14:00	54.8	54.3	53.8	54.0	54.5	53.9	53.6
14:00 - 15:00	54.3	54.3	54.2	53.7	54.4	54.6	53.7
15:00 - 16:00	54.4	54.2	53.8	53.9	54.3	54.5	54.2
16:00 - 17:00	53.8	54.0	54.0	54.0	54.6	54.6	54.3
17:00 - 18:00	53.7	53.5	53.3	54.1	54.1	54.8	54.3
18:00 - 19:00	53.5	53.6	53.7	54.2	53.9	54.2	54.4
19:00 - 20:00	53.3	53.4	53.4	53.2	54.3	54.3	54.6
20:00 - 21:00	53.2	53.5	53.8	53.0	53.7	53.6	54.6
21:00 - 22:00	53.3	53.3	53.3	53.0	53.5	53.3	53.9
22:00 - 23:00	53.2	53.0	52.7	53.1	53.2	53.5	53.4
23:00 - 00:00	53.2	53.0	52.8	53.3	53.3	53.6	53.4
00:00 - 01:00	53.4	53.4	53.3	53.2	53.3	53.3	52.9
01:00 - 02:00	53.5	53.5	53.4	53.1	53.2	53.1	53.2
02:00 - 03:00	53.3	53.4	53.5	53.3	53.2	53.4	53.3
03:00 - 04:00	53.2	53.3	53.4	53.4	53.3	53.4	53.0
04:00 - 05:00	53.3	53.5	53.6	53.5	53.3	53.3	52.8
05:00 - 06:00	54.3	54.3	54.2	53.8	53.6	53.7	52.9
06:00 - 07:00	56.5	55.6	54.7	55.5	54.8	53.8	53.0
07:00 - 08:00	55.6	54.9	54.1	56.0	56.0	55.1	53.3
08:00 - 09:00	54.5	54.2	53.9	54.9	55.4	56.3	55.1
09:00 - 10:00	54.4	54.1	53.8	54.6	54.3	55.2	55.4
L90(avg)*	54.1	53.9	53.7	53.9	54.1	54.4	55.5

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-PTTGC 4


Location : Western Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00487723
Site Operator : Mr. Siwanon Kulawong


Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	Equivalent Sound Pressure Level (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
14:00 - 15:00	65.8	64.9	64.9	65.1	65.0	64.9	64.7
15:00 - 16:00	65.6	65.0	64.8	65.1	65.1	64.9	64.9
16:00 - 17:00	65.5	65.0	65.1	65.1	65.1	64.9	65.0
17:00 - 18:00	65.5	65.1	65.1	65.2	65.2	64.8	64.8
18:00 - 19:00	65.4	65.2	65.0	65.4	65.1	64.9	64.9
19:00 - 20:00	65.2	65.1	65.2	65.4	65.1	65.2	64.8
20:00 - 21:00	65.4	65.2	65.1	65.5	65.1	65.3	65.0
21:00 - 22:00	65.7	65.2	65.1	65.5	65.0	65.2	65.0
22:00 - 23:00	65.7	65.3	65.2	65.2	65.1	65.2	65.3
23:00 - 00:00	65.8	65.3	65.4	65.1	64.9	65.1	65.3
00:00 - 01:00	65.7	65.2	65.3	65.1	64.9	65.0	65.2
01:00 - 02:00	65.8	65.3	65.3	65.1	64.9	64.9	65.2
02:00 - 03:00	65.6	65.3	65.3	65.1	64.9	65.0	65.3
03:00 - 04:00	65.6	65.2	65.3	65.3	65.0	64.9	65.0
04:00 - 05:00	65.7	65.4	65.3	65.7	65.0	65.0	64.9
05:00 - 06:00	65.6	65.2	65.4	65.3	65.0	65.1	65.0
06:00 - 07:00	65.5	65.2	65.4	65.2	65.1	65.1	64.9
07:00 - 08:00	65.6	65.4	65.2	65.2	64.9	65.1	64.8
08:00 - 09:00	65.5	65.5	65.0	64.8	64.7	65.4	65.5
09:00 - 10:00	65.4	65.5	64.9	64.6	64.9	65.5	66.0
10:00 - 11:00	65.4	65.3	64.9	65.0	64.7	64.7	66.4
11:00 - 12:00	66.8	65.3	64.9	65.9	64.8	64.6	65.1
12:00 - 13:00	65.2	65.0	64.9	64.8	64.8	65.1	64.6
13:00 - 14:00	65.0	64.8	65.0	64.9	64.8	64.9	64.8
Leq(24)*	65.6	65.2	65.1	65.2	65.0	65.0	65.1
Ldn	72.1	71.7	71.7	71.6	71.4	71.4	71.5
Lmax **	71.7	72.7	69.3	74.5	69.2	81.8	83.4
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


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC 4


Location : Western Area of PTTGC Branch 8 Aromatics Monitor Period : 03-10 Aug 2023
SLM Model : RION NL-21 Serial No : 00487723
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : RION NC-74 Serial No : 34283648
Calibration Ref dB(A) : 94.0 Certified Date : 13 Jan 2023
SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : 12 Jan 2024
Cal Sheet No.: NC-74-2023-034

Time	L90 (dB(A))						
	03-04 Aug 2023	04-05 Aug 2023	05-06 Aug 2023	06-07 Aug 2023	07-08 Aug 2023	08-09 Aug 2023	09-10 Aug 2023
14:00 - 15:00	65.4	64.4	64.4	64.6	64.4	64.4	64.1
15:00 - 16:00	65.2	64.5	64.3	64.6	64.5	64.4	64.3
16:00 - 17:00	65.1	64.6	64.6	64.6	64.5	64.3	64.4
17:00 - 18:00	65.1	64.7	64.6	64.7	64.6	64.3	64.2
18:00 - 19:00	65.0	64.8	64.5	64.8	64.6	64.4	64.2
19:00 - 20:00	64.8	64.7	64.7	64.8	64.6	64.6	64.2
20:00 - 21:00	65.0	64.8	64.6	64.9	64.6	64.8	64.4
21:00 - 22:00	65.3	64.8	64.7	64.9	64.5	64.6	64.2
22:00 - 23:00	65.3	64.9	64.7	64.8	64.6	64.6	64.6
23:00 - 00:00	65.4	64.8	64.8	64.7	64.4	64.5	64.6
00:00 - 01:00	65.4	64.7	64.8	64.7	64.4	64.5	64.5
01:00 - 02:00	65.4	64.9	64.8	64.6	64.5	64.4	64.6
02:00 - 03:00	65.2	64.8	64.9	64.7	64.5	64.4	64.7
03:00 - 04:00	65.2	64.8	64.9	64.8	64.5	64.4	64.5
04:00 - 05:00	65.3	65.0	64.9	65.0	64.5	64.5	64.4
05:00 - 06:00	65.2	64.8	64.9	64.7	64.4	64.5	64.4
06:00 - 07:00	65.2	64.8	65.0	64.7	64.5	64.5	64.3
07:00 - 08:00	65.2	65.0	64.8	64.6	64.3	64.4	64.2
08:00 - 09:00	65.1	65.0	64.5	64.4	64.4	64.6	64.3
09:00 - 10:00	64.9	64.9	64.4	64.1	64.3	64.2	64.7
10:00 - 11:00	64.9	64.7	64.4	64.5	64.1	64.1	64.8
11:00 - 12:00	65.1	64.7	64.4	64.6	64.1	64.0	64.0
12:00 - 13:00	64.7	64.6	64.4	64.2	64.1	64.3	64.0
13:00 - 14:00	64.6	64.4	64.5	64.3	64.2	64.3	64.1
L90(avg)*	65.1	64.8	64.7	64.6	64.4	64.4	64.4

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.6

ใบรับรองผลการตรวจวัดระดับเสียงภายในสถานประกอบการ



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Gate House B Monitor Period : Nov 23, 2023
SLM Model : SCARLET ST-21D Serial No : 820728
Site Operator : Ms.Thipsuda Wannakarn

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : Dec 20, 2022
SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : Dec 19, 2023
Cal Sheet No.: CR-515-2023-219

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 23, 2023	
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	66.7	
09:00 - 10:00	69.1	
10:00 - 11:00	68.6	
11:00 - 12:00	68.7	
12:00 - 13:00	68.8	
13:00 - 14:00	68.9	
14:00 - 15:00	68.9	
15:00 - 16:00	69.0	
16:00 - 17:00		
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	68.6	
Lmax **	83.4	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-16:00

** Maximum Sound Pressure Level between 08:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Pump Station Monitor Period : Nov 24, 2023
SLM Model : SCARLET ST-21D Serial No : 820728
Site Operator : Ms.Thipsuda Wannakarn

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : Dec 20, 2022
SLM Reading / Adjust dB(A) : 93.7/0.1 Expire Date : Dec 19, 2023
Cal Sheet No.: CR-515-2023-220

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 24, 2023	
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	83.4	
10:00 - 11:00	83.1	
11:00 - 12:00	83.0	
12:00 - 13:00	83.1	
13:00 - 14:00	84.0	
14:00 - 15:00	83.1	
15:00 - 16:00	83.1	
16:00 - 17:00	83.6	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	83.3	
Lmax **	93.9	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Truck Loading I-17	Monitor Period : Nov 24, 2023
SLM Model : SCARLET ST-21D	Serial No : 820725
Site Operator : Ms.Thipsuda Wannakarn	
Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : Dec 20, 2022
SLM Reading / Adjust dB(A) : 93.6/0.2	Expire Date : Dec 19, 2023
Cal Sheet No.: CR-515-2023-220	

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 24, 2023	
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	63.6	
09:00 - 10:00	63.3	
10:00 - 11:00	62.9	
11:00 - 12:00	63.0	
12:00 - 13:00	62.8	
13:00 - 14:00	63.2	
14:00 - 15:00	63.1	
15:00 - 16:00	63.4	
16:00 - 17:00		
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	63.2	
Lmax **	84.4	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-16:00

** Maximum Sound Pressure Level between 08:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Gate House B	Monitor Period : Nov 23, 2023
SLM Model : SCARLET ST-21D	Serial No : 820728
Site Operator : Ms.Thipsuda Wannakarn	
Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : Dec 20, 2022
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : Dec 19, 2023
Cal Sheet No.: CR-515-2023-219	

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 23, 2023	
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	66.7	
09:00 - 10:00	69.1	
10:00 - 11:00	68.6	
11:00 - 12:00	68.7	
12:00 - 13:00	68.8	
13:00 - 14:00	68.9	
14:00 - 15:00	68.9	
15:00 - 16:00	69.0	
16:00 - 17:00	68.9	
17:00 - 18:00	68.9	
18:00 - 19:00	68.9	
19:00 - 20:00	68.9	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	68.7	
Lmax **	83.4	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Pump Station
SLM Model : SCARLET ST-21D
Site Operator : Ms.Thipsuda Wannakarn

Monitor Period : Nov 24, 2023

Serial No : 820728

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.7/0.1
Cal Sheet No.: CR-515-2023-220

Serial No : 94296

Certified Date : Dec 20, 2022

Expire Date : Dec 19, 2023

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 24, 2023	
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	83.4	
10:00 - 11:00	83.1	
11:00 - 12:00	83.0	
12:00 - 13:00	83.1	
13:00 - 14:00	84.0	
14:00 - 15:00	83.1	
15:00 - 16:00	83.1	
16:00 - 17:00	83.6	
17:00 - 18:00	83.4	
18:00 - 19:00	83.4	
19:00 - 20:00	83.3	
20:00 - 21:00	83.4	
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	83.3	
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)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC 4

Location : Truck Loading I-17
SLM Model : SCARLET ST-21D
Site Operator : Ms.Thipsuda Wannakarn

Monitor Period : Nov 24, 2023

Serial No : 820725

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.6/0.2
Cal Sheet No.: CR-515-2023-220

Serial No : 94296

Certified Date : Dec 20, 2022

Expire Date : Dec 19, 2023

Time	Equivalent Sound Pressure Level (dB(A))	
	Nov 24, 2023	
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		63.6
09:00 - 10:00		63.3
10:00 - 11:00		62.9
11:00 - 12:00		63.0
12:00 - 13:00		62.8
13:00 - 14:00		63.2
14:00 - 15:00		63.1
15:00 - 16:00		63.4
16:00 - 17:00		63.1
17:00 - 18:00		63.1
18:00 - 19:00		63.2
19:00 - 20:00		63.2
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	63.2	
Lmax **	84.4	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

ภาคผนวก ง.7

ใบรับรองผลการตรวจวัดระดับเสียงที่ลูกจ้างได้รับ
เฉลี่ยตลอดระยะเวลาการทำงาน (TWA)

**บริษัท ซีคอต จำกัด****SECOT CO., LTD.**

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096/MON2H/Noise Dose
	: (Aromatics 1 Plant)		
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 22-23/08/2023	CALIBRATOR TYPE	: Pulsar Model 22R
MEASUREMENT LOCATION	: PTTGC4	SERIAL NO.	: 79781
SITE OPERATOR	: Miss Marceyanee Hawae	CALIBRATOR REF.	: 114 dB @ 1kHz

USER NAME	AREA/PLANT	SOUND PRESSURE LEVEL (dB(A))		
		TWA (12-hr)	%DOSE	STANDARD *
ID : 26000240	Aromatics 1	76.8	22.7	83.0
ID : 26001118	Aromatics 1	76.8	22.4	83.0
ID : 26002413	Aromatics 2	75.3	15.9	83.0
ID : 26006582	Aromatics 3	74.7	13.9	83.0
ID : 26002405	Reformer 1	70.4	5.1	83.0
ID : 26004927	Reformer 1	75.2	15.6	83.0
ID : 26001158	Reformer 2	81.2	62.4	83.0
ID : 26001395	Reformer 2	77.6	27.1	83.0
ID : 26001409	Unit 390	73.9	11.5	83.0
ID : 26005507	Utility	74.4	12.9	83.0
ID : 26005507	WWT	74.9	14.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 - 3.* Notification of Department of Labour Protection and Welfare B.E.2561 (2018).
 4. Average sound pressure level not exceeding 85 dB(A) for working time of 8 hours per day.
 5. TWA means Time Weighted Average.

**บริษัท ซีคอต จำกัด****SECOT CO., LTD.**

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 223096/MON2H/Noise Dose
	: (Aromatics 1 Plant)		
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 08/09/2023	CALIBRATOR TYPE	: Cirrus RC:110A
MEASUREMENT LOCATION	: PTTGC4	SERIAL NO.	: 95168
SITE OPERATOR	: Miss Salisa Inree	CALIBRATOR REF.	: 114 dB @ 1kHz

USER NAME	AREA/PLANT	SOUND PRESSURE LEVEL (dB(A))		
		TWA (12-hr)	%DOSE	STANDARD *
ID : 26002418	Aromatics 2	75.0	14.9	83.0
ID : 26008162	Aromatics 3	75.9	18.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 - 3.* Notification of Department of Labour Protection and Welfare B.E.2561 (2018).
 4. Average sound pressure level not exceeding 85 dB(A) for working time of 8 hours per day.
 5. TWA means Time Weighted Average.

ภาคผนวก ง.8

ใบรับรองผลการตรวจวัดคุณภาพอากาศภายในสถานประกอบการ

คุณภาพอากาศภายในสถานประกอบการแบบติดตั้งกับพื้นที่



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1454/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 05/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

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
Loading Area สถานีที่ 8	23/08/2023 08:00-14:00	Benzene	NIOSH 1501/GC FID	< 0.02	ND	1
		Toluene	NIOSH 1501/GC FID	< 0.02	ND	200
		Total xylene	NIOSH 1501/GC FID	< 0.03	ND	100
		Cyclohexane	NIOSH 1500/GC FID	< 0.01	ND	300

Analyst By: Sudaporn S.
(Miss Sudaporn Soonthorn)

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

- Remark : 1. Reported analysis refers to submitted sample only.
- This report shall not be reproduced, except in full, without official approval.
 - Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).
 4. ND = non-detectable.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2074/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 24/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 27/11/2023
		Test Date	: 01/12/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 08/12/2023

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
Loading Area สถานีที่ 8	24/11/2023 08:00-14:00	Benzene	NIOSH 1501/GC FID	< 0.02	ND	1
		Toluene	NIOSH 1501/GC FID	< 0.02	ND	200
		Total xylene	NIOSH 1501/GC FID	< 0.03	0.41	100
		Cyclohexane	NIOSH 1500/GC FID	< 0.01	ND	300

Analyst By: Sudaporn S.
(Miss Sudaporn Soonthorn)

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

- Remark : 1. Reported analysis refers to submitted sample only.
- This report shall not be reproduced, except in full, without official approval.
 - Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).
 4. ND = non-detectable.

คุณภาพอากาศภายในสถานประกอบการแบบติดตัวบุคคล



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1455/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 22/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 01/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26004927	22/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Reformer 1	08:00-14:00	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100
ID : 26001395	22/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Reformer 2	08:05-14:05	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By: Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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4. ND = non-detectable.



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SECOT CO., LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1455/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 01/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26001118	23/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Aromatics 1	08:00-14:00	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100
ID : 26002413	23/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Aromatics 2	08:10-14:10	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100
ID : 26006582	23/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Aromatics 3	08:10-14:10	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

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	: RND/SECOT Co., Ltd.	Request Service No.	: 1455/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 01/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26005507	23/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area: Water treatment	08:20-14:20	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisra 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	: RND/SECOT Co., Ltd.	Request Service No.	: 1455/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 22/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 01/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26001409	22/08/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area: Unit 390	08:30-14:30	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1455/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 22/08/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mucang Rayong , Rayong 21150	Received Date	: 28/08/2023
		Test Date	: 01/09/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 11/09/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26009122	22/08/2023	Cyclohexane	ISO 16200-2/GC FID	< 0.04	ND	300
Area : Cyclohexane	08:15-14:15					

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	: RND/SECOT Co., Ltd.	Request Service No.	: 2075/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 27/11/2023
		Test Date	: 01-02/12/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 08/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26002405	23/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	0.17	1
Area : Reformer I	09:00-15:00	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2075/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 24/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 27/11/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Test Date	: 01-02/12/2023
		Report Date	: 08/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26001118	24/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	0.15	1
Area : Aromatics 1	10:08-16:08	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100
ID : 26002413	24/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	0.46	1
Area : Aromatics 2	10:21-16:21	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100
ID : 26006582	24/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Aromatics 3	09:37-15:37	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2075/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 27/11/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Test Date	: 01-02/12/2023
		Report Date	: 08/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID : 26002408	23/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Water treatment	09:20-15:20	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maim 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	: RND/SECOT Co., Ltd.	Request Service No.	: 2075/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 24/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong 21150	Received Date	: 27/11/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Test Date	: 01-02/12/2023
		Report Date	: 08/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26002440	24/11/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area: Unit 390	09:59-15:59	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

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	: RND/SECOT Co., Ltd.	Request Service No.	: 2075/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 23/11/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong 21150	Received Date	: 27/11/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Test Date	: 01-02/12/2023
		Report Date	: 08/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID : 26002436	23/11/2023	Cyclohexane	ISO 16200-2/GC FID	< 0.04	ND	300
Area : Cyclohexane	09:15-15:15					

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	: RND/SECOT Co., Ltd.	Request Service No.	: 2179/66
For	: PTT Global Chemical Public Co., Ltd. (Branch 4 :Aromatics 1 Plant)	Sampling Date	: 07/12/2023
Address	: No.4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Muang Rayong , Rayong 21150	Received Date	: 08/12/2023
		Test Date	: 12/12/2023
Tel/Fax	: 0-3897-2370 / 0-3897-4111	Report Date	: 19/12/2023

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
ID_26002467	07/12/2023	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : Reformer 2	09:10-15:10	Toluene	OSHA 111/GC FID	< 0.04	ND	200
		Total xylene	OSHA 1002/GC FID	< 0.08	ND	100

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ภาคผนวก จ

เอกสารแสดงการตรวจเทียบเครื่องมือการตรวจวัดคุณภาพสิ่งแวดล้อม

THE LINDE GROUP

Linde

Certificate Of Analysis
Special Gases Mixture

Customer Details

Name: Secot Co.,Ltd. Address: 239, Rimklongprapa Rd., Bangsue, Bangkok 10800 Customer Tag No.:

Certificate Details

Number: 0273/22 Date of Issue: 4-Feb-2022 Expiry date: 4-Feb-2030
Material Details
Production Order: 90169723 Material Code: 445100-SK-44 Cylinder No.: D636047
Gas content: 5.52 M³ Filling pressure: 145.0 bar Valve: CGA 660 SS
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

Laboratory Report

Analytical Result

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³	Assay Date
Sulphur Dioxide In Nitrogen	80.0 ppm	81.0 ppm	± 1% relative	(6) I-PB-352	28-Jan & 4-Feb-22

Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Sulphur Dioxide In Nitrogen	256240	52.73 ± 0.42 ppm	6-May-2023

Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-SO2	10-Jan-2022

Recommend usage condition

Minimum utilization: 5% of actual content or before expire date whichever comes first.
Storage condition: Keep in well ventilation and secure area.

Comments

When reordering, please quote the material number

Note:

1. All results expressed in this report are on mole/mole basis, unless otherwise specified. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-600/R-12/531 for the Assay and Certification of Gaseous Calibration Standards using procedure G1.
2. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
3. (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Page 1 of 1

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บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบขึ้นทะเบียนมาตรฐาน 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนบางนา-ตราด กม. 6.5 ตำบลบางนา
Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

โรงงานเวลโกรว์: 105 หมู่ 5 ตำบลบางนา ถนนบางนา-ตราด 24180

โทรสาร (66) 38.570-479-93

โทรสาร (66) 38.570-323

Linde (Thailand) Public Company Limited

PLC Registration no. 0107537000785

15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew
Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93

Fax (66) 38.570-323

PB-002/F006

Iss:K/2, 15 Oct 2021

for

Sukanya Parinyasontorn
Signatory for and on behalf of Linde (Thailand) Co., Ltd.

THE LINDE GROUP

Linde

Certificate Of Analysis
Special Gases Mixture

Customer Details

Name: Secot Co.,Ltd. Address: 239, Rimklongprapa Rd., Bangsue, Bangkok 10800 Customer Tag No.:

Certificate Details

Number: 0329/22 Date of Issue: 9-Feb-2022 Expiry date: 9-Feb-2024
Material Details
Production Order: 90169718 Material Code: 511500-SK-34 Cylinder No.: D636060
Gas content: 5.20 M³ Filling pressure: 137.0 bar Valve: CGA 660 SS
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

Laboratory Report

Analytical Result

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³	Assay Date
Nitric Oxide	20.0 ppm	19.8 ppm	± 1% relative	(6) I-PB-352	1-Feb & 8-Feb-22
Other NOx impurity		Less than 0.9 ppm			
Carbon Monoxide In Nitrogen	20.0 ppm	20.0 ppm	± 1% relative	(6) I-PB-352	1-Feb & 8-Feb-22

Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Nitric Oxide	133261SG	25.61 ± 0.13 ppm	6-May-2023
Carbon Monoxide In Nitrogen	NDS2320	25.03 ± 0.13 ppm	7-Oct-2023

Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-NO	1-Feb-2022
FTIR Spectrometers Nicolet iS50	FTIR-CO	28-Jan-2022

Recommend usage condition

Minimum utilization: 5% of actual content or before expire date whichever comes first.
Storage condition: Keep in well ventilation and secure area.

Comments

When reordering, please quote the material number

Note:

1. All results expressed in this report are on mole/mole basis, unless otherwise specified. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-600/R-12/531 for the Assay and Certification of Gaseous Calibration Standards using procedure G1.
2. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
3. (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Page 1 of 1

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บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบขึ้นทะเบียนมาตรฐาน 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนบางนา-ตราด กม. 6.5 ตำบลบางนา
Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

โรงงานเวลโกรว์: 105 หมู่ 5 ตำบลบางนา ถนนบางนา-ตราด 24180

โทรสาร (66) 38.570-479-93

โทรสาร (66) 38.570-323

PB-002/F006

Iss:K/2, 15 Oct 2021

Sukanya Parinyasontorn
Signatory for and on behalf of Linde (Thailand) Co., Ltd.

Linde (Thailand) Public Company Limited

PLC Registration no. 0107537000785

15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew
Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93

Fax (66) 38.570-323

THE LINDE GROUP

Linde

Certificate Of Analysis
Special Gases Mixture

Customer Details

Name: Secot Co., Ltd. Address: 239, Rimklongprapa Rd., Bangsue, Bangkok 10800 Customer Tag No.:

Certificate Details

Number: 0330/22 Date of Issue: 8-Feb-2022 Expiry date: 8-Feb-2024
Material Details
Production Order: 90169720 Material Code: 436700-SK-34 Cylinder No.: D636021
Gas content: 5.23 M³ Filling pressure: 137.0 bar Valve: CGA 660 SS
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

Laboratory Report

Analytical Result

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³	Assay Date
Nitric Oxide	80.0 ppm	78.5 ppm	± 1% relative	(6) I-PB-352	1-Feb & 8-Feb-22
Other NOx impurity		Less than 3.9 ppm			
Carbon Monoxide	80.0 ppm	81.1 ppm	± 1% relative	(6) I-PB-352	1-Feb & 8-Feb-22
In Nitrogen					

Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Nitric Oxide	D022358	70.7 ± 0.2 ppm	5-Mar-2023
Carbon Monoxide	D022358	70.8 ± 0.2 ppm	5-Mar-2023
In Nitrogen			

Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-NO	10-Jan-2022
FTIR Spectrometers Nicolet iS50	FTIR-CO	8-Jan-2022

Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.
Storage condition: Keep in well ventilation and secure area.

Comments

When reordering, please quote the material number

Note:

1. All results expressed in this report are on mole/mole basis, unless otherwise specified. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-600/R-12/531 for the Assay and Certification of Gaseous Calibration Standards using procedure G1.
2. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
3. (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Page 1 of 1

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บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่จดทะเบียนการค้า 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนรามคำแหง-ตราด กม. 6.5 แขวงบางนา

Bangplee, Samutprakarn 10540 โทรศัพท์ (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิต: 105 หมู่ 5 ตำบลบางนา อำเภอบางนา จังหวัดสมุทรปราการ 24180

โทรศัพท์ (66) 38.570-479-93 โทรสาร (66) 38.570-323

Sukanya Parinyasontorn

Signatory for and on behalf of Linde (Thailand) Co., Ltd.

PB-002/F004

Iss-K/2, 15 Oct 2021

Linde (Thailand) Public Company Limited

PLC Registration no. 0107537000785

15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew

Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93 Fax (66) 38.570-323

THE LINDE GROUP

Linde

Certificate Of Analysis
Special Gases Mixture

Customer Details

Name: Secot Co., Ltd. Address: 239 Rimklongprapa Rd. Bangsue Khet Bangsue Bangkok 10800 Customer Tag No.:

Certificate Details

Number: 0499/23 Date of Issue: 23-Feb-2023 Expiry date: 22-Feb-2027
Material Details
Production Order: 90176404 Material Code: 429900-J-62 Cylinder No.: 44157
Gas content: 6.560 M³ (nominal) Filling pressure: 145 bar (g) Valve: CGA 590 BRASS
Cylinder Owner: LINDE Cylinder Material: STEEL Cylinder Size: 47 L

Laboratory Report

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³
Oxygen	15.0%	15.1%	± 2% relative	(2) I-PB-354
In Nitrogen				

Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.
Storage condition: Keep in well ventilation and secure area.

Comments

Note:

1. All results expressed in this report are on mole/mole basis, unless otherwise specified.
2. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
3. (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Sukanya Parinyasontorn

Signatory for and on behalf of Linde (Thailand) Co., Ltd.

Page 1 of 1

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PB-002/F004

Iss-K/2, 15 Oct 2021

บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่จดทะเบียนการค้า 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนรามคำแหง-ตราด กม. 6.5 แขวงบางนา

Bangplee, Samutprakarn 10540 โทรศัพท์ (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิต: 105 หมู่ 5 ตำบลบางนา อำเภอบางนา จังหวัดสมุทรปราการ 24180

โทรศัพท์ (66) 38.570-479-93 โทรสาร (66) 38.570-323

Linde (Thailand) Public Company Limited

PLC Registration no. 0107537000785

15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew

Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93 Fax (66) 38.570-323



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 16 Jan 23

Barometric press, Pb

Initial	Final	Average
759	759	759

mmHg

Dry Gas Meter Data

Console No. M50-06

Metering System ID

DGM Number 333249

DGM Model MST-C2-1

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0079

Last Calibration Date 9 Dec 22

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time ⊙ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.1	100.9	25	25	24	24.5	8.60	0.9968	41.8649
25.0	100.0	100.4	25	25	24	24.5	6.13	0.9998	42.6722
50.0	100.1	100.6	25	25	24	24.5	4.53	0.9963	46.5503
76.0	99.9	100.4	25	25	24	24.5	3.75	0.9949	48.5425
100.0	100.0	99.3	25	25	24	24.5	3.75	1.0031	45.5096
150.0	100.2	98.7	25	25	24	24.5	2.58	1.0070	45.2316
Average								0.9997	45.0618

Approved by : Ladanwan W.



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 06-01-2023

Calibrated duct No.: 1

Calibration Standard Pitot tube data

Pitot No. : Std-01

Coefficient (Cp) : 1

Type S Pitot No. : PS20-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	7.50	10.75	0.8353	-0.0033
2	7.50	10.50	0.8452	0.0066
3	7.50	10.75	0.8353	-0.0033

C_{P(A),avg} 0.8386

B Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	7.50	10.50	0.8452	0.0033
2	7.50	10.75	0.8353	-0.0066
3	7.50	10.50	0.8452	0.0033

C_{P(B),avg} 0.8419

|CP(A)-CP(B)| = 0.0033

C_{P(Avg)} = 0.8402

Approved by : Ladanwan W.

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** |CP(A)-CP(B)| must also be < 0.01 if average of Cp(A) and Cp(B) is to be used ***



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 10 Jan 23

Initial Final Average

Barometric press, Pb 757 757 757 mmHg

Dry Gas Meter Data

Console No. M50-07

Metering System ID

DGM Number 90331

DGM Model MST-C2-1

Calibrated by Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0079

Last Calibration Date 9 Dec 22

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time Θ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.1	101.7	25	25	24	24.5	8.93	0.9884	45.3322
25.0	99.9	100.6	25	25	24	24.5	6.43	0.9964	47.1706
50.0	100.0	100.9	25	25	24	24.5	4.62	0.9922	48.4861
76.0	100.3	100.6	25	25	24	24.5	3.72	0.9955	47.5272
100.0	100.1	99.7	25	25	24	24.5	3.72	1.0006	46.9823
150.0	100.3	100.0	25	25	24	24.5	2.70	0.9948	49.4744

Average 0.9947 47.4955

Approved by : Ladawan W.



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 06-01-2023

Calibrated duct No.: 1

Calibration Standard Pitot tube data

Pitot No. : Std-01

Coefficient (Cp) : 1

Type S Pitot No. : PS20-02

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	7.50	10.75	0.8353	0.0032
2	7.50	11.00	0.8257	-0.0064
3	7.50	10.75	0.8353	0.0032

C_{P(A),avg} 0.8321

B Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	7.50	10.75	0.8353	-0.0033
2	7.50	10.50	0.8452	0.0066
3	7.50	10.75	0.8353	-0.0033

C_{P(B),avg} 0.8386

|CP(A)-CP(B)| = 0.0065

C_{P(Avg)} = 0.8353

Approved by : Ladawan W.

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** |Cp(A)-Cp(B)| must also be < 0.01 if average of Cp(A) and Cp(B) is to be used ***

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number: E04NI99E15AC084 Reference Number: 82-401409170-1
 Cylinder Number: EB0108319 Cylinder Volume: 144.4 CF
 Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG
 PGVP Number: B52019 Valve Outlet: 660
 Gas Code: CO,NO,NOX,SO2,BALN Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2023

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	50.93 PPM	G1	+/- 1.4% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.82 PPM	G1	+/- 1.4% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	48.82 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5040 %	G1	+/- 1.1% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1089237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Siemens Ultramat 6 J3-599 COHIGH	NDIR	Jan 18, 2019
Nicolet 6700 APW1100391 NO	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 NO2	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 SO2	FTIR	Jan 10, 2019

Triad Data Available Upon Request

PERMANENT NOTES:PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol.

Document EPA-600/R-12/531. All testing processes and measurements conform to the requirements of

ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certificate.

All measurements are certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty.

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ACCREDITED

TESTING CERT No. 3082.05

 Approved for Release

Page 1 of 82-401409170-1

Sheet No. : NC-74-2023-034


SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Aug 3, 23

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
RION	NC-74	34283648	1000.00	94.0	94.0

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
13	RION	NL-21	00521703	94.1	-0.1
26	RION	NL-21	00187481	93.7	0.3
34	RION	NL-21	00187489	94.0	0.0
50	RION	NL-21	00187505	93.8	0.2
56	RION	NL-21	00187511	93.7	0.3
66	RION	NL-21	00487723	93.9	0.1
77	RION	NL-21	00487734	93.9	0.1
95	RION	NL-21	00198277	93.8	0.2

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Nov 23, 23

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	94296	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
7	SCARLET	ST-21D	820728	93.8	0.0

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Nov 24, 23

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	94296	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
4	SCARLET	ST-21D	820725	93.6	0.2
7	SCARLET	ST-21D	820728	93.7	0.1

Calibrated by :

Approved by :

CERTIFICATE OF CALIBRATION

ISSUED BY Noisemeters

DATE OF ISSUE 28 April 2023 CERTIFICATE NUMBER 191319

NoiseMeters

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

Page 1 of 1

Test engineer:
Rebecca Thomas
Electronically signed:



doseBadge Reader

Instrument

Manufacturer: Pulsar Instruments Plc Serial Number: 79781
Model Number: Model 22R Notes:

Calibration Procedure

The tests were carried out in accordance with the requirements of IEC 60942:2003 where applicable.

Date of Calibration: 26 April 2023

Functionality Results

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

Calibration Results

	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
Result	114.00	999.0	0.47
Uncertainty	± 0.11	± 0.14	± 0.10
Tolerances	± 0.60	± 2.00	± 4.00

No adjustments were made during this calibration.

Environmental Conditions

Pressure: 101.00 kPa
Temperature: 22.4 °C
Humidity: 33.7 %

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

ISSUED BY Noisemeters

DATE OF ISSUE 16 March 2023 CERTIFICATE NUMBER 189327

NoiseMeters

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

Page 1 of 1

Test engineer:
Nigel Smith
Electronically signed:



doseBadge Reader

Instrument

Manufacturer: Cirrus Research plc Serial Number: 95168
Model Number: RC:110A Notes:

Calibration Procedure

The tests were carried out in accordance with the requirements of IEC 60942:2003 where applicable.

Date of Calibration: 16 March 2023

Functionality Results

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

Calibration Results

	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
Initial	113.90	999.3	0.61
Adjusted	114.00	999.2	0.61
Uncertainty	± 0.11	± 0.14	± 0.10
Tolerances	± 0.60	± 2.00	± 4.00

Environmental Conditions

Pressure: 99.27 kPa
Temperature: 23.3 °C
Humidity: 37.6 %

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%.



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-66/0270

MTC.No.23-66/0270-02

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 160100

Model : Defender 520-L

Scale range : 5 ml/min to 500 ml/min

Subdivision : (0.001, 0.01) ml/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,
Bangkok 10800, Thailand.

Received date : 23 February 2023

Condition of measured item : Normal

Calibration date : 8 March 2023

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Primary Flow Calibrator S/N 117982	MW-0011-21	8-Apr-23	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by :

(Ms.Kirana Luanghirun)

Director

Mechanical Engineering Standards Laboratory

Ref. 2013266022300798002

Issued Date 13 March 2023

The results relate only to the items tested/calibrated or value assigned.

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FM.BLMTC.002 Rev.4



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-66/0270

2/2

MTC.No.23-66/0270-02

Calibration point : (20, 50, 100, 200, 400) ml/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with
standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition
within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (ml/min)	Standard Value (ml/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
20.138	19.883	24.930	1008.44	+1.28	1.17
51.152	50.908	24.920	1008.44	+0.48	1.02
101.04	100.71	24.897	1008.43	+0.33	1.06
200.25	199.64	24.904	1008.54	+0.31	1.01
401.00	396.85	24.837	1008.80	+1.05	1.00

The reported expanded uncertainties are based on standard uncertainties multiplied by
a coverage factor $k=2$, which provides a level of confidence of approximately 95%.

The end of calibration certificate.

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Request No.23-66/0270

MTC.No.23-66/0270-01

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

Scale range : 300 ml/min to 30,000 ml/min

Subdivision : (0.0001, 0.001) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 23 February 2023

Condition of measured item : Normal

Calibration date : 7 March 2023

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Primary Flow Calibrator S/N 119521	MW-0012-21	31-Mar-23	NIMT
Primary Flow Calibrator S/N 119216	MW-0013-21	25-Mar-23	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by :

(Ms.Kirana Luanghirun)

Director

Mechanical Engineering Standards Laboratory

Ref. 2013266022300798001

Issued Date 13 March 2023

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Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-66/0270

2/2

MTC.No.23-66/0270-01

Calibration point : (1.5, 5.0, 10, 15, 25) L/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (L/min)	Standard Value (L/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
1.5038	1.5112	24.852	1008.50	-0.49	0.86
5.0113	5.0314	24.854	1008.82	-0.40	0.86
10.077	10.058	24.851	1009.71	+0.19	0.96
15.071	15.038	24.900	1010.91	+0.22	0.96
25.077	24.983	24.914	1014.55	+0.38	0.96

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor $k=2$, which provides a level of confidence of approximately 95%.

The end of calibration certificate.

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ภาคผนวก จ

ใบอนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๒๐ กรกฎาคม ๒๕๖๖

เรื่อง คออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ชีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๗ เมษายน ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๑๙ แผ่น
ตามหนังสือที่อ้างถึง บริษัท ชีคอฟ จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ไม่พบข้อบกพร่อง จึงออกใบอนุญาตต่ออายุห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้
ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย ตามสิ่งที่ส่งมาด้วย ๒
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบและเฝ้าระวังมลพิษจากโรงงาน

โทร. ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๑๕

ไปรษณีย์อิเล็กทรอนิกส์ saraban@dw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ๖-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

๑) นายชรรชัย เกรียงไกรอุดม

๒) นางสมฤดี เกรียงไกรอุดม

๓) นางอารยา ทิพธิ์

๔) นางสาวเชษฐา อินทร์

๕) นางสาวเบรดา สมใจ

๖) นางสาวอรุณดา มาตา

๗) นางสาวลดาวัลย์ วงศ์เจริญ

๘) นางสาวณิชากร เกตุรัตน์

๙) นางสาววิภา ภูวทรัพย์ชัย

๑๐) นางสาวศิริวรรณ ชิมล่า

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๒

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๓

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๔

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๕

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๖

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๗

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๘

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๙

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๐

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๑

สิ่งที่ส่งมาด้วย ๑

สิ่งที่ส่งมาด้วย ๒

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ๖-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย

๑) นางสาวสุภาพร สุนทร

๒) นางสาวสุภาภรณ์ เทียนเตี้ย

๓) นางสาวสุนันท์ ทิรวัฒน์นารถ

๔) นายบรร ตีชัยยะ

๕) นางสาวเกศรินทร์ วรเดชาวิทยา

๖) นายอนันต์ วัฒนินา

๗) นายชิตพล สมประสงค์

๘) นางสาวศศิธร พรหมประเสริฐ

๙) นายศิระนารถ ภูวรักษ์

๑๐) นางสาวอลิษา คณิราภรณ์

๑๑) นางสาวสิริวรรณ แก้วจิตรงวง

๑๒) นางสาวปัทมวรรณ สุวรรณโรจน์

๑๓) นางสาวกัญญา เจริญเชื้อ

๑๔) นายวิฑูรย์ ประมวญ

๑๕) นายชอง เสงษ์กุล

๑๖) นางสาวกัญญา จันทน์

๑๗) นางสาวพรนภา บุตรธรรม

๑๘) นางสาวอรุณี อาจพิริ

๑๙) นายธนโชติ ช่างล้อ

๒๐) นางสาวพัชรา สมานอินทร์

๒๑) นางสาวจุฑาภรณ์ แจ่มเรือน

๒๒) นางสาวจณิสตา กุ้ยอ่อน

๒๓) นายกิตติพงศ์ ทะเกียสุข

๒๔) นายจิรวัฒน์ โคตรคำหาญ

๒๕) นายชเนพล อัครผล

๒๖) นางสาวทิพย์สุภา วรรณการ

๒๗) นายสิทธิชัย สว่างศรีไชย

๒๘) นายพิษณุ สีนามเพ็ง

๒๙) นายรัตนชัย ขอบท่ากิจ

๓๐) นายอนามันต์ ศวันแสง

๓๑) นายณัฐชัย ไชยโคตร

๓๒) นายณัฐดนัย ฤกษ์เฉลิม

๓๓) นายศุภชัย สุขโหม

๓๔) นายอรุณภูมิ เหล็กหมาด

๓๕) นางสาวสุภาวดี บัวแก้ว

๓๖) นางสาวมาริยาณี ฮาแว

๓๗) นางสาววริยา ปิณฑุรณ์

๓๘) นางสาวลิษา อินทรีย์

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๑

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๒

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๓

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ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๗

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๐๘

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ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๔

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๕

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๖

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๗

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๘

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๑๙

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๐

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๑

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๒

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๓

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๔

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๕

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๖

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๗

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๘

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๒๙

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๐

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๑

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๒

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๓

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๔

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๕

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๖

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๗

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๘

ทะเบียนเลขที่ ๖-๒๓๙-๙-๐๐๓๙

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ๖-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๑๕๔ รายการ

น้ำเสีย จำนวน 45 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
2	Arsenic	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
3	Barium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾
4	α-BHC	2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
5	β-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
6	δ-BHC	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
7	γ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
		2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

สิ่งที่ส่งมาด้วย ๓

ลำดับที่	สารพิษ	วิธีวิเคราะห์
8	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method ⁽⁴⁾ 2) 5-Day BOD Test, Membrane Electrode Method ⁽⁴⁾
9	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
10	Chemical Oxygen Demand	1) Open Reflux, Titrimetric method ⁽⁴⁾ 2) Closed Reflux, Colorimetric method ⁽⁴⁾ 3) Closed Reflux, Titrimetric Method ⁽⁴⁾
11	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
12	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
13	Color	ADMI Weighted-Ordinate Spectrophotometric Method ⁽⁴⁾
14	Copper	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
15	Cyanide	Distillation, Colorimetric method ⁽⁴⁾
16	4,4'-DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

17 4,4'-DDE...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
17	4,4'-DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
18	4,4'-DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
19	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
20	Endosulfan I	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
21	Endosulfan II	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
22	Endosulfan Sulfate	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
23	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
24	Endrin Aldehyde	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

25 Formaldehyde...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
25	Formaldehyde	Distillation, Colorimetric Method ⁽³⁾
26	Free Chlorine	1) Iodometric Method ⁽⁴⁾ 2) DPD Colorimetric Method ⁽⁴⁾
27	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
28	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
29	Hexavalent Chromium	1) Colorimetric Method ⁽⁴⁾ 2) Extraction, Air-Acetylene Flame Method ⁽⁴⁾
30	Lead	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
31	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
32	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾
33	Methoxychlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
34	Nickel	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method

3) Digestion...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
35	Oil & Grease	3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 1) Liquid-Liquid, Partition-Gravimetric Method ⁽⁴⁾ 2) Soxhlet Extraction Method ⁽⁴⁾
36	pH	Electrometric Method ⁽⁴⁾
37	Phenols	1) Distillation, Chloroform Extraction Method ⁽⁴⁾ 2) Distillation, Direct Photometric Method ⁽⁴⁾
38	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
39	Sulfide	1) Iodometric method ⁽⁴⁾ 2) Methylene blue method ⁽⁴⁾
40	Temperature	Laboratory and Field Methods ⁽⁴⁾
41	Total Dissolved Solids	Dried at 180 °C ⁽⁴⁾
42	Total Kjeldahl Nitrogen	1) Macro Kjeldahl Method ⁽⁴⁾ 2) Semi-Micro Kjeldahl Method ⁽⁴⁾
43	Total Suspended Solids	Dried at 103-105 °C ⁽⁴⁾
44	Trivalent Chromium	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ⁽⁴⁾
45	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾

น้ำเค็ม จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
2	Acetone	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
3	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
5	Antimony	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
8	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
10	Benzene	Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

13 Benzoic acid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
16	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
19	Bromodichloromethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
20	Bromoform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
21	Butanol	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
23	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
25	Carbon disulfide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
26	Carbon tetrachloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

27 Chlordane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
29	Chlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
30	Chlorodibromomethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
31	Chloroform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
33	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
34	Chromium (III)	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
35	Chromium (VI)	1) Colorimetric Method ⁽⁴⁾ 2) Extraction, Air-Acetylene Flame Method ⁽⁴⁾
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

37 Cyanide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
37	Cyanide	1) Distillation, Titrimetric Method ⁽⁴⁾ 2) Distillation, Colorimetric Method ⁽⁴⁾
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
39	DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
40	DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
41	DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
43	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
44	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
45	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
46	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
47	3,3'-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
48	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
49	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

50 1,1-Dichloroethylene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
50	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
51	cis-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
52	trans-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
54	1,2-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
55	1,3-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
56	1,3-Dichloropropene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
57	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
58	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
63	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
64	Endosulfan	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
65	Endrin	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾ 1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
66	Ethylbenzene	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
67	Fluoranthene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
69	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
70	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
72	Hexachloro-1,3-butadiene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
73	n-Hexane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
74	α-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
75	β-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾ 1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
77	Hexachlorocyclopentadiene	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾ Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
81	Lead	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
82	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
83	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾
84	Methanol	Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
86	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

87 Methylene chloride...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
87	Methylene chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
90	Methyl tert-butyl ether	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
92	Nickel	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
95	N-Nitrosodi-n-propylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
96	Polychlorinated Biphenyls - PCB-1016 - PCB-1221 - PCB-1232 - PCB-1242 - PCB-1248 - PCB-1254 - PCB-1260	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
98	pH	Electrometric method ⁽⁴⁾

99 Phenanthrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
100	Phenol	1) Distillation, Chloroform Extraction Method ⁽⁴⁾ 2) Distillation, Direct Photometric Method ⁽⁴⁾ 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
102	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
103	Silver	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
104	Styrene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
105	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
106	Tetrachloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
107	Toluene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
108	TPH (C ₉ -C ₉)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(12,25)
109	TPH (C ₉ -C ₁₆)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,21) 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^(9,25)
110	TPH (C ₁₆ -C ₃₃)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,21)

2) Separatory...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^(9,25)
111	1,2,4-Trichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
112	1,1,1-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
113	1,1,2-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
114	Trichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
115	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
116	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
117	1,3,5-Trimethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
118	Vanadium	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
119	Vinyl acetate	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
120	Vinyl chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
121	m-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
122	o-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
123	p-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
124	Xylene (Total)	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

125 Zinc ...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
125	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾

อากาศเสีย (ต่อเนื่องขนาด) จำนวน 27 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
2	Arsenic	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
3	Beryllium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
4	Cadmium	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
5	Carbon monoxide	Instrumental Analyzer Method ⁽⁵⁾
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
7	Chromium	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾

8 Cobalt...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
8	Cobalt	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
9	Copper	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
10	Cresol	Adsorption Sampling, Gas Chromatographic Method ⁽⁵⁾
11	Dioxin/Furans	Isokinetic Sampling ⁽⁵⁾
12	Hydrogen chloride	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ⁽⁵⁾
15	Lead	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
16	Manganese	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾
17	Mercury	Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁵⁾
18	Nickel	1) Isokinetic Sampling, Digestion, Direct Air- Acetylene Flame Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾

19 Opacity...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Opacity	Ringelmann's Method ^[2]
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic acid Method ^[5] 2) Absorption Sampling, Ion Chromatographic Method ^[5] 3) Instrumental Analyzer Method ^[5]
21	Selenium	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
22	Sulfur dioxide	1) Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5] 2) Absorption Sampling, Barium-Thorin Titrimetric Method ^[5] 3) Instrumental Analyzer Method ^[5]
23	Sulfuric acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5]
24	Tin	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
25	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method ^[5] 2) Paired Train, Isokinetic Sampling, Gravimetric Method ^[5]
26	Vanadium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
27	Xylene	1) Adsorption Sampling, Gas Chromatographic Method ^[5] 2) Adsorption Sampling, Gas Chromatographic/Mass Spectrometric Method ^[5]

สิ่งปลูก...

สิ่งปลูกหรือวัสดุที่ไม่ใช่ตัว จำนวน 34 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,6,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,6,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
2	Antimony	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
3	Arsenic	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
4	Barium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15]

2) Waste Extraction...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] 3) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
8	Chromium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14]

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
9	Chromium (III)	3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation ^[1,6,15,17] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation ^[1,6,14,17] 3) Digestion, Flame Atomic Absorption Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation ^[7,8,15,17] 4) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation ^[7,8,14,17]
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method ^[1,17] 2) Alkaline Digestion, Colorimetric Method ^[8,17]
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
12	Copper	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]

13 2,4-D...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
13	2,4-D	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,25) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽²⁵⁾
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁰⁾

ieldrin...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
20	Lead	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,1)

3) Digestion...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
21	Lindane	3) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 4) Digestion, Inductively Coupled Plasma Method ^(7,14) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^(1,18) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁹⁾ 4) Digestion, Inductively Coupled Plasma Method ^(7,14)
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,27) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁰⁾

24 Molybdenum...

ลำดับที่	สารพิษ	วิธีวิเคราะห์
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
25	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 4) Digestion, Inductively Coupled Plasma Method ^(7,14)
26	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Soxhlet Extraction, Gas Chromatographic Method ^(10,23)
27	Pentachlorophenol	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,25) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽²⁵⁾
28	pH	Electrometric Method ^(31,32)
29	Selenium	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(1,6,20) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method

4) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
30	Silver	4) Digestion, Inductively Coupled Plasma Method ^(7,14) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
31	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
32	Trichloroethylene	1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(1,12,28) 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(12,28)
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 4) Digestion, Inductively Coupled Plasma Method ^(7,14)

ดิน จำนวน 124 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,2)

2 Acetone...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
3	Aldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
4	Anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
5	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
7	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method ^(11,26)
8	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
9	Benz(a)anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
11	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
12	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
13	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

14 Benzo(a)pyrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Benzo(a)pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
15	Benzo(g,h,i)perylene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
16	Beryllium	Digestion, Inductively Coupled Plasma Method ^(7,14)
17	Bis(2-chloroethyl)ether	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
18	Bis(2-ethylhexyl)phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
22	Butyl benzyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
23	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
24	Carbazole	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
27	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

28 p-Chloroaniline...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)
31	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
32	2-Chlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
33	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
34	Chromium (III)	1) Digestion, Flame Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^(7,8,15,17) 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ^(7,8,14,17)
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^(8,17)
36	Chrysene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
37	Cyanide	1) Extraction, Distillation, Titrimetric Method ^(28,29,30) 2) Extraction, Distillation, Colorimetric Method ^(28,29,30)
38	2,4-D	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽²⁴⁾
39	DDD	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

40 DDE...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
41	DDT	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
42	Dibenz(a,h)anthracene	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
43	Di-n-butyl phthalate	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
44	1,2-Dichlorobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
45	1,3-Dichlorobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
47	3,3'-Dichlorobenzidine	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
48	1,1-Dichloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
53	2,4-Dichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)

54 1,2-Dichloropropane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
57	Dieldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
58	Diethyl phthalate	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
59	2,4-Dimethylphenol	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
60	2,4-Dinitrophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
61	2,4-Dinitrotoluene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
62	2,6-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
63	Di-n-Octyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
64	Endosulfan	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
65	Endrin	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
66	Ethylbenzene	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
		2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
		Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(13,26)

67 Fluoranthene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
67	Fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
68	Fluorene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,27)
69	Heptachlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
70	Heptachlor epoxide	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
71	Hexachlorobenzene	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
72	Hexachloro-1,3-butadiene	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
73	n-Hexane	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
74	α-HCH	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
75	β-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
76	γ-HCH	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
77	Hexachlorocyclopentadiene	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
		2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
		Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)

78 Hexachloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
78	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
79	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
80	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
81	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15)
82	Manganese	2) Digestion, Inductively Coupled Plasma Method ^(7,14)
83	Mercury	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15)
84	Methanol	2) Digestion, Inductively Coupled Plasma Method ^(7,14)
85	Methoxychlor	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁹⁾
86	Methyl bromide	2) Digestion, Inductively Coupled Plasma Method ^(7,14)
87	Methylene chloride	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^(11,21)
88	2-Methylphenol	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22)
89	2-Methylnaphthalene	2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,27)
		Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
		Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
		Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
		Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)

90 Methyl tert-butyl ether...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
90	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
91	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
92	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
93	Nitrobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
94	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
95	N-Nitrosodi-n-propylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
96	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	Soxhlet Extraction, Gas Chromatographic Method ^(10,23)
97	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽²⁴⁾
98	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
99	Phenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
100	Pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,27)
101	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^(7,20)

2) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
102	Silver	2) Digestion, Inductively Coupled Plasma Method ^(7,14) 1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
103	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
106	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
107	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
108	TPH (C ₉ -C ₁₆)	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,21) 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^(10,26)
109	TPH (C ₁₆ -C ₃₀)	1) Soxhlet Extraction, Gas Chromatographic Method ^(10,21) 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^(10,26)
110	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
111	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
112	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
113	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽¹³⁾

114 2,4,5-Trichloropheno...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
114	2,4,5-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
115	2,4,6-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,27)
116	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
117	Vanadium	Digestion, Inductively Coupled Plasma Method ^(7,14)
118	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass spectrometric Method ^(13,26)
119	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
120	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
121	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
122	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
123	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,26)
124	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)

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ภาคผนวก ช

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่ายการรับรอง
(Certification of Laboratory Accreditation)



แบบ กษช./สมอ.๒
Form NSC/TISI 2

ใบรับรองเลขที่ 24-LB0026
(Certificate No.)

ใบรับรองระบบงาน

(Certificate of Accreditation)

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑
(By Virtue of National Standardization Act B.E. 2551 (2008))

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้
(Issues this certificate to)

บริษัท ซีคอต จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

ตั้งอยู่เลขที่
(Address)

๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
(239 Rimklongprapa Road, Bangsue, Bangkok)

ได้รับการรับรองความสามารถ
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๗๐๒๕ - ๒๕๖๑
(Standard No. TIS 17025-2561 (2018) (ISO/IEC 17025: 2017))

ข้อกำหนดทั่วไปว่าด้วยความสามารถของ ห้องปฏิบัติการทดสอบและห้องปฏิบัติการสอบเทียบ
(General requirements for the competence of testing and calibration laboratories)

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔
(Accreditation No. Testing 0394)

โดยมีรายละเอียดสาขาและขอบข่ายที่ได้ใบรับรอง แสดงไว้ใน QR CODE และ www.tisi.go.th
(Details of the scheme and scope of the certificate are shown in QR CODE and www.tisi.go.th)

ออกให้ ณ วันที่ ๖ ธันวาคม พ.ศ. ๒๕๖๖
(Issue date : 6 December B.E. 2566 (2023))



Signed by สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม (สมอ.)
Thai Industrial Standards Institute (TISI)
Date: 2023-12-06T08:49:04.476+07:00

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กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry Thailand, Thai Industrial Standards Institute)

ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ชื่อห้องปฏิบัติการ
(Laboratory Name)

บริษัท ซีคอต จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

หมายเลขการรับรองที่
(Accreditation No.)

ทดสอบ 0394
(Testing 0394)

ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร (Permanent) ☐นอกสถานที่ (Site) ☐ชั่วคราว (Temporary)

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

☐เคลื่อนที่ (Mobile) ☐หลายสถานที่ (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 1. น้ำและน้ำเสีย (water and wastewater)	- โลหะหนัก (heavy metals) • สารหนู (Arsenic, As) 0.000 5 mg/L ถึง 0.090 0 mg/L • สารหนู (Arsenic, As) 0.05 mg/L ถึง 4.50 mg/L • แบเรียม (Barium, Ba) 0.02 mg/L ถึง 4.50 mg/L • แคดเมียม (Cadmium, Cd) 0.01 mg/L ถึง 4.50 mg/L • โครเมียม (Chromium, Cr) 0.01 mg/L ถึง 4.50 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 F and Part 3114 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 E and Part 3120 B

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry, Thai Industrial Standards Institute)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from (30 October B.E.2566 (2023)))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)</p>	<p>- โลหะหนัก (heavy metals)</p> <ul style="list-style-type: none"> ทองแดง (Copper, Cu) 0.02 mg/L ถึง 4.50 mg/L เหล็ก (Iron, Fe) 0.05 mg/L ถึง 9.00 mg/L ตะกั่ว (Lead, Pb) 0.03 mg/L ถึง 4.50 mg/L แมงกานีส (Manganese, Mn) 0.01 mg/L ถึง 9.00 mg/L นิกเกิล (Nickel, Ni) 0.01 mg/L ถึง 4.50 mg/L สังกะสี (Zinc, Zn) 0.02 mg/L ถึง 9.00 mg/L 	<p>- Standard Methods for the Examination of Water and Wastewater, APHA , AWWA, WEF, 23rd edition , 2017, Part 3030 E and Part 3120 B</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from (30 October B.E.2566 (2023)))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)</p> <p>2. บริเวณทำงาน (workplace)</p>	<p>- ซีโอดี (Chemical oxygen demand, COD) 100 mg/L ถึง 4 000 mg/L</p> <p>- ฝุ่นละอองรวม (Total dust) 0.10 mg/filter ถึง 2.00 mg/filter</p> <p>- ฝุ่นละอองขนาดเล็ก (Respirable dust) 0.10 mg/filter ถึง 2.00 mg/filter</p>	<p>- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23rd edition , 2017, Part 5220 D</p> <p>- NIOSH Manual of Analytical Methods (NMAM) , method 0500, 4th edition , 15th August 1994 (Exclude Sampling)</p> <p>- NIOSH Manual of Analytical Methods (NMAM) , method 0600, 4th edition , 15th January 1998 (Exclude Sampling)</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>2. บริเวณทำงาน (ต่อ) (workplace) (cont.)</p>	<ul style="list-style-type: none"> เบนซีน (Benzene) 1.10 µg/tube ถึง 420 µg/tube โทลูอีน (Toluene) 1.10 µg/tube ถึง 420 µg/tube โทโครไซลีน (Total xylenes) 2.20 µg/tube ถึง 840 µg/tube เมตา, พารา-ไซลีน (m, p- Xylene) 1.10 µg/tube ถึง 420 µg/tube ออร์โธ-ไซลีน (o- Xylene) 1.10 µg/tube ถึง 420 µg/tube 	<ul style="list-style-type: none"> NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4th edition , 15th March 2003 (Exclude Sampling)
<p>3. ปล่องระบายอากาศ (stack)</p>	<ul style="list-style-type: none"> ซัลเฟอร์ไดออกไซด์ (Sulfur dioxide) 1.00 mg/L ถึง 16 000 mg/L (solution) 	<ul style="list-style-type: none"> US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A , method 6 , July 2019 (Exclude Sampling)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาส่งแวดล้อม (environmental field)</p> <p>3. ปล่องระบายอากาศ (ต่อ) (stack) (cont.)</p>	<ul style="list-style-type: none"> ไฮโดรเจนฟลูออไรด์ (Hydrogen fluoride) 5 µg/sample ถึง 400 µg/sample ไฮโดรเจนคลอไรด์ (Hydrogen chloride) 5 µg/sample ถึง 400 µg/sample 	<ul style="list-style-type: none"> WI-7.2-1-22 based on US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A, method 26 , 2019 (Exclude Sampling)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

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(Site)

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☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ambient air)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs)</p> <ul style="list-style-type: none"> คลอโรอีทีน (Chloroethene) 0.05 $\mu\text{g}/\text{m}^3$ ถึง 51.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 1,3-บิวทาไดเอิน (1,3-butadiene) 0.04 $\mu\text{g}/\text{m}^3$ ถึง 44.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) โบรมอมีเทน (Bromomethane) 0.08 $\mu\text{g}/\text{m}^3$ ถึง 77.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) อะครอลีน (Acrolein) 0.05 $\mu\text{g}/\text{m}^3$ ถึง 45.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999 _</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

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ใบรับรองเลขที่ 24-LB0026

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ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
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สถานภาพห้องปฏิบัติการ
(Laboratory status)

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(Site)

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☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs)</p> <ul style="list-style-type: none"> อะคริโลไนไตรล์ (Acrylonitrile) 0.04 $\mu\text{g}/\text{m}^3$ ถึง 43.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) ไดคลอโรมีเทน (Dichloromethane) 0.14 $\mu\text{g}/\text{m}^3$ to 69.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) คาร์บอนไดซัลไฟด์ (Carbon disulfide) 0.06 $\mu\text{g}/\text{m}^3$ ถึง 62.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) ไตรคลอโรมีเทน (Trichloromethane) 0.20 $\mu\text{g}/\text{m}^3$ ถึง 97.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 1,2-ไดคลอโรอีเทน (1,2-dichloroethane) 0.08 $\mu\text{g}/\text{m}^3$ ถึง 80.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999 _</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
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(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds ,VOCs)</p> <ul style="list-style-type: none"> • เบนซีน (Benzene) 0.06 $\mu\text{g}/\text{m}^3$ ถึง 63.00 $\mu\text{g}/\text{m}^3$ (0.02 ppbv ถึง 20.00 ppbv) • คาร์บอนเตตระคลอไรด์ (Carbon tetrachloride) 0.25 $\mu\text{g}/\text{m}^3$ ถึง 125 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • ไตรคลอโรเอทิลีน (Trichloroethylene) 0.21 $\mu\text{g}/\text{m}^3$ ถึง 107 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,2-ไดคลอโรโพรเพน (1,2-dichloropropane) 0.18 $\mu\text{g}/\text{m}^3$ ถึง 92.00 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • เตตระคลอโรเอทิลีน (Tetrachloroethylene) 0.27 $\mu\text{g}/\text{m}^3$ ถึง 135 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999 〰</p>

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566
(Valid from) (30 October B.E.2566 (2023))

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ
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☒ถาวร
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(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
<p>สาขาสสิ่งแวดล้อม (environmental field)</p> <p>4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- สารอินทรีย์ระเหยง่าย (Volatile organic compounds ,VOCs)</p> <ul style="list-style-type: none"> • 1,2-ไดโบรมโอเอเทน (1,2-dibromoethane) 0.31 $\mu\text{g}/\text{m}^3$ ถึง 153 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,1,2,2-เตตระคลอโรเอเทน (1,1,2,2-tetrachloroethane) 0.69 $\mu\text{g}/\text{m}^3$ ถึง 137 $\mu\text{g}/\text{m}^3$ (0.10 ppbv ถึง 20.00 ppbv) • เบนซิลคลอไรด์ (Benzyl chloride) 0.52 $\mu\text{g}/\text{m}^3$ ถึง 103 $\mu\text{g}/\text{m}^3$ (0.10 ppbv ถึง 20.00 ppbv) • 1,4-ไดคลอโรเบนซีน (1,4-dichlorobenzene) 0.24 $\mu\text{g}/\text{m}^3$ ถึง 120 $\mu\text{g}/\text{m}^3$ (0.04 ppbv ถึง 20.00 ppbv) 	<p>- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999 〰</p>

ภาคผนวก ข

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์
สถานะการทำงานเกี่ยวกับระดับเสียง และสารเคมี



แบบ กบ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์ผลการปฏิบัติงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๔

อนุญาตให้ บริษัท จีคอฟ จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความวุ่น แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์ผลการปฏิบัติงานเกี่ยวกับระดับเสียง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริม ความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๕ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๕

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์ผลการปฏิบัติงานเกี่ยวกับระดับเสียง
ของบริษัท จีคอฟ จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๔

- | | |
|-------------------|---------------|
| ๑. นางสาวสุนันทา | ศิริวัฒนานนท์ |
| ๒. นางสาวกนิษฐา | เจริญเชื้อ |
| ๓. นางสาวปัทมวรรณ | สุวรรณวิโรจน์ |
| ๔. นางสาวอริษา | คณิวรานนท์ |
| ๕. นางสาวชนิดา | หล้าสาย |

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๕

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์ผลการปฏิบัติงานเกี่ยวกับระดับเสียง
ของบริษัท จีคอฟ จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๔

- | | |
|-------------------|-------------|
| ๑. นางสาวศลิษา | อินริย์ |
| ๒. นางสาวมาเรียณี | ยาแว |
| ๓. นางสาววิระยา | ปัจฉิมบุรณ์ |

ทั้งนี้ ตั้งแต่วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๕

ให้ไว้ ณ วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖

(นายสมพงษ์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กบ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๔

อนุญาตให้ บริษัท จีคอฟ จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๖๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๕

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอต จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๕๙

- | | |
|----------------------|-----------|
| ๑. นายชิตพล | สมประสงค์ |
| ๒. นายอนิวัฒน์ | พิมวันนา |
| ๓. นายศิวะนันท์ | กุลวงษ์ |
| ๔. นายวิชรกานต์ | ประมาคะเด |
| ๕. นายธนโชติ | ช่างหล่อ |
| ๖. นายกิตติพงศ์ | ตะเกิงสุข |
| ๗. นายจิรวัฒน์ | โคตรคำหาญ |
| ๘. นายศุภกิจ | ดีธัญญา |
| ๙. นางสาววิญญ์ลักษณ์ | โยธา |
| ๑๐. นางสาวพิชญ์สุตา | วรรณการ |
| ๑๑. นางสาวสายธาร | ภูเขียว |
| ๑๒. นายภาคภูมิ | แทนไทย |
| ๑๓. นายธนวุฒิ | ถ้วนแสง |
| ๑๔. นายวิรัตน์ชัย | ชอบทำกิจ |

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กบ.บุญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

อนุญาตให้ บริษัท ซีคอต จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวง
กำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้น
ของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับ
กฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน
พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอต จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

- | | |
|--------------------------|-----------------|
| ๑. นางสาวนริสา | ภูสรวรเพ็ชร์ |
| ๒. นางอารยา | ทิพย์รักษ์ |
| ๓. นางสาวศิริวรรณ | ฉิมสง่า |
| ๔. นางสาวสุธาทิพย์ | เทียนเตี้ย |
| ๕. นางสาวพจนภา | บุศรธรรม |
| ๖. นางสาวอารีย์ | อาจปสิว |
| ๗. นางสาวกฤษณา | จันทร์พุ่ม |
| ๘. นางสาวพัชรา | สมานฉันท |
| ๙. นางสาวจณิสตา | กัญอ่อน |
| ๑๐. นางสาวศศิภา | ใจดี |
| ๑๑. นางสาวจุฑารัตน์ | แจ้งเรือน |
| ๑๒. นางสาวณัฐศิริ | เลิศวิวัฒน์ |
| ๑๓. นางสาวสิริอุบลลักษณ์ | อินทระประสิทธิ์ |
| ๑๔. นางสาวสุตาพร | สุนทร |

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน