

ภาคผนวก ง

ใบรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวิเคราะห์
คุณภาพอากาศจากปล่องระบายอากาศ



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.	REF. NO.	: 223007_Cert-Stack/PM_Apr 23
	Branch 2, Power Plant	SAMPLING DATE	: 18/04/2023
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 21-22/04/2023
RECEIVED DATE	: 21/04/2023	SAMPLE CONDITION	: Normal
REPORT DATE	: 25/04/2023	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3701
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			
Height	: 30.0 m	Gas Velocity	: 11.3 m/s
Diameter	: 4.20 m	Flow Rate*	: 6,057 Ncu.m/min
Temperature	: 137.9 °C	Excess Oxygen	: 15.1 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		15.1%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.16	2.77	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 3-239-9-8183

Miss Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 3-239-ก-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration
H-3701

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 18, 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	14.97	15.07	27.40	27.52	65.61
2	15.01	15.11	27.10	27.16	65.20
3	14.98	15.08	27.09	27.10	64.72
Average	14.99	15.09	27.20	27.26	65.18

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	14.97	15.07	0.13	0.10	0.24
2	15.01	15.11	0.12	0.09	0.22
3	14.98	15.08	0.10	0.06	0.14
Average	14.99	15.09	0.12	0.08	0.20

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run # : 1
 Start time: 12:10 PM Location : H-3701
 O₂ instrument Model: AMI 70 Finish time : 12:30 PM
 NO_x instrument Model: TELEDYNE 200 EH Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 414
 Fuel Type : Natural Gas Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:10 PM	15.01	27.44	0.11
12:11 PM	15.01	27.50	0.12
12:12 PM	15.01	27.50	0.11
12:13 PM	14.91	27.49	0.13
12:14 PM	14.91	27.43	0.11
12:15 PM	14.91	27.37	0.13
12:16 PM	15.01	27.37	0.12
12:17 PM	14.91	27.32	0.13
12:18 PM	15.01	27.36	0.14
12:19 PM	14.91	27.48	0.12
12:20 PM	14.91	27.29	0.13
12:21 PM	15.01	27.34	0.13
12:22 PM	15.01	27.38	0.14
12:23 PM	15.01	27.44	0.14
12:24 PM	14.91	27.43	0.11
12:25 PM	14.91	27.40	0.13
12:26 PM	15.01	27.40	0.14
12:27 PM	14.91	27.40	0.13
12:28 PM	15.11	27.39	0.14
12:29 PM	14.91	27.44	0.12
12:30 PM	15.01	27.32	0.13
Average	14.97	27.40	0.13

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run # : 2
 Start time: 12:31 PM Location : H-3701
 O₂ instrument Model: AMI 70 Finish time : 12:51 PM
 NO_x instrument Model: TELEDYNE 200 EH Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 414
 Fuel Type : Natural Gas Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:31 PM	15.11	27.10	0.11
12:32 PM	15.01	26.87	0.12
12:33 PM	15.01	27.06	0.12
12:34 PM	15.01	27.27	0.13
12:35 PM	15.01	27.18	0.14
12:36 PM	15.01	27.21	0.12
12:37 PM	14.91	27.18	0.13
12:38 PM	15.01	27.12	0.12
12:39 PM	15.11	27.16	0.14
12:40 PM	15.01	27.18	0.12
12:41 PM	14.91	27.14	0.13
12:42 PM	14.91	27.07	0.12
12:43 PM	14.91	27.03	0.12
12:44 PM	15.01	27.08	0.12
12:45 PM	15.11	27.15	0.12
12:46 PM	15.01	27.09	0.12
12:47 PM	15.01	27.12	0.12
12:48 PM	15.11	27.00	0.12
12:49 PM	15.01	27.06	0.11
12:50 PM	15.01	27.08	0.12
12:51 PM	15.01	27.04	0.11
Average	15.01	27.10	0.12

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)

EMISSION TEST RESULT

Date: April 18, 2023
Start time: 12:52 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 : H-3701
Finish time : 1:12 PM
Serial No.: 161212-14
Serial No.: 414
Serial No.: 058
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:52 PM	15.01	27.03	0.11
12:53 PM	15.01	27.07	0.11
12:54 PM	14.91	27.01	0.11
12:55 PM	14.91	27.08	0.11
12:56 PM	15.01	27.21	0.10
12:57 PM	15.01	27.10	0.11
12:58 PM	14.91	27.08	0.11
12:59 PM	14.91	27.06	0.11
1:00 PM	14.91	27.04	0.10
1:01 PM	15.01	27.07	0.10
1:02 PM	15.11	27.18	0.11
1:03 PM	15.01	27.14	0.10
1:04 PM	15.01	27.17	0.10
1:05 PM	15.11	27.13	0.10
1:06 PM	15.01	27.11	0.10
1:07 PM	15.01	27.10	0.11
1:08 PM	14.91	27.13	0.10
1:09 PM	14.91	27.05	0.10
1:10 PM	15.01	27.05	0.09
1:11 PM	14.91	27.09	0.11
1:12 PM	15.01	26.99	0.09
Average	14.98	27.09	0.10

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. **REF. NO. :** 223007_Cert-Stack/PM_Apr 23
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE :** 18/04/2023
RECEIVED DATE : 21/04/2023 **ANALYTICAL DATE :** 21-22/04/2023
REPORT DATE : 25/04/2023 **SAMPLE CONDITION :** Normal
SOURCE DESCRIPTION : Combustion **FUEL TYPE :** Natural Gas
STACK LOCATION : H-3703
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION

Height : 30.0 m **Gas Velocity :** 7.6 m/s
Diameter : 4.20 m **Flow Rate* :** 4,070 Ncu.m/min
Temperature : 138.5 °C **Excess Oxygen :** 15.7 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		15.7%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m	1.46	3.93	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-0-8183

Naris Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-0-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration
H-3703
PTT Global Chemical Public Co., Ltd.
(Branch 2 : Power Plant I-1)
April 18, 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	15.64	15.75	28.78	28.45	76.79
2	15.61	15.72	29.33	28.98	77.76
3	15.61	15.72	28.62	28.26	75.83
Average	15.62	15.73	28.91	28.56	76.80

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	15.64	15.75	0.74	0.65	1.75
2	15.61	15.72	0.90	0.81	2.17
3	15.61	15.72	1.02	0.93	2.50
Average	15.62	15.73	0.89	0.80	2.14

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023
Start time: 12:10 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 : H-3703
Finish time : 12:30 PM
Serial No.: 121121-10
Serial No.: 342
Serial No.: 132
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:10 PM	15.62	28.85	0.65
12:11 PM	15.60	28.80	0.67
12:12 PM	15.60	28.78	0.69
12:13 PM	15.60	28.76	0.69
12:14 PM	15.61	28.75	0.67
12:15 PM	15.61	28.69	0.69
12:16 PM	15.61	28.66	0.71
12:17 PM	15.59	28.49	0.71
12:18 PM	15.60	28.26	0.74
12:19 PM	15.60	28.41	0.74
12:20 PM	15.60	28.56	0.72
12:21 PM	15.66	28.65	0.72
12:22 PM	15.69	28.67	0.75
12:23 PM	15.70	28.79	0.77
12:24 PM	15.70	28.74	0.77
12:25 PM	15.70	28.83	0.78
12:26 PM	15.70	28.99	0.79
12:27 PM	15.70	29.01	0.77
12:28 PM	15.69	29.13	0.77
12:29 PM	15.68	29.19	0.84
12:30 PM	15.57	29.27	0.83
Average	15.64	28.78	0.74

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run #: 2
 Start time: 12:31 PM Location: H-3703
 O₂ instrument Model: AMI 70 Finish time: 12:51 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 342
 Fuel Type: Natural Gas Serial No.: 132
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:31 PM	15.55	29.36	0.83
12:32 PM	15.56	29.42	0.83
12:33 PM	15.57	29.45	0.83
12:34 PM	15.60	29.22	0.86
12:35 PM	15.62	29.35	0.86
12:36 PM	15.62	29.48	0.84
12:37 PM	15.62	28.45	0.84
12:38 PM	15.62	28.45	0.85
12:39 PM	15.62	28.42	0.87
12:40 PM	15.62	28.47	0.84
12:41 PM	15.62	28.50	0.84
12:42 PM	15.62	28.91	0.86
12:43 PM	15.63	29.46	0.91
12:44 PM	15.62	30.00	0.93
12:45 PM	15.62	30.39	0.98
12:46 PM	15.62	33.17	0.98
12:47 PM	15.62	29.51	1.02
12:48 PM	15.62	29.07	0.99
12:49 PM	15.62	29.01	1.00
12:50 PM	15.63	28.94	1.00
12:51 PM	15.62	28.87	1.02
Average	15.61	29.33	0.90

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run #: 3
 Start time: 12:52 PM Location: H-3703
 O₂ instrument Model: AMI 70 Finish time: 1:12 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 342
 Fuel Type: Natural Gas Serial No.: 132
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:52 PM	15.62	28.82	1.02
12:53 PM	15.63	28.80	1.03
12:54 PM	15.62	28.75	1.05
12:55 PM	15.62	28.72	1.03
12:56 PM	15.62	28.74	1.04
12:57 PM	15.62	28.70	1.07
12:58 PM	15.62	28.68	1.08
12:59 PM	15.61	28.68	1.06
1:00 PM	15.62	28.67	1.07
1:01 PM	15.62	28.67	1.06
1:02 PM	15.62	28.60	1.00
1:03 PM	15.62	28.59	1.03
1:04 PM	15.62	28.56	1.01
1:05 PM	15.60	28.51	1.02
1:06 PM	15.60	28.52	1.04
1:07 PM	15.60	28.51	1.04
1:08 PM	15.60	28.51	0.97
1:09 PM	15.60	28.51	0.97
1:10 PM	15.60	28.48	0.94
1:11 PM	15.59	28.50	0.92
1:12 PM	15.59	28.53	0.89
Average	15.61	28.62	1.02

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.	REF. NO.	: 223007_Cert-Stack/PM_Apr 23
	Branch 2, Power Plant	SAMPLING DATE	: 18/04/2023
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 21-22/04/2023
RECEIVED DATE	: 21/04/2023	SAMPLE CONDITION	: Normal
REPORT DATE	: 25/04/2023	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3704
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			
Height	: 30.0 m	Gas Velocity	: 17.0 m/s
Diameter	: 3.60 m	Flow Rate*	: 7,142 Ncu.m/min
Temperature	: 110.5 °C	Excess Oxygen	: 14.8 %

PARAMETER	UNITS	RESULTS*			REFERENCE
		14.8%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	1.46	3.34	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-8-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-8-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ¹ Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration H-3704

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 18, 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	14.80	14.90	2.63	2.57	5.95
2	14.72	14.82	2.80	2.74	6.26
3	14.70	14.80	3.04	2.98	6.79
Average	14.74	14.84	2.82	2.76	6.34

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	14.80	14.90	0.13	0.09	0.21
2	14.72	14.82	0.12	0.08	0.18
3	14.70	14.80	0.12	0.08	0.18
Average	14.74	14.84	0.13	0.08	0.19

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run #: 1
 Start time: 2:30 PM Location: H-3704
 O₂ instrument Model: AMI 70 Finish time: 2:50 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 414
 Fuel Type: Natural Gas Serial No.: 058
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:30 PM	14.90	2.61	0.13
2:31 PM	14.90	2.65	0.14
2:32 PM	14.90	2.67	0.14
2:33 PM	14.80	2.68	0.15
2:34 PM	14.80	2.64	0.15
2:35 PM	14.80	2.63	0.10
2:36 PM	14.80	2.61	0.16
2:37 PM	14.80	2.60	0.12
2:38 PM	14.80	2.58	0.14
2:39 PM	14.80	2.58	0.15
2:40 PM	14.80	2.64	0.12
2:41 PM	14.80	2.65	0.11
2:42 PM	14.80	2.62	0.15
2:43 PM	14.80	2.65	0.12
2:44 PM	14.70	2.66	0.13
2:45 PM	14.80	2.64	0.16
2:46 PM	14.70	2.64	0.10
2:47 PM	14.80	2.62	0.11
2:48 PM	14.80	2.58	0.14
2:49 PM	14.80	2.59	0.13
2:50 PM	14.80	2.64	0.13
Average	14.80	2.63	0.13

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 18, 2023 Run #: 2
 Start time: 2:51 PM Location: H-3704
 O₂ instrument Model: AMI 70 Finish time: 3:11 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161212-14
 SO₂ instrument Model: API 100 AH Serial No.: 414
 Fuel Type: Natural Gas Serial No.: 058
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:51 PM	14.80	2.66	0.11
2:52 PM	14.70	2.65	0.14
2:53 PM	14.70	2.72	0.16
2:54 PM	14.70	2.71	0.16
2:55 PM	14.80	2.72	0.15
2:56 PM	14.80	2.69	0.10
2:57 PM	14.70	2.73	0.13
2:58 PM	14.70	2.77	0.13
2:59 PM	14.80	2.73	0.10
3:00 PM	14.70	2.75	0.11
3:01 PM	14.70	2.77	0.11
3:02 PM	14.70	2.80	0.11
3:03 PM	14.70	2.84	0.10
3:04 PM	14.70	2.87	0.13
3:05 PM	14.70	2.87	0.13
3:06 PM	14.70	2.85	0.12
3:07 PM	14.80	2.88	0.12
3:08 PM	14.70	2.89	0.11
3:09 PM	14.70	2.93	0.12
3:10 PM	14.70	2.97	0.13
3:11 PM	14.70	2.95	0.13
Average	14.72	2.80	0.12

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)

EMISSION TEST RESULT

Date: April 18, 2023

Start time: 3:12 PM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type: Natural Gas

Run #: 3

Location: H-3704

Finish time: 3:32 PM

Serial No.: 161212-14

Serial No.: 414

Serial No.: 058

Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:12 PM	14.70	2.97	0.13
3:13 PM	14.70	2.98	0.12
3:14 PM	14.70	2.96	0.14
3:15 PM	14.70	2.97	0.12
3:16 PM	14.70	2.95	0.12
3:17 PM	14.70	2.98	0.12
3:18 PM	14.70	2.97	0.12
3:19 PM	14.70	2.98	0.10
3:20 PM	14.70	3.02	0.12
3:21 PM	14.70	3.04	0.13
3:22 PM	14.70	3.04	0.12
3:23 PM	14.70	3.06	0.12
3:24 PM	14.70	3.03	0.11
3:25 PM	14.70	3.05	0.13
3:26 PM	14.70	3.08	0.12
3:27 PM	14.70	3.12	0.12
3:28 PM	14.70	3.12	0.12
3:29 PM	14.70	3.10	0.11
3:30 PM	14.70	3.13	0.12
3:31 PM	14.70	3.13	0.13
3:32 PM	14.70	3.13	0.10
Average	14.70	3.04	0.12

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิเศษนครประปา 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. REF. NO. : 223007_Cert-Stack/PM_Apr 23
 Branch 2, Power Plant SAMPLING DATE : 19/04/2023
 SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 21-22/04/2023
 RECEIVED DATE : 21/04/2023 SAMPLE CONDITION : Normal
 REPORT DATE : 25/04/2023 FUEL TYPE : Natural Gas
 SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3705
 OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 12.8 m/s
 Diameter : 3.60 m Flow Rate* : 5,511 Ncu,m/min
 Temperature : 105.8 °C Excess Oxygen : 14.9 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.9%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.97	4.51	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-ก-8183

Naris Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

**The Monitoring Result of Emission Concentration
H-3705**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 19, 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	14.82	14.82	2.24	2.19	5.01
2	14.86	14.86	2.41	2.35	5.41
3	14.86	14.86	2.77	2.71	6.24
Average	14.85	14.85	2.47	2.42	5.55

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	14.82	14.82	0.11	0.07	0.16
2	14.86	14.86	0.11	0.08	0.18
3	14.86	14.86	0.12	0.10	0.23
Average	14.85	14.85	0.11	0.08	0.19

**PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT**

Date:	April 19, 2023	Run # :	1
Start time:	3:15 PM	Location :	H-3705
O ₂ instrument Model:	AMI 70	Finish time :	3:35 PM
NO _x instrument Model:	TELEDYNE 200 EM	Serial No.:	161212-14
SO ₂ instrument Model:	API 100 AH	Serial No.:	435
Fuel Type :	Natural Gas	Serial No.:	058
		Test Operator :	Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:15 PM	14.77	2.27	0.12
3:16 PM	14.73	2.30	0.12
3:17 PM	14.68	2.39	0.12
3:18 PM	14.67	2.27	0.10
3:19 PM	14.73	2.36	0.09
3:20 PM	14.77	2.32	0.12
3:21 PM	14.84	2.29	0.12
3:22 PM	14.87	2.30	0.12
3:23 PM	14.86	2.29	0.11
3:24 PM	14.86	2.26	0.09
3:25 PM	14.86	2.24	0.11
3:26 PM	14.86	2.26	0.09
3:27 PM	14.86	2.25	0.11
3:28 PM	14.86	2.30	0.13
3:29 PM	14.86	2.25	0.10
3:30 PM	14.86	2.23	0.11
3:31 PM	14.86	2.19	0.08
3:32 PM	14.86	2.12	0.14
3:33 PM	14.86	2.11	0.11
3:34 PM	14.86	2.09	0.12
3:35 PM	14.86	2.04	0.12
Average	14.82	2.24	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023

Start time: 3:36 PM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type : Natural Gas

Run # : 2

Location : H-3705

Finish time : 3:56 PM

Serial No.: 161212-14

Serial No.: 435

Serial No.: 058

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:36 PM	14.86	2.00	0.08
3:37 PM	14.86	2.03	0.10
3:38 PM	14.86	2.11	0.11
3:39 PM	14.86	2.19	0.10
3:40 PM	14.86	2.24	0.13
3:41 PM	14.86	2.30	0.09
3:42 PM	14.86	2.39	0.11
3:43 PM	14.86	2.46	0.08
3:44 PM	14.86	2.48	0.11
3:45 PM	14.86	2.49	0.07
3:46 PM	14.86	2.50	0.09
3:47 PM	14.86	2.53	0.10
3:48 PM	14.86	2.53	0.12
3:49 PM	14.86	2.52	0.13
3:50 PM	14.86	2.53	0.11
3:51 PM	14.86	2.51	0.11
3:52 PM	14.86	2.54	0.11
3:53 PM	14.86	2.56	0.10
3:54 PM	14.86	2.56	0.11
3:55 PM	14.86	2.57	0.12
3:56 PM	14.86	2.60	0.14
Average	14.86	2.41	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023

Start time: 3:57 PM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type : Natural Gas

Run # : 3

Location : H-3705

Finish time : 4:17 PM

Serial No.: 161212-14

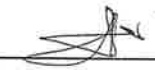
Serial No.: 435

Serial No.: 058

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:57 PM	14.86	2.71	0.11
3:58 PM	14.86	2.82	0.09
3:59 PM	14.86	2.90	0.10
4:00 PM	14.86	3.00	0.10
4:01 PM	14.86	3.05	0.15
4:02 PM	14.86	3.03	0.14
4:03 PM	14.86	3.02	0.12
4:04 PM	14.86	2.94	0.11
4:05 PM	14.86	2.88	0.09
4:06 PM	14.86	2.77	0.11
4:07 PM	14.86	2.66	0.10
4:08 PM	14.86	2.58	0.14
4:09 PM	14.86	2.50	0.12
4:10 PM	14.86	2.44	0.12
4:11 PM	14.87	2.61	0.11
4:12 PM	14.86	2.51	0.13
4:13 PM	14.87	2.60	0.13
4:14 PM	14.87	2.80	0.16
4:15 PM	14.86	2.92	0.14
4:16 PM	14.88	2.50	0.13
4:17 PM	14.88	2.83	0.16
Average	14.86	2.77	0.12

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : 223007_Cert-Stack/PM_Apr 23
Branch 2, Power Plant SAMPLING DATE : 19/04/2023
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 21-22/04/2023
RECEIVED DATE : 21/04/2023 SAMPLE CONDITION : Normal
REPORT DATE : 25/04/2023 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3706
OPERATOR : Mr. Kittipong Thakoengsuk
STACK DESCRIPTION

Height : 35.0 m Gas Velocity : 7.5 m/s
Diameter : 1.80 m Flow Rate* : 725 Ncu.m/min
Temperature : 143.5 °C Excess Oxygen : 5.0 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		5.0%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	2.00	1.75	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-ก-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ก-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration

H-3706

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 19, 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	5.06	5.06	25.43	25.38	22.27
2	5.00	5.00	25.62	25.56	22.34
3	5.01	5.00	25.77	25.71	22.48
Average	5.02	5.02	25.60	25.55	22.36

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	5.06	5.06	0.11	0.07	0.06
2	5.00	5.00	0.11	0.07	0.06
3	5.01	5.00	0.11	0.07	0.06
Average	5.02	5.02	0.11	0.07	0.06

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023 Run # : 1
 Start time: 11:00 AM Location : H-3706
 O₂ instrument Model: AMI 70 Finish time : 11:20 AM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161121-14
 SO₂ instrument Model: API 100 AH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:00 AM	5.30	24.69	0.11
11:01 AM	5.30	24.91	0.11
11:02 AM	5.30	25.07	0.11
11:03 AM	5.20	25.20	0.11
11:04 AM	5.00	25.37	0.11
11:05 AM	5.00	25.60	0.11
11:06 AM	5.00	25.71	0.11
11:07 AM	5.00	25.69	0.11
11:08 AM	5.10	25.61	0.11
11:09 AM	5.00	25.47	0.12
11:10 AM	5.00	25.41	0.11
11:11 AM	5.00	25.36	0.11
11:12 AM	5.00	25.42	0.11
11:13 AM	5.00	25.47	0.11
11:14 AM	5.00	25.45	0.11
11:15 AM	5.00	25.51	0.11
11:16 AM	5.00	25.57	0.11
11:17 AM	5.00	25.58	0.11
11:18 AM	5.00	25.63	0.11
11:19 AM	5.00	25.62	0.11
11:20 AM	5.00	25.59	0.11
Average	5.06	25.43	0.11

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023 Run # : 2
 Start time: 11:21 AM Location : H-3706
 O₂ instrument Model: AMI 70 Finish time : 11:41 AM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 161121-14
 SO₂ instrument Model: API 200 AH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 058
 Test Operator : Aekkawat S.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:21 AM	5.00	25.65	0.11
11:22 AM	5.00	25.81	0.11
11:23 AM	5.00	25.88	0.11
11:24 AM	5.00	25.85	0.11
11:25 AM	5.10	25.82	0.11
11:26 AM	5.00	25.71	0.11
11:27 AM	5.00	25.53	0.11
11:28 AM	5.00	25.52	0.11
11:29 AM	5.00	25.49	0.11
11:30 AM	5.00	25.45	0.11
11:31 AM	5.00	25.51	0.12
11:32 AM	5.00	25.73	0.12
11:33 AM	5.00	25.77	0.11
11:34 AM	5.00	25.55	0.11
11:35 AM	5.00	25.45	0.11
11:36 AM	5.00	25.46	0.11
11:37 AM	4.90	25.49	0.11
11:38 AM	5.00	25.65	0.11
11:39 AM	5.00	25.61	0.11
11:40 AM	5.00	25.48	0.11
11:41 AM	5.00	25.52	0.11
Average	5.00	25.62	0.11

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)

EMISSION TEST RESULT

Date: April 19, 2023
 Start time: 11:42 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 : H-3706
 Finish time : 12:02 PM
 Serial No.: 161121-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:42 AM	5.00	25.57	0.11
11:43 AM	5.00	25.65	0.11
11:44 AM	5.00	25.66	0.11
11:45 AM	5.00	25.64	0.11
11:46 AM	5.00	25.63	0.11
11:47 AM	5.00	25.61	0.11
11:48 AM	5.00	25.63	0.11
11:49 AM	5.00	25.63	0.11
11:50 AM	5.00	25.62	0.11
11:51 AM	5.00	25.78	0.10
11:52 AM	5.00	25.91	0.11
11:53 AM	5.00	25.95	0.11
11:54 AM	5.00	25.96	0.11
11:55 AM	5.00	25.95	0.11
11:56 AM	5.00	25.93	0.11
11:57 AM	5.00	25.96	0.11
11:58 AM	5.10	25.80	0.11
11:59 AM	5.00	25.70	0.11
12:00 PM	5.00	25.84	0.11
12:01 PM	5.00	25.88	0.11
12:02 PM	5.10	25.86	0.11
Average	5.01	25.77	0.11

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. REF. NO. : 223007_Cert-Stack/PM_Apr 23
 Branch 2, Power Plant SAMPLING DATE : 19/04/2023
 SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 21-22/04/2023
 RECEIVED DATE : 21/04/2023 SAMPLE CONDITION : Normal
 REPORT DATE : 25/04/2023 FUEL TYPE : Natural Gas
 SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3707
 OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION
 Height : 35.0 m Gas Velocity : 5.7 m/s
 Diameter : 1.80 m Flow Rate* : 550 Ncu.m/min
 Temperature : 149.5 °C Excess Oxygen : 5.7 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		5.7%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.35	1.23	60	US, EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-ก-8183

Naris Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

**The Monitoring Result of Emission Concentration
H-3707**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 19, 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	5.67	5.66	25.21	25.14	22.93
2	5.65	5.65	25.17	25.09	22.87
3	5.63	5.63	24.82	24.74	22.52
Average	5.65	5.65	25.07	24.99	22.77

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	5.67	5.66	0.11	0.07	0.06
2	5.65	5.65	0.11	0.07	0.06
3	5.63	5.63	0.10	0.06	0.05
Average	5.65	5.65	0.11	0.07	0.06

**PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT**

Date: April 19, 2023
 Start time: 12:30 PM
 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 : H-3707
 Finish time : 12:50 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:30 PM	5.67	25.25	0.11
12:31 PM	5.67	25.17	0.11
12:32 PM	5.67	25.11	0.11
12:33 PM	5.66	25.18	0.11
12:34 PM	5.67	25.31	0.11
12:35 PM	5.67	25.29	0.11
12:36 PM	5.63	25.28	0.11
12:37 PM	5.66	25.22	0.11
12:38 PM	5.61	25.25	0.11
12:39 PM	5.66	25.41	0.11
12:40 PM	5.71	25.39	0.11
12:41 PM	5.70	25.20	0.11
12:42 PM	5.67	25.14	0.11
12:43 PM	5.67	25.08	0.11
12:44 PM	5.68	25.04	0.11
12:45 PM	5.69	25.07	0.11
12:46 PM	5.67	25.05	0.11
12:47 PM	5.71	25.24	0.11
12:48 PM	5.70	25.36	0.11
12:49 PM	5.68	25.28	0.11
12:50 PM	5.60	25.17	0.11
Average	5.67	25.21	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023
 Start time: 12:51 PM
 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 : H-3707
 Finish time : 1:11 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:51 PM	5.62	25.05	0.11
12:52 PM	5.60	24.98	0.11
12:53 PM	5.60	24.89	0.11
12:54 PM	5.61	24.88	0.11
12:55 PM	5.62	25.06	0.11
12:56 PM	5.61	25.10	0.11
12:57 PM	5.64	25.11	0.11
12:58 PM	5.65	25.19	0.11
12:59 PM	5.65	25.18	0.11
1:00 PM	5.66	25.08	0.11
1:01 PM	5.61	25.17	0.11
1:02 PM	5.62	25.22	0.11
1:03 PM	5.62	25.20	0.11
1:04 PM	5.63	25.31	0.11
1:05 PM	5.66	25.40	0.11
1:06 PM	5.70	25.38	0.11
1:07 PM	5.68	25.31	0.11
1:08 PM	5.70	25.28	0.11
1:09 PM	5.71	25.21	0.11
1:10 PM	5.73	25.22	0.11
1:11 PM	5.75	25.29	0.11
Average	5.65	25.17	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist


PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 19, 2023
 Start time: 1:12 PM
 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 : H-3707
 Finish time : 1:32 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:12 PM	5.76	25.17	0.11
1:13 PM	5.73	25.00	0.11
1:14 PM	5.69	24.89	0.11
1:15 PM	5.66	24.84	0.11
1:16 PM	5.65	24.71	0.11
1:17 PM	5.63	24.68	0.11
1:18 PM	5.63	24.89	0.10
1:19 PM	5.66	25.05	0.10
1:20 PM	5.60	25.00	0.10
1:21 PM	5.61	24.91	0.10
1:22 PM	5.59	24.86	0.10
1:23 PM	5.58	24.81	0.10
1:24 PM	5.60	24.82	0.10
1:25 PM	5.57	24.63	0.10
1:26 PM	5.56	24.45	0.10
1:27 PM	5.57	24.49	0.10
1:28 PM	5.60	24.72	0.10
1:29 PM	5.64	24.86	0.10
1:30 PM	5.63	24.84	0.10
1:31 PM	5.66	24.78	0.10
1:32 PM	5.62	24.73	0.10
Average	5.63	24.82	0.10

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. REF. NO. : 223007_Cert-Stack/PM_Apr 23
Branch 2, Power Plant SAMPLING DATE : 20/04/2023
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 21-22/04/2023
RECEIVED DATE : 21/04/2023 SAMPLE CONDITION : Normal
REPORT DATE : 25/04/2023 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3708
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION
Height : 35.0 m Gas Velocity : 24.1 m/s
Diameter : 3.26 m Flow Rate* : 7,188 Nm³/min
Temperature : 173.7 °C Excess Oxygen : 14.3 %

PARAMETER	UNITS	RESULTS*			REFERENCE
		14.3%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Nm ³	1.13	2.37	60	US. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-8-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-8-6419

The Monitoring Result of Emission Concentration

H-3708

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 20, 2023

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	14.26	14.26	2.57	2.51	5.25
2	14.26	14.26	2.86	2.79	5.84
3	14.30	14.30	3.19	3.12	6.57
Average	14.27	14.27	2.87	2.81	5.89

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O ₂	Corrected Gas Conc @7% O ₂
1	14.26	14.26	0.10	0.09	0.19
2	14.26	14.26	0.10	0.09	0.19
3	14.30	14.30	0.10	0.09	0.19
Average	14.27	14.27	0.10	0.09	0.19

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023
 Start time: 11:20 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 : H-3708
 Finish time : 11:40 AM
 Serial No.: 161212-14
 Serial No.: 345
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:20 AM	14.29	2.77	0.11
11:21 AM	14.26	2.62	0.10
11:22 AM	14.26	2.56	0.10
11:23 AM	14.26	2.54	0.10
11:24 AM	14.26	2.49	0.10
11:25 AM	14.26	2.48	0.10
11:26 AM	14.26	2.54	0.10
11:27 AM	14.26	2.58	0.10
11:28 AM	14.26	2.68	0.10
11:29 AM	14.26	2.67	0.10
11:30 AM	14.26	2.63	0.10
11:31 AM	14.25	2.64	0.10
11:32 AM	14.26	2.63	0.10
11:33 AM	14.28	2.59	0.10
11:34 AM	14.22	2.56	0.10
11:35 AM	14.25	2.54	0.10
11:36 AM	14.25	2.50	0.10
11:37 AM	14.23	2.50	0.12
11:38 AM	14.26	2.46	0.10
11:39 AM	14.26	2.42	0.10
11:40 AM	14.26	2.47	0.10
Average	14.26	2.57	0.10

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

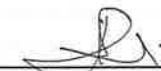
PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023
 Start time: 11:41 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 : H-3708
 Finish time : 12:01 PM
 Serial No.: 161212-14
 Serial No.: 345
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:41 AM	14.24	2.56	0.10
11:42 AM	14.26	2.67	0.10
11:43 AM	14.28	2.77	0.10
11:44 AM	14.26	2.83	0.10
11:45 AM	14.26	2.85	0.10
11:46 AM	14.26	2.83	0.10
11:47 AM	14.26	2.87	0.10
11:48 AM	14.26	2.95	0.10
11:49 AM	14.28	2.92	0.10
11:50 AM	14.26	2.93	0.10
11:51 AM	14.26	2.90	0.10
11:52 AM	14.26	2.85	0.10
11:53 AM	14.26	2.84	0.10
11:54 AM	14.26	2.84	0.10
11:55 AM	14.23	2.79	0.10
11:56 AM	14.23	2.77	0.10
11:57 AM	14.26	2.87	0.10
11:58 AM	14.26	2.89	0.10
11:59 AM	14.26	2.98	0.10
12:00 PM	14.26	3.06	0.10
12:01 PM	14.26	3.05	0.11
Average	14.26	2.86	0.10

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023

Start time: 12:02 PM

O₂ instrument Model: AMI 70NO_x instrument Model: TELEDYNE 200 EMSO₂ instrument Model: API 100 AH

Fuel Type: Natural Gas

Run #: 3

Location: H-3708

Finish time: 12:22 PM

Serial No.: 161212-14

Serial No.: 345

Serial No.: 058

Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:02 PM	14.26	3.07	0.10
12:03 PM	14.26	3.03	0.10
12:04 PM	14.26	3.04	0.10
12:05 PM	14.28	3.06	0.10
12:06 PM	14.25	3.03	0.10
12:07 PM	14.26	3.07	0.10
12:08 PM	14.25	3.05	0.10
12:09 PM	14.24	2.92	0.10
12:10 PM	14.25	2.90	0.10
12:11 PM	14.26	2.96	0.10
12:12 PM	14.25	2.93	0.10
12:13 PM	14.26	2.88	0.10
12:14 PM	14.21	2.87	0.10
12:15 PM	14.26	2.93	0.10
12:16 PM	14.26	3.08	0.12
12:17 PM	14.26	3.33	0.10
12:18 PM	14.35	3.47	0.10
12:19 PM	14.31	3.56	0.10
12:20 PM	14.36	3.69	0.10
12:21 PM	14.40	3.75	0.10
12:22 PM	14.71	4.45	0.10
Average	14.30	3.19	0.10

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.	REF. NO.	: 223007_Cert-Stack/PM_Apr 23
	Branch 2, Power Plant	SAMPLING DATE	: 20/04/2023
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 21-22/04/2023
RECEIVED DATE	: 21/04/2023	SAMPLE CONDITION	: Normal
REPORT DATE	: 25/04/2023	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3709
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			
Height	: 35.0 m	Gas Velocity	: 25.6 m/s
Diameter	: 3.26 m	Flow Rate*	: 7,679 Ncu.m/min
Temperature	: 174.0 °C	Excess Oxygen	: 14.7 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.7%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	1.19	2.66	60	US, EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 7-239-8-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 7-239-8-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

**The Monitoring Result of Emission Concentration
H-3709**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 20, 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	14.75	14.75	3.46	3.45	7.80
2	14.60	14.60	3.33	3.31	7.30
3	14.75	14.75	3.36	3.34	7.55
Average	14.70	14.70	3.38	3.37	7.55

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	14.75	14.75	0.25	0.21	0.47
2	14.60	14.60	0.28	0.23	0.51
3	14.75	14.75	0.25	0.20	0.45
Average	14.70	14.70	0.26	0.21	0.48

**PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT**

Date: April 20, 2023

Start time: 11:20 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 : H-3709

Finish time : 11:40 AM

Serial No.: 121121-10

Serial No.: 441

Serial No.: 132

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:20 AM	14.84	3.84	0.21
11:21 AM	14.80	3.62	0.25
11:22 AM	14.79	3.48	0.27
11:23 AM	14.78	3.49	0.23
11:24 AM	14.78	3.45	0.25
11:25 AM	14.76	3.48	0.27
11:26 AM	14.76	3.40	0.27
11:27 AM	14.77	3.39	0.25
11:28 AM	14.76	3.52	0.27
11:29 AM	14.75	3.59	0.25
11:30 AM	14.75	3.53	0.27
11:31 AM	14.75	3.50	0.26
11:32 AM	14.75	3.52	0.27
11:33 AM	14.75	3.53	0.23
11:34 AM	14.75	3.44	0.28
11:35 AM	14.71	3.39	0.28
11:36 AM	14.70	3.32	0.27
11:37 AM	14.70	3.32	0.22
11:38 AM	14.71	3.30	0.22
11:39 AM	14.74	3.27	0.26
11:40 AM	14.72	3.32	0.19
Average	14.75	3.46	0.25

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023 Run # : 2
 Start time: 11:41 AM Location : H-3709
 O₂ instrument Model: AMI 70 Finish time : 12:01 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 441
 Fuel Type : Natural Gas Serial No.: 132
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:41 AM	14.70	3.32	0.16
11:42 AM	14.73	3.39	0.17
11:43 AM	14.75	3.44	0.28
11:44 AM	14.53	3.44	0.31
11:45 AM	14.36	3.25	0.29
11:46 AM	14.34	3.16	0.31
11:47 AM	14.33	3.18	0.27
11:48 AM	14.33	3.15	0.25
11:49 AM	14.34	3.18	0.29
11:50 AM	14.34	3.20	0.31
11:51 AM	14.50	3.20	0.27
11:52 AM	14.75	3.28	0.31
11:53 AM	14.75	3.45	0.37
11:54 AM	14.74	3.44	0.33
11:55 AM	14.75	3.45	0.24
11:56 AM	14.74	3.39	0.24
11:57 AM	14.71	3.32	0.27
11:58 AM	14.74	3.31	0.25
11:59 AM	14.75	3.36	0.25
12:00 PM	14.75	3.50	0.30
12:01 PM	14.75	3.50	0.39
Average	14.60	3.33	0.28

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023 Run # : 3
 Start time: 12:02 PM Location : H-3709
 O₂ instrument Model: AMI 70 Finish time : 12:22 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 441
 Fuel Type : Natural Gas Serial No.: 132
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:02 PM	14.75	3.54	0.31
12:03 PM	14.75	3.50	0.25
12:04 PM	14.75	3.44	0.22
12:05 PM	14.77	3.44	0.22
12:06 PM	14.76	3.45	0.26
12:07 PM	14.76	3.45	0.30
12:08 PM	14.76	3.53	0.22
12:09 PM	14.75	3.48	0.24
12:10 PM	14.75	3.40	0.26
12:11 PM	14.75	3.35	0.30
12:12 PM	14.75	3.38	0.31
12:13 PM	14.75	3.38	0.24
12:14 PM	14.75	3.29	0.27
12:15 PM	14.75	3.20	0.22
12:16 PM	14.75	3.18	0.29
12:17 PM	14.75	3.27	0.29
12:18 PM	14.76	3.38	0.26
12:19 PM	14.77	3.39	0.30
12:20 PM	14.77	3.44	0.26
12:21 PM	14.75	3.21	0.17
12:22 PM	14.71	2.86	0.12
Average	14.75	3.36	0.25

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. REF. NO. : 223007_Cert-Stack/PM_Apr 23
Branch 2, Power Plant SAMPLING DATE : 20/04/2023
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 21-22/04/2023
RECEIVED DATE : 21/04/2023 SAMPLE CONDITION : Normal
REPORT DATE : 25/04/2023 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3710
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION
Height : 35.0 m Gas Velocity : 20.9 m/s
Diameter : 3.26 m Flow Rate* : 6,451 Ncu.m/min
Temperature : 159.1 °C Excess Oxygen : 14.2 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.2%O ₂	7%O ₂	7%O ₂	
					METHODS
Particulate Matter	mg/Ncu.m.	1.37	2.85	60	US, EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-ก-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration

H-3710

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 20, 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	14.24	14.24	6.71	6.69	13.96
2	14.20	14.20	6.43	6.40	13.28
3	14.17	14.17	6.53	6.50	13.42
Average	14.20	14.20	6.56	6.53	13.55

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	14.24	14.24	0.15	0.10	0.21
2	14.20	14.20	0.15	0.10	0.21
3	14.17	14.17	0.19	0.14	0.29
Average	14.20	14.20	0.16	0.11	0.24

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023 Run # : 1
 Start time: 2:40 PM Location : H-3710
 O₂ instrument Model: AMI 70 Finish time : 3:00 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 441
 Fuel Type : Natural Gas Serial No.: 132
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:40 PM	14.25	6.50	0.20
2:41 PM	14.23	6.57	0.19
2:42 PM	14.27	6.74	0.21
2:43 PM	14.24	7.14	0.16
2:44 PM	14.25	6.83	0.13
2:45 PM	14.24	7.35	0.13
2:46 PM	14.27	7.48	0.15
2:47 PM	14.21	7.45	0.15
2:48 PM	14.24	6.62	0.16
2:49 PM	14.24	6.80	0.13
2:50 PM	14.25	6.77	0.11
2:51 PM	14.20	6.59	0.19
2:52 PM	14.23	6.21	0.15
2:53 PM	14.20	6.37	0.16
2:54 PM	14.25	6.14	0.14
2:55 PM	14.23	6.56	0.12
2:56 PM	14.24	6.16	0.12
2:57 PM	14.25	6.70	0.12
2:58 PM	14.23	6.44	0.15
2:59 PM	14.23	6.66	0.13
3:00 PM	14.25	6.87	0.12
Average	14.24	6.71	0.15

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023 Run # : 2
 Start time: 3:01 PM Location : H-3710
 O₂ instrument Model: AMI 70 Finish time : 3:21 PM
 NO_x instrument Model: API 200 AH Serial No.: 121121-10
 SO₂ instrument Model: API 100 AH Serial No.: 441
 Fuel Type : Natural Gas Serial No.: 132
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:01 PM	14.20	6.95	0.17
3:02 PM	14.23	6.70	0.19
3:03 PM	14.23	6.80	0.18
3:04 PM	14.23	6.10	0.16
3:05 PM	14.20	6.15	0.13
3:06 PM	14.22	6.81	0.13
3:07 PM	14.22	7.02	0.11
3:08 PM	14.18	6.49	0.10
3:09 PM	14.24	6.18	0.11
3:10 PM	14.20	6.54	0.16
3:11 PM	14.23	6.32	0.20
3:12 PM	14.23	6.48	0.22
3:13 PM	14.19	6.99	0.18
3:14 PM	14.17	6.38	0.11
3:15 PM	14.19	6.57	0.15
3:16 PM	14.18	6.52	0.11
3:17 PM	14.18	5.96	0.12
3:18 PM	14.20	5.96	0.16
3:19 PM	14.19	5.85	0.13
3:20 PM	14.20	5.88	0.12
3:21 PM	14.18	6.33	0.11
Average	14.20	6.43	0.15

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1) EMISSION TEST RESULT

Date: April 20, 2023
Start time: 3:22 PM
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 : H-3710
Finish time : 3:42 PM
Serial No.: 121121-10
Serial No.: 441
Serial No.: 132
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:22 PM	14.20	6.51	0.14
3:23 PM	14.24	7.44	0.13
3:24 PM	14.20	8.13	0.15
3:25 PM	14.21	7.54	0.15
3:26 PM	14.20	7.67	0.18
3:27 PM	14.21	7.03	0.21
3:28 PM	14.19	7.89	0.31
3:29 PM	14.17	7.08	0.16
3:30 PM	14.20	6.84	0.16
3:31 PM	14.17	6.54	0.17
3:32 PM	14.23	6.70	0.19
3:33 PM	14.16	7.09	0.22
3:34 PM	14.12	5.88	0.19
3:35 PM	14.16	5.74	0.21
3:36 PM	14.12	5.93	0.19
3:37 PM	14.14	5.71	0.21
3:38 PM	14.12	5.90	0.18
3:39 PM	14.11	5.81	0.16
3:40 PM	14.16	5.57	0.19
3:41 PM	14.09	5.35	0.22
3:42 PM	14.13	4.74	0.21
Average	14.17	6.53	0.19

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. **REF. NO. :** 223007_Cert-Stack/PM_Apr 23
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE :** 20/04/2023
RECEIVED DATE : 21/04/2023 **ANALYTICAL DATE :** 21-22/04/2023
REPORT DATE : 25/04/2023 **SAMPLE CONDITION :** Normal
SOURCE DESCRIPTION : Combustion **FUEL TYPE :** Natural Gas
STACK LOCATION : H-3711
OPERATOR : Mr. Kittipong Thakoengsuk
STACK DESCRIPTION

Height : 35.0 m **Gas Velocity :** 18.3 m/s
Diameter : 3.26 m **Flow Rate* :** 5,902 Ncu.m/min
Temperature : 138.7 °C **Excess Oxygen :** 14.0 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.0%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.97	3.97	60	US, EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-0-8183



(Miss Narisa Poowasanpeich)

Technical Management Team

REG.NO.7-239-0-6419

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

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

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.

The Monitoring Result of Emission Concentration
H-3711

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 20, 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	13.95	13.95	5.22	5.15	10.30
2	13.99	13.99	5.27	5.19	10.44
3	14.02	14.02	5.29	5.21	10.53
Average	13.98	13.99	5.26	5.18	10.42

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	13.95	13.95	0.12	0.11	0.22
2	13.99	13.99	0.12	0.11	0.22
3	14.02	14.02	0.11	0.09	0.18
Average	13.98	13.99	0.12	0.10	0.21

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023
Start time: 2:40 PM
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 : H-3711
Finish time : 3:00 PM
Serial No.: 161212-14
Serial No.: 435
Serial No.: 058
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:40 PM	14.05	5.14	0.11
2:41 PM	13.97	5.09	0.12
2:42 PM	13.96	5.04	0.13
2:43 PM	13.89	5.09	0.13
2:44 PM	13.87	5.19	0.12
2:45 PM	13.87	5.20	0.12
2:46 PM	13.87	5.19	0.13
2:47 PM	13.87	5.23	0.12
2:48 PM	13.87	5.21	0.11
2:49 PM	13.91	5.23	0.12
2:50 PM	13.97	5.26	0.11
2:51 PM	13.97	5.30	0.13
2:52 PM	13.97	5.32	0.12
2:53 PM	13.98	5.25	0.12
2:54 PM	13.99	5.21	0.12
2:55 PM	13.98	5.20	0.11
2:56 PM	13.97	5.25	0.12
2:57 PM	13.97	5.33	0.12
2:58 PM	13.99	5.30	0.13
2:59 PM	13.97	5.30	0.12
3:00 PM	13.97	5.32	0.12
Average	13.95	5.22	0.12

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023
 Start time: 3:01 PM
 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 : H-3711
 Finish time : 3:21 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:01 PM	14.00	5.36	0.11
3:02 PM	13.97	5.38	0.12
3:03 PM	14.07	5.32	0.12
3:04 PM	14.00	5.25	0.13
3:05 PM	13.96	5.35	0.12
3:06 PM	13.96	5.29	0.11
3:07 PM	14.01	5.22	0.12
3:08 PM	14.00	5.28	0.12
3:09 PM	14.03	5.33	0.12
3:10 PM	14.02	5.30	0.11
3:11 PM	13.97	5.26	0.12
3:12 PM	13.96	5.24	0.11
3:13 PM	13.96	5.16	0.11
3:14 PM	13.96	5.16	0.11
3:15 PM	13.99	5.16	0.12
3:16 PM	14.02	5.19	0.12
3:17 PM	13.96	5.22	0.11
3:18 PM	13.99	5.19	0.11
3:19 PM	13.96	5.41	0.12
3:20 PM	13.96	5.39	0.12
3:21 PM	13.96	5.25	0.11
Average	13.99	5.27	0.12

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 2 : Power Plant I-1)
EMISSION TEST RESULT

Date: April 20, 2023
 Start time: 3:22 PM
 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 : H-3711
 Finish time : 3:42 PM
 Serial No.: 161212-14
 Serial No.: 435
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:22 PM	13.99	5.18	0.12
3:23 PM	14.06	5.24	0.11
3:24 PM	14.01	5.40	0.11
3:25 PM	14.07	5.50	0.12
3:26 PM	14.00	5.48	0.11
3:27 PM	14.01	5.44	0.11
3:28 PM	14.01	5.45	0.11
3:29 PM	13.98	5.46	0.10
3:30 PM	14.01	5.47	0.11
3:31 PM	14.00	5.46	0.10
3:32 PM	14.01	5.44	0.11
3:33 PM	14.04	5.31	0.10
3:34 PM	14.03	5.18	0.11
3:35 PM	14.04	5.14	0.11
3:36 PM	14.02	5.16	0.11
3:37 PM	14.03	5.19	0.11
3:38 PM	14.07	5.15	0.11
3:39 PM	14.03	5.16	0.10
3:40 PM	14.01	5.10	0.10
3:41 PM	14.02	5.06	0.11
3:42 PM	13.99	5.13	0.11
Average	14.02	5.29	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

ภาคผนวก ง.2

ใบรับรองผลการตรวจวิเคราะห์คุณภาพอากาศในบรรยากาศ

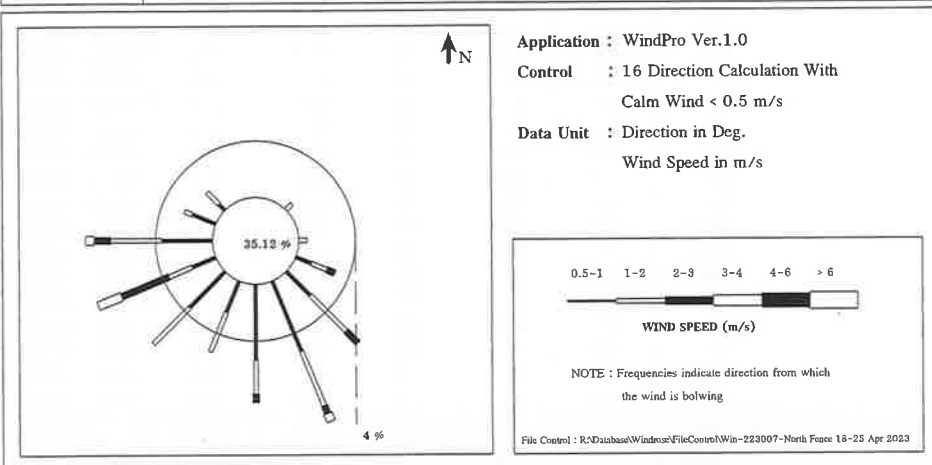


Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence Monitor period : 18-25 Apr 2023
 Wind Speed Model : NRG Symphonie Serial No : A4901
 Wind Direction Model : NRG Symphonie Serial No : A4901

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
ESE	0.0119	0.0119	0.0060	0.0000	0.0000	0.0000	0.0298
SE	0.0238	0.0357	0.0119	0.0000	0.0000	0.0000	0.0714
SSE	0.0536	0.0417	0.0060	0.0060	0.0000	0.0000	0.1071
S	0.0536	0.0238	0.0060	0.0000	0.0000	0.0000	0.0833
SSW	0.0238	0.0298	0.0000	0.0000	0.0000	0.0000	0.0536
SW	0.0357	0.0357	0.0000	0.0000	0.0000	0.0000	0.0714
WSW	0.0179	0.0179	0.0357	0.0179	0.0000	0.0000	0.0893
W	0.0357	0.0357	0.0119	0.0060	0.0000	0.0000	0.0893
WNW	0.0179	0.0060	0.0000	0.0000	0.0000	0.0000	0.0238
NW	0.0060	0.0119	0.0000	0.0000	0.0000	0.0000	0.0179
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3512						



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



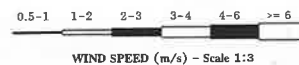
Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence Monitor period : 18-25 Apr 2023
 Wind Speed Model : NRG Symphonie Serial No : A4901
 Wind Direction Model : NRG Symphonie Serial No : A4901

Time	18-19 Apr 2023		19-20 Apr 2023		20-21 Apr 2023		21-22 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
11:00 - 12:00	1.0	ESE	0.1	WSW	0.0	SW	1.4	SSW
12:00 - 13:00	0.5	WNW	0.0	WSW	1.5	SSE	1.9	W
13:00 - 14:00	1.0	WNW	1.1	SE	0.0	W	0.7	S
14:00 - 15:00	0.0	SE	0.9	S	0.0	WSW	0.6	SW
15:00 - 16:00	0.0	SE	1.4	SSE	0.2	SW	2.3	SSE
16:00 - 17:00	0.0	SSE	0.0	SE	0.6	SSE	0.8	SSE
17:00 - 18:00	0.5	S	0.9	SE	0.5	SSE	1.4	S
18:00 - 19:00	2.0	ESE	0.0	E	0.3	SW	0.5	SSE
19:00 - 20:00	0.8	SSW	1.5	S	0.4	SE	0.0	ENE
20:00 - 21:00	0.6	W	0.5	SSW	0.6	SE	0.2	S
21:00 - 22:00	0.7	SSW	1.6	W	1.9	SE	0.3	SSE
22:00 - 23:00	1.2	SW	1.8	SSW	1.0	SSE	1.4	SSW
23:00 - 24:00	0.1	S	2.1	SE	0.4	SSW	0.2	E
00:00 - 01:00	0.0	NE	0.7	SW	2.0	W	0.8	WSW
01:00 - 02:00	0.0	ENE	1.8	SW	0.0	SE	0.8	SSW
02:00 - 03:00	0.0	W	0.5	W	0.9	S	0.9	ESE
03:00 - 04:00	1.6	SW	0.7	SSE	0.0	SW	1.5	SE
04:00 - 05:00	0.1	WSW	0.0	W	2.4	WSW	1.9	SSE
05:00 - 06:00	0.0	SSW	3.7	WSW	0.0	W	0.6	W
06:00 - 07:00	1.6	NW	0.0	WSW	0.0	WSW	2.2	WSW
07:00 - 08:00	3.0	WSW	0.0	NNW	0.7	NW	0.1	SW
08:00 - 09:00	1.7	W	0.0	NW	0.0	N	0.2	S
09:00 - 10:00	0.0	S	0.4	NW	0.4	NW	0.7	S
10:00 - 11:00	2.0	WSW	2.7	WSW	0.8	SW	0.5	WNW

Wind Rose



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

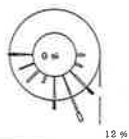
Serial No : A4901

Wind Direction Model : NRG Symphonie

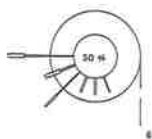
Serial No : A4901

Time	22-23 Apr 2023		23-24 Apr 2023		24-25 Apr 2023		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
11:00 - 12:00	0.6	WSW	0.7	SW	0.7	WNW	
12:00 - 13:00	2.2	SE	0.8	SW	2.4	WSW	
13:00 - 14:00	0.8	SSE	0.4	S	0.1	SE	
14:00 - 15:00	1.1	SSE	0.9	SSE	1.2	W	
15:00 - 16:00	1.1	SE	1.3	S	1.1	NE	
16:00 - 17:00	3.0	SSE	1.2	SW	1.3	NW	
17:00 - 18:00	2.8	S	0.0	WSW	2.4	WSW	
18:00 - 19:00	1.9	SSW	0.0	SSW	0.0	WNW	
19:00 - 20:00	0.8	SSE	0.0	SSE	0.0	W	
20:00 - 21:00	1.8	SSE	0.0	SSW	0.7	SE	
21:00 - 22:00	1.6	E	1.2	WSW	0.5	SW	
22:00 - 23:00	1.5	SE	3.6	W	0.9	ESE	
23:00 - 24:00	1.7	ESE	0.0	W	1.9	WSW	
00:00 - 01:00	0.5	S	0.7	W	0.0	N	
01:00 - 02:00	0.6	W	3.1	WSW	0.0	NE	
02:00 - 03:00	0.7	SE	1.8	SSW	0.3	SSW	
03:00 - 04:00	1.5	SW	0.0	SSW	0.4	S	
04:00 - 05:00	0.9	WSW	0.0	W	1.8	WSW	
05:00 - 06:00	1.7	SSE	0.0	N	0.0	NW	
06:00 - 07:00	1.0	S	0.0	NW	0.0	SSW	
07:00 - 08:00	2.5	W	0.0	NNW	1.3	SE	
08:00 - 09:00	0.7	S	0.0	W	0.7	S	
09:00 - 10:00	1.5	W	0.5	W	0.6	S	
10:00 - 11:00	1.7	SW	1.4	W	0.5	SSE	

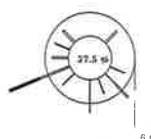
Wind Rose



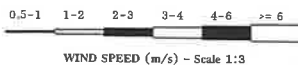
12 %



6 %



6 %



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

File Control : R:\Database\Windrose\FileControl\Win-223007-North Fence 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence

Monitor period : 18-25 Apr 2023

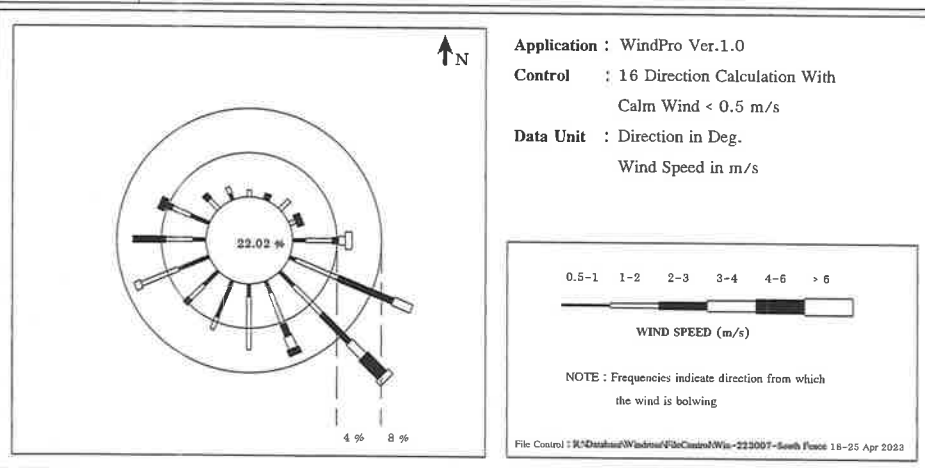
Wind Speed Model : NRG Symphonie

Serial No : A4905

Wind Direction Model : NRG Symphonie

Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NNE	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
NE	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
ENE	0.0000	0.0060	0.0000	0.0000	0.0060	0.0000	0.0119
E	0.0119	0.0238	0.0060	0.0060	0.0000	0.0060	0.0536
ESE	0.0060	0.0417	0.0536	0.0179	0.0000	0.0000	0.1190
SE	0.0179	0.0357	0.0357	0.0179	0.0238	0.0060	0.1369
SSE	0.0119	0.0298	0.0119	0.0119	0.0060	0.0000	0.0714
S	0.0119	0.0476	0.0000	0.0000	0.0000	0.0000	0.0595
SSW	0.0357	0.0119	0.0000	0.0000	0.0000	0.0000	0.0476
SW	0.0179	0.0179	0.0060	0.0000	0.0000	0.0000	0.0417
WSW	0.0298	0.0357	0.0000	0.0060	0.0000	0.0000	0.0714
W	0.0119	0.0238	0.0298	0.0000	0.0000	0.0000	0.0655
WNW	0.0179	0.0179	0.0060	0.0000	0.0060	0.0000	0.0476
NW	0.0000	0.0119	0.0060	0.0000	0.0000	0.0000	0.0179
NNW	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
CALM	0.2202						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

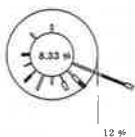
Serial No : A4905

Wind Direction Model : NRG Symphonie

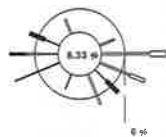
Serial No : A4905

Time	18-19 Apr 2023		19-20 Apr 2023		20-21 Apr 2023		21-22 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	0.9	SSE	1.9	E	0.9	E	1.7	WSW
13:00 - 14:00	1.7	ESE	1.2	ESE	2.1	SSE	0.0	SSW
14:00 - 15:00	3.1	SE	0.5	SSW	1.2	WSW	1.3	S
15:00 - 16:00	2.6	SW	3.1	ESE	2.0	W	3.7	E
16:00 - 17:00	1.7	ESE	1.2	SSE	2.1	SSE	2.3	ESE
17:00 - 18:00	2.8	ESE	1.9	E	4.4	SE	2.0	SE
18:00 - 19:00	1.8	S	4.0	SE	0.0	SW	0.0	SSE
19:00 - 20:00	0.3	S	1.9	SSE	0.0	SW	0.0	SSW
20:00 - 21:00	3.6	ESE	0.7	W	0.5	ESE	0.0	SE
21:00 - 22:00	2.2	ESE	0.9	SE	0.0	ESE	0.4	SE
22:00 - 23:00	1.9	ESE	1.6	ESE	2.9	ESE	0.0	ESE
23:00 - 24:00	1.2	SE	6.2	E	2.6	SE	0.0	SSE
00:00 - 01:00	3.0	SSE	0.9	WSW	0.0	ESE	1.3	SSE
01:00 - 02:00	0.2	W	0.3	ESE	0.1	W	1.3	SE
02:00 - 03:00	1.1	SSW	0.5	WNW	0.0	W	0.0	NW
03:00 - 04:00	1.5	SSW	1.4	E	0.0	ESE	1.3	WNW
04:00 - 05:00	0.9	WSW	0.0	SSE	0.0	W	0.4	S
05:00 - 06:00	1.8	NW	0.5	WSW	0.0	W	0.9	E
06:00 - 07:00	2.3	ESE	1.1	NNW	0.0	W	1.9	W
07:00 - 08:00	1.5	N	1.4	W	0.0	SW	0.1	WSW
08:00 - 09:00	2.0	W	0.9	WSW	1.1	SW	0.0	SSE
09:00 - 10:00	0.5	SW	2.1	W	0.0	WSW	0.7	SSW
10:00 - 11:00	4.9	SE	4.6	WNW	2.2	SE	2.8	ESE
11:00 - 12:00	1.8	ESE	1.2	ENE	2.5	NW	0.9	SE

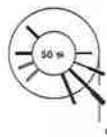
Wind Rose



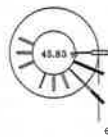
12 %



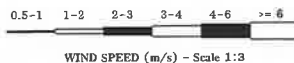
6 %



6 %



6 %



File Control : R:\Database\Windrose\FileControl\Win-223007-South Fence 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

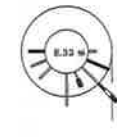
Serial No : A4905

Wind Direction Model : NRG Symphonie

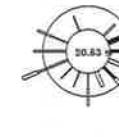
Serial No : A4905

Time	22-23 Apr 2023		23-24 Apr 2023		24-25 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	4.0	SSE	0.9	WNW	1.3	NE
13:00 - 14:00	0.6	S	4.5	ENE	1.0	ESE
14:00 - 15:00	1.8	WSW	3.3	ESE	2.5	WNW
15:00 - 16:00	2.3	SE	1.6	S	9.2	SE
16:00 - 17:00	1.3	WSW	2.6	SE	2.2	NNE
17:00 - 18:00	3.0	SE	1.1	WNW	0.6	SW
18:00 - 19:00	0.7	SSE	2.5	E	1.2	NW
19:00 - 20:00	1.1	SE	3.1	SSE	0.8	WSW
20:00 - 21:00	2.4	ESE	1.1	NE	0.5	WNW
21:00 - 22:00	2.9	ESE	3.4	SE	1.7	SSE
22:00 - 23:00	2.1	ESE	0.6	SSW	0.5	SSW
23:00 - 24:00	1.4	S	3.4	WSW	2.7	SE
00:00 - 01:00	1.7	SE	0.5	S	1.7	SSE
01:00 - 02:00	0.3	W	0.3	SSW	0.0	S
02:00 - 03:00	1.1	S	0.0	WSW	0.9	SE
03:00 - 04:00	1.0	SW	1.5	W	1.8	SE
04:00 - 05:00	2.9	W	0.2	SW	0.4	SSW
05:00 - 06:00	1.9	S	0.0	SSW	0.0	S
06:00 - 07:00	1.2	E	0.7	SW	0.6	W
07:00 - 08:00	0.2	W	0.7	NNW	1.5	WNW
08:00 - 09:00	2.7	W	1.5	W	1.0	S
09:00 - 10:00	1.1	SW	0.3	SW	1.1	S
10:00 - 11:00	1.5	SE	1.9	WSW	0.9	SSW
11:00 - 12:00	4.5	SE	1.2	WSW	0.8	SSW

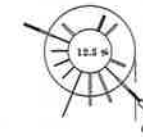
Wind Rose



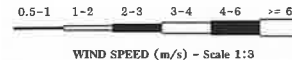
12 %



6 %



6 %



File Control : R:\Database\Windrose\FileControl\Win-223007-South Fence 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalute

Monitor period : 18-25 Apr 2023

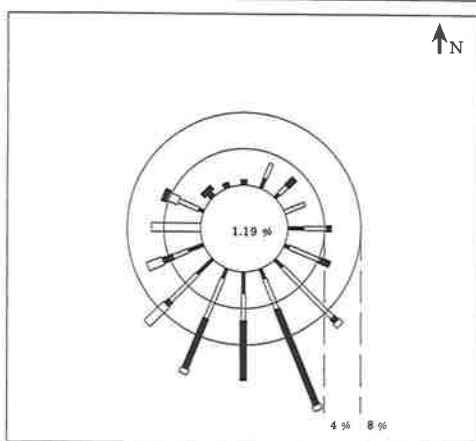
Wind Speed Model : NRG Symphonie

Serial No : 1025

Wind Direction Model : NRG Symphonie

Serial No : 1025

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
NNE	0.0119	0.0179	0.0000	0.0000	0.0000	0.0000	0.0298
NE	0.0060	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
ENE	0.0000	0.0238	0.0000	0.0000	0.0000	0.0000	0.0238
E	0.0179	0.0238	0.0060	0.0000	0.0000	0.0000	0.0476
ESE	0.0060	0.0357	0.0119	0.0000	0.0000	0.0000	0.0536
SE	0.0119	0.0774	0.0060	0.0060	0.0000	0.0000	0.1012
SSE	0.0119	0.0357	0.1131	0.0060	0.0000	0.0000	0.1667
S	0.0238	0.0298	0.0655	0.0000	0.0000	0.0000	0.1190
SSW	0.0119	0.0476	0.0595	0.0060	0.0000	0.0000	0.1250
SW	0.0238	0.0417	0.0060	0.0298	0.0000	0.0000	0.1012
WSW	0.0179	0.0179	0.0119	0.0179	0.0000	0.0000	0.0655
W	0.0000	0.0000	0.0000	0.0536	0.0000	0.0000	0.0536
WNW	0.0060	0.0238	0.0000	0.0119	0.0060	0.0000	0.0476
NW	0.0000	0.0000	0.0060	0.0000	0.0060	0.0000	0.0119
NNW	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
CALM	0.0119						



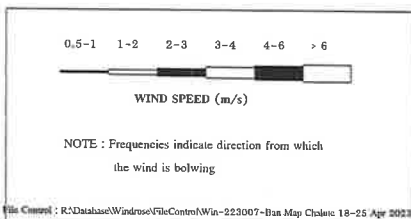
Application : WindPro Ver.1.0

Control : 16 Direction Calculation With

Calm Wind < 0.5 m/s

Data Unit : Direction in Deg.

Wind Speed in m/s



File Control : R:\Database\Windrose\FileControl\Win-223007-Ban Map Chalute 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalute

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

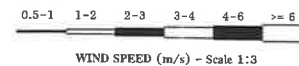
Serial No : 1025

Wind Direction Model : NRG Symphonie

Serial No : 1025

Time	18-19 Apr 2023		19-20 Apr 2023		20-21 Apr 2023		21-22 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	1.2	S	1.2	SSW	3.5	WSW	1.8	SE
11:00 - 12:00	0.8	S	2.1	WSW	3.1	SW	2.5	S
12:00 - 13:00	1.0	SSW	1.4	SW	3.2	SW	2.6	S
13:00 - 14:00	1.2	WSW	2.4	S	3.3	WSW	2.9	SSW
14:00 - 15:00	1.9	WSW	2.2	SSE	4.0	WNW	2.3	SSE
15:00 - 16:00	1.6	SSW	2.3	SSE	2.8	SSW	2.2	SSE
16:00 - 17:00	2.0	S	2.1	SSE	2.3	SSE	2.1	SSE
17:00 - 18:00	1.5	SSE	2.1	SSE	2.4	S	2.1	SSE
18:00 - 19:00	2.0	SSE	2.1	SSE	2.2	SSE	2.3	SSE
19:00 - 20:00	1.3	WNW	2.1	SSE	2.1	SSE	1.5	NNE
20:00 - 21:00	1.5	SSW	2.4	S	2.5	S	2.1	ESE
21:00 - 22:00	0.9	S	2.9	SSW	2.6	S	1.6	SE
22:00 - 23:00	1.9	SSW	2.3	SSE	2.4	S	1.4	ESE
23:00 - 24:00	0.8	SW	2.8	SSW	2.2	SSE	0.8	S
00:00 - 01:00	1.4	WNW	2.4	S	2.3	SSE	2.2	NE
01:00 - 02:00	1.7	WNW	2.8	SSW	2.8	SSW	2.3	NE
02:00 - 03:00	2.1	NNW	2.9	SSW	3.1	SW	0.9	NNE
03:00 - 04:00	1.7	S	2.8	SSW	3.7	W	0.6	SSW
04:00 - 05:00	1.5	SSE	3.1	SW	3.5	WSW	1.3	SSE
05:00 - 06:00	1.2	SW	3.7	W	3.7	W	0.9	SE
06:00 - 07:00	1.6	SSW	3.8	W	3.8	W	2.4	SSE
07:00 - 08:00	1.6	SSE	4.0	WNW	3.8	W	0.9	S
08:00 - 09:00	1.3	SW	3.8	W	4.4	NW	1.6	ENE
09:00 - 10:00	1.9	WNW	3.7	W	2.8	SSW	2.3	SSE

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalute

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

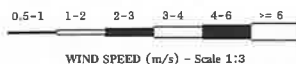
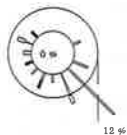
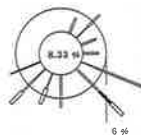
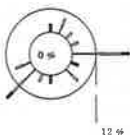
Serial No : 1025

Wind Direction Model : NRG Symphonie

Serial No : 1025

Time	22-23 Apr 2023		23-24 Apr 2023		24-25 Apr 2023		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
10:00 - 11:00	2.0	ESE	2.0	ESE	1.6	ESE	
11:00 - 12:00	1.9	SW	0.9	NE	1.9	SE	
12:00 - 13:00	0.9	WSW	0.7	WSW	1.9	SE	
13:00 - 14:00	0.8	E	0.6	SW	1.8	SE	
14:00 - 15:00	1.7	SSW	1.2	ENE	1.9	SE	
15:00 - 16:00	0.6	E	2.2	SE	1.9	SE	
16:00 - 17:00	2.1	S	1.2	NNE	1.9	SE	
17:00 - 18:00	1.0	SE	1.0	ESE	1.9	SE	
18:00 - 19:00	0.8	SW	0.8	WSW	1.1	ENE	
19:00 - 20:00	1.2	WSW	1.2	SW	1.7	ESE	
20:00 - 21:00	2.2	E	1.1	S	3.6	W	
21:00 - 22:00	0.8	NNE	0.9	SSW	4.0	WNW	
22:00 - 23:00	1.4	SW	1.0	S	2.1	NW	
23:00 - 24:00	2.0	N	3.1	SSW	0.9	WNW	
00:00 - 01:00	2.1	SW	3.6	SW	1.4	S	
01:00 - 02:00	1.1	SE	3.8	SE	3.2	SSE	
02:00 - 03:00	1.8	E	1.2	NE	1.7	SE	
03:00 - 04:00	1.9	E	0.0	ENE	0.7	SSE	
04:00 - 05:00	1.3	ENE	0.4	SSE	0.9	SSE	
05:00 - 06:00	0.7	E	1.2	E	1.0	SSE	
06:00 - 07:00	1.9	NNE	1.7	ESE	1.3	SSW	
07:00 - 08:00	1.1	NE	1.8	SE	1.3	SW	
08:00 - 09:00	1.3	E	1.8	SE	2.2	WSW	
09:00 - 10:00	0.6	SW	1.4	ESE	2.7	SSW	

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-223007-Ban Map Chalute 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : Nong Feab

Monitor period : 18-25 Apr 2023

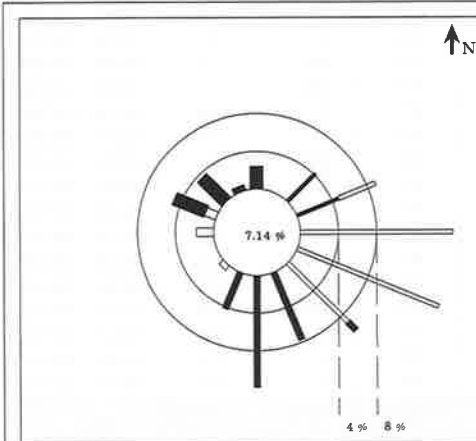
Wind Speed Model : NRG Symphonie

Serial No : 5086

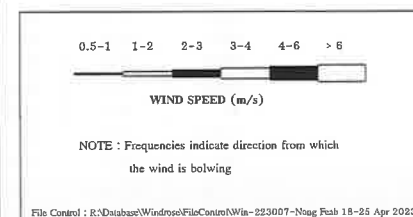
Wind Direction Model : NRG Symphonie

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	0.0000	0.0000	0.0000	0.0000	0.0238	0.0000	0.0238
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0476	0.0417	0.0000	0.0000	0.0000	0.0000	0.0893
E	0.0000	0.1607	0.0000	0.0000	0.0000	0.0000	0.1607
ESE	0.0000	0.1607	0.0000	0.0000	0.0000	0.0000	0.1607
SE	0.0000	0.0893	0.0119	0.0000	0.0000	0.0000	0.1012
SSE	0.0000	0.0000	0.0774	0.0000	0.0000	0.0000	0.0774
S	0.0000	0.0000	0.1190	0.0000	0.0000	0.0000	0.1190
SSW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0000	0.0060	0.0000	0.0000	0.0060
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0179	0.0000	0.0000	0.0179
WNW	0.0000	0.0000	0.0000	0.0119	0.0357	0.0000	0.0476
NW	0.0000	0.0000	0.0000	0.0000	0.0357	0.0000	0.0357
NNW	0.0000	0.0000	0.0000	0.0000	0.0060	0.0000	0.0060
CALM	0.0714						



Application : WindPro Ver.1.0

Control : 16 Direction Calculation With
Calm Wind < 0.5 m/sData Unit : Direction in Deg.
Wind Speed in m/sNOTE : Frequencies indicate direction from which
the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-223007-Nong Feab 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : Nong Feab

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

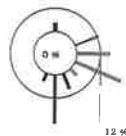
Serial No : 5086

Wind Direction Model : NRG Symphonie

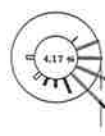
Serial No : 5086

Time	18-19 Apr 2023		19-20 Apr 2023		20-21 Apr 2023		21-22 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
14:00 - 15:00	2.6	S	2.8	SSW	1.5	SE	1.3	E
15:00 - 16:00	2.5	S	2.6	S	1.9	SE	1.6	ESE
16:00 - 17:00	1.5	ESE	2.7	SSW	1.4	ESE	2.4	S
17:00 - 18:00	1.0	ENE	1.2	E	1.2	E	1.2	E
18:00 - 19:00	2.8	SSW	1.2	E	1.7	ESE	2.2	SSE
19:00 - 20:00	2.4	S	2.4	S	2.0	SE	1.3	E
20:00 - 21:00	5.0	N	1.9	SE	1.7	SE	2.6	S
21:00 - 22:00	1.5	ESE	2.3	SSE	2.4	S	2.3	SSE
22:00 - 23:00	2.3	SSE	1.3	E	2.0	SE	1.5	ESE
23:00 - 24:00	2.1	SSE	2.0	SE	1.6	ESE	1.4	E
00:00 - 01:00	2.4	S	2.0	SE	1.4	E	1.0	ENE
01:00 - 02:00	1.3	E	1.5	ESE	1.9	SE	2.4	S
02:00 - 03:00	1.6	ESE	1.8	SE	2.1	SSE	1.9	SE
03:00 - 04:00	0.9	ENE	0.9	ENE	1.0	ENE	1.6	ESE
04:00 - 05:00	1.2	E	0.8	NE	1.0	ENE	1.6	ESE
05:00 - 06:00	1.6	ESE	0.0	N	1.0	ENE	1.6	ESE
06:00 - 07:00	1.4	E	0.5	NE	0.6	NE	1.0	ENE
07:00 - 08:00	1.0	ENE	0.1	N	0.1	N	2.4	S
08:00 - 09:00	1.6	ESE	4.1	WNW	3.0	SSW	2.2	SSE
09:00 - 10:00	1.2	E	4.8	NNW	3.9	W	1.7	ESE
10:00 - 11:00	2.5	S	1.3	E	1.6	ESE	2.8	SSW
11:00 - 12:00	2.7	S	1.2	E	3.0	SW	2.6	S
12:00 - 13:00	1.9	SE	0.8	NE	2.1	SSE	1.8	SE
13:00 - 14:00	1.5	ESE	2.0	SE	1.2	E	0.8	NE

Wind Rose



12 %



12 %



12 %



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

File Control : R:\Database\Windrose\FileControl\Win-223007-Nong Feab 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : Nong Feab

Monitor period : 18-25 Apr 2023

Wind Speed Model : NRG Symphonie

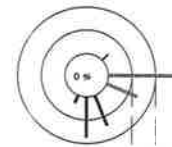
Serial No : 5086

Wind Direction Model : NRG Symphonie

Serial No : 5086

Time	22-23 Apr 2023		23-24 Apr 2023		24-25 Apr 2023	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
14:00 - 15:00	2.6	S	2.9	SSW	4.3	NW
15:00 - 16:00	1.1	E	1.8	SE	4.2	WNW
16:00 - 17:00	2.4	S	1.7	ESE	5.0	N
17:00 - 18:00	2.1	SSE	0.2	NNE	0.2	NNE
18:00 - 19:00	1.2	E	1.9	SE	0.4	NNE
19:00 - 20:00	2.3	SSE	1.8	SE	2.3	SSE
20:00 - 21:00	2.6	S	2.6	S	1.6	ESE
21:00 - 22:00	2.7	SSW	1.4	E	1.5	ESE
22:00 - 23:00	2.4	S	1.5	ESE	4.0	WNW
23:00 - 24:00	1.5	ESE	0.9	ENE	4.0	WNW
00:00 - 01:00	1.2	E	0.4	NNE	3.9	W
01:00 - 02:00	2.4	S	1.0	ENE	4.9	N
02:00 - 03:00	1.6	ESE	0.4	NNE	4.9	N
03:00 - 04:00	1.7	ESE	0.3	NNE	4.0	WNW
04:00 - 05:00	1.2	E	3.9	W	3.9	WNW
05:00 - 06:00	2.0	SSE	4.1	WNW	0.5	NE
06:00 - 07:00	1.2	E	4.2	WNW	1.1	ENE
07:00 - 08:00	1.2	E	0.0	N	0.9	ENE
08:00 - 09:00	1.1	E	1.6	ESE	0.3	NNE
09:00 - 10:00	1.3	E	1.4	E	4.5	NW
10:00 - 11:00	1.4	E	0.8	ENE	4.5	NW
11:00 - 12:00	1.7	ESE	0.7	NE	4.5	NW
12:00 - 13:00	0.8	NE	1.0	ENE	4.5	NW
13:00 - 14:00	2.3	SSE	1.5	ESE	4.5	NW

Wind Rose



12 % 24 %



8 %



12 %



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

File Control : R:\Database\Windrose\FileControl\Win-223007-Nong Feab 18-25 Apr 2023

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 223007 Amb (Cert.)/TSP/Apr 2023
Branch 2, Power Plant SAMPLING DATE : 18-25/04/2023
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 26-27/04/2023
RECEIVED DATE : 26/04/2023 SAMPLE CONDITION : Normal
REPORT DATE : 28/04/2023 SITE OPERATOR : Mr. Sittichai Sawangwongchai
LOCATION DESCRIPTION : 1. Ban Map Chalute
2. Ban Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS		STANDARD*	REFERENCE METHODS
			1	2		
TSP (24 hr)	18-19/04/2023	mg/m ³	0.069	0.038	0.330	High Volume Air
	19-20/04/2023	mg/m ³	0.125	0.037		Sampler/Gravimetric
	20-21/04/2023	mg/m ³	0.092	0.040		Method
	21-22/04/2023	mg/m ³	0.095	0.052		
	22-23/04/2023	mg/m ³	0.093	0.060		
	23-24/04/2023	mg/m ³	0.068	0.034		
	24-25/04/2023	mg/m ³	0.086	0.038		

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

3. * Notification of National Environment Board, No.24, B.E.2547 (2004).



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 223007 Amb (Cert.)/PM-10/Apr 2023
Branch 2, Power Plant SAMPLING DATE : 18-25/04/2023
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 26-27/04/2023
RECEIVED DATE : 26/04/2023 SAMPLE CONDITION : Normal
REPORT DATE : 28/04/2023 SITE OPERATOR : Mr. Sittichai Sawangwongchai
LOCATION DESCRIPTION : 1. Ban Map Chalute
2. Ban Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS		STANDARD*	REFERENCE METHODS
			1	2		
PM-10 (24 hr)	18-19/04/2023	mg/m ³	0.038	0.028	0.120	High Volume Air Sampler
	19-20/04/2023	mg/m ³	0.074	0.027		(Hi-Vol PM-10 Size
	20-21/04/2023	mg/m ³	0.064	0.029		Selective Inlet)/
	21-22/04/2023	mg/m ³	0.063	0.034		Gravimetric Method
	22-23/04/2023	mg/m ³	0.058	0.041		
	23-24/04/2023	mg/m ³	0.038	0.019		
	24-25/04/2023	mg/m ³	0.044	0.020		

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

3. * Notification of National Environment Board, No.24, B.E.2547 (2004).



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalute
Analyzer Model : API 100A
Serial No : 342

Monitor Period : 18-25 Apr 2023
Station No : Mobile 10
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 09 Jan 2023
Expire Date : 08 Jan 2024

Serial No : 587
Cal Concentration (ppb) : 0,100,200,400

Time	SO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
13:00 - 14:00	0.0036	0.0057	0.0054	0.0050	0.0048	0.0035	0.0037
14:00 - 15:00	0.0037	0.0042	0.0040	0.0044	0.0049	0.0046	0.0047
15:00 - 16:00	0.0040	0.0050	0.0049	0.0035	0.0053	0.0042	0.0048
16:00 - 17:00	0.0036	0.0044	0.0040	0.0045	0.0047	0.0057	0.0039
17:00 - 18:00	0.0039	0.0036	0.0032	0.0035	0.0035	0.0050	0.0043
18:00 - 19:00	0.0043	0.0043	0.0053	0.0039	0.0040	0.0052	0.0035
19:00 - 20:00	0.0052	0.0054	0.0048	0.0045	0.0049	0.0037	0.0038
20:00 - 21:00	0.0056	0.0057	0.0033	0.0057	0.0032	0.0036	0.0037
21:00 - 22:00	0.0038	0.0035	0.0053	0.0049	0.0051	0.0057	0.0043
22:00 - 23:00	0.0057	0.0047	0.0043	0.0044	0.0045	0.0054	0.0035
23:00 - 00:00	0.0057	0.0052	0.0034	0.0033	0.0050	0.0051	0.0053
00:00 - 01:00	0.0048	0.0046	0.0056	0.0043	0.0041	0.0041	0.0043
01:00 - 02:00	0.0037	0.0053	0.0053	0.0041	0.0054	0.0035	0.0050
02:00 - 03:00	0.0047	0.0044	0.0032	0.0047	0.0045	0.0053	0.0052
03:00 - 04:00	0.0035	0.0046	0.0038	0.0048	0.0040	0.0047	0.0052
04:00 - 05:00	0.0044	0.0051	0.0035	0.0045	0.0044	0.0045	0.0038
05:00 - 06:00	0.0051	0.0057	0.0046	0.0038	0.0034	0.0035	0.0054
06:00 - 07:00	0.0053	0.0052	0.0057	0.0044	0.0045	0.0040	0.0050
07:00 - 08:00	0.0046	0.0049	0.0047	0.0054	0.0034	0.0037	0.0035
08:00 - 09:00	0.0038	0.0046	0.0050	0.0032	0.0055	0.0054	0.0057
09:00 - 10:00	0.0033	0.0053	0.0053	0.0043	0.0039	0.0041	0.0051
10:00 - 11:00	0.0033	0.0049	0.0035	0.0033	0.0037	0.0043	0.0048
11:00 - 12:00	0.0048	0.0053	0.0036	0.0038	0.0041	0.0052	0.0049
12:00 - 13:00	0.0032	0.0044	0.0040	0.0053	0.0034	0.0049	0.0049
Average-24Hr*	0.0043	0.0048	0.0044	0.0043	0.0043	0.0045	0.0045
Max-1Hr	0.0057	0.0057	0.0057	0.0057	0.0055	0.0057	0.0057
Min-1Hr	0.0032	0.0035	0.0032	0.0032	0.0032	0.0035	0.0035
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 13:00-13:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : Nong Feab
Analyzer Model : Teledyne T100
Serial No : 119

Monitor Period : 18-25 Apr 2023
Station No : Shelter 18
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 09 Jan 2023
Expire Date : 08 Jan 2024

Serial No : 587
Cal Concentration (ppb) : 0,100,200,400

Time	SO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
14:00 - 15:00	0.0044	0.0046	0.0060	0.0061	0.0040	0.0037	0.0046
15:00 - 16:00	0.0045	0.0059	0.0047	0.0065	0.0059	0.0038	0.0046
16:00 - 17:00	0.0051	0.0061	0.0040	0.0041	0.0063	0.0043	0.0048
17:00 - 18:00	0.0032	0.0050	0.0060	0.0036	0.0037	0.0052	0.0060
18:00 - 19:00	0.0052	0.0040	0.0055	0.0060	0.0060	0.0037	0.0044
19:00 - 20:00	0.0056	0.0061	0.0037	0.0045	0.0046	0.0059	0.0057
20:00 - 21:00	0.0035	0.0035	0.0053	0.0051	0.0062	0.0039	0.0044
21:00 - 22:00	0.0051	0.0059	0.0046	0.0056	0.0048	0.0048	0.0047
22:00 - 23:00	0.0053	0.0056	0.0033	0.0037	0.0032	0.0043	0.0058
23:00 - 00:00	0.0053	0.0046	0.0035	0.0035	0.0053	0.0053	0.0053
00:00 - 01:00	0.0032	0.0044	0.0042	0.0061	0.0061	0.0045	0.0052
01:00 - 02:00	0.0040	0.0060	0.0038	0.0048	0.0045	0.0056	0.0062
02:00 - 03:00	0.0038	0.0057	0.0046	0.0043	0.0042	0.0035	0.0053
03:00 - 04:00	0.0057	0.0060	0.0059	0.0050	0.0061	0.0064	0.0057
04:00 - 05:00	0.0039	0.0055	0.0050	0.0041	0.0061	0.0049	0.0033
05:00 - 06:00	0.0065	0.0059	0.0041	0.0050	0.0043	0.0051	0.0060
06:00 - 07:00	0.0043	0.0047	0.0057	0.0051	0.0061	0.0043	0.0050
07:00 - 08:00	0.0033	0.0052	0.0037	0.0057	0.0063	0.0048	0.0038
08:00 - 09:00	0.0048	0.0048	0.0053	0.0036	0.0041	0.0048	0.0060
09:00 - 10:00	0.0061	0.0048	0.0047	0.0062	0.0035	0.0064	0.0056
10:00 - 11:00	0.0059	0.0046	0.0046	0.0048	0.0037	0.0051	0.0052
11:00 - 12:00	0.0064	0.0058	0.0054	0.0054	0.0039	0.0047	0.0052
12:00 - 13:00	0.0051	0.0035	0.0040	0.0041	0.0045	0.0057	0.0051
13:00 - 14:00	0.0052	0.0033	0.0039	0.0038	0.0057	0.0057	0.0051
Average-24Hr*	0.0048	0.0051	0.0046	0.0049	0.0050	0.0049	0.0051
Max-1Hr	0.0065	0.0061	0.0060	0.0065	0.0063	0.0064	0.0062
Min-1Hr	0.0032	0.0033	0.0033	0.0035	0.0032	0.0035	0.0033
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence Monitor Period : 18-25 Apr 2023
Analyzer Model : Teledyne T200 Station No : Mobile 18
Serial No : 111 Site Operator : Mr. Sittichai Sawangwongchai

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	NO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
10:00 - 11:00	0.0057	0.0114	0.0099	0.0277	0.0164	0.0077	0.0191
11:00 - 12:00	0.0058	0.0084	0.0087	0.0147	0.0161	0.0109	0.0113
12:00 - 13:00	0.0094	0.0090	0.0085	0.0152	0.0152	0.0112	0.0224
13:00 - 14:00	0.0073	0.0104	0.0150	0.0168	0.0177	0.0068	0.0226
14:00 - 15:00	0.0067	0.0120	0.0148	0.0112	0.0134	0.0100	0.0118
15:00 - 16:00	0.0076	0.0180	0.0144	0.0195	0.0112	0.0096	0.0154
16:00 - 17:00	0.0044	0.0184	0.0114	0.0199	0.0118	0.0077	0.0177
17:00 - 18:00	0.0068	0.0155	0.0108	0.0077	0.0193	0.0132	0.0184
18:00 - 19:00	0.0051	0.0169	0.0140	0.0189	0.0207	0.0090	0.0163
19:00 - 20:00	0.0074	0.0168	0.0122	0.0066	0.0163	0.0063	0.0101
20:00 - 21:00	0.0061	0.0136	0.0125	0.0187	0.0188	0.0053	0.0114
21:00 - 22:00	0.0076	0.0080	0.0074	0.0214	0.0195	0.0056	0.0120
22:00 - 23:00	0.0095	0.0115	0.0110	0.0142	0.0140	0.0066	0.0133
23:00 - 00:00	0.0070	0.0080	0.0090	0.0082	0.0146	0.0067	0.0095
00:00 - 01:00	0.0073	0.0115	0.0071	0.0106	0.0206	0.0050	0.0145
01:00 - 02:00	0.0092	0.0054	0.0061	0.0055	0.0106	0.0069	0.0068
02:00 - 03:00	0.0079	0.0056	0.0058	0.0085	0.0070	0.0042	0.0055
03:00 - 04:00	0.0070	0.0062	0.0067	0.0072	0.0078	0.0057	0.0090
04:00 - 05:00	0.0098	0.0096	0.0081	0.0076	0.0067	0.0099	0.0023
05:00 - 06:00	0.0107	0.0087	0.0177	0.0057	0.0117	0.0196	0.0074
06:00 - 07:00	0.0086	0.0099	0.0142	0.0094	0.0054	0.0167	0.0047
07:00 - 08:00	0.0087	0.0102	0.0119	0.0088	0.0078	0.0126	0.0047
08:00 - 09:00	0.0117	0.0114	0.0093	0.0208	0.0065	0.0119	0.0036
09:00 - 10:00	0.0110	0.0101	0.0103	0.0166	0.0069	0.0128	0.0050
Average-24Hr*	0.0078	0.0110	0.0106	0.0134	0.0132	0.0092	0.0112
Max-1Hr	0.0117	0.0180	0.0177	0.0277	0.0207	0.0196	0.0226
Min-1Hr	0.0044	0.0054	0.0058	0.0055	0.0054	0.0042	0.0023
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence Monitor Period : 18-25 Apr 2023
Analyzer Model : API 200A Station No : Shelter 16
Serial No : 1651 Site Operator : Mr. Sittichai Sawangwongchai

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	NO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
11:00 - 12:00	0.0068	0.0114	0.0110	0.0281	0.0172	0.0089	0.0202
12:00 - 13:00	0.0064	0.0095	0.0076	0.0155	0.0164	0.0115	0.0123
13:00 - 14:00	0.0107	0.0095	0.0091	0.0154	0.0163	0.0120	0.0227
14:00 - 15:00	0.0088	0.0119	0.0158	0.0187	0.0191	0.0077	0.0238
15:00 - 16:00	0.0085	0.0117	0.0156	0.0123	0.0144	0.0111	0.0122
16:00 - 17:00	0.0085	0.0187	0.0157	0.0203	0.0113	0.0092	0.0159
17:00 - 18:00	0.0047	0.0169	0.0121	0.0216	0.0126	0.0086	0.0179
18:00 - 19:00	0.0076	0.0158	0.0117	0.0091	0.0210	0.0134	0.0196
19:00 - 20:00	0.0070	0.0188	0.0151	0.0194	0.0211	0.0097	0.0169
20:00 - 21:00	0.0081	0.0182	0.0136	0.0068	0.0167	0.0073	0.0117
21:00 - 22:00	0.0071	0.0150	0.0136	0.0194	0.0205	0.0062	0.0111
22:00 - 23:00	0.0085	0.0098	0.0091	0.0224	0.0200	0.0071	0.0126
23:00 - 00:00	0.0098	0.0130	0.0122	0.0156	0.0144	0.0079	0.0134
00:00 - 01:00	0.0087	0.0081	0.0107	0.0089	0.0154	0.0065	0.0096
01:00 - 02:00	0.0084	0.0128	0.0086	0.0120	0.0216	0.0061	0.0151
02:00 - 03:00	0.0102	0.0058	0.0066	0.0067	0.0114	0.0085	0.0080
03:00 - 04:00	0.0088	0.0064	0.0060	0.0101	0.0078	0.0050	0.0066
04:00 - 05:00	0.0089	0.0062	0.0075	0.0082	0.0089	0.0069	0.0031
05:00 - 06:00	0.0119	0.0095	0.0083	0.0090	0.0067	0.0105	0.0026
06:00 - 07:00	0.0114	0.0092	0.0174	0.0066	0.0122	0.0204	0.0076
07:00 - 08:00	0.0105	0.0110	0.0140	0.0099	0.0066	0.0171	0.0052
08:00 - 09:00	0.0095	0.0120	0.0128	0.0093	0.0098	0.0134	0.0049
09:00 - 10:00	0.0129	0.0120	0.0104	0.0218	0.0076	0.0127	0.0048
10:00 - 11:00	0.0120	0.0113	0.0107	0.0171	0.0084	0.0131	0.0061
Average-24Hr*	0.0090	0.0119	0.0115	0.0143	0.0141	0.0100	0.0118
Max-1Hr	0.0129	0.0188	0.0174	0.0281	0.0216	0.0204	0.0238
Min-1Hr	0.0047	0.0058	0.0060	0.0066	0.0066	0.0050	0.0026
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalute

Monitor Period : 18-25 Apr 2023

Analyzer Model : API 200A

Station No : Mobile 10

Serial No : 2384

Site Operator : Mr. Sittichai Sawangwongchai

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	NO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
13:00 - 14:00	0.0095	0.0090	0.0120	0.0141	0.0159	0.0069	0.0198
14:00 - 15:00	0.0057	0.0092	0.0111	0.0077	0.0111	0.0062	0.0110
15:00 - 16:00	0.0067	0.0145	0.0124	0.0182	0.0105	0.0068	0.0127
16:00 - 17:00	0.0040	0.0149	0.0085	0.0226	0.0205	0.0070	0.0195
17:00 - 18:00	0.0058	0.0199	0.0080	0.0117	0.0206	0.0095	0.0166
18:00 - 19:00	0.0058	0.0223	0.0128	0.0294	0.0213	0.0066	0.0112
19:00 - 20:00	0.0049	0.0144	0.0115	0.0117	0.0152	0.0067	0.0076
20:00 - 21:00	0.0052	0.0107	0.0107	0.0193	0.0154	0.0048	0.0087
21:00 - 22:00	0.0059	0.0072	0.0063	0.0194	0.0163	0.0050	0.0084
22:00 - 23:00	0.0059	0.0080	0.0078	0.0116	0.0140	0.0050	0.0090
23:00 - 00:00	0.0049	0.0066	0.0061	0.0066	0.0120	0.0054	0.0073
00:00 - 01:00	0.0041	0.0078	0.0063	0.0059	0.0202	0.0039	0.0082
01:00 - 02:00	0.0061	0.0055	0.0050	0.0052	0.0089	0.0033	0.0045
02:00 - 03:00	0.0051	0.0055	0.0046	0.0055	0.0069	0.0041	0.0044
03:00 - 04:00	0.0053	0.0056	0.0051	0.0045	0.0063	0.0040	0.0036
04:00 - 05:00	0.0065	0.0070	0.0072	0.0048	0.0052	0.0070	0.0004
05:00 - 06:00	0.0082	0.0075	0.0150	0.0064	0.0068	0.0156	0.0061
06:00 - 07:00	0.0082	0.0078	0.0120	0.0075	0.0059	0.0147	0.0025
07:00 - 08:00	0.0064	0.0077	0.0085	0.0072	0.0052	0.0094	0.0044
08:00 - 09:00	0.0091	0.0067	0.0076	0.0184	0.0046	0.0109	0.0018
09:00 - 10:00	0.0077	0.0100	0.0093	0.0189	0.0042	0.0103	0.0024
10:00 - 11:00	0.0095	0.0077	0.0261	0.0176	0.0051	0.0171	0.0038
11:00 - 12:00	0.0073	0.0063	0.0129	0.0139	0.0088	0.0103	0.0034
12:00 - 13:00	0.0080	0.0077	0.0147	0.0180	0.0117	0.0194	0.0033
Average-24Hr*	0.0065	0.0096	0.0101	0.0128	0.0114	0.0083	0.0075
Max-1Hr	0.0095	0.0223	0.0261	0.0294	0.0213	0.0194	0.0198
Min-1Hr	0.0040	0.0055	0.0046	0.0045	0.0042	0.0033	0.0004
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr							

Remark : * Average time between 13:00-13:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC, Branch 2 (Power Plant)

Location : Nong Feab

Monitor Period : 18-25 Apr 2023

Analyzer Model : API 200A

Station No : Shelter 18

Serial No : 2385

Site Operator : Mr. Sittichai Sawangwongchai

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	NO2 Concentration (ppm)						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
14:00 - 15:00	0.0071	0.0111	0.0136	0.0097	0.0125	0.0081	0.0107
15:00 - 16:00	0.0078	0.0171	0.0139	0.0192	0.0107	0.0089	0.0134
16:00 - 17:00	0.0044	0.0155	0.0106	0.0186	0.0105	0.0079	0.0165
17:00 - 18:00	0.0057	0.0142	0.0087	0.0070	0.0195	0.0110	0.0181
18:00 - 19:00	0.0051	0.0151	0.0134	0.0195	0.0196	0.0077	0.0156
19:00 - 20:00	0.0062	0.0146	0.0116	0.0062	0.0165	0.0062	0.0095
20:00 - 21:00	0.0057	0.0121	0.0109	0.0187	0.0177	0.0054	0.0104
21:00 - 22:00	0.0060	0.0065	0.0072	0.0194	0.0187	0.0082	0.0100
22:00 - 23:00	0.0083	0.0096	0.0093	0.0136	0.0144	0.0061	0.0116
23:00 - 00:00	0.0072	0.0073	0.0086	0.0086	0.0146	0.0049	0.0080
00:00 - 01:00	0.0059	0.0093	0.0059	0.0089	0.0203	0.0051	0.0140
01:00 - 02:00	0.0067	0.0049	0.0059	0.0055	0.0109	0.0048	0.0071
02:00 - 03:00	0.0082	0.0052	0.0058	0.0075	0.0062	0.0038	0.0054
03:00 - 04:00	0.0058	0.0060	0.0067	0.0059	0.0063	0.0050	0.0024
04:00 - 05:00	0.0087	0.0076	0.0073	0.0086	0.0055	0.0074	0.0024
05:00 - 06:00	0.0098	0.0084	0.0159	0.0060	0.0099	0.0176	0.0066
06:00 - 07:00	0.0082	0.0086	0.0125	0.0089	0.0054	0.0146	0.0038
07:00 - 08:00	0.0079	0.0082	0.0107	0.0077	0.0082	0.0108	0.0040
08:00 - 09:00	0.0106	0.0089	0.0082	0.0192	0.0061	0.0113	0.0039
09:00 - 10:00	0.0094	0.0103	0.0105	0.0147	0.0052	0.0112	0.0041
10:00 - 11:00	0.0109	0.0087	0.0280	0.0163	0.0067	0.0172	0.0054
11:00 - 12:00	0.0080	0.0066	0.0133	0.0152	0.0094	0.0117	0.0045
12:00 - 13:00	0.0080	0.0073	0.0149	0.0143	0.0111	0.0225	0.0042
13:00 - 14:00	0.0098	0.0135	0.0152	0.0158	0.0071	0.0211	0.0041
Average-24Hr*	0.0076	0.0099	0.0112	0.0122	0.0114	0.0099	0.0082
Max-1Hr	0.0109	0.0171	0.0280	0.0195	0.0203	0.0225	0.0181
Min-1Hr	0.0044	0.0049	0.0058	0.0055	0.0052	0.0038	0.0024
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.3

ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป



Noise Monitoring Result : Community Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : The North of Fence Monitor Period : 18-25 Apr 2023
SLM Model : Cirrus CR162B Serial No : G302740
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 20 Dec 2022
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 19 Dec 2023
Cal Sheet No. : CR-515-2023-043

Time	Equivalent Sound Pressure Level (dB(A))						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
11:00 - 12:00	69.7	69.5	69.7	70.1	69.9	69.2	70.4
12:00 - 13:00	69.6	69.4	69.4	69.7	69.4	68.6	69.1
13:00 - 14:00	69.8	69.3	69.4	69.8	69.0	68.4	69.3
14:00 - 15:00	69.7	69.4	69.6	69.7	68.9	68.5	69.3
15:00 - 16:00	69.6	69.2	69.7	69.8	68.8	68.5	69.9
16:00 - 17:00	70.0	70.0	69.7	70.3	69.2	69.3	70.7
17:00 - 18:00	70.2	70.4	70.2	70.8	69.7	69.2	70.2
18:00 - 19:00	69.9	70.1	69.9	70.6	69.7	69.8	70.1
19:00 - 20:00	69.5	69.4	69.4	70.0	69.4	69.3	68.9
20:00 - 21:00	69.4	69.2	69.4	69.6	68.8	68.8	68.8
21:00 - 22:00	68.8	68.3	68.2	68.9	67.9	67.9	68.2
22:00 - 23:00	69.5	68.3	68.3	68.7	68.2	68.1	68.3
23:00 - 00:00	68.7	67.6	67.8	68.2	67.8	67.9	67.6
00:00 - 01:00	68.6	67.6	67.6	68.4	68.0	67.6	67.4
01:00 - 02:00	68.7	67.6	67.6	67.9	67.8	67.8	67.2
02:00 - 03:00	68.7	67.5	67.5	67.8	67.5	67.6	67.2
03:00 - 04:00	68.4	67.4	67.5	67.8	67.6	67.7	67.1
04:00 - 05:00	68.5	67.1	67.7	67.8	67.7	68.3	67.9
05:00 - 06:00	68.9	67.0	67.9	68.1	67.7	69.1	68.6
06:00 - 07:00	70.3	67.0	70.4	70.2	69.8	70.6	70.9
07:00 - 08:00	71.2	67.0	71.3	70.8	70.3	71.4	71.6
08:00 - 09:00	70.0	67.0	71.1	69.7	69.7	70.3	70.2
09:00 - 10:00	69.7	67.0	69.3	69.9	68.7	70.2	69.4
10:00 - 11:00	69.6	69.3	69.7	69.1	68.7	70.0	69.5
Leq(24)*	69.5	68.6	69.2	69.4	68.8	69.0	69.3
Ldn	75.5	74.2	74.8	75.1	74.7	75.0	74.9
Lmax **	87.0	86.1	95.2	94.4	93.0	91.3	92.5
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 11:00-11:00

** Maximum Sound Pressure Level between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : The North of Fence Monitor Period : 18-25 Apr 2023
SLM Model : Cirrus CR162B Serial No : G302740
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 20 Dec 2022
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 19 Dec 2023
Cal Sheet No. : CR-515-2023-043

Time	L90 (dB(A))						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
11:00 - 12:00	67.7	66.6	66.4	66.4	66.6	66.6	66.6
12:00 - 13:00	67.5	66.5	66.6	66.4	66.7	66.5	66.1
13:00 - 14:00	67.7	66.6	66.7	66.6	66.7	66.5	65.8
14:00 - 15:00	67.8	66.9	67.0	66.7	66.7	66.6	66.0
15:00 - 16:00	67.6	66.5	67.3	66.5	66.6	66.6	66.7
16:00 - 17:00	67.6	66.9	66.7	67.3	66.7	66.7	67.8
17:00 - 18:00	67.8	67.5	66.9	67.2	66.9	66.7	66.2
18:00 - 19:00	67.7	67.5	66.7	67.1	67.0	67.3	66.2
19:00 - 20:00	67.8	66.9	66.9	67.7	66.7	67.0	66.0
20:00 - 21:00	67.7	66.9	67.6	66.8	66.6	66.8	65.9
21:00 - 22:00	67.6	66.7	66.6	66.8	66.7	66.7	65.9
22:00 - 23:00	67.7	66.7	66.6	66.9	66.8	66.7	66.3
23:00 - 00:00	67.6	66.6	66.5	66.8	66.6	66.7	66.3
00:00 - 01:00	67.6	66.6	66.4	66.8	66.6	66.6	66.1
01:00 - 02:00	67.7	66.5	66.4	66.8	66.6	66.7	66.0
02:00 - 03:00	67.6	66.4	66.4	66.8	66.5	66.6	66.0
03:00 - 04:00	67.4	66.4	66.5	66.8	66.5	66.5	66.0
04:00 - 05:00	67.4	66.5	66.5	66.8	66.6	66.8	66.3
05:00 - 06:00	67.4	66.9	66.5	66.8	66.6	67.7	67.0
06:00 - 07:00	67.2	67.0	67.1	67.1	66.8	67.2	67.7
07:00 - 08:00	68.0	67.0	67.4	67.2	66.9	67.5	67.8
08:00 - 09:00	67.3	67.0	66.6	66.9	66.7	67.0	66.8
09:00 - 10:00	67.3	67.0	66.3	66.7	66.6	67.3	66.5
10:00 - 11:00	67.0	66.3	66.5	66.6	66.5	67.3	66.7
L90(avg)*	67.6	66.8	66.7	66.9	66.7	66.9	66.5

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise

MTR-PTTGC, Branch 2 (Power Plant)

Location : The South of Fence Monitor Period : 18-25 Apr 2023
 SLM Model : Cirrus CR162B Serial No : G300846
 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 20 Dec 2022
 SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 19 Dec 2023
 Cal Sheet No. : CR-515-2023-043

Time	Equivalent Sound Pressure Level (dB(A))						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
12:00 - 13:00	59.9	63.5	60.9	60.9	61.8	59.7	60.8
13:00 - 14:00	61.5	64.5	61.9	63.4	62.2	62.7	61.7
14:00 - 15:00	61.9	63.8	61.5	65.6	61.8	64.1	62.4
15:00 - 16:00	62.6	63.7	61.6	62.3	60.6	60.8	62.2
16:00 - 17:00	63.1	63.8	61.9	63.0	61.6	60.7	61.6
17:00 - 18:00	63.6	64.2	63.0	63.3	62.2	60.6	61.4
18:00 - 19:00	63.5	63.6	61.9	61.7	62.5	61.4	60.0
19:00 - 20:00	63.4	62.4	61.3	61.1	60.9	60.5	59.4
20:00 - 21:00	62.8	63.8	60.8	60.5	61.5	60.5	59.2
21:00 - 22:00	62.4	63.4	60.4	61.1	62.0	60.5	61.0
22:00 - 23:00	61.9	64.3	60.4	60.9	61.7	60.1	61.3
23:00 - 00:00	61.7	63.6	60.3	60.4	62.4	60.3	61.5
00:00 - 01:00	61.1	63.5	59.9	60.1	62.6	59.9	61.2
01:00 - 02:00	60.9	64.6	60.3	60.0	61.0	59.8	62.1
02:00 - 03:00	60.5	62.9	60.0	60.1	61.4	59.9	62.2
03:00 - 04:00	60.1	63.5	60.0	60.1	62.7	59.6	63.0
04:00 - 05:00	60.3	62.4	60.1	60.1	62.3	59.8	60.5
05:00 - 06:00	61.8	62.4	60.4	60.1	62.2	59.5	61.4
06:00 - 07:00	62.0	62.4	62.2	60.1	61.2	60.9	59.8
07:00 - 08:00	63.6	62.4	62.7	60.1	62.7	63.3	59.5
08:00 - 09:00	62.8	62.4	63.2	60.1	62.8	61.7	59.5
09:00 - 10:00	62.8	62.4	63.4	60.1	62.8	61.7	59.8
10:00 - 11:00	62.4	62.3	61.3	61.1	62.8	61.6	60.5
11:00 - 12:00	63.9	61.4	61.7	60.9	61.4	61.1	60.1
Leq(24)*	62.3	63.3	61.4	61.4	62.0	61.0	61.0
Ldn	67.9	69.8	67.1	66.9	68.4	66.7	67.8
Lmax **	81.3	79.9	85.4	86.1	78.2	80.4	89.3
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 12:00-12:00

** Maximum Sound Pressure Level between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-PTTGC, Branch 2 (Power Plant)

Location : The South of Fence Monitor Period : 18-25 Apr 2023
 SLM Model : Cirrus CR162B Serial No : G300846
 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 20 Dec 2022
 SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 19 Dec 2023
 Cal Sheet No. : CR-515-2023-043

Time	L90 (dB(A))						
	18-19 Apr 2023	19-20 Apr 2023	20-21 Apr 2023	21-22 Apr 2023	22-23 Apr 2023	23-24 Apr 2023	24-25 Apr 2023
12:00 - 13:00	58.5	61.5	58.7	59.3	59.3	58.5	59.1
13:00 - 14:00	59.0	62.0	59.3	59.5	60.1	59.2	59.3
14:00 - 15:00	59.5	61.7	59.4	60.8	59.6	60.0	60.2
15:00 - 16:00	59.6	61.7	59.3	59.5	59.2	59.2	59.5
16:00 - 17:00	60.5	61.4	59.6	59.3	59.4	59.4	58.1
17:00 - 18:00	60.6	61.1	59.6	59.5	60.1	59.2	57.7
18:00 - 19:00	60.7	61.2	59.8	59.3	60.2	59.7	57.9
19:00 - 20:00	61.5	60.5	59.7	59.2	59.6	59.4	58.2
20:00 - 21:00	61.3	60.8	59.6	59.5	59.9	59.4	58.4
21:00 - 22:00	60.9	61.4	59.3	59.7	59.7	59.4	58.7
22:00 - 23:00	60.5	61.8	59.3	59.7	59.5	59.3	59.5
23:00 - 00:00	60.4	61.5	59.4	59.4	60.1	59.4	59.6
00:00 - 01:00	60.1	61.4	59.0	59.3	60.2	59.1	59.2
01:00 - 02:00	59.9	61.4	59.2	59.4	59.6	59.1	59.7
02:00 - 03:00	59.5	60.9	59.2	60.0	59.6	59.1	60.1
03:00 - 04:00	59.3	61.1	59.3	60.1	60.3	58.9	59.0
04:00 - 05:00	59.3	61.6	59.0	60.1	60.3	59.1	57.9
05:00 - 06:00	59.5	62.3	59.1	60.1	60.2	58.7	57.8
06:00 - 07:00	59.7	62.4	59.6	60.1	59.9	59.0	58.3
07:00 - 08:00	60.0	62.4	59.7	60.1	61.3	59.4	58.5
08:00 - 09:00	59.7	62.4	59.4	60.1	62.8	59.4	58.6
09:00 - 10:00	60.0	62.4	59.9	60.1	62.8	59.6	58.6
10:00 - 11:00	60.3	59.8	59.4	59.9	62.8	59.2	58.4
11:00 - 12:00	60.8	59.2	59.7	59.3	59.3	59.6	58.3
L90(avg)*	60.1	61.5	59.4	59.7	60.4	59.3	58.8

Remark : * Average time between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.4

ใบรับรองผลการตรวจวิเคราะห์คุณภาพน้ำ



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0049/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 10.15
SAMPLING DATE : 12/01/2023 **ANALYTICAL DATE** : 13-18/01/2023
RECEIVED DATE : 13/01/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 19/01/2023 **FILE CODE** : 223007_WW_January
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	28.7	≤ 40
pH		4500-H ⁺ B	< 0.10	7.60	5.5-9.0
Total Dissolved Solids	mg/l	2540 C ^{2/}	< 50	3,022	23,700 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	6	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	4.1	≤ 20
COD	mg/l	5220 C	< 15.00	50.30	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19th ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on January 12, 2023 found to be 18,700 mg/l therefore the Standard of TDS found to be 23,700 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0050/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 10.55
SAMPLING DATE : 12/01/2023 **ANALYTICAL DATE** : 13-18/01/2023
RECEIVED DATE : 13/01/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 19/01/2023 **FILE CODE** : 223007_SW_January
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนปล่อยลงสู่คลองโรงโหลหินส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	30.1	2 ^{2/}
pH		4500-H ⁺ B	< 0.10	8.92	2 ^{2/}
Total Dissolved Solids	mg/l	2540 C	< 50	5,860	2 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	31	2 ^{2/}
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2 ^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	2 ^{2/}
BOD ₅	mg/l	5210 B	< 1.0	2.9	2 ^{2/}
COD	mg/l	5220 C	< 15.00	34.33	2 ^{2/}

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19th ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0050/66
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	11.05
SAMPLING DATE	12/01/2023	ANALYTICAL DATE	13-18/01/2023
RECEIVED DATE	13/01/2023	SITE OPERATOR	Mr. Watcharakan Pramakhate
REPORT DATE	19/01/2023	FILE CODE	223007_SW_January
SAMPLE CONDITION	Normal		

LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโหล่ฟีนัส

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	28.7	2/
pH	-	4500-H ⁺ B	< 0.10	8.26	2/
Total Dissolved Solids	mg/l	2540 C	< 50	1,946	2/
Total Suspended Solids	mg/l	2540 D	< 5	7	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	2.3	2/
COD	mg/l	5220 C	< 15.00	22.39	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0190/66
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	09.52
SAMPLING DATE	09/02/2023	ANALYTICAL DATE	10-18/02/2023
RECEIVED DATE	10/02/2023	SITE OPERATOR	Mr. Watcharakan Pramakhate
REPORT DATE	18/02/2023	FILE CODE	223007_WW_February
SAMPLE CONDITION	Normal		

LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	33.6	≤ 40
pH	-	4500-H ⁺ B	< 0.10	8.23	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	2,782	35,300 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	10	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.2	≤ 20
COD	mg/l	5220 C	< 15.00	28.34	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on February 09, 2023 found to be 30,300 mg/l therefore the Standard of TDS found to be 35,300 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0191/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10.40
SAMPLING DATE : 09/02/2023 ANALYTICAL DATE : 10-18/02/2023
RECEIVED DATE : 10/02/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 18/02/2023 FILE CODE : 223007_SW_February
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	31.8	2/
pH		4500-H ⁺ B	< 0.10	7.72	2/
Total Dissolved Solids	mg/l	2540 C	< 50	1,948	2/
Total Suspended Solids	mg/l	2540 D	< 5	12	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	3.4	2/
COD	mg/l	5220 C	< 15.00	28.34	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)
Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)
Technical Management Team

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).
Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.
 4. ^{2/} No standard.
 5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0191/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10.32
SAMPLING DATE : 09/02/2023 ANALYTICAL DATE : 10-18/02/2023
RECEIVED DATE : 10/02/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 18/02/2023 FILE CODE : 223007_SW_February
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	32.5	2/
pH		4500-H ⁺ B	< 0.10	8.86	2/
Total Dissolved Solids	mg/l	2540 C	< 50	6,060	2/
Total Suspended Solids	mg/l	2540 D	< 5	30	2/
Fat Oil & Grease	mg/l	5520 B ⁺	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	3.8	2/
COD	mg/l	5220 C	< 15.00	16.19	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)
Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)
Technical Management Team

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).
Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.
 4. ^{2/} No standard.
 5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, **REQUEST SERVICE No.** : 0378/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 10:42-10:50
SAMPLING DATE : 09/03/2023 **ANALYTICAL DATE** : 10-17/03/2023
RECEIVED DATE : 10/03/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 17/03/2023 **FILE CODE** : 223007_WW_March
SAMPLE CONDITION : Normal

LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	35.9	≤ 40
pH	-	4500-H ⁺ B	< 0.10	8.18	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	4,060	36,540 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.2	≤ 20
COD	mg/l	5220 C	< 15.00	37.48	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on March 09, 2023 found to be 31,540 mg/l therefore the Standard of TDS found to be 36,540 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, **REQUEST SERVICE No.** : 0377/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 11:12-11:18
SAMPLING DATE : 09/03/2023 **ANALYTICAL DATE** : 10-17/03/2023
RECEIVED DATE : 10/03/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 18/03/2023 **FILE CODE** : 223007_SW_March
SAMPLE CONDITION : Normal

LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุบปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	24.9	2/
pH	-	4500-H ⁺ B	< 0.10	9.00	2/
Total Dissolved Solids	mg/l	2540 C	< 50	7,420	2/
Total Suspended Solids	mg/l	2540 D	< 5	42	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	2.8	2/
COD	mg/l	5220 C	< 15.00	15.86	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0377/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:23-11:29
SAMPLING DATE : 09/03/2023 ANALYTICAL DATE : 10-17/03/2023
RECEIVED DATE : 10/03/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 18/03/2023 FILE CODE : 223007_SW_March
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงไอล์ฟีนส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	24.9	2/
pH		4500-H ⁺ B	< 0.10	7.94	2/
Total Dissolved Solids	mg/l	2540 C	< 50	1,898	2/
Total Suspended Solids	mg/l	2540 D	< 5	9	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	3.3	2/
COD	mg/l	5220 C	< 15.00	27.39	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)
Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)
Technical Management Team

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

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0574/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10.48
SAMPLING DATE : 11/04/2023 ANALYTICAL DATE : 12-20/04/2023
RECEIVED DATE : 12/04/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 21/04/2023 FILE CODE : 223007_WW_April
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	36.8	≤ 40
pH		4500-H ⁺ B	< 0.10	8.33	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	3,020	38,280 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	50.56	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)
Analyst
REG. NO. 2-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. 2-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on April 11, 2023 found to be 33,280 mg/l therefore the Standard of TDS found to be 38,280 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0576/66
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	11.23
SAMPLING DATE	11/04/2023	ANALYTICAL DATE	12-20/04/2023
RECEIVED DATE	12/04/2023	SITE OPERATOR	Mr. Watcharakan Pramakhate
REPORT DATE	21/04/2023	FILE CODE	223007_SW_April
SAMPLE CONDITION	Normal		
LOCATION DESCRIPTION	1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโม่หิน		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^U
Temperature	°C	2550 B	< 0.5	34.5	2/
pH	-	4500-H ⁺ B	< 0.10	8.59	2/
Total Dissolved Solids	mg/l	2540 C	< 50	7,520	2/
Total Suspended Solids	mg/l	2540 D	< 5	8	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	2.7	2/
COD	mg/l	5220 C	< 15.00	49.30	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^U Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0576/66
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	10.32
SAMPLING DATE	11/04/2023	ANALYTICAL DATE	12-20/04/2023
RECEIVED DATE	12/04/2023	SITE OPERATOR	Mr. Watcharakan Pramakhate
REPORT DATE	21/04/2023	FILE CODE	223007_SW_April
SAMPLE CONDITION	Normal		
LOCATION DESCRIPTION	2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโม่หิน		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^U
Temperature	°C	2550 B	< 0.5	33.6	2/
pH	-	4500-H ⁺ B	< 0.10	7.74	2/
Total Dissolved Solids	mg/l	2540 C	< 50	1,508	2/
Total Suspended Solids	mg/l	2540 D	< 5	12	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	2.7	2/
COD	mg/l	5220 C	< 15.00	45.50	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

(Mrs. Araya Tipparuk)

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^U Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , **REQUEST SERVICE No.** : 0739/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 09.19
SAMPLING DATE : 11/05/2023 **ANALYTICAL DATE** : 12-17/05/2023
RECEIVED DATE : 12/05/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 18/05/2023 **FILE CODE** : 223007_WW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	36.1	≤ 40
pH		4500-H ⁺ B	< 0.10	8.22	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	2,474	29,240 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.9	≤ 20
COD	mg/l	5220 C	< 15.00	41.26	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5863

Mrs. Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on May 11, 2023 found to be 24,240 mg/l therefore the Standard of TDS found to be 29,240 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , **REQUEST SERVICE No.** : 0738/66
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 10.00
SAMPLING DATE : 11/05/2023 **ANALYTICAL DATE** : 12-17/05/2023
RECEIVED DATE : 12/05/2023 **SITE OPERATOR** : Mr. Watcharakan Pramakhate
REPORT DATE : 18/05/2023 **FILE CODE** : 223007_SW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	32.0	2/
pH		4500-H ⁺ B	< 0.10	8.09	2/
Total Dissolved Solids	mg/l	2540 C	< 50	3,256	2/
Total Suspended Solids	mg/l	2540 D	< 5	63	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	3.9	2/
COD	mg/l	5220 C	< 15.00	37.36	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Mrs. Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0738/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10.06
SAMPLING DATE : 11/05/2023 ANALYTICAL DATE : 12-17/05/2023
RECEIVED DATE : 12/05/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 18/05/2023 FILE CODE : 223007_SW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	32.5	^{2/}
pH	-	4500-H ⁺ B	< 0.10	7.78	^{3/}
Total Dissolved Solids	mg/l	2540 C	< 50	1,346	^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	9	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	3.2	^{2/}
COD	mg/l	5220 C	< 15.00	25.69	^{2/}

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.

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

3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).

Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.

4. ^{2/} No standard.

5. - Not available.



บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0925/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:00
SAMPLING DATE : 08/06/2023 ANALYTICAL DATE : 09-15/06/2023
RECEIVED DATE : 09/06/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 16/06/2023 FILE CODE : 223007_WW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	33.9	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.70	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	3,956	43,020 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	36.56	≤ 120

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. ^{1/} Notification of the Ministry of Industry, B.E.2560 (2017).

4. ^{2/} In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on June 08, 2023 found to be 38,020 mg/l therefore the Standard of TDS found to be 43,020 mg/l).

5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0924/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:30
SAMPLING DATE : 08/06/2023 ANALYTICAL DATE : 09-15/06/2023
RECEIVED DATE : 09/06/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 15/06/2023 FILE CODE : 223007_SW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโหล่ฟีนส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	33.2	2/
pH		4500-H ⁺ B	< 0.10	8.85	2/
Total Dissolved Solids	mg/l	2540 C	< 50	8,240	2/
Total Suspended Solids	mg/l	2540 D	< 5	35	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	2.1	2/
COD	mg/l	5220 C	< 15.00	29.39	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).
Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.
4. ^{2/} No standard.
5. - Not available.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0924/66
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:20
SAMPLING DATE : 08/06/2023 ANALYTICAL DATE : 09-15/06/2023
RECEIVED DATE : 09/06/2023 SITE OPERATOR : Mr. Watcharakan Pramakhate
REPORT DATE : 15/06/2023 FILE CODE : 223007_SW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโหล่ฟีนส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	32.1	2/
pH		4500-H ⁺ B	< 0.10	7.72	2/
Total Dissolved Solids	mg/l	2540 C	< 50	1,553	2/
Total Suspended Solids	mg/l	2540 D	< 5	5	2/
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	1.6	2/
COD	mg/l	5220 C	< 15.00	27.96	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ^{1/} Notification of the National Environment Board No.8 B.E.2537 (1994).
Subject Determining water quality standards in Surface Water Sources for Surface Water Class 5.
4. ^{2/} No standard.
5. - Not available.

ภาคผนวก ง.5

ใบรับรองผลการตรวจวัดระดับเสียงในพื้นที่ทำงาน



Noise Monitoring Result : Working Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : Air Intake Monitor Period : Feb 08, 2023
SLM Model : CASELLA CEL-246 Serial No : 1443758
Site Operator : Mr. Jeerawat Khothamhan

Calibrator Model : CASELLA CEL120/2 Serial No : 2839225
Calibration Ref dB(A) : 114.0 Certified Date : Jan 13, 2023
SLM Reading / Adjust dB(A) : 113.8/0.2 Expire Date : Jan 12, 2024
Cal Sheet No. : CEL120/2-2023-007

Time	Equivalent Sound Pressure Level (dB(A))	
	Feb 08, 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	84.3	
08:00 - 09:00	84.2	
09:00 - 10:00	84.0	
10:00 - 11:00	83.9	
11:00 - 12:00	83.9	
12:00 - 13:00	83.9	
13:00 - 14:00	83.8	
14:00 - 15:00	83.8	
15:00 - 16:00	83.9	
16:00 - 17:00	84.0	
17:00 - 18:00	84.1	
18:00 - 19:00	84.2	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	84.0	
Lmax **	86.3	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

Ladawan W.

(Miss Ladawan Wongcharoen)
Environmental Scientist

Suk Sununta

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : Turbine Monitor Period : Feb 08, 2023
SLM Model : CASELLA CEL-246 Serial No : 3173108
Site Operator : Mr. Jeerawat Khothamhan

Calibrator Model : CASELLA CEL120/2 Serial No : 2839225
Calibration Ref dB(A) : 114.0 Certified Date : Jan 13, 2023
SLM Reading / Adjust dB(A) : 113.8/0.2 Expire Date : Jan 12, 2024
Cal Sheet No. : CEL120/2-2023-007

Time	Equivalent Sound Pressure Level (dB(A))	
	Feb 08, 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	78.6	
08:00 - 09:00	78.4	
09:00 - 10:00	78.3	
10:00 - 11:00	78.3	
11:00 - 12:00	78.3	
12:00 - 13:00	77.5	
13:00 - 14:00	77.6	
14:00 - 15:00	78.4	
15:00 - 16:00	78.2	
16:00 - 17:00	78.2	
17:00 - 18:00	78.5	
18:00 - 19:00	78.7	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	78.3	
Lmax **	89.8	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

Ladawan W.

(Miss Ladawan Wongcharoen)
Environmental Scientist

Suk Sununta

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : Air Intake
SLM Model : SCARLET ST-21D
Site Operator : Miss Wiraya Patchimboon

Monitor Period : May 26, 2023
Serial No : 820723

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.7/0.0
Cal Sheet No. : CR-515-2023-070

Serial No : 94296
Certified Date : Dec 20, 2022
Expire Date : Dec 19, 2023

Time	Equivalent Sound Pressure Level (dB(A))	
	May 26, 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	84.6	
08:00 - 09:00	84.3	
09:00 - 10:00	84.4	
10:00 - 11:00	84.2	
11:00 - 12:00	84.0	
12:00 - 13:00	84.2	
13:00 - 14:00	84.3	
14:00 - 15:00	84.3	
15:00 - 16:00	84.2	
16:00 - 17:00	84.1	
17:00 - 18:00	84.3	
18:00 - 19:00	84.3	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	84.3	
Lmax **	94.1	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-PTTGC, Branch 2 (Power Plant)

Location : Turbine
SLM Model : SCARLET ST-21D
Site Operator : Miss Wiraya Patchimboon

Monitor Period : May 26, 2023
Serial No : 820725

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.7/0.0
Cal Sheet No. : CR-515-2023-070

Serial No : 94296
Certified Date : Dec 20, 2022
Expire Date : Dec 19, 2023

Time	Equivalent Sound Pressure Level (dB(A))	
	May 26, 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	76.8	
08:00 - 09:00	78.7	
09:00 - 10:00	78.6	
10:00 - 11:00	78.5	
11:00 - 12:00	78.4	
12:00 - 13:00	78.3	
13:00 - 14:00	78.3	
14:00 - 15:00	78.3	
15:00 - 16:00	78.3	
16:00 - 17:00	78.0	
17:00 - 18:00	53.9	
18:00 - 19:00	78.0	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	77.8	
Lmax **	84.5	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ



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 ⊙ 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.



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 16 Jan 23

Initial Final Average

Barometric press, Pb

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 : 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.	ΔP_{std} (mm H ₂ O)	ΔP_s (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.	ΔP_{std} (mm H ₂ O)	ΔP_s (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 : Ladan 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 not used ***



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co., Ltd. Calibration Date : Jan 11, 2023

Hi-Vol Pump No. : BH-013 Indicator No. : CM-01

Amb. Temp (°C) : 27 Press (mmHg) : 760

Calibration by : Mr. Nattachai C.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	16.80	12.20	58.15	976.92	282.24	
13	14.20	9.40	51.36	729.31	201.64	
	11.20	7.40	45.72	512.06	125.44	
7	7.40	4.70	36.70	271.58	54.76	
5	4.20	2.80	28.62	120.20	17.64	
Sum	53.80	36.50	220.55	2,610.08	681.72	

Calibrated by : Nattachai C. Approved by : Nattachai C.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 9, 2023
 Hi-Vol Pump No. : BH-002 Indicator No. : CM-01
 Amb. Temp (°C) : 26 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	19.20	13.60	61.32	1,177.34	368.64	
13	16.00	10.70	54.71	875.36	256.00	
10	12.60	8.60	49.19	619.79	158.76	
7	7.80	5.40	39.24	306.07	60.84	
5	4.80	3.60	32.28	154.94	23.04	
Sum	60.40	41.90	236.74	3,133.51	867.28	

Calibrated by : Punkawin Approved by : Witayak



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 12, 2023
 Hi-Vol Pump No. : BH-018 Indicator No. : CM-01
 Amb. Temp (°C) : 27 Press (mmHg) : 760
 Calibration by : Mr.Nattachai C.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	20.00	13.10	60.21	1,204.20	400.00	
13	16.40	10.40	53.96	884.94	268.96	
10	13.20	8.00	47.48	626.74	174.24	
7	8.60	5.10	38.17	328.26	73.96	
5	5.40	3.20	30.50	164.70	29.16	
Sum	63.60	39.80	230.32	3,208.84	946.32	

Calibrated by : Nattachai C Approved by : Witayak



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 9, 2023
 Hi-Vol Pump No. : BH-032 Indicator No. : CM-01
 Amb. Temp (°C) : 26 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	19.80	12.80	59.53	1,178.69	392.04	
13	16.30	10.20	53.45	871.24	265.69	
10	12.60	8.00	47.48	598.25	158.76	
7	8.60	5.20	38.53	331.36	73.96	
5	5.20	3.20	30.50	158.60	27.04	
Sum	62.50	39.40	229.49	3,138.14	917.49	

Calibrated by : Punkawin Approved by : Wittaya K.

SHEET No.: 342_0123



SO2 Analyzer Performance Test

Date : 9 Jan 23

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	SO2
Brand :	API
Model :	100A
S/N :	342

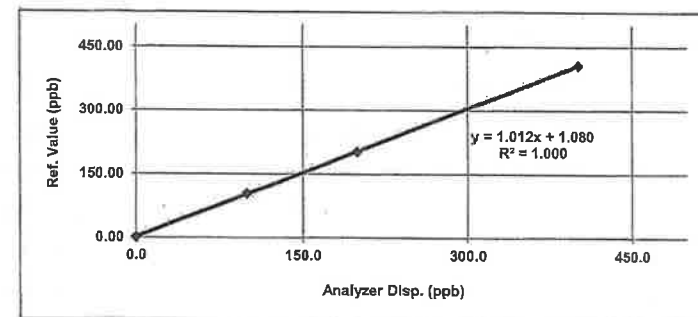
Dilutor : Teledyne T 700 1367
 Zero Air : M701 S/N 1039
 STD GAS : EB0108319

Single Point Calibration

Supply Gas	Ref Value	Analyzer Disp.	Zero-Span Error %	Slope - Offset
Zero	0.00	0.70	-	-
Span	450.00	456.10	-	1.012

MultiPoint Calibration

Ref Value	Analyzer Disp.	Output Difference		
		Diff	Percent Diff	Percent Diff abs.
0.0	0.70	0.70	-	-
100.0	103.30	3.30	3.30	3.30
200.0	202.60	2.60	1.30	1.30
400.0	405.90	5.90	1.47	1.47
Average Diff (%)				2.03



Calibrated by : Punkawin

Approved by : Wittaya K.



NOX-NO Analyzer Performance Test

Date : 9 Jan 23

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	Teledyne
Model :	T200
S/N :	111

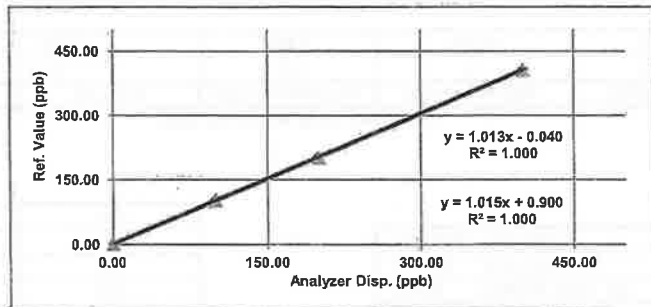
Dilutor :	Teledyne 700E 587
Zero Air :	M701 S/N 1044
STD GAS :	EB0108319

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	0.7	0.5	1.013
Span	450.0	456.7	455.70	1.015

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	0.70	0.50	-	-
100.00	102.30	101.50	2.3	1.5
200.00	204.30	201.10	2.2	0.5
400.00	406.50	405.80	1.6	1.5
		Average Diff (%)	2.0	1.2

Calibrated by : RubananApproved by : Wittaya K.

NOX-NO Analyzer Performance Test

Date : 9 Jan 23

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	1651

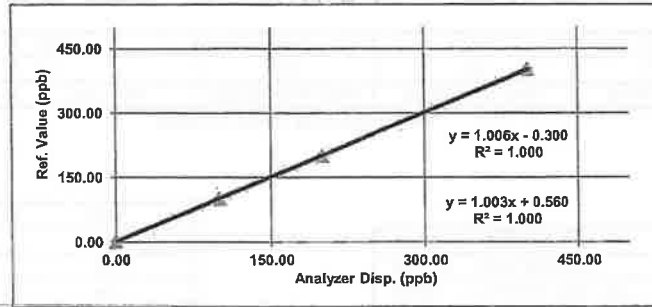
Dilutor :	Teledyne 700E 587
Zero Air :	M701 S/N 1044
STD GAS :	EB0108319

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	0.3	0.1	1.006
Span	450.0	452.1	451.10	1.003

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	0.30	0.10	-	-
100.00	101.10	100.30	1.1	0.3
200.00	201.20	200.10	0.6	0.0
400.00	401.50	402.50	0.4	0.6
		Average Diff (%)	0.7	0.3

Calibrated by : RubananApproved by : Wittaya K.



NOX-NO Analyzer Performance Test

Date : 9 Jan 23

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	2384

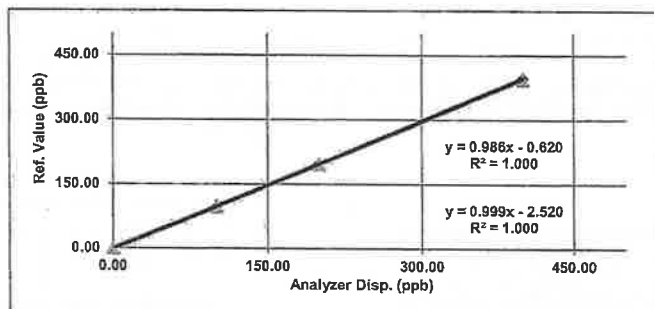
Dilutor :	Teledyne 700E 587
Zero Air :	M701 S/N 1044
STD GAS :	EB0108319

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	-3.0	0.1	0.986
Span	450.0	448.6	447.50	0.999

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	-3.00	0.10	-	-
100.00	97.40	97.20	2.6	2.8
200.00	198.30	196.30	0.8	1.8
400.00	396.70	394.10	0.8	1.5
		Average Diff (%)	1.4	2.0

Calibrated by : *Burkman*Approved by : *Mullayya Jr.*

NOX-NO Analyzer Performance Test

Date : 9 Jan 23

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	2385

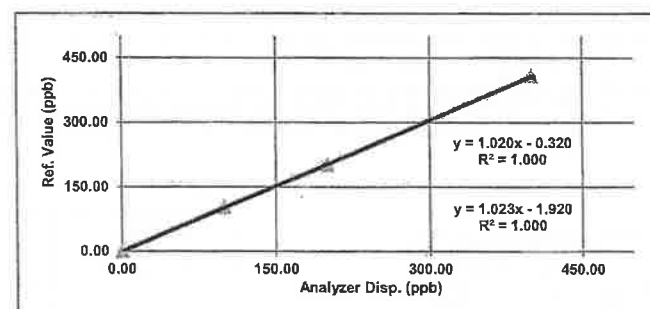
Dilutor :	Teledyne 700E 587
Zero Air :	M701 S/N 1044
STD GAS :	EB0108319

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	-2.0	0.4	1.020
Span	450.0	453.4	451.20	1.023

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	-2.00	0.40	-	-
100.00	101.40	102.20	1.4	2.2
200.00	201.30	201.30	0.7	0.7
400.00	407.70	408.50	1.9	2.1
		Average Diff (%)	1.3	1.7

Calibrated by : *Burkman*Approved by : *Mullayya Jr.*

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04NI99E15AC084 Reference Number: 82-401409170-1
Cylinder Number: EB0102326 Cylinder Volume: 144.4 CF
Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG
PGVP Number: B52019 Valve Outlet: 660
Gas Code: CO,NO,NOX,SO2,BALN Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2027

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

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

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	51.01 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.86 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	50.87 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5050 %	G1	+/- 0.7% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

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

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

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol Document EPA-600/R-12/531. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certificate. This certificate is certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.



TESTING CERT No. 3082.05

Approved for Release

Page 1 of 82-401409170-1



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES

534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250

TEL. 0-2717-3000-27 FAX. 0-2719-9484



Cert.No.: 23CH4

Page.: 1 of 3

Certificate of Calibration

Equipment : pH Meter
Manufacturer : Hanna
Model : HI98190
Serial No. : 06470022101
ID No. : pH No.19
Condition As-Received: Used Item
Received Date : 03 January 2023
Calibration Date : 04 January 2023
Reference : 2301-0006DN-1
Submitted by : Secot Co.,Ltd.
239 Rimklongprapa Road,
Bangsue, Bangkok 10800
Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM)
- CP-CH8 by comparison with standard thermometer

Calibrated by : Warakorn Lemgagtrakul

Approved by :
Approved Signatory

(/) Malee Butkruea
() Salthip Meangmai
() Warakorn Lemgagtrakul

Issue Date : 10 January 2023

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.



Cert.No.: 23CH4
Page.: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument :-

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Ref. Standard Thermometer	4982054	110RC044	2211306	27 Oct 2023

This certification is traceable to the International System of Unit maintained at:-

- Traceable to National Institute of Metrology (Thailand), NIMT

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

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	826588	09 July 2024
pH 6.987	CPA chem	823322	20 June 2023
pH 10.008	CPA chem	826590	09 July 2023

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

Calibration Results

Function : pH Measurement

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

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH measurement (±)	Coverage factor k
pH Electrode S/N.: 0920044N	4.008	4.010	157.9	0.0044	2.00
	6.987	6.990	-1.6	0.0086	2.00
	10.008	10.007	-163.7	0.0065	2.00

Remark - Can not connect the BNC because the plug does not match with the socket.

Malu.

a 1142465



Cert.No.: 23CH4
Page.: 3 of 3

Calibration Results

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : HI12963

- Serial No. : 0920044N

Dimension of probe;

- Length : 105 mm.

- Diameter : 14 mm.

- Immersion Depth : 100 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor k
20.0	20.002	20.0	-0.002	0.13	2.00
25.0	25.003	25.0	-0.003	0.13	2.00
30.0	30.005	30.0	-0.005	0.13	2.00
35.0	35.002	35.0	-0.002	0.13	2.00

Remark : - UUC* = Unit Under Calibration

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

-o0o-

Malu.

a 1142464


Calibration Certificate

Certificate No.: 2203876-003-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: Water Bath
Manufacturer: MEMMERT
Model: WB 29
Serial No.: 1698.0051
ID No.: N/A
Order No.: 2203876
Operation No.: 2203876-003
Date of Receipt: 1 August 2022
Date of Calibration: 1 August 2022

Calibrated by Mr.Yothin Charoensuk
Scientist

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

Date of Issue: 3 August 2022

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision: 01 Date: 20-04-65



Calibration Report

Certificate No.: 2203876-003-01
Equipment: Water Bath
Model: WB 29 Serial No.: 1698.0051
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT

Date of Calibration: 1 August 2022

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition:
Ambient Temperature (29 ± 1) °C
Relative Humidity (66 ± 5) %
Line Voltage (224 ± 1) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 5 standard thermometer into its liquid bath and calibration according to W-TE-011 based on ASTM E715-80 (2016): Standard Specification for Gravity-Convection and Forced-Circulation Water Baths.
- The temperature scale used is ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.


2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY57003188	TE 650469-01	11 June 2023	NATIONAL FOOD INSTITUTE
	RTD	RTD#301-305 / CH#301-305			

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

UUC Description:

- Time of Record 1 Hour 9 Minute At 95.0 °C
7. Result of Calibration : ☒ Without adjustment
☐ After adjustment


3 Aug. 2022

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



Calibration Report

Certificate No.: 2203876-003-01
Equipment: Water Bath
Model: WB 29 Serial No.: I698.0051
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT

Date of Calibration: 1 August 2022 Page 3 of 3

Calibration point: 95.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
Min	28.2	61	223.0
Max	29.7	71	225.0

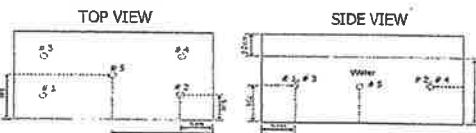


Table 1 : Reporting of Temperature

Sensor Installation Location

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.5 is REF)					Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	
95.0	95.08	95.09	95.03	94.94	94.99	0.38

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
95.0	94.9	95.1	95.0	0.25	0.10	0.69

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k=2$, providing a level of confidence of approximately 95 %.

----- End -----



Calibration Certificate

Certificate No.: 2203876-001-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)

Manufacturer: BINDER

Model: ED 53

Serial No.: 01-27152

ID No.: N/A

Order No.: 2203876

Operation No.: 2203876-001

Date of Receipt: 1 August 2022

Date of Calibration: 1 August 2022

Calibrated by Mr.Yothin Charoensuk
Scientist

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

Date of Issue: 3 August 2022

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.



Calibration Report

Certificate No.: 2203876-001-01
Equipment: CHAMBER (Hot Air Oven)
Model: ED 53 Serial No.: 01-27152
Resolution: 1 °C ID No.: N/A
Manufacturer: BINDER
Date of Calibration: 1 August 2022

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (30 ± 1) °C
Relative Humidity (66 ± 5) %
Line Voltage (220 ± 5) Volt

Condition of this results of Calibration:

- This instrument was calibrated by Insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
- The temperature scale used was based on ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY57003188	TE 650469-01	11 June 2023	NATIONAL FOOD INSTITUTE
	RTD	CH#101-109/ RTD#101-109			

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

UUC Description :

Time of Record 1 Hour 9 Minute At 104,110 and 180 °C

Fresh air Damper ☒ Open Position ☒
☒ Close Fan ☒
☒ Not Available

- Result of Calibration : ☒ Without adjustment ☐ After adjustment



Calibration Report

Certificate No.: 2203876-001-01
Equipment: CHAMBER (Hot Air Oven)
Model: ED 53 Serial No.: 01-27152
Resolution: 1 °C ID No.: N/A
Manufacturer: BINDER
Date of Calibration: 1 August 2022

Page 3 of 3

Calibration point: 104,110 and 180 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	29.8	61	215.0
MAX	30.9	71	225.0

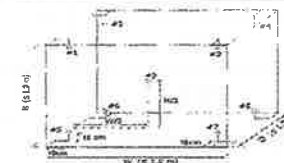


Table 1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
104	103.88	104.38	104.57	104.17	103.06	102.86	103.29	103.14	102.94	0.80
110	109.86	110.37	110.58	110.15	109.05	108.83	109.31	109.16	108.93	0.81
180	179.86	180.90	180.31	180.22	179.43	179.49	179.88	180.20	179.67	0.90

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
104	104	104	104	0.17	1.6	2.0
110	110	110	110	0.21	1.7	2.0
177	177	177	177	0.33	1.2	2.2

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k= 2, providing a level of confidence of approximately 95 %.

----- End -----





Request Service No. 098/66

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Mettler Toledo Type : Top-Loading Electronic Balance

Model : AG245 Serial No. : 1117293916 (198129-0)

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.00001 g (41g)/ 0.0001 g (210g)

Calibration date : May 25, 2023

Reference Standard No. M220177, M2302167S, M2303005N

Traceable to : Metrological Center SCI ECO Services Company Limited.

Thai Calibration Services CO., LTD.

Ambient Condition : Temperature 25.70 - 25.90 °C

Humidity 50.70 – 51.20 % RH

Calibrated By : Sasipa Jaidee

(Miss Sasipa Jaidee)

Testing Officer

Date : 25/05/2023

Approved By : Nanna Poowasanpeth

(Miss Narisa Poowasanpeth)

Chief of Technical Management

Date : 25/05/2023

Issued Date : May 26, 2023

Measurement Report

Request Service No. 098/66

Page 2 of 3

Description : Brand : Mettler Toledo

Type : Top-Loading Electronic Balance

Model : AG245

Serial No. : 1117293916 (198129-0)

Calibration range : 0 – 200 g

Scale division : 0.00001 g (41g)/ 0.0001 g (210g)

Calibration date : May 25, 2023

Ambient Condition : Temperature 25.70-25.90 °C Relative humidity 50.70-51.20 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.000052	0.0001
100	0.000071	0.0002
150	0.000067	0.0002
200	0.000071	0.0002

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
50.00040	50.00062	50.00078	50.00000	50.00010	50.00040	0.00038

Issued Date : May 26, 2023

3. Departure from Nominal Valve :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.000000	± 0.000008
0.5	-0.000017	± 0.000014
1	-0.000026	± 0.000018
10	-0.000099	± 0.000033
20	-0.000168	± 0.000046
40	-0.000339	± 0.000072
60	-0.00058	± 0.00011
80	-0.00059	± 0.00014
100	-0.00070	± 0.00016
120	-0.00069	± 0.00018
140	-0.00096	± 0.00020
160	-0.00082	± 0.00023
180	-0.00089	± 0.00024
200	-0.00118	± 0.00027

Calibrated by : Sasipa Jaidee

(Miss Sasipa Jaidee)

Testing Officer

Date : 25/05/2023

Approved By :

(Miss Narisa Poowasanpetch)

Chief of Technical Management

Date : 25/05/2023

Issued Date : May 26, 2023



ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center



Calibration Certificate

Certificate No.: 2203876-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
 Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Incubator)
Manufacturer: MEMMERT
Model: ICP 400
Serial No.: K406.0004
ID No.: N/A
Order No.: 2203876
Operation No.: 2203876-002
Date of Receipt: 1 August 2022
Date of Calibration: 1 August 2022

Calibrated by Mr.Yothin Charoensuk
 Scientist

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

Date of Issue: 3 August 2022

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision: 01 Date: 20-04-65

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
 2018 2019 2020 2021 2022 2023
 Tel: 02-0121221-2555 Fax: 02-0121221-8545



Calibration Report

Certificate No.: 2203876-002-01
Equipment: CHAMBER (Incubator)
Model: ICP 400 Serial No.: K406.0004
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT
Date of Calibration: 1 August 2022

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (29 ± 1) °C
Relative Humidity (66 ± 5) %
Line Voltage (220 ± 5) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
- The temperature scale used was based on ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY57003188	TE 650469-01	11 June 2023	NATIONAL FOOD INSTITUTE
	RTD	CH#201-209/ RTD#201-209			

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

UUC Description :

Time of Record 1 Hour 9 Minute At 20.0 °C
Fresh air Damper - Open Position -
X Close Fan -
Not Available

7. Result of Calibration : ☒ Without adjustment ☐ After adjustment



Calibration Report

Certificate No.: 2203876-002-01
Equipment: CHAMBER (Incubator)
Model: ICP 400 Serial No.: K406.0004
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT
Date of Calibration: 1 August 2022

Page 3 of 3

Calibration point: 20.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	27.6	61	215.0
MAX	29.5	71	225.0

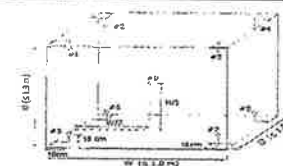


Table 1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
20.0	20.01	20.09	20.11	20.07	20.18	20.09	20.05	19.99	20.09	0.27

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
20.0	20.0	20.0	20.0	0.10	0.10	0.37

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k= 2, providing a level of confidence of approximately 95 %.

----- End -----



Calibration Certificate

Certificate No.: 2303092-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road, Bangsue,
Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)
Manufacturer: MEMMERT
Model: UM 400
Serial No.: B419.1400
ID No.: N/A
Order No.: 2303092
Operation No.: 2303092-002
Date of Receipt: 26 May 2023
Date of Calibration: 26 May 2023

Calibrated by Mr.Jerawut Prapawuttipong
Scientist

Approved by 
(Mr.Pheraphat Tuanjit)

Manager, Division of Calibration Laboratory

Date of Issue: 30 May 2023

Responsible for the Technical Management Team

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision: 01 Date: 20-04-65



Calibration Report

Certificate No.: 2303092-002-01
Equipment: CHAMBER (Hot Air Oven)
Model: UM 400 **Serial No.:** B419.1400
Resolution: 1 °C **ID No.:** N/A
Manufacturer: MEMMERT

Date of Calibration: 26 May 2023

Page 2 of 3

Location: Walkway Laboratory, SECOT CO., LTD.
Environment Condition:
Ambient Temperature (30.5 ± 1) °C
Relative Humidity (60 ± 5) %
Line Voltage (220 ± 5) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
- The temperature scale used was based on ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY49016851	TE 660495-01	7 May 2024	NATIONAL FOOD INSTITUTE
	RTD	CH#101-109/ RTD#101-109			

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

UUC Description :

Time of Record 1 Hour 9 Minute At 150 °C
Fresh air Damper ☐ Open Position ☐
☒ Close Fan ☐
☐ Not Available

7. Result of Calibration : ☒ Without adjustment ☐ After adjustment

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



Calibration Report

Certificate No.:	2303092-002-01		
Equipment:	CHAMBER (Hot Air Oven)		
	Model:	UM 400	Serial No.: B419.1400
	Resolution:	1 °C	ID No.: N/A
	Manufacturer:	MEMMERT	

Date of Calibration: 26 May 2023

Page 3 of 3

Calibration point: 150 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	30.0	55	215.0
MAX	31.0	65	225.0

Table1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
150	150.84	151.35	150.78	151.22	149.63	151.51	150.53	151.02	150.13	0.89

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
As Mark 150	174	174	174	0.42	1.4	2.5

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k=2$, providing a level of confidence of approximately 95 %.

----- End -----



Request Service No.100/66

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 23, 2023

Reference Standard No. M220177, M2302167S, M2303005N

Traceable to : Metrological Center SCI ECO Services Co.,Ltd.,Thai Calibration services Co.,Ltd

Ambient Condition : Temperature 24.60-24.80 °C

Humidity	50.6-51.4	% RH
----------	-----------	------

Calibrated By : [Signature] Approved By : [Signature]

(Miss Khemchuda Insorn)

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : 11/11/2023

Date : 24/05/2023

Issued Date : May 24,2023

Measurement Report

Request Service No.100/66

Page 2 of 3

Description : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 23,2023

Ambient Condition : Temperature 24.60-24.80 °C Relative humidity 50.6-51.4 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.00007	0.0002
100	0.00005	0.0001
150	0.00006	0.0002
200	0.00006	0.0002

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
49.99976	49.99988	49.99984	49.99984	49.99990	49.99976	0.00012

Issued Date : May 24,2023

Request Service No. 100/66

Page 3 of 3

3. Departure from Nominal Value :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.00000	± 0.00008
1	+ 0.00004	± 0.00008
5	- 0.00005	± 0.00008
10	+ 0.00020	± 0.00008
20	+ 0.00027	± 0.00008
40	+ 0.00022	± 0.00010
60	+ 0.00018	± 0.00012
80	+ 0.00019	± 0.00014
100	+ 0.00028	± 0.00016
120	+ 0.00027	± 0.00018
140	+ 0.00036	± 0.00020
160	+ 0.00040	± 0.00022
180	+ 0.00058	± 0.00024
200	+ 0.00052	± 0.00027

Calibrated by :

Khanchuda Insorn

Approved By :

Narisa Poowasanpetch

(Miss Khanchuda Insorn)

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : 24/05/2023

Date : 24/05/2023

Issued Date : May 24,2023



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Apr 18, 23

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
Cirrus	CR:515	94296	94.0	1000

No.	Brand	Model	Serial No.	Effective Calibration Level (dB)	SLM Reading (dB)	Offset (dB)
17	Cirrus	CR162B	G300846	93.7	93.7	0.0
40	Cirrus	CR162B	G302740	93.7	93.7	0.0

Calibrated by :

Approved by :

Preeda S.



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: May 26, 23

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
Cirrus	CR:515	94296	94.0	1000

No.	Brand	Model	Serial No.	Effective Calibration Level (dB)	SLM Reading (dB)	Offset (dB)
2	SCARLET	ST-21D	820723	93.7	93.7	0.0
4	SCARLET	ST-21D	820725	93.7	93.7	0.0

Calibrated by :

Approved by :

Sauli Sudhawan



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

975 Moo 4, Bangpoo Industrial Estate, Soi 8, Sukhumvit Road km 37,

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860 Fax: +66 2324 0917



Certificate No.: CP20220368EA
Operation No.: CP2022120011

Certificate of Calibration

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 94296
ID No.: -
Customer: SECOT Co.,Ltd.
Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand
Received Date: 14 December 2022
Calibrated Date: 20 December 2022
Issued Date: 23 December 2022
Calibrated by: Ms. Juntaporn Kunhakom

Approved by: _____

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k) providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20220368EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 94296
ID No.: -
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa
Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1020-22	14 June 2023
2) Waveform Generator	33511B	MY52302264	CK20220058EA	19 June 2023
3) Audio Analyzing DMM	2015-P	4079144	E1U221042	16 March 2023
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P220024 CD20220165EA	17 March 2023 24 July 2023

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

- Reference standards instrument for Acoustic function
 - National Institute of Metrology (Thailand)
- Reference standards instrument for Electrical function
 - Electrical and Electronics Institute; NSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

Normal	Specified Sound	Measured value	Deviated value ^[1]	Acceptance limit ^[3]
Frequency (Hz)	Pressure level (dB)	(dB)	(dB)	(dB)
1000	94	93.90	-0.10	± 0.25

2. Function : Frequency

Normal Sound	Specified Frequency	Measured value	Deviated value ^[2]	Acceptance limit ^[3]
Pressure level (dB)	(Hz)	(Hz)	(%)	(%)
94	1000	1000.3	0.0	± 0.7

Certificate No.: CP20220368EA

Calibration Report

3. Function : Total distortion + noise

Nominal Sound Pressure Level (dB)	Nominal Frequency (Hz)	Measured value ^[4] (%)	Acceptance limit ^[5] (%)
94	1000	0.9	2.5

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.15 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	0.50 %

- Note:
- [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.
 - [2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.
 - [3] The acceptance limit is for the deviated value.
 - [4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
 - [5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 1.
2. The coverage factor $k = 2.00$

-- End of Report --



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Feb 8, 23

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
CASELLA	CEL120/2	2839225	114.0	1000

No.	Brand	Model	Serial No.	Microphone Serial No.	SLM Reading (dB)	dB Adjust
3	CASELLA	CEL-246	1443758	1443758	113.8	0.2
6	CASELLA	CEL-246	3173108	3173108	113.8	0.2

Calibrated by : Ladawan W. Approved by : Suk Suthanon



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

975 Moo 4, Bangpoo Industrial Estate, Sol 8, Sukhumvit Road km 37,

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860 Fax: +66 2324 0917



NSQ-TISI-TIS 17025
CALIBRATION 0119

Certificate No.: CP20230032EA
Operation No.: CP2023010023

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: CASELLA

Model/Type: CEL-120/2

Serial No.: 2839225

ID No.: -

Customer: SECOT Co.,Ltd.

Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand

Received Date: 10 January 2023

Calibrated Date: 13 January 2023

Issued Date: 16 January 2023

Calibrated by: Ms. Juntaporn Kunhakom

Approved by: _____

(Mr. Sittichai Swaksuriyawong)

Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k) providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20230032EA

Calibration Report

Equipment: Sound Calibrator

Manufacturer: CASELLA

Model/Type: CEL-120/2

Serial No.: 2839225

ID No.: -

Ambient Temperature: (23 ± 2) °C

Relative Humidity: (50 ± 15) %

Pressure: (101.3 ± 1.5) kPa

Method of Calibration :-

IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1020-22	14 June 2023
2) Waveform Generator	33511B	MY52302264	CK20220058EA	19 June 2023
3) Audio Analyzing DMM	2015-P	4079144	E1U221042	16 March 2023
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P220024 CD20220165EA	17 March 2023 24 July 2023

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute; NSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

Normal	Specified Sound	Measured value	Deviated value ^[1]	Acceptance limit ^[3]
Frequency (Hz)	Pressure level (dB)	(dB)	(dB)	(dB)
1000	114	114.25	0.25	±0.40

2. Function : Frequency

Normal Sound	Specified Frequency	Measured value	Deviated value ^[2]	Acceptance limit ^[3]
Pressure level (dB)	(Hz)	(Hz)	(%)	(%)
114	1000	1000.0	0.0	±1.7

Certificate No.: CP20230032EA

Calibration Report

3. Function : Total distortion + noise

Nominal Sound Pressure level (dB)	Nominal Frequency (Hz)	Measured value ^[4] (%)	Acceptance limit ^[5] (%)
114	1000	0.2	3.0

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.35 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	1.00 %

- Note:
- [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.
 - [2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.
 - [3] The acceptance limit is for the deviated value.
 - [4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
 - [5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 2.

2. The coverage factor $k = 2.00$

-- End of Report --

ภาคผนวก จ

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม

คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน

วันที่ 7 เดือน เมษายน พ.ศ. 2566

ข้าพเจ้า () ผู้รับใบอนุญาตประกอบกิจการโรงงาน.....

(/) บริษัท/ห้างหุ้นส่วนจำกัด / บริษัท ชีคอท จำกัด

ตั้งอยู่ที่เลขที่ 239 หมู่ที่ - ตรอก/ซอย -

ถนน ร่มคลองประปา ตำบล/แขวง บางซื่อ

อำเภอ/เขต บางซื่อ จังหวัด กรุงเทพฯ รหัสไปรษณีย์ 10800

โทรศัพท์ 02-9593600 โทรสาร 02-9593535

ได้รับทราบระเบียบกรมโรงงานอุตสาหกรรมว่าด้วยการขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน พ.ศ. 2560 โดยตลอดแล้วและยินยอมปฏิบัติตามระเบียบฯทุกประการ และได้แนบเอกสารต่างๆ ตามรายการเอกสารประกอบการพิจารณา (แบบ ปอ.1-1) มาพร้อมนี้

รายการขอดำเนินการ

การดำเนินการ	รายละเอียด (รายการ)				
	น้ำเสีย/น้ำทิ้ง	น้ำใต้ดิน	อากาศเสีย	สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว	ดิน
[] ขอขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน					
[/] ต่ออายุห้องปฏิบัติการวิเคราะห์เอกชน	46	123	27	34	122
[] เปลี่ยนแปลงสารมลพิษที่วิเคราะห์ (/) เพิ่มสารมลพิษ () ยกเลิกสารมลพิษ		2	1		2
[] เปลี่ยนแปลงบุคลากร (/) เพิ่มบุคลากร () ยกเลิกบุคลากร	จำนวน 16.....ราย (รายละเอียดตาม แบบ ปว.1) จำนวน.....ราย (รายละเอียดตาม แบบ ปว.1-1)				
[] ยกเลิกห้องปฏิบัติการวิเคราะห์เอกชน					
[] อื่นๆ ..โปรดระบุ.....					

จึงเรียนมาเพื่อโปรดพิจารณา

7 เม.ย. 66 14:05
 จ.จิตช
 F-ED-LR-01-1/1 (บรรณ)

ลงชื่อ.....
 (นายขรรชัย เกรียงไกรทอง)
 ผู้อำนวยการลงนามแทนบุคคล
 ประทับตรา (ตัว)





ที่ อก ๐๓๑๐(๑)/ ๑๗๔ ๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๐ ๕ กุมภาพันธ์ ๒๕๖๕

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๘ มกราคม ๒๕๖๕

ตามหนังสือที่อ้างถึง บริษัท ซีคอฟ จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๔๔
สถานที่ตั้งเลขที่ ๒๓๔ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลง
บุคลากรของห้องปฏิบัติการวิเคราะห์ ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๔ ราย

- | | |
|-------------------------------------|----------------------------|
| ๑) นางสาวโชติมาส ไทยเจริญ | ทะเบียนเลขที่ ว-๒๓๔-จ-๖๐๐๖ |
| ๒) นางสาวณัฐศิริ เลิศธีรพัฒน์ | ทะเบียนเลขที่ ว-๒๓๔-จ-๖๔๒๓ |
| ๓) นางสาวเกษวรินทร์ ศิลศึก | ทะเบียนเลขที่ ว-๒๓๔-จ-๖๔๒๔ |
| ๔) นางสาวจิรนนท์ จิตตะศรี ปิยะธนากร | ทะเบียนเลขที่ ว-๒๓๔-จ-๗๒๓๒ |

๒. ให้เพิ่มผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ ราย

- | | |
|----------------------------|----------------------------|
| นางสาวณัฐศิริ เลิศธีรพัฒน์ | ทะเบียนเลขที่ ว-๒๓๔-ค-๐๐๐๑ |
|----------------------------|----------------------------|

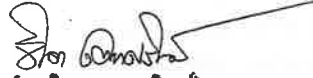
๓. ให้เพิ่มเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๒ ราย

- | | |
|-------------------------------------|----------------------------|
| ๑) นางสาวสุตาพร สุนทร | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๐๑ |
| ๒) นางสาวสณัญญลักษณ์ อินทรประสิทธิ์ | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๐๒ |

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ที่ อก ๐๓๑๐(๑)/๑๓๘๐๔ ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓ คือในวันที่ ๒ พฤษภาคม ๒๕๖๖ ทั้งนี้ สามารถยื่นคำ
ขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม ตาม QR Code ท้ายหนังสือฉบับนี้

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินตา เดชะรินทร์)

(ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม)



ยื่นคำขอผ่านระบบอิเล็กทรอนิกส์

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ที่ อก ๐๓๑๐(๑)/ ๑ ๑ ๘ ๐ ๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ เขตราชเทวี
กรุงเทพมหานคร ๑๐๔๐๐

๒๑ ตุลาคม ๒๕๖๓

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๔ มีนาคม ๒๕๖๓

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๒ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอฟ จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการ
วิเคราะห์เอกชน เลขทะเบียน ว-๒๓๔ สถานที่ตั้งเลขที่ ๒๓๔ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ
กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอฟ จำกัด ต่ออายุหนังสือรับขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย ตามสิ่งที่ส่งมาด้วย ๒

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย จำนวน ๔๖ รายการ น้ำได้ดิน
จำนวน ๑๒๓ รายการ อากาศเสีย จำนวน ๒๗ รายการ สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน ๓๔ รายการ
และดิน จำนวน ๑๒๒ รายการ รวมทั้งสิ้นจำนวน ๓๕๒ รายการ ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๖๖ หากประสงค์จะต่ออายุหนังสือ
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ
กรมโรงงานอุตสาหกรรมภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินตา เดชะรินทร์)

(ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม)

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๒๐๒ ๔๐๐๒ ๐ ๒๒๐๒ ๔๑๔๖

โทรสาร ๐ ๒๓๕๔ ๓๒๐๘ ๐ ๒๓๕๔ ๓๔๑๕

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคोट จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๘ ๐ ๕

ลงวันที่ ๒๑

ตุลาคม ๒๕๖๓

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

๑) นางสาวฤดี เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๘๒๐
๒) นางสาวอารยา ทิพรักษ์	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๘๖๓
๓) นายขรรชัย เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๗๕
๔) นางสาวเชมชุกดา อินทร์สร	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๗๖
๕) นางสาวปรีดา สมใจ	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๗๘
๖) นางสาวอรัญญา มาตา	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๗๙
๗) นางสาวลดาวัลย์ วงศ์เจริญ	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๘๐
๘) นางสาวมณีนรณ เกตวันดี	ทะเบียนเลขที่ ว-๒๓๙-ค-๕๙๘๒
๙) นางสาวนริสา ภูวสรเพ็ชญ์	ทะเบียนเลขที่ ว-๒๓๙-ค-๖๔๑๙
๑๐) นางสาวศิริวรรณ นิยมสง่า	ทะเบียนเลขที่ ว-๒๓๙-ค-๖๔๒๐

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคोट จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๘ ๐ ๕

ลงวันที่ ๒๑

ตุลาคม ๒๕๖๓

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย

๑) นางสาวสุรชวดี ชัยธรรม	ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๒๕
๒) นางสาวสุธาทิพย์ เทียนเตี้ย	ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๒๙
๓) นางสาวสุนันทา ศิริวัฒนานนท์	ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๘๓
๔) นายบวร ดีชัยยะ	ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๘๖
๕) นางสาวเกศรินทร์ วรเดโชวิทยา	ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๙๑
๖) นายอนันต์ วัฒนวันนา	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๑
๗) นายชิตพล สมประสงค์	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๒
๘) นางสาวศศิธร พรหมประเสริฐ	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๓
๙) นายศิวะนนท์ กุลวงษ์	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๕
๑๐) นางสาวโชติมาส ไทยเจริญ	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๖
๑๑) นางสาวปิยขวัญ สุระโคตร	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๑
๑๒) นางสาวณัฐศิริ เลิศธีรพิพัฒน์	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๓
๑๓) นางสาวเกษวรินทร์ ศิลศึก	ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๔
๑๔) นางสาวอลิษา คณิรานนท์	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๑
๑๕) นางสาวจิรนนท์ จิตตะศรี ปิยะธนากร	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๒
๑๖) นางสาวสิริวรรณ แก้วชิงดวง	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๓
๑๗) นางสาวปัทมวรรณ สุวรรณวิโรจน์	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๔
๑๘) นางสาวกนิษฐา เจริญเชื้อ	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๖
๑๙) นายจิรากร ลิมศิลา	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๗
๒๐) นายชนาธิป สิงห์เกษมศักดิ์	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๘
๒๑) นายวัชรกานต์ ประมาคะเต	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๐
๒๒) นายชอง เสงฆ์วัลกุล	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๒
๒๓) นางสาวกฤษณา จันทุม	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๒
๒๔) นางสาวพรนภา บุตรธรรม	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๓
๒๕) นางสาวธาริณี อจาปลิว	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๔
๒๖) นายธนโชติ ช่างล้อ	ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๖
๒๗) นางสาวพัชรา สมานฉันท	ทะเบียนเลขที่ ว-๒๓๙-จ-๘๑๘๓
๒๘) นางสาวจุฑารัตน์ แจ่มเรือน	ทะเบียนเลขที่ ว-๒๓๙-จ-๘๔๔๓
๒๙) นางสาวจณิสตา กุ้ยฮอน	ทะเบียนเลขที่ ว-๒๓๙-จ-๘๔๔๗
๓๐) นางสาววรัญญา เขียนมัน	ทะเบียนเลขที่ ว-๒๓๙-จ-๘๔๔๘
๓๑) นางสาวจิรารัตน์ นฤตมนต์	ทะเบียนเลขที่ ว-๒๓๙-จ-๘๔๔๙

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๘ ๐ ๔

ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๒ รายการ

น้ำเสีย จำนวน 46 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
2	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
3	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
4	α-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
5	β-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
6	γ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
7	δ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
8	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method ^[4] 2) 5-Day BOD Test, Membrane Electrode Method ^[4]
9	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4]



10 Chemical...

(นางริกาญจน์ จิตรสกุลไธ)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

-๒-

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chemical Oxygen Demand	1) Open Reflux, Titrimetric method ^[4] 2) Close 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	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
17	4,4'-DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
18	4,4'-DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
19	4,4'-DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
20	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]



(นางริกาญจน์ จิตรสกุลไธ)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

21 Endosulfan I...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
21	Endosulfan I	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
22	Endosulfan II	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
23	Endosulfan Sulfate	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
24	Endrin	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
25	Endrin Aldehyde	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
26	Formaldehyde	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
27	Free Chlorine	Distillation, Colorimetric Method ^[3]
28	Heptachlor	1) Iodometric Method ^[4]
29	Heptachlor epoxide	2) DPD Colorimetric Method ^[4]
30	Hexavalent Chromium	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
31	Lead	2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
		1) Colorimetric Method ^[4]
		2) Extraction, Air-Acetylene Flame Method ^[4]
		3) Digestion, Direct Air-Acetylene Flame Method ^[4]
		2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4]
		3) Digestion, Inductively Coupled Plasma Method ^[4]

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

32 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
32	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ^[4]
33	Mercury	2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4]
34	Methoxychlor	3) Digestion, Inductively Coupled Plasma Method ^[4]
35	Nickel	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]
36	Oil & Grease	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
37	pH	1) Digestion, Direct Air-Acetylene Flame Method ^[4]
38	Phenols	2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4]
39	Selenium	3) Digestion, Inductively Coupled Plasma Method ^[4]
40	Sulfide	1) Liquid-Liquid, Partition-Gravimetric Method ^[4]
41	Temperature	2) Soxhlet Extraction Method ^[4]
42	Total Dissolved Solids	Electrometric Method ^[4]
43	Total Kjeldahl Nitrogen	1) Distillation, Chloroform Extraction Method ^[4]
44	Total Suspended Solids	2) Distillation, Direct Photometric Method ^[4]
45	Trivalent Chromium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4]
		2) Digestion, Inductively Coupled Plasma Method ^[4]
		1) Iodometric method ^[4]
		2) Methylene blue method ^[4]
		Laboratory and Field Methods ^[4]
		Dried at 180 °C ^[4]
		1) Macro Kjeldahl Method ^[4]
		2) Semi-Micro Kjeldahl Method ^[4]
		Dried at 103-105 °C ^[4]
		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]
46	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ^[4]
		2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4]
		3) Digestion, Inductively Coupled Plasma Method ^[4]

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

น้ำไดคิน...

น้ำใต้ดิน จำนวน 123 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	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]

วิมล

16 Beryllium...

(นางริกาญจน์ จัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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	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]

วิมล

32 2-Chlorophenol...

(นางริกาญจน์ จัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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	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]

วิฑู

42 Dibenz(a,h)...

(นางริกาญจน์ จิตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
43	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
44	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
45	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
46	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
47	3,3'-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
48	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
49	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
50	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
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]

วิฑู

59 2,4-Dimethylphenol...

(นางริกาญจน์ จิตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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 Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
65	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
66	Ethylbenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
69	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
70	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
72	Hexachloro-1,3-butadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]

วิภา

73 n-Hexane...

(นางริกาญจน์ จัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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 Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
76	γ -HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
81	Lead	1) Digestion, 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]

วิภา

85 Methoxychlor...

(นางริกาญจน์ จัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
86	Methyl bromide	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
87	Methylene chloride	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
90	Methyl tert-butyl ether	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
92	Nickel	1) Digestion, 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	Polychlorinated Biphenyls - PCB-1016 - PCB-1221 - PCB-1232 - PCB-1242 - PCB-1248 - PCB-1254 - PCB-1260	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
96	Pentachlorophenol	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]



(นางริกาญจน์ จิตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

97 pH...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
97	pH	Electrometric method ^[4]
98	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
99	Phenol	1) Distillation, Chloroform Extraction Method ^[4] 2) Distillation, Direct Photometric Method ^[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
100	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
101	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
102	Silver	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
103	Styrene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
104	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
105	Tetrachloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
106	Toluene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
107	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/ Mass spectrometric Method ^[7,9]
108	TPH (C ₈ -C ₁₆)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[6,8] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[6,9]
109	TPH (C ₁₆ -C ₃₅)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[6,8] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[6,9]
110	1,2,4-Trichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
111	1,1,1-Trichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]



112 1,1,2-Trichloroethane...

(นางริกาญจน์ จิตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
112	1,1,2-Trichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
113	Trichloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
114	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
115	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
116	1,3,5-Trimethylbenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
117	Vanadium	Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
118	Vinyl chloride	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
119	m-Xylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
120	o-Xylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
121	p-Xylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
122	Xylene (Total)	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
123	Zinc	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]

อากาศเสีย (ปล่อยระบาย) จำนวน 27 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]



(นางริกาญจน์ จิตตรสกุลไธ)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

2 Arsenic...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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	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, Analysis by ISO/IEC 17025 Accredited Laboratory or Analysis by Department of Industrial Works Registered Laboratory (Dioxins/Furans Analysis Approved) ^[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]



(นางริกาญจน์ จิตตรสกุลไธ)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

14 Hydrogen Sulfide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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	Ringelmann's Method ^[2]
20	Oxide of Nitrogen	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Absorption Sampling, Phenoldisulfonic acid 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) 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	Isokinetic Sampling, Gravimetric Method ^[5]

26 Vanadium...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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]

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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, Digestion, Inductively Coupled Plasma Method ^[1,6,14]

3) Digestion...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
7	Chlordane	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
8	Chromium	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
9	Chromium (III)	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]
		1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method ^[1,6,15,17] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method ^[1,6,16,17]



(นางริยาญณ์ ฉัตรสกุลไธ)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และทะเบียนห้องปฏิบัติการ

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chromium (VI)	3) Digestion, Flame Atomic Absorption Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^[7,8,15,17] 4) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^[7,8,14,17]
11	Cobalt	1) Waste Extraction, Colorimetric Method ^[1,17] 2) Alkaline Digestion, Colorimetric Method ^[8,17]
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
13	2,4-D	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]
14	DDD	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,24] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[24]
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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
		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 ^[1,9,26]



(นางริยาญณ์ ฉัตรสกุลไธ)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และทะเบียนห้องปฏิบัติการ

3) Soxhlet...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
16	DDT	3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] 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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]

4) Soxhlet...

วิมล

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
20	Lead	4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] 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]
21	Lindane	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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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 ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]

25 Nickel...

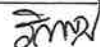
วิมล

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และทะเบียนห้องปฏิบัติการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
25	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
26	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,23] 2) Soxhlet Extraction, Gas Chromatographic Method ^[10,23]
27	Pentachlorophenol	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,24] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[24]
28	pH	Electrometric Method ^[30,31]
29	Selenium	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,20] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
30	Silver	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 ^[1,12,25] 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[12,25]



(นางริกาญจน์ จิตรสกุลไชย)

33 Vanadium...

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
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 122 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
2	Acetone	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25]
3	Aldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
4	Anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
5	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
7	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method ^[11,22]
8	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]



(นางริกาญจน์ จิตรสกุลไชย)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

9 Benz(a)anthracene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
9	Benzo(a)anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
11	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
12	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
13	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
14	Benzo(a)pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
15	Benzo(g,h,i)perylene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
16	Beryllium	Digestion, Inductively Coupled Plasma Method ^[7,14]
17	Bis(2-chloroethyl)ether	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
18	Bis(2-ethylhexyl)phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
22	Butyl benzyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
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 ^[10,26]
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]

27

27 Chlordane...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์มลพิษ
และทะเบียนห้องปฏิบัติการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
28	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
32	2-Chlorophenol	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
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 Method ^[7,8,15,17] 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation Method ^[7,8,14,17]
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^[8,17]
36	Chrysene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
37	Cyanide	1) Extraction, Distillation, Titrimetric Method ^[27,28,29] 2) Extraction, Distillation, Colorimetric Method ^[27,28,29]
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 ^[11,26]
40	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]

27

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์มลพิษ

41 DDT...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
41	DDT	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
42	Dibenz(a,h)anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
43	Di-n-butyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
47	3,3'-Dichlorobenzidine	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
53	2,4-Dichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]



(นางริกาญญ์ จัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

57 Dieldrin...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
57	Dieldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
58	Diethyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
59	2,4-Dimethylphenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
60	2,4-Dinitrophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
61	2,4-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
62	2,6-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
63	Di-n-Octyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
64	Endosulfan	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
65	Endrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
67	Fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
68	Fluorene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
69	Heptachlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]

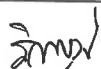


(นางริกาญญ์ จัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

70 Heptachlor epoxide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
70	Heptachlor epoxide	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
71	Hexachlorobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
72	Hexachloro-1,3-butadiene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
73	n-Hexane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25]
74	α -HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
75	β -HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
76	γ -HCH	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
77	Hexachlorocyclopentadiene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
78	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
79	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
80	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
81	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
82	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]



83 Mercury...

(นางริกาญจน์ นัครสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และหน่วยงานที่เกี่ยวข้อง (กมลพิษ)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[19] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
84	Methanol	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^[11,21]
85	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
86	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25]
87	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25]
88	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
89	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26]
90	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25]
91	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
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 ^[10,26]
94	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
95	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	Soxhlet Extraction, Gas Chromatographic Method ^[10,23]



96 Pentachlorophenol...

(นางริกาญจน์ นัครสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และหน่วยงานที่เกี่ยวข้อง (กมลพิษ)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[24]
97	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
98	Phenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
99	Pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
100	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
101	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
102	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
103	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
104	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
105	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
106	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
107	TPH (C ₈ -C ₁₆)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,21]
108	TPH (C ₁₆ -C ₃₅)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,25]
109	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
110	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]

111 1,1,2-Trichloroethane...

(นางริภาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
กรมควบคุมมลพิษ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
111	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
112	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
113	2,4,5-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
114	2,4,6-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
115	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
116	Vanadium	Digestion, Inductively Coupled Plasma Method ^[7,14]
117	Vinyl chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
118	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
119	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
120	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
121	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
122	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]

เอกสารอ้างอิง

- กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2548. เรื่อง การกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว. ราชกิจจานุเบกษา. 25 มกราคม 2549. เล่มที่ 123 ตอนพิเศษ 11ง.
- กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2549. เรื่อง กำหนดค่าปริมาณเขม่าควันที่เจือปนในอากาศที่ระบายออกจากปล่องของหม้อน้ำโรงสีข้าวที่ใช้กลบเป็นเชื้อเพลิง. ราชกิจจานุเบกษา. 4 ธันวาคม 2549. เล่มที่ 123 ตอนพิเศษ 125ง.
- สมาคมวิศวกรรมสิ่งแวดล้อมแห่งประเทศไทย. คู่มือวิเคราะห์น้ำเสีย. พิมพ์ครั้งที่ 4. กรุงเทพฯ: เรือนแก้วการพิมพ์, 2547.
- APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 23rd ed. Washington, DC: APHA, 2017.
- United States Environmental Protection Agency. Standards of Performance for New Stationary Sources. 40 CFR 60. Appendix A, 2019.

(นางริภาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
กรมควบคุมมลพิษ

6. United States...

6. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SW-846, 1997.
7. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Acid Digestion of Sediments, Sludges, and Soils. SW-846 Method 3050B, 1996.
8. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Alkaline Digestion for Hexavalent Chromium. SW-846 Method 3060A, 1996.
9. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Separatory Funnel Liquid-Liquid Extraction. SW-846 Method 3510C, 1996.
10. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Soxhlet Extraction. SW-846 Method 3540C, 1996.
11. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Ultrasonic Extraction. SW-846 Method 3550C, 2007.
12. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Purge-and-Trap for Aqueous Samples. SW-846 Method 5030C, 2003.
13. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Closed-System Purge-and-Trap And Extraction For Volatile Organics in Soil and Waste Samples. SW-846 Method 5035A, 2002.
14. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-optical Emission Spectrometry. SW-846 Method 6010D, 2018
15. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Flame Atomic Absorption Spectrophotometry. SW-846 Method 7000B, 2007.
16. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Antimony and Arsenic (Atomic Absorption, Borohydride Reduction). SW-846 Method 7062, 1992.
17. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Chromium, Hexavalent (Colorimetric), SW-846 Method 7196A, 1992.
18. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Liquid Waste (Manual Cold-Vapor Technique, SW-846 Method 7470A, 1994.
19. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique, SW-846 Method 7471B, 2007.

(นางรียาญณ์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

20. United States...

20. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Selenium (Atomic Absorption, Borohydride Reduction), SW-846 Method 7742, 1994.
21. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Nonhalogenated Organics Using GC/FID. SW-846 Method 8015D, 2003.
22. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Organochlorine Pesticide by Gas Chromatography. SW-846 Method 8081B, 2007.
23. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Polychlorinated Biphenyls (PCBs) By Gas Chromatography. SW-846 Method 8082A, 2007.
24. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Chlorinated Herbicides By GC Using Methylation or Pentafluorobenzoylation Derivatization. SW-846 Method 8151A, 1996.
25. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS). SW-846 Method 8260D, 2018.
26. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SemiVolatile Organic Compounds by Gas Chromatography/Mass Spectrometry. SW-846 Method 8270E, 2018.
27. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Total and Amenable Cyanide: Distillation. SW-846 Method 9010C, 2004.
28. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide Extraction Procedure for Solids and Oils. SW-846 Method 9013A, 2014.
29. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Cyanide in Waters and Extracts Using Titrimetric and Manual Spectrophotometric. SW-846 Method 9014, 2014.
30. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. pH Electrometric Measurement. SW-846 Method 9040C, 2004.
31. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Solid and Waste pH. SW-846 Method 9045D, 2004.

วิภา

(นางรียาญณ์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

ภาคผนวก ข

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่ายการรับรอง
ห้องปฏิบัติการทดสอบ ตามมาตรฐาน ISO/IEC 17025
จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)



ใบรับรองเลขที่ 20T173/1151

ใบรับรองห้องปฏิบัติการ

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

ออกใบรับรองฉบับนี้ให้

บริษัท ซีคอฟ จำกัด

มีห้องปฏิบัติการตั้งอยู่เลขที่

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ได้รับการรับรองความสามารถห้องปฏิบัติการทดสอบ

ตามมาตรฐานเลขที่ มอก. 17025-2561 (ISO/IEC 17025 : 2017)

ข้อกำหนดทั่วไปว่าด้วยความสามารถห้องปฏิบัติการทดสอบและสอบเทียบ

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔

โดยมีสาขาการรับรองตามรายละเอียดแนบท้ายใบรับรอง

ตั้งแต่ วันที่ ๙ กันยายน พ.ศ. ๒๕๖๓

ถึง วันที่ ๘ กันยายน พ.ศ. ๒๕๖๖

ออกให้ ณ วันที่ ๒๓ กันยายน ๒๕๖๓

(นายวิระศักดิ์ วันทิกอนวิงษ์)

รองเลขาธิการ ปฏิบัติราชการแทน

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

ชื่อห้องปฏิบัติการ

ที่อยู่

หมายเลขการรับรองที่

สถานภาพห้องปฏิบัติการ

ห้องปฏิบัติการทดสอบ บริษัท ซีคอฟ จำกัด

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ทดสอบ 0394

☒ ถาวร ☐ นอกสถานที่ ☐ ชั่วคราว ☐ เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
สาขาสิ่งแวดล้อม 1. น้ำและน้ำเสีย (water and wastewater)	<ul style="list-style-type: none"> - Arsenic 0.000 5 mg/l to 0.090 0 mg/l - Arsenic 0.05 mg/l to 4.50 mg/l - Barium 0.02 mg/l to 4.50 mg/l - Cadmium 0.01 mg/l to 4.50 mg/l - Chromium 0.01 mg/l to 4.50 mg/l - Copper 0.02 mg/l to 4.50 mg/l - Iron 0.05 mg/l to 9.00 mg/l - Lead 0.03 mg/l to 4.50 mg/l - Manganese 0.01 mg/l to 9.00 mg/l - Nickel 0.01 mg/l to 4.50 mg/l - Zinc 0.02 mg/l to 9.00 mg/l 	<ul style="list-style-type: none"> - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23rd edition, 2017, Part 3030 F and Part 3114 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23rd edition, 2017, Part 3030 E and Part 3120 B

ฉบับที่ 1 ตั้งแต่ วันที่ 9 กันยายน 2563

หน้า 1/5

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
<p>สาขาสังแวดล้อม</p> <p>1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)</p> <p>2. คุณภาพอากาศ (air quality)</p> <p>2.1 บริเวณทำงาน (workplace)</p>	<p>- COD 100 mg/l to 4 000 mg/l</p> <p>- Total dust 0.10 mg/filter to 2.00 mg/filter</p> <p>- Respirable dust 0.10 mg/filter to 2.00 mg/filter</p> <p>- Benzene 1.10 µg/tube to 420 µg/tube</p> <p>- Toluene 1.10 µg/tube to 420 µg/tube</p> <p>- Total xylenes 2.20 µg/tube to 840 µg/tube</p> <p>• m,p-xylene 1.10 µg/tube to 420 µg/tube</p> <p>• o-xylene 1.10 µg/tube to 420 µg/tube</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 Method(NMAM), method 0600, 4th edition, 15th January 1998 (Exclude Sampling)</p> <p>- NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4th edition, 15th March 2003 (Exclude Sampling)</p>

ฉบับที่ 1 ตั้งแต่วันที่ 9 กันยายน 2563 หน้า 2/5
กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
<p>สาขาสังแวดล้อม</p> <p>2. คุณภาพอากาศ (ต่อ) (air quality) (cont.)</p> <p>2.2 อากาศในปล่องระบาย อากาศ (stack)</p> <p>2.3 บรรยากาศทั่วไป (ambient air)</p>	<p>- Sulfur dioxide 1.00 mg/l to 16 000 mg/l (solution)</p> <p>- Hydrogen fluoride 5 µg/sample to 400 µg/sample</p> <p>- Hydrogen chloride 5 µg/sample to 400 µg/sample</p> <p>- Volatile organic compounds (VOCs)</p> <p>• Chloroethene 0.05 µg/m³ to 51.00 µg/m³</p> <p>• 1,3 - butadiene 0.04 µg/m³ to 44.00 µg/m³</p> <p>• Bromomethane 0.08 µg/m³ to 77.00 µg/m³</p> <p>• Acrolein 0.05 µg/m³ to 45.00 µg/m³</p> <p>• Acrylonitrile 0.04 µg/m³ to 43.00 µg/m³</p> <p>• Dichloromethane 0.14 µg/m³ to 69.00 µg/m³</p> <p>• Carbon disulfide 0.06 µg/m³ to 62.00 µg/m³</p> <p>• Trichloromethane 0.20 µg/m³ to 97.00 µg/m³</p>	<p>- US.EPA , Code of Federal Regulations, 40 CFR 60 appendix A, Method 6, July 2019 (Exclude Sampling)</p> <p>- In-house method : WI-7.2-1-22 based on US.EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26, 2019 (Exclude Sampling)</p> <p>- In-house method :WI-7.2-1-24 based on US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling)</p>

ฉบับที่ 1 ตั้งแต่วันที่ 9 กันยายน 2563 หน้า 3/5
กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394
สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
<p>สาขาสิ่งแวดล้อม</p> <p>2. คุณภาพอากาศ (ต่อ) (air quality) (cont.)</p> <p>2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- Volatile organic compounds (VOCs) (cont.)</p> <ul style="list-style-type: none"> • 1,2 - dichloroethane 0.08 $\mu\text{g}/\text{m}^3$ to 80.00 $\mu\text{g}/\text{m}^3$ • Benzene 0.06 $\mu\text{g}/\text{m}^3$ to 63.00 $\mu\text{g}/\text{m}^3$ • Carbon tetrachloride 0.25 $\mu\text{g}/\text{m}^3$ to 125 $\mu\text{g}/\text{m}^3$ • Trichloroethylene 0.21 $\mu\text{g}/\text{m}^3$ to 107 $\mu\text{g}/\text{m}^3$ • 1,2 - dichloropropane 0.18 $\mu\text{g}/\text{m}^3$ to 92.00 $\mu\text{g}/\text{m}^3$ • Tetrachloroethylene 0.27 $\mu\text{g}/\text{m}^3$ to 135 $\mu\text{g}/\text{m}^3$ • 1,2 - dibromoethane 0.31 $\mu\text{g}/\text{m}^3$ to 153 $\mu\text{g}/\text{m}^3$ • 1,1,2,2 - tetrachloroethane 0.69 $\mu\text{g}/\text{m}^3$ to 137 $\mu\text{g}/\text{m}^3$ 	<p>- In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling)</p>

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394
สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
<p>สาขาสิ่งแวดล้อม</p> <p>2. คุณภาพอากาศ (ต่อ) (air quality) (cont.)</p> <p>2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)</p>	<p>- Volatile organic compounds (VOCs) (cont.)</p> <ul style="list-style-type: none"> • Benzyl chloride 0.52 $\mu\text{g}/\text{m}^3$ to 103 $\mu\text{g}/\text{m}^3$ • 1,4 - dichlorobenzene 0.24 $\mu\text{g}/\text{m}^3$ to 120 $\mu\text{g}/\text{m}^3$ 	<p>- In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling)</p>

ออกให้ ณ วันที่ ๑3 กันยายน ๒๕๖๓

(นายวิระกิตต์ วันทองธนรักษ์)
รองเลขาธิการ ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

ภาคผนวก ซ

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน
จากกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กบ.บุญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้.....บริษัท ซีคอน จำกัด.....

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๗๗๖.....

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร.....

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง 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. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม

ข-๑๑-๐๔๐๓-๐๔๘-๐๑-๖๕

(ลงนาม).....(นายทะเบียน)

(นายศักดิ์ศิลป์ ตูสาร)

ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

- | | |
|-------------------|---------------|
| ๑. นางสาวสุนันทา | ศิริวัฒนานนท์ |
| ๒. นางสาวกนิษฐา | เจริญเชื้อ |
| ๓. นางสาวปัทมวรรณ | สุวรรณวิโรจน์ |
| ๔. นางสาวอลิษา | คนิวรานนท์ |
| ๕. นางสาวชนิตา | หล้าสาย |

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

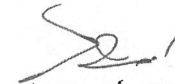
ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

- | | |
|--------------------|-------------|
| ๑. นางสาวศลิษา | อินริย์ |
| ๒. นางสาวมาริยามณี | ฮาแว |
| ๓. นางสาววิระยา | ปัจฉิมบุรณ์ |

ทั้งนี้ ตั้งแต่วันที่ ๑๙ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๙ มกราคม พ.ศ. ๒๕๖๖



(นายสมพจน์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน