

ภาคผนวก ง

ใบรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวิเคราะห์
คุณภาพอากาศจากปล่องระบายอากาศ



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ 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. : 225007-CEMS-2504-0065
Branch 2, Power Plant SAMPLING DATE : 09/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3701
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 15.3 m/s
Diameter : 4.20 m Flow Rate* : 7,160 Ncu.m/min
Temperature : 192.7 °C Excess Oxygen : 15.0 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE METHODS
		15.0%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	1.90	4.45	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO.7-239-ก-0018



(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-0010

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 09/04/2025/01.00-02.22 p.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3701

STACK DESCRIPTION

Height : 30.0 m Flow Rate* : 7,160 Ncu.m/min
Diameter : 4.20 m Excess Oxygen : 15.0 %
Temperature : 192.7 °C Moisture Content : 11.6 %
Gas Velocity : 15.3 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	15.0%O ₂	7%O ₂	15.0%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.25	0.59	0.66	1.53	20/20/60	52/52/157	0.078	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	28.96	67.76	54.44	127.39	120/120/108	226/226/204	6.496	6.72	US.EPA Method 7E



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.7-239-ก-0006



(Miss Preeda Somjai)

Technical Management Team

REG.NO.7-239-ก-0006

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5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3701**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 9, 2025

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	15.03	14.96	28.92	28.91	67.65
2	15.01	14.94	29.12	29.11	67.89
3	15.05	14.98	28.87	28.85	67.74
Average	15.03	14.96	28.97	28.96	67.76

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	15.03	14.96	0.29	0.25	0.59
2	15.01	14.94	0.33	0.28	0.65
3	15.05	14.98	0.28	0.22	0.52
Average	15.03	14.96	0.30	0.25	0.59

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

Date: April 9, 2025
 Start time: 1:20 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 1
 Location : H-3701
 Finish time : 1:40 PM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:20 PM	15.12	29.12	0.27
1:21 PM	15.11	29.10	0.27
1:22 PM	15.12	29.10	0.27
1:23 PM	15.05	29.11	0.28
1:24 PM	15.01	29.05	0.29
1:25 PM	15.01	28.32	0.29
1:26 PM	15.01	28.31	0.29
1:27 PM	15.01	28.32	0.29
1:28 PM	15.01	28.33	0.28
1:29 PM	15.01	28.31	0.29
1:30 PM	15.01	29.14	0.29
1:31 PM	15.01	29.11	0.29
1:32 PM	15.01	29.10	0.30
1:33 PM	15.01	29.12	0.30
1:34 PM	15.01	29.14	0.30
1:35 PM	15.01	29.11	0.30
1:36 PM	15.01	29.12	0.30
1:37 PM	15.01	29.10	0.30
1:38 PM	15.01	29.12	0.30
1:39 PM	15.01	29.13	0.30
1:40 PM	15.01	29.12	0.30
Average	15.03	28.92	0.29

Signature _____

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 9, 2025 Run #: 2
 Start time: 1:41 PM Location: H-3701
 O₂ instrument Model: AMI 70 Finish time: 2:01 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type: Natural Gas Serial No.: 186
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:41 PM	15.01	29.13	0.30
1:42 PM	15.01	29.11	0.31
1:43 PM	15.01	29.13	0.31
1:44 PM	15.01	29.13	0.32
1:45 PM	15.01	29.10	0.31
1:46 PM	15.01	29.10	0.31
1:47 PM	15.01	29.12	0.33
1:48 PM	15.01	29.13	0.33
1:49 PM	15.01	29.11	0.34
1:50 PM	15.01	29.11	0.34
1:51 PM	15.01	29.13	0.34
1:52 PM	15.01	29.12	0.34
1:53 PM	15.01	29.12	0.34
1:54 PM	15.01	29.12	0.34
1:55 PM	15.01	29.12	0.33
1:56 PM	15.01	29.09	0.34
1:57 PM	15.01	29.12	0.34
1:58 PM	15.01	29.11	0.34
1:59 PM	15.01	29.12	0.34
2:00 PM	15.01	29.10	0.33
2:01 PM	15.01	29.10	0.33
Average	15.01	29.12	0.33

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 9, 2025 Run #: 3
 Start time: 2:02 PM Location: H-3701
 O₂ instrument Model: AMI 70 Finish time: 2:22 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type: Natural Gas Serial No.: 186
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:02 PM	15.01	29.12	0.33
2:03 PM	15.01	29.12	0.34
2:04 PM	15.02	29.11	0.33
2:05 PM	15.02	29.12	0.33
2:06 PM	15.01	29.10	0.36
2:07 PM	15.02	29.10	0.34
2:08 PM	15.01	29.09	0.34
2:09 PM	14.97	29.12	0.33
2:10 PM	14.92	29.09	0.34
2:11 PM	15.00	29.11	0.34
2:12 PM	15.02	29.12	0.34
2:13 PM	15.02	29.10	0.35
2:14 PM	15.09	29.09	0.36
2:15 PM	15.12	29.11	0.19
2:16 PM	15.12	28.44	0.16
2:17 PM	15.12	28.32	0.17
2:18 PM	15.12	28.31	0.18
2:19 PM	15.12	28.31	0.17
2:20 PM	15.12	28.30	0.17
2:21 PM	15.12	28.32	0.17
2:22 PM	15.15	28.84	0.17
Average	15.05	28.87	0.28

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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Branch 2, Power Plant SAMPLING DATE : 09/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3703
OPERATOR : Mr. Kittipong Thakoengsuk
STACK DESCRIPTION
Height : 30.0 m Gas Velocity : 10.9 m/s
Diameter : 4.20 m Flow Rate* : 5,548 Ncu.m/min
Temperature : 147.2 °C Excess Oxygen : 14.8 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE METHODS
		14.8%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	3.01	6.83	60	US. EPA Method 5

(Miss Pornnapa Budthum)

Analyst
REG.NO. 7-239-8-0018

(Miss Narisa Poowasanpetch)

Technical Management Team
REG.NO. 7-239-8-0010

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Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 09/04/2025/11.00 a.m.-00.42 p.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3703
STACK DESCRIPTION
Height : 30.0 m Flow Rate* : 5,548 Ncu.m/min
Diameter : 4.20 m Excess Oxygen : 14.8 %
Temperature : 147.2 °C Moisture Content : 13.2 %
Gas Velocity : 10.9 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	14.8%O ₂	7%O ₂	14.8%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.28	0.64	0.74	1.68	20/20/60	52/52/157	0.069	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	30.52	69.24	57.38	130.18	120/120/122	226/226/230	5.305	14.46	US.EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist
REG.NO. 7-239-8-0006

(Miss Preeda Somjai)

Technical Management Team
REG.NO. 7-239-8-0006

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6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3703**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 9, 2025

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	14.85	14.80	31.19	31.18	71.05
2	14.85	14.79	30.47	30.46	69.30
3	14.80	14.73	29.93	29.92	67.40
Average	14.83	14.77	30.53	30.52	69.24

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	14.85	14.80	0.29	0.26	0.59
2	14.85	14.79	0.32	0.29	0.66
3	14.80	14.73	0.33	0.30	0.68
Average	14.83	14.77	0.31	0.28	0.64

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

Date: April 9, 2025

Start time: 11:40 AM

O₂ instrument Model: AMI 70

NO_x instrument Model: TELEDYNE 200 EM

SO₂ instrument Model: TELEDYNE 100 EH

Fuel Type : Natural Gas

Run # : 1

Location : H-3703

Finish time : 12:00 PM

Serial No.: 071023-47

Serial No.: 435

Serial No.: 186

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:40 AM	14.71	31.57	0.21
11:41 AM	14.77	31.99	0.25
11:42 AM	14.80	32.22	0.24
11:43 AM	14.84	31.86	0.25
11:44 AM	14.88	31.50	0.26
11:45 AM	14.87	31.43	0.26
11:46 AM	14.86	31.53	0.27
11:47 AM	14.78	31.71	0.29
11:48 AM	14.87	31.72	0.30
11:49 AM	14.89	31.61	0.30
11:50 AM	14.89	31.33	0.30
11:51 AM	14.88	30.89	0.30
11:52 AM	14.91	30.56	0.30
11:53 AM	14.85	30.68	0.31
11:54 AM	14.82	30.76	0.33
11:55 AM	14.87	30.54	0.33
11:56 AM	14.90	30.51	0.33
11:57 AM	14.92	30.68	0.33
11:58 AM	14.91	30.75	0.32
11:59 AM	14.79	30.70	0.33
12:00 PM	14.78	30.53	0.33
Average	14.85	31.19	0.29

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 9, 2025 Run # : 2
 Start time: 12:01 PM Location : H-3703
 O₂ instrument Model: AMI 70 Finish time : 12:21 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:01 PM	14.88	30.47	0.32
12:02 PM	14.91	30.65	0.33
12:03 PM	14.91	30.84	0.32
12:04 PM	14.92	30.91	0.32
12:05 PM	14.83	30.90	0.32
12:06 PM	14.77	30.67	0.32
12:07 PM	14.82	30.47	0.32
12:08 PM	14.88	30.49	0.32
12:09 PM	14.85	30.49	0.32
12:10 PM	14.80	30.28	0.30
12:11 PM	14.87	30.21	0.30
12:12 PM	14.79	30.30	0.31
12:13 PM	14.88	30.25	0.32
12:14 PM	14.90	30.25	0.32
12:15 PM	14.88	30.52	0.32
12:16 PM	14.78	30.71	0.32
12:17 PM	14.77	30.55	0.31
12:18 PM	14.86	30.38	0.32
12:19 PM	14.90	30.31	0.32
12:20 PM	14.85	30.22	0.32
12:21 PM	14.82	29.94	0.32
Average	14.85	30.47	0.32

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 9, 2025 Run # : 3
 Start time: 12:22 PM Location : H-3703
 O₂ instrument Model: AMI 70 Finish time : 12:42 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
12:22 PM	14.86	29.82	0.33
12:23 PM	14.82	29.87	0.31
12:24 PM	14.89	29.84	0.32
12:25 PM	14.89	29.92	0.33
12:26 PM	14.88	30.01	0.31
12:27 PM	14.89	30.05	0.32
12:28 PM	14.82	30.20	0.33
12:29 PM	14.76	30.27	0.33
12:30 PM	14.82	30.15	0.33
12:31 PM	14.87	30.04	0.31
12:32 PM	14.79	29.85	0.31
12:33 PM	14.84	29.92	0.32
12:34 PM	14.77	30.07	0.33
12:35 PM	14.75	29.74	0.33
12:36 PM	14.75	29.50	0.34
12:37 PM	14.74	29.67	0.32
12:38 PM	14.75	30.00	0.34
12:39 PM	14.75	30.06	0.33
12:40 PM	14.76	30.00	0.33
12:41 PM	14.74	29.84	0.33
12:42 PM	14.74	29.69	0.33
Average	14.80	29.93	0.33

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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Branch 2, Power Plant SAMPLING DATE : 10/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3704
OPERATOR : Mr. Kittipong Thakoengsuk
STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 13.7 m/s
Diameter : 3.60 m Flow Rate* : 5,665 Ncu.m/min
Temperature : 113.4 °C Excess Oxygen : 14.5 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.5%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	2.22	4.84	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO.7-239-0-0018


(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-0-0010

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CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 10/04/2025/10.10-11.32 a.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3704
STACK DESCRIPTION

Height : 30.0 m Flow Rate* : 5,665 Ncu.m/min
Diameter : 3.60 m Excess Oxygen : 14.5 %
Temperature : 113.4 °C Moisture Content : 11.9 %
Gas Velocity : 13.7 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		METHOD
	14.5%O ₂	7%O ₂	14.5%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.57	1.24	1.48	3.24	20/20/20	52/52/52	0.140	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	2.82	6.15	5.31	11.57	120/120/14	226/226/26	0.501	1.26	US.EPA Method 7E


(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.7-239-0-0006



(Miss Preeda Somjai)

Technical Management Team

REG.NO.7-239-0-0006

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.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3704**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 10, 2025

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	14.51	14.41	2.83	2.80	6.00
2	14.65	14.56	2.79	2.76	6.05
3	14.68	14.60	2.95	2.91	6.42
Average	14.61	14.52	2.86	2.82	6.15

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	14.51	14.41	0.62	0.59	1.26
2	14.65	14.56	0.61	0.58	1.27
3	14.68	14.60	0.55	0.53	1.17
Average	14.61	14.52	0.59	0.57	1.24

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

Date: April 10, 2025
 Start time: 10:30 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 1
 Location : H-3704
 Finish time : 10:50 AM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:30 AM	14.56	2.78	0.62
10:31 AM	14.56	2.77	0.62
10:32 AM	14.54	2.78	0.62
10:33 AM	14.51	2.83	0.62
10:34 AM	14.51	2.83	0.62
10:35 AM	14.49	2.82	0.62
10:36 AM	14.48	2.85	0.62
10:37 AM	14.49	2.84	0.62
10:38 AM	14.49	2.85	0.62
10:39 AM	14.49	2.83	0.62
10:40 AM	14.48	2.83	0.62
10:41 AM	14.46	2.82	0.62
10:42 AM	14.46	2.83	0.62
10:43 AM	14.46	2.85	0.62
10:44 AM	14.46	2.85	0.62
10:45 AM	14.48	2.88	0.62
10:46 AM	14.50	2.89	0.62
10:47 AM	14.54	2.87	0.62
10:48 AM	14.57	2.83	0.62
10:49 AM	14.58	2.85	0.62
10:50 AM	14.60	2.83	0.62
Average	14.51	2.83	0.62

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025
 Start time: 10:51 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 2
 Location : H-3704
 Finish time : 11:11 AM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:51 AM	14.60	2.83	0.62
10:52 AM	14.61	2.80	0.62
10:53 AM	14.62	2.79	0.62
10:54 AM	14.61	2.81	0.63
10:55 AM	14.66	2.83	0.62
10:56 AM	14.63	3.28	0.62
10:57 AM	14.66	3.00	0.62
10:58 AM	14.66	3.02	0.62
10:59 AM	14.66	3.04	0.62
11:00 AM	14.66	3.05	0.62
11:01 AM	14.66	3.06	0.61
11:02 AM	14.66	3.09	0.61
11:03 AM	14.65	3.08	0.61
11:04 AM	14.66	3.07	0.60
11:05 AM	14.66	3.09	0.60
11:06 AM	14.66	2.98	0.60
11:07 AM	14.66	2.11	0.59
11:08 AM	14.66	2.12	0.59
11:09 AM	14.66	2.11	0.59
11:10 AM	14.66	2.16	0.58
11:11 AM	14.66	2.24	0.58
Average	14.65	2.79	0.61

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025
 Start time: 11:12 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 3
 Location : H-3704
 Finish time : 11:32 AM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:12 AM	14.66	2.22	0.58
11:13 AM	14.67	3.04	0.57
11:14 AM	14.66	3.09	0.57
11:15 AM	14.67	2.19	0.57
11:16 AM	14.68	2.76	0.57
11:17 AM	14.68	3.19	0.56
11:18 AM	14.68	3.17	0.56
11:19 AM	14.68	3.14	0.56
11:20 AM	14.68	3.10	0.56
11:21 AM	14.68	3.10	0.55
11:22 AM	14.68	2.75	0.55
11:23 AM	14.68	3.13	0.55
11:24 AM	14.68	2.94	0.54
11:25 AM	14.68	3.20	0.54
11:26 AM	14.68	2.98	0.54
11:27 AM	14.68	2.97	0.54
11:28 AM	14.68	2.98	0.54
11:29 AM	14.68	2.96	0.54
11:30 AM	14.68	2.99	0.53
11:31 AM	14.68	2.99	0.53
11:32 AM	14.70	3.03	0.53
Average	14.68	2.95	0.55

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant SAMPLING DATE : 09/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3705
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION
Height : 30.0 m Gas Velocity : 15.9 m/s
Diameter : 3.60 m Flow Rate* : 6,524 Ncu.m/min
Temperature : 114.5 °C Excess Oxygen : 14.5 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.5%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	2.23	4.86	60	US. EPA Method 5

(Miss Pornnapa Budthum)

Analyst

REG.NO.จ-239-9-0018

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-9-0010

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 09/04/2025/03.40-05.00 p.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3705

STACK DESCRIPTION
Height : 30.0 m Flow Rate* : 6,524 Ncu.m/min
Diameter : 3.60 m Excess Oxygen : 14.5 %
Temperature : 114.5 °C Moisture Content : 12.2 %
Gas Velocity : 15.9 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	14.5%O ₂	7%O ₂	14.5%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.08	0.18	0.22	0.48	20/20/20	52/52/52	0.024	*	US.EPA Method 6C
Oxide of Nitrogen (NOx)	3.32	7.23	6.24	13.59	120/120/14	226/226/26	0.678	1.26	US.EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.จ-239-9-0006

(Miss Preeda Somjai)

Technical Management Team

REG.NO.จ-239-9-0006

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

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

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 9, 2025

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	14.62	14.54	3.39	3.34	7.30
2	14.62	14.53	3.37	3.31	7.22
3	14.60	14.50	3.36	3.30	7.17
Average	14.61	14.52	3.37	3.32	7.23

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	14.62	14.54	0.10	0.08	0.17
2	14.62	14.53	0.11	0.09	0.20
3	14.60	14.50	0.11	0.08	0.17
Average	14.61	14.52	0.10	0.08	0.18

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

Date: April 9, 2025
 Start time: 3:40 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 1
 Location : H-3705
 Finish time : 4:00 PM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
3:40 PM	14.75	3.33	0.09
3:41 PM	14.66	3.33	0.09
3:42 PM	14.60	3.34	0.10
3:43 PM	14.58	3.39	0.10
3:44 PM	14.56	3.43	0.10
3:45 PM	14.53	3.46	0.10
3:46 PM	14.56	3.47	0.10
3:47 PM	14.60	3.42	0.10
3:48 PM	14.60	3.34	0.10
3:49 PM	14.64	3.40	0.10
3:50 PM	14.65	3.43	0.10
3:51 PM	14.60	3.41	0.10
3:52 PM	14.63	3.42	0.10
3:53 PM	14.60	3.38	0.10
3:54 PM	14.61	3.38	0.10
3:55 PM	14.62	3.35	0.09
3:56 PM	14.63	3.40	0.09
3:57 PM	14.65	3.42	0.10
3:58 PM	14.60	3.34	0.10
3:59 PM	14.65	3.32	0.10
4:00 PM	14.65	3.36	0.10
Average	14.62	3.39	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 9, 2025 Run # : 2
 Start time: 4:01 PM Location : H-3705
 O₂ instrument Model: AMI 70 Finish time : 4:21 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
4:01 PM	14.62	3.37	0.10
4:02 PM	14.64	3.38	0.10
4:03 PM	14.61	3.40	0.10
4:04 PM	14.62	3.38	0.10
4:05 PM	14.62	3.35	0.10
4:06 PM	14.65	3.36	0.10
4:07 PM	14.62	3.42	0.10
4:08 PM	14.63	3.43	0.11
4:09 PM	14.61	3.41	0.10
4:10 PM	14.62	3.39	0.10
4:11 PM	14.61	3.42	0.11
4:12 PM	14.65	3.40	0.10
4:13 PM	14.60	3.34	0.11
4:14 PM	14.63	3.37	0.11
4:15 PM	14.59	3.36	0.11
4:16 PM	14.61	3.36	0.11
4:17 PM	14.61	3.35	0.11
4:18 PM	14.61	3.33	0.11
4:19 PM	14.62	3.33	0.12
4:20 PM	14.61	3.32	0.11
4:21 PM	14.65	3.36	0.11
Average	14.62	3.37	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 9, 2025 Run # : 3
 Start time: 4:22 PM Location : H-3705
 O₂ instrument Model: AMI 70 Finish time : 4:42 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
4:22 PM	14.61	3.39	0.11
4:23 PM	14.60	3.38	0.11
4:24 PM	14.59	3.36	0.11
4:25 PM	14.64	3.37	0.11
4:26 PM	14.60	3.35	0.12
4:27 PM	14.59	3.34	0.12
4:28 PM	14.61	3.40	0.11
4:29 PM	14.59	3.39	0.12
4:30 PM	14.59	3.37	0.11
4:31 PM	14.59	3.35	0.11
4:32 PM	14.59	3.36	0.11
4:33 PM	14.59	3.34	0.11
4:34 PM	14.59	3.27	0.12
4:35 PM	14.62	3.28	0.11
4:36 PM	14.62	3.31	0.11
4:37 PM	14.59	3.38	0.11
4:38 PM	14.60	3.38	0.11
4:39 PM	14.58	3.37	0.11
4:40 PM	14.59	3.37	0.10
4:41 PM	14.59	3.35	0.10
4:42 PM	14.59	3.39	0.09
Average	14.60	3.36	0.11

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant SAMPLING DATE : 10/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3706
OPERATOR : Mr. Kittipong Thakoengsuk

STACK DESCRIPTION

Height : 35.0 m Gas Velocity : 6.0 m/s
Diameter : 1.80 m Flow Rate* : 589 Ncu.m/min
Temperature : 143.6 °C Excess Oxygen : 3.9 %

PARAMETER	UNITS	RESULTS*			REFERENCE
		3.9%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	3.15	2.57	60	US. EPA Method 5

(Miss Pornnapa Budthum)

Analyst

REG.NO.7-239-9-0018

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-9-0010

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 10/04/2025/01.20-02.32 p.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3706

STACK DESCRIPTION

Height : 35.0 m Flow Rate* : 589 Ncu.m/min
Diameter : 1.80 m Excess Oxygen : 3.9 %
Temperature : 143.6 °C Moisture Content : 10.2 %
Gas Velocity : 6.0 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	3.9%O ₂	7%O ₂	3.9%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.29	0.24	0.77	0.63	20/20/20	52/52/52	0.008	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	27.67	22.57	52.01	42.43	120/120/37	226/226/69	0.511	1.50	US.EPA Method 7E

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.7-239-9-0006

(Miss Preeda Somjai)

Technical Management Team

REG.NO.7-239-9-0006

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3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
4. ^{1/} Notification of the Ministry of Industry, B.E.2567 (2024).
5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).
6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3706**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 10, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.87	3.84	27.79	27.78	22.63
2	3.88	3.84	27.18	27.17	22.14
3	3.95	3.90	28.06	28.05	22.94
Average	3.90	3.86	27.68	27.67	22.57

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.87	3.84	0.36	0.31	0.25
2	3.88	3.84	0.36	0.29	0.24
3	3.95	3.90	0.36	0.28	0.23
Average	3.90	3.86	0.36	0.29	0.24

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

Date: April 10, 2025
 Start time: 1:30 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-3706
 Finish time : 1:50 PM
 Serial No.: 161212-13
 Serial No.: 314
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:30 PM	3.88	27.43	0.03
1:31 PM	3.87	27.60	0.38
1:32 PM	3.89	27.62	0.38
1:33 PM	3.85	27.61	0.38
1:34 PM	3.86	27.62	0.38
1:35 PM	3.89	27.62	0.38
1:36 PM	3.90	27.63	0.38
1:37 PM	3.85	28.24	0.38
1:38 PM	3.89	28.31	0.38
1:39 PM	3.84	28.55	0.37
1:40 PM	3.89	28.38	0.37
1:41 PM	3.87	27.62	0.37
1:42 PM	3.89	27.93	0.37
1:43 PM	3.89	28.24	0.37
1:44 PM	3.87	27.61	0.37
1:45 PM	3.86	27.61	0.37
1:46 PM	3.85	27.61	0.37
1:47 PM	3.86	27.61	0.37
1:48 PM	3.82	27.63	0.37
1:49 PM	3.84	27.61	0.37
1:50 PM	3.87	27.61	0.37
Average	3.87	27.79	0.36

Signature _____



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025
 Start time: 1:51 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 200 AH
 Fuel Type : Natural Gas

Run # : 2
 Location : H-3706
 Finish time : 2:11 PM
 Serial No.: 161212-13
 Serial No.: 314
 Serial No.: 058
 Test Operator : Aekkawat S.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:51 PM	3.85	27.62	0.37
1:52 PM	3.87	26.80	0.37
1:53 PM	3.86	26.79	0.37
1:54 PM	3.88	26.79	0.34
1:55 PM	3.87	26.50	0.37
1:56 PM	3.84	26.14	0.37
1:57 PM	3.88	26.64	0.37
1:58 PM	3.89	26.79	0.36
1:59 PM	3.86	26.80	0.37
2:00 PM	3.84	27.14	0.32
2:01 PM	3.86	27.61	0.36
2:02 PM	3.89	27.46	0.37
2:03 PM	3.89	26.87	0.35
2:04 PM	3.87	27.61	0.37
2:05 PM	3.89	27.62	0.35
2:06 PM	3.89	27.61	0.37
2:07 PM	3.90	27.61	0.35
2:08 PM	3.94	27.60	0.36
2:09 PM	3.90	27.62	0.36
2:10 PM	3.93	27.62	0.33
2:11 PM	3.90	27.62	0.37
Average	3.88	27.18	0.36

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025
 Start time: 2:12 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-3706
 Finish time : 2:32 PM
 Serial No.: 161212-13
 Serial No.: 314
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:12 PM	3.90	27.63	0.37
2:13 PM	3.92	27.62	0.37
2:14 PM	3.86	27.61	0.35
2:15 PM	3.89	27.63	0.35
2:16 PM	3.87	27.63	0.34
2:17 PM	3.89	27.61	0.37
2:18 PM	3.90	27.62	0.37
2:19 PM	3.89	27.61	0.37
2:20 PM	3.89	27.59	0.37
2:21 PM	3.89	27.63	0.37
2:22 PM	3.96	28.32	0.37
2:23 PM	4.00	28.58	0.37
2:24 PM	4.02	28.56	0.37
2:25 PM	4.07	28.55	0.37
2:26 PM	4.01	28.55	0.37
2:27 PM	4.03	28.54	0.37
2:28 PM	4.00	28.55	0.37
2:29 PM	4.00	28.56	0.34
2:30 PM	4.02	28.56	0.35
2:31 PM	4.00	28.57	0.31
2:32 PM	3.97	27.70	0.31
Average	3.95	28.06	0.36

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant	SAMPLING DATE	: 10/04/2025
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 17-22/04/2025
RECEIVED DATE	: 17/04/2025	SAMPLE CONDITION	: Normal
REPORT DATE	: 24/04/2025	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3707
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION					
Height	: 35.0	m	Gas Velocity	: 6.1	m/s
Diameter	: 1.80	m	Flow Rate*	: 588	Ncu.m/min
Temperature	: 144.8	°C	Excess Oxygen	: 5.4	%

PARAMETER	UNITS	RESULTS*			REFERENCE
		5.4%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	3.83	3.43	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-9-0018


(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-9-0010

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.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE/TIME	: 10/04/2025/01.20-02.32 p.m.
RECEIVED DATE	: 19/04/2025	ANALYTICAL DATE	: 21/04/2025-28/05/2025
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Kittipong Thakoengsuk	STACK LOCATION	: H-3707

STACK DESCRIPTION					
Height	: 35.0	m	Flow Rate*	: 588	Ncu.m/min
Diameter	: 1.80	m	Excess Oxygen	: 5.4	%
Temperature	: 144.8	°C	Moisture Content	: 10.2	%
Gas Velocity	: 6.1	m/s			

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	5.4%O ₂	7%O ₂	5.4%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.07	0.06	0.17	0.16	20/20/20	52/52/52	0.002	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	25.31	22.66	47.58	42.59	120/120/37	226/226/69	0.467	1.50	US.EPA Method 7E


(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO. 2-239-9-0006


(Miss Preeda Somjai)

Technical Management Team

REG.NO. 2-239-9-0006

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

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

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 10, 2025

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	5.43	5.39	25.36	25.35	22.72
2	5.39	5.35	25.26	25.25	22.57
3	5.42	5.38	25.33	25.32	22.68
Average	5.41	5.37	25.31	25.31	22.66

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	5.43	5.39	0.06	0.04	0.04
2	5.39	5.35	0.09	0.07	0.06
3	5.42	5.38	0.11	0.09	0.08
Average	5.41	5.37	0.09	0.07	0.06

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

Date: April 10, 2025

Start time: 1:30 PM

O₂ instrument Model: AMI 70

NO_x instrument Model: TELEDYNE 200 EM

SO₂ instrument Model: TELEDYNE 100 EH

Fuel Type : Natural Gas

Run # : 1

Location : H-3707

Finish time : 1:50 PM

Serial No.: 071023-47

Serial No.: 435

Serial No.: 186

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:30 PM	5.44	25.37	0.01
1:31 PM	5.48	25.38	0.05
1:32 PM	5.48	25.43	0.03
1:33 PM	5.48	25.49	0.03
1:34 PM	5.45	25.53	0.00
1:35 PM	5.45	25.59	0.00
1:36 PM	5.47	25.64	0.04
1:37 PM	5.45	25.69	0.03
1:38 PM	5.46	25.59	0.04
1:39 PM	5.42	25.45	0.04
1:40 PM	5.43	25.32	0.06
1:41 PM	5.42	25.21	0.07
1:42 PM	5.42	25.21	0.07
1:43 PM	5.41	25.26	0.09
1:44 PM	5.38	25.26	0.09
1:45 PM	5.42	25.27	0.09
1:46 PM	5.40	25.20	0.10
1:47 PM	5.37	25.09	0.12
1:48 PM	5.39	25.13	0.11
1:49 PM	5.39	25.18	0.12
1:50 PM	5.39	25.21	0.12
Average	5.43	25.36	0.06

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025 Run # : 2
 Start time: 1:51 PM Location : H-3707
 O₂ instrument Model: AMI 70 Finish time : 2:11 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:51 PM	5.38	25.25	0.12
1:52 PM	5.39	25.28	0.14
1:53 PM	5.38	25.22	0.14
1:54 PM	5.36	25.17	0.15
1:55 PM	5.36	25.12	0.15
1:56 PM	5.36	25.16	0.10
1:57 PM	5.38	25.21	0.09
1:58 PM	5.39	25.29	0.09
1:59 PM	5.43	25.37	0.09
2:00 PM	5.41	25.40	0.09
2:01 PM	5.38	25.37	0.08
2:02 PM	5.37	25.28	0.07
2:03 PM	5.36	25.24	0.07
2:04 PM	5.37	25.24	0.07
2:05 PM	5.41	25.42	0.08
2:06 PM	5.41	25.45	0.07
2:07 PM	5.39	25.26	0.07
2:08 PM	5.39	25.21	0.07
2:09 PM	5.39	25.20	0.07
2:10 PM	5.39	25.12	0.07
2:11 PM	5.41	25.14	0.07
Average	5.39	25.26	0.09

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 10, 2025 Run # : 3
 Start time: 2:12 PM Location : H-3707
 O₂ instrument Model: AMI 70 Finish time : 2:32 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:12 PM	5.39	25.16	0.05
2:13 PM	5.41	25.07	0.06
2:14 PM	5.37	25.08	0.06
2:15 PM	5.39	25.13	0.05
2:16 PM	5.37	25.11	0.04
2:17 PM	5.39	25.14	0.03
2:18 PM	5.40	25.14	0.03
2:19 PM	5.38	25.12	0.05
2:20 PM	5.40	25.20	0.05
2:21 PM	5.41	25.30	0.04
2:22 PM	5.43	25.38	0.03
2:23 PM	5.45	25.36	0.04
2:24 PM	5.46	25.41	0.04
2:25 PM	5.49	25.55	0.03
2:26 PM	5.48	25.65	0.08
2:27 PM	5.52	25.74	0.24
2:28 PM	5.47	25.72	0.25
2:29 PM	5.47	25.57	0.25
2:30 PM	5.42	25.49	0.26
2:31 PM	5.41	25.36	0.27
2:32 PM	5.37	25.25	0.28
Average	5.42	25.33	0.11

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant SAMPLING DATE : 11/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 17-22/04/2025
RECEIVED DATE : 17/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 FUEL TYPE : Natural Gas
SOURCE DESCRIPTION : Combustion STACK LOCATION : H-3708
OPERATOR : Mr. Kittipong Thakoengsuk
STACK DESCRIPTION

Height : 35.0 m Gas Velocity : 23.5 m/s
Diameter : 3.26 m Flow Rate* : 7,363 Ncu.m/min
Temperature : 154.7 °C Excess Oxygen : 13.7 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		13.7%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.93	3.73	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO.7-239-ท-0018



(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ท-0010

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.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 225007-CEMS-2504-0065
Branch 2, Power Plant
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE/TIME : 11/04/2025/10.15-11.32 a.m.
RECEIVED DATE : 19/04/2025 ANALYTICAL DATE : 21/04/2025-28/05/2025
REPORT DATE : 29/05/2025 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Kittipong Thakoengsuk STACK LOCATION : H-3708
STACK DESCRIPTION

Height : 35.0 m Flow Rate* : 7,363 Ncu.m/min
Diameter : 3.26 m Excess Oxygen : 13.7 %
Temperature : 154.7 °C Moisture Content : 9.7 %
Gas Velocity : 23.5 m/s

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	13.7%O ₂	7%O ₂	13.7%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.23	0.44	0.59	1.15	20/20/20	52/52/52	0.073	-	US.EPA Method 6C
Oxide of Nitrogen (NOx)	5.93	11.45	11.15	21.53	120/120/18	226/226/33	1.369	2.44	US.EPA Method 7E



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.7-239-ท-0006



(Miss Preeda Somjai)

Technical Management Team

REG.NO.7-239-ท-0006

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3708**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 11, 2025

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	13.55	13.56	6.32	6.28	11.89
2	14.01	13.98	5.56	5.52	11.09
3	13.63	13.56	6.04	6.00	11.36
Average	13.73	13.70	5.98	5.93	11.45

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	13.55	13.56	0.28	0.23	0.44
2	14.01	13.98	0.27	0.22	0.44
3	13.63	13.56	0.29	0.23	0.44
Average	13.73	13.70	0.28	0.23	0.44

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

Date: April 11, 2025

Start time: 10:30 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-3708

Finish time : 10:50 AM

Serial No.: 161212-13

Serial No.: 314

Serial No.: 058

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:30 AM	13.35	6.26	0.30
10:31 AM	13.31	6.51	0.30
10:32 AM	13.30	6.41	0.30
10:33 AM	13.38	6.46	0.30
10:34 AM	13.35	6.44	0.30
10:35 AM	13.53	6.46	0.30
10:36 AM	13.37	6.68	0.30
10:37 AM	13.45	6.86	0.27
10:38 AM	13.38	6.84	0.29
10:39 AM	13.48	6.92	0.29
10:40 AM	13.54	6.80	0.27
10:41 AM	13.70	6.57	0.24
10:42 AM	13.65	6.19	0.24
10:43 AM	13.57	6.41	0.29
10:44 AM	13.74	6.03	0.29
10:45 AM	13.77	5.90	0.29
10:46 AM	13.81	5.73	0.29
10:47 AM	13.72	5.76	0.27
10:48 AM	13.72	5.77	0.28
10:49 AM	13.69	5.85	0.25
10:50 AM	13.72	5.96	0.23
Average	13.55	6.32	0.28

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Run # : 2
 Date: April 11, 2025
 Start time: 10:51 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas
 Location : H-3708
 Finish time : 11:11 AM
 Serial No.: 161212-13
 Serial No.: 314
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:51 AM	14.02	5.98	0.28
10:52 AM	14.20	5.41	0.25
10:53 AM	14.03	5.63	0.27
10:54 AM	13.96	5.80	0.25
10:55 AM	13.84	5.83	0.27
10:56 AM	13.94	5.47	0.28
10:57 AM	13.85	5.70	0.28
10:58 AM	14.10	5.48	0.25
10:59 AM	14.21	5.33	0.25
11:00 AM	14.08	5.53	0.27
11:01 AM	14.21	5.64	0.23
11:02 AM	14.08	5.67	0.25
11:03 AM	13.66	5.70	0.25
11:04 AM	13.70	5.71	0.28
11:05 AM	14.02	5.56	0.27
11:06 AM	14.15	5.41	0.28
11:07 AM	14.18	5.44	0.27
11:08 AM	13.98	5.55	0.25
11:09 AM	14.02	5.39	0.28
11:10 AM	13.97	5.28	0.28
11:11 AM	13.91	5.33	0.28
Average	14.01	5.56	0.27

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Run # : 3
 Date: April 11, 2025
 Start time: 11:12 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 Fuel Type : Natural Gas
 Location : H-3708
 Finish time : 11:32 AM
 Serial No.: 161212-13
 Serial No.: 314
 Serial No.: 058
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:12 AM	13.75	5.49	0.28
11:13 AM	13.73	5.61	0.28
11:14 AM	13.78	5.67	0.28
11:15 AM	13.91	5.60	0.28
11:16 AM	13.85	5.70	0.28
11:17 AM	13.77	5.94	0.28
11:18 AM	13.81	5.95	0.48
11:19 AM	13.85	5.67	0.28
11:20 AM	13.65	5.93	0.28
11:21 AM	13.65	5.98	0.28
11:22 AM	13.45	6.13	0.28
11:23 AM	13.64	6.15	0.28
11:24 AM	13.67	5.92	0.28
11:25 AM	13.58	5.81	0.28
11:26 AM	13.39	6.20	0.28
11:27 AM	13.40	6.29	0.28
11:28 AM	13.28	6.60	0.28
11:29 AM	13.41	6.41	0.28
11:30 AM	13.55	6.64	0.28
11:31 AM	13.56	6.66	0.28
11:32 AM	13.61	6.55	0.28
Average	13.63	6.04	0.29

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant	SAMPLING DATE	: 11/04/2025
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 17-22/04/2025
RECEIVED DATE	: 17/04/2025	SAMPLE CONDITION	: Normal
REPORT DATE	: 24/04/2025	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3709
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			

Height	: 35.0	m	Gas Velocity	: 23.9	m/s
Diameter	: 3.26	m	Flow Rate*	: 7,205	Ncu.m/min
Temperature	: 165.6	°C	Excess Oxygen	: 14.4	%

PARAMETER	UNITS	RESULTS*			REFERENCE
		14.4%O ₂	7%O ₂	7%O ₂	
Particulate Matter	mg/Ncu.m.	2.01	4.31	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO.จ-239-ก-0018


(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ก-0010

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE/TIME	: 11/04/2025/10.15-11.32 a.m.
RECEIVED DATE	: 19/04/2025	ANALYTICAL DATE	: 21/04/2025-28/05/2025
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Kittipong Thakoengsuk	STACK LOCATION	: H-3709
STACK DESCRIPTION			


Height	: 35.0	m	Flow Rate*	: 7,205	Ncu.m/min
Diameter	: 3.26	m	Excess Oxygen	: 14.4	%
Temperature	: 165.6	°C	Moisture Content	: 10.9	%
Gas Velocity	: 23.9	m/s			

PARAMETER	RESULT*				STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	14.4%O ₂	7%O ₂	14.4%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}	
Sulfur Dioxide (SO ₂)	0.12	0.26	0.32	0.69	20/20/20	52/52/52	0.039	*	US.EPA Method 6C
Oxide of Nitrogen (NOx)	3.92	8.41	7.37	15.82	120/120/18	226/226/33	0.885	2.44	US.EPA Method 7E


(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.จ-239-ก-0006


(Miss Preeda Somjai)

Technical Management Team

REG.NO.จ-239-ก-0006

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

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

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 11, 2025

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	14.47	14.38	3.95	3.91	8.34
2	14.57	14.45	4.00	3.96	8.53
3	14.59	14.44	3.93	3.89	8.37
Average	14.55	14.42	3.96	3.92	8.41

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	14.47	14.38	0.29	0.25	0.53
2	14.57	14.45	0.17	0.12	0.26
3	14.59	14.44	0.01	0.00	0.00
Average	14.55	14.42	0.16	0.12	0.26

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

Date: April 11, 2025
 Start time: 10:30 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: TELEDYNE 100 EH
 Fuel Type : Natural Gas

Run # : 1
 Location : H-3709
 Finish time : 10:50 AM
 Serial No.: 071023-47
 Serial No.: 435
 Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:30 AM	14.33	3.88	0.15
10:31 AM	14.37	3.89	0.20
10:32 AM	14.39	3.87	0.23
10:33 AM	14.44	3.90	0.38
10:34 AM	14.45	3.94	0.30
10:35 AM	14.47	3.97	0.30
10:36 AM	14.50	3.99	0.30
10:37 AM	14.48	4.01	0.31
10:38 AM	14.48	3.93	0.31
10:39 AM	14.51	3.97	0.30
10:40 AM	14.48	4.00	0.30
10:41 AM	14.51	4.01	0.31
10:42 AM	14.50	3.96	0.31
10:43 AM	14.49	3.94	0.31
10:44 AM	14.52	3.93	0.31
10:45 AM	14.50	3.95	0.31
10:46 AM	14.51	4.00	0.31
10:47 AM	14.51	3.99	0.29
10:48 AM	14.50	4.02	0.28
10:49 AM	14.52	3.93	0.28
10:50 AM	14.50	3.87	0.29
Average	14.47	3.95	0.29

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 11, 2025 Run # : 2
 Start time: 10:51 AM Location : H-3709
 O₂ instrument Model: AMI 70 Finish time : 11:11 AM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
10:51 AM	14.54	3.91	0.29
10:52 AM	14.53	3.93	0.29
10:53 AM	14.56	3.94	0.29
10:54 AM	14.56	3.94	0.29
10:55 AM	14.54	3.93	0.29
10:56 AM	14.55	3.91	0.28
10:57 AM	14.54	3.89	0.28
10:58 AM	14.56	3.91	0.27
10:59 AM	14.60	3.96	0.27
11:00 AM	14.59	4.06	0.27
11:01 AM	14.61	4.14	0.26
11:02 AM	14.59	4.12	0.24
11:03 AM	14.61	4.11	0.05
11:04 AM	14.60	4.09	0.04
11:05 AM	14.61	4.14	0.03
11:06 AM	14.57	4.18	0.04
11:07 AM	14.55	4.07	0.03
11:08 AM	14.56	3.97	0.04
11:09 AM	14.61	3.97	0.03
11:10 AM	14.59	3.90	0.02
11:11 AM	14.56	3.89	0.01
Average	14.57	4.00	0.17

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 11, 2025 Run # : 3
 Start time: 11:12 AM Location : H-3709
 O₂ instrument Model: AMI 70 Finish time : 11:32 AM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
11:12 AM	14.59	3.84	0.01
11:13 AM	14.55	3.80	0.01
11:14 AM	14.58	3.85	0.01
11:15 AM	14.59	3.87	0.01
11:16 AM	14.58	3.97	0.02
11:17 AM	14.61	4.05	0.01
11:18 AM	14.60	4.02	0.02
11:19 AM	14.59	3.99	0.02
11:20 AM	14.61	4.03	0.01
11:21 AM	14.61	4.05	0.01
11:22 AM	14.58	4.03	0.01
11:23 AM	14.62	4.04	0.01
11:24 AM	14.59	3.99	0.01
11:25 AM	14.61	3.90	0.01
11:26 AM	14.59	3.90	0.01
11:27 AM	14.57	3.90	0.01
11:28 AM	14.61	3.83	0.02
11:29 AM	14.57	3.79	0.01
11:30 AM	14.57	3.80	0.02
11:31 AM	14.57	3.86	0.02
11:32 AM	14.63	3.92	0.01
Average	14.59	3.93	0.01

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



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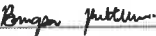
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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant	SAMPLING DATE	: 11/04/2025
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 17-22/04/2025
RECEIVED DATE	: 17/04/2025	SAMPLE CONDITION	: Normal
REPORT DATE	: 24/04/2025	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3710
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			

Height	: 35.0	m	Gas Velocity	: 24.1	m/s
Diameter	: 3.26	m	Flow Rate*	: 7,152	Ncu.m/min
Temperature	: 175.1	°C	Excess Oxygen	: 14.1	%

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		14.1%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	2.12	4.35	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO.7-239-ก-0018



(Miss Narisa Poowasanpelch)

Technical Management Team

REG.NO.7-239-ก-0010

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.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE/TIME	: 11/04/2025/01.30-02.52 p.m.
RECEIVED DATE	: 19/04/2025	ANALYTICAL DATE	: 21/04/2025-28/05/2025
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Kittipong Thakoengsuk	STACK LOCATION	: H-3710
STACK DESCRIPTION			

Height	: 35.0	m	Flow Rate*	: 7,152	Ncu.m/min
Diameter	: 3.26	m	Excess Oxygen	: 14.1	%
Temperature	: 175.1	°C	Moisture Content	: 10.4	%
Gas Velocity	: 24.1	m/s			

PARAMETER	RESULT*		STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE	
	ppm	mg/Ncu.m.	ppm	mg/Ncu.m.	g/s			
	14.1%O ₂	7%O ₂	14.1%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}
Sulfur Dioxide (SO ₂)	0.12	0.25	0.32	0.66	20/20/20	52/52/52	0.039	US.EPA Method 6C
Oxide of Nitrogen (NOx)	6.53	13.38	12.28	25.16	120/120/18	226/226/33	1.463	2.44 US.EPA Method 7E



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO.7-239-ก-0006



(Miss Preeda Somjai)

Technical Management Team

REG.NO.7-239-ก-0006

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5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

The Monitoring Result of Emission Concentration
H-3710
PTT Global Chemical Public Co., Ltd.
(Branch 2 : Power Plant I-1)
April 11, 2025

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	14.22	14.12	6.51	6.47	13.26
2	14.22	14.11	6.85	6.80	13.92
3	14.25	14.12	6.38	6.32	12.96
Average	14.23	14.12	6.58	6.53	13.38

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	14.22	14.12	0.23	0.17	0.35
2	14.22	14.11	0.18	0.12	0.25
3	14.25	14.12	0.14	0.08	0.16
Average	14.23	14.12	0.19	0.12	0.25

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

Date: April 11, 2025 Run #: 1
 Start time: 1:50 PM Location: H-3710
 O₂ instrument Model: AMI 70 Finish time: 2:10 PM
 NO_x instrument Model: API 200 AH Serial No.: 161212-13
 SO₂ instrument Model: API 100 AH Serial No.: 314
 Fuel Type: Natural Gas Serial No.: 058
 Test Operator: Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:50 PM	14.22	6.11	0.28
1:51 PM	14.22	6.17	0.27
1:52 PM	14.22	6.29	0.28
1:53 PM	14.22	6.23	0.28
1:54 PM	14.22	5.95	0.24
1:55 PM	14.22	6.14	0.22
1:56 PM	14.23	6.48	0.22
1:57 PM	14.22	6.82	0.22
1:58 PM	14.22	6.54	0.22
1:59 PM	14.23	6.65	0.22
2:00 PM	14.22	6.48	0.22
2:01 PM	14.22	6.11	0.22
2:02 PM	14.22	5.53	0.22
2:03 PM	14.22	5.76	0.22
2:04 PM	14.22	6.17	0.22
2:05 PM	14.20	6.57	0.22
2:06 PM	14.22	6.91	0.22
2:07 PM	14.22	6.97	0.22
2:08 PM	14.22	7.18	0.22
2:09 PM	14.22	7.68	0.22
2:10 PM	14.22	7.95	0.21
Average	14.22	6.51	0.23

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Run # : 2
 Date: April 11, 2025
 Location : H-3710
 Start time: 2:11 PM
 Finish time : 2:31 PM
 O₂ instrument Model: AMI 70
 Serial No.: 161212-13
 NO_x instrument Model: API 200 AH
 Serial No.: 314
 SO₂ instrument Model: API 100 AH
 Serial No.: 058
 Fuel Type : Natural Gas
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:11 PM	14.22	6.15	0.21
2:12 PM	14.22	6.10	0.21
2:13 PM	14.23	6.49	0.21
2:14 PM	14.22	6.82	0.21
2:15 PM	14.25	6.98	0.21
2:16 PM	14.22	7.17	0.21
2:17 PM	14.22	7.25	0.21
2:18 PM	14.26	6.93	0.21
2:19 PM	14.24	7.19	0.21
2:20 PM	14.22	6.85	0.21
2:21 PM	14.22	6.85	0.18
2:22 PM	14.22	6.91	0.18
2:23 PM	14.22	6.85	0.15
2:24 PM	14.22	6.68	0.18
2:25 PM	14.22	6.85	0.20
2:26 PM	14.22	6.94	0.18
2:27 PM	14.22	6.77	0.14
2:28 PM	14.22	6.94	0.14
2:29 PM	14.22	6.93	0.14
2:30 PM	14.22	7.09	0.14
2:31 PM	14.22	7.01	0.14
Average	14.22	6.85	0.18

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Run # : 3
 Date: April 11, 2025
 Location : H-3710
 Start time: 2:32 PM
 Finish time : 2:52 PM
 O₂ instrument Model: AMI 70
 Serial No.: 161212-13
 NO_x instrument Model: API 200 AH
 Serial No.: 314
 SO₂ instrument Model: API 100 AH
 Serial No.: 058
 Fuel Type : Natural Gas
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:32 PM	14.26	7.01	0.14
2:33 PM	14.22	7.29	0.14
2:34 PM	14.22	7.11	0.14
2:35 PM	14.22	6.46	0.14
2:36 PM	14.25	6.28	0.14
2:37 PM	14.22	6.10	0.14
2:38 PM	14.28	5.94	0.14
2:39 PM	14.32	5.89	0.14
2:40 PM	14.31	5.83	0.14
2:41 PM	14.32	5.77	0.14
2:42 PM	14.23	6.26	0.14
2:43 PM	14.22	6.27	0.14
2:44 PM	14.23	6.15	0.14
2:45 PM	14.22	6.21	0.14
2:46 PM	14.24	6.37	0.14
2:47 PM	14.22	6.41	0.14
2:48 PM	14.28	6.26	0.14
2:49 PM	14.24	6.54	0.14
2:50 PM	14.24	6.37	0.14
2:51 PM	14.29	6.49	0.14
2:52 PM	14.23	6.90	0.14
Average	14.25	6.38	0.14

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.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant	SAMPLING DATE	: 11/04/2025
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 17-22/04/2025
RECEIVED DATE	: 17/04/2025	SAMPLE CONDITION	: Normal
REPORT DATE	: 24/04/2025	FUEL TYPE	: Natural Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: H-3711
OPERATOR	: Mr. Kittipong Thakoengsuk		
STACK DESCRIPTION			

Height	: 35.0	m	Gas Velocity	: 22.7	m/s
Diameter	: 3.26	m	Flow Rate*	: 7,432	Ncu.m/min
Temperature	: 134.4	°C	Excess Oxygen	: 13.2	%

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE
		13.2%O ₂	7%O ₂	7%O ₂	METHODS
Particulate Matter	mg/Ncu.m.	1.97	3.57	60	US. EPA Method 5


(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-ก-0018


(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ก-0010

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.2567 and the Ministry of Natural Resources and Environment, B.E.2566.



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 225007-CEMS-2504-0065
	Branch 2, Power Plant		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE/TIME	: 11/04/2025/01.30-02.52 p.m.
RECEIVED DATE	: 19/04/2025	ANALYTICAL DATE	: 21/04/2025-28/05/2025
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Kittipong Thakoengsuk	STACK LOCATION	: H-3711
STACK DESCRIPTION			

Height	: 35.0	m	Flow Rate*	: 7,432	Ncu.m/min
Diameter	: 3.26	m	Excess Oxygen	: 13.2	%
Temperature	: 134.4	°C	Moisture Content	: 10.2	%
Gas Velocity	: 22.7	m/s			

PARAMETER	RESULT*		STANDARD ^{1/2/} / EIA ^{3/}		EMISSION RATE		REFERENCE	
	ppm	mg/Ncu.m.	ppm	mg/Ncu.m.	g/s			
	13.2%O ₂	7%O ₂	13.2%O ₂	7%O ₂	7%O ₂	7%O ₂	RESULT	EIA ^{3/}
Sulfur Dioxide (SO ₂)	0.11	0.21	0.30	0.54	20/20/20	52/52/52	0.037	US.EPA Method 6C
Oxide of Nitrogen (NOx)	4.99	9.03	9.37	16.98	120/120/14	226/226/26	1.161	2.44 US.EPA Method 7E


(Miss Katesarin Vorradetwittaya)

Environmental Scientist

REG.NO. 2-239-ก-0006


(Miss Preeda Somjai)

Technical Management Team

REG.NO. 2-239-ก-0006

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.2567 (2024).

5. ^{2/} The Ministry of Natural Resources and Environment, B.E.2566 (2023).

6. ^{3/} The assigned value is specified in EIA report, B.E.2561 (2018).

**The Monitoring Result of Emission Concentration
H-3711**

PTT Global Chemical Public Co., Ltd.

(Branch 2 : Power Plant I-1)

April 11, 2025

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	13.19	13.05	4.94	4.91	8.69
2	13.32	13.18	4.96	4.93	8.88
3	13.57	13.44	5.15	5.12	9.54
Average	13.36	13.22	5.02	4.99	9.03

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	13.19	13.05	0.04	0.00	0.00
2	13.32	13.18	0.23	0.17	0.31
3	13.57	13.44	0.23	0.17	0.32
Average	13.36	13.22	0.17	0.11	0.21

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

Date: April 11, 2025

Start time: 1:50 PM

O₂ instrument Model: AMI 70

NO_x instrument Model: TELEDYNE 200 EM

SO₂ instrument Model: TELEDYNE 100 EH

Fuel Type : Natural Gas

Run # : 1

Location : H-3711

Finish time : 2:10 PM

Serial No.: 071023-47

Serial No.: 435

Serial No.: 186

Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
1:50 PM	13.03	5.00	0.01
1:51 PM	13.06	4.99	0.01
1:52 PM	13.11	4.95	0.02
1:53 PM	13.15	4.96	0.02
1:54 PM	13.13	4.95	0.03
1:55 PM	13.10	4.88	0.03
1:56 PM	13.04	5.00	0.03
1:57 PM	12.99	4.90	0.04
1:58 PM	12.94	4.94	0.04
1:59 PM	12.98	4.87	0.05
2:00 PM	13.01	4.94	0.05
2:01 PM	13.06	5.01	0.06
2:02 PM	13.15	4.99	0.05
2:03 PM	13.23	4.88	0.05
2:04 PM	13.26	4.91	0.04
2:05 PM	13.31	4.90	0.04
2:06 PM	13.39	4.88	0.05
2:07 PM	13.44	5.01	0.04
2:08 PM	13.51	4.92	0.05
2:09 PM	13.52	4.99	0.04
2:10 PM	13.48	4.87	0.04
Average	13.19	4.94	0.04

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

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

Date: April 11, 2025 Run # : 2
 Start time: 2:11 PM Location : H-3711
 O₂ instrument Model: AMI 70 Finish time : 2:31 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:11 PM	13.42	4.85	0.06
2:12 PM	13.31	4.89	0.10
2:13 PM	13.24	4.91	0.23
2:14 PM	13.16	4.94	0.23
2:15 PM	13.12	4.93	0.23
2:16 PM	13.11	4.90	0.23
2:17 PM	13.16	4.96	0.24
2:18 PM	13.25	4.87	0.23
2:19 PM	13.34	4.85	0.23
2:20 PM	13.44	4.81	0.24
2:21 PM	13.49	4.86	0.25
2:22 PM	13.54	5.02	0.25
2:23 PM	13.57	5.10	0.23
2:24 PM	13.58	5.02	0.23
2:25 PM	13.54	5.01	0.25
2:26 PM	13.45	4.94	0.25
2:27 PM	13.31	4.97	0.27
2:28 PM	13.21	5.04	0.27
2:29 PM	13.13	5.07	0.26
2:30 PM	13.13	5.16	0.26
2:31 PM	13.22	5.12	0.25
Average	13.32	4.96	0.23

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

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

Date: April 11, 2025 Run # : 3
 Start time: 2:32 PM Location : H-3711
 O₂ instrument Model: AMI 70 Finish time : 2:52 PM
 NO_x instrument Model: TELEDYNE 200 EM Serial No.: 071023-47
 SO₂ instrument Model: TELEDYNE 100 EH Serial No.: 435
 Fuel Type : Natural Gas Serial No.: 186
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)
2:32 PM	13.32	5.15	0.25
2:33 PM	13.40	5.21	0.26
2:34 PM	13.48	5.29	0.25
2:35 PM	13.55	5.33	0.24
2:36 PM	13.59	5.27	0.24
2:37 PM	13.61	5.27	0.24
2:38 PM	13.59	5.25	0.22
2:39 PM	13.62	5.25	0.24
2:40 PM	13.60	5.23	0.22
2:41 PM	13.60	5.20	0.22
2:42 PM	13.61	5.11	0.22
2:43 PM	13.62	5.15	0.22
2:44 PM	13.61	5.21	0.24
2:45 PM	13.59	5.19	0.22
2:46 PM	13.58	5.13	0.23
2:47 PM	13.59	5.10	0.22
2:48 PM	13.59	5.02	0.22
2:49 PM	13.59	5.01	0.22
2:50 PM	13.62	5.00	0.22
2:51 PM	13.60	4.90	0.22
2:52 PM	13.59	4.88	0.23
Average	13.57	5.15	0.23

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

ภาคผนวก ง.2

ใบรับรองผลการตรวจวิเคราะห์คุณภาพอากาศในบรรยากาศ

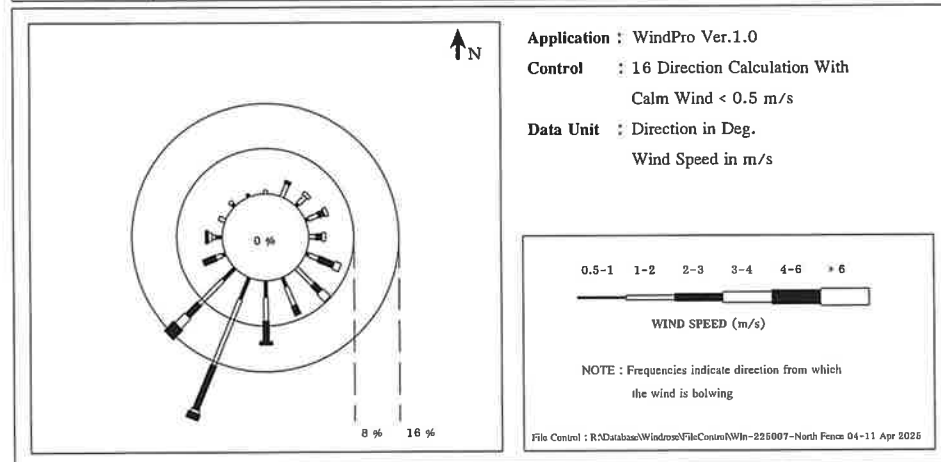


Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence Monitor period : 04-11 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5084
 Wind Direction Model : Novalynx WS-25 Serial No : A5084

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						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	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NNE	0.0000	0.0238	0.0060	0.0000	0.0000	0.0000	0.0298
NE	0.0060	0.0179	0.0000	0.0060	0.0000	0.0000	0.0298
ENE	0.0060	0.0179	0.0119	0.0060	0.0000	0.0000	0.0417
E	0.0000	0.0119	0.0119	0.0060	0.0000	0.0000	0.0298
ESE	0.0060	0.0179	0.0298	0.0119	0.0000	0.0000	0.0655
SE	0.0000	0.0417	0.0179	0.0179	0.0000	0.0000	0.0774
SSE	0.0179	0.0357	0.0179	0.0000	0.0000	0.0000	0.0714
S	0.0298	0.0417	0.0357	0.0000	0.0060	0.0000	0.1131
SSW	0.0417	0.1250	0.0833	0.0060	0.0119	0.0000	0.2679
SW	0.0298	0.0595	0.0298	0.0238	0.0238	0.0000	0.1667
WSW	0.0060	0.0119	0.0238	0.0000	0.0000	0.0000	0.0417
W	0.0119	0.0060	0.0000	0.0060	0.0000	0.0000	0.0298
WNW	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
NW	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
NNW	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Preeda S.
 (Miss Preeda Somjai)
 Technical Management Team



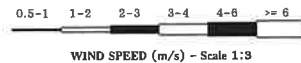
Meteorological Monitoring Results : Wind Rose

MTR-PTTGC, Branch 2 (Power Plant)

Location : North Fence Monitor period : 04-11 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5084
 Wind Direction Model : Novalynx WS-25 Serial No : A5084

Time	04-05 Apr 2025		05-06 Apr 2025		06-07 Apr 2025		07-08 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	2.3	WSW	2.6	SSE	1.4	E	1.6	SSE
11:00 - 12:00	1.4	S	2.3	SW	1.6	SE	0.8	ENE
12:00 - 13:00	3.6	W	3.4	SW	1.8	SSW	3.1	NE
13:00 - 14:00	2.1	WSW	1.8	SSW	4.9	SW	2.4	S
14:00 - 15:00	1.9	S	2.4	ENE	4.3	SW	3.7	SE
15:00 - 16:00	3.0	SW	2.2	SE	1.4	SSW	2.5	SE
16:00 - 17:00	2.5	WSW	2.0	S	3.0	SE	2.1	SW
17:00 - 18:00	2.3	SSE	1.0	SW	0.7	SSW	1.1	SSW
18:00 - 19:00	1.8	SW	1.6	SSW	1.2	SSW	1.5	SSW
19:00 - 20:00	0.7	SW	3.1	ESE	3.3	SW	1.4	SE
20:00 - 21:00	1.8	WSW	2.9	S	2.0	SSW	2.5	SSW
21:00 - 22:00	1.5	S	1.8	SSW	2.1	SSW	4.9	SW
22:00 - 23:00	1.6	SW	3.4	SSW	2.9	SSW	4.7	SW
23:00 - 24:00	1.6	SSW	1.6	SW	0.8	SSW	0.9	SSW
00:00 - 01:00	1.7	SW	1.3	SSW	0.9	SSW	1.4	W
01:00 - 02:00	1.8	SSW	0.8	SW	2.2	SSW	1.7	WNW
02:00 - 03:00	1.5	SW	0.9	SW	1.9	SSW	1.0	NW
03:00 - 04:00	1.4	SSE	0.8	SW	0.9	SSW	1.0	SSW
04:00 - 05:00	1.2	NE	0.7	WSW	2.1	E	1.3	SSW
05:00 - 06:00	2.0	E	0.8	SSE	2.3	WSW	2.1	SSW
06:00 - 07:00	1.4	WNW	1.4	SSE	1.1	SE	0.8	SSW
07:00 - 08:00	2.7	SW	3.0	SE	2.8	ESE	0.7	SSW
08:00 - 09:00	5.6	W	1.1	SW	1.6	SE	2.3	SSW
09:00 - 10:00	3.7	SW	2.0	NNE	1.6	SSE	1.4	SE

Wind Rose



File Control : R:\Database\Windrose\FireControl\Win-225007-North Fence 04-11 Apr 2025

(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 : North Fence Monitor period : 04-11 Apr 2025

Wind Speed Model : Novalynx WS-25

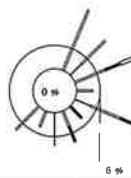
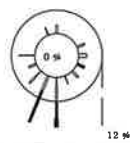
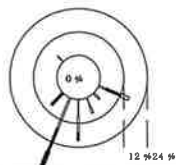
Serial No : A5084

Wind Direction Model : Novalynx WS-25

Serial No : A5084

Time	08-09 Apr 2025		09-10 Apr 2025		10-11 Apr 2025		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
10:00 - 11:00	4.3	SSW	1.8	SE	2.9	SE	
11:00 - 12:00	1.9	SE	1.5	SW	1.1	NNE	
12:00 - 13:00	1.9	SSW	2.1	SSW	2.9	ESE	
13:00 - 14:00	2.1	SSW	0.6	SSE	1.5	NNE	
14:00 - 15:00	0.9	S	1.6	SSW	0.8	ESE	
15:00 - 16:00	0.9	S	2.0	SSW	3.0	ENE	
16:00 - 17:00	2.5	ESE	1.0	SSW	1.4	NE	
17:00 - 18:00	1.2	S	0.9	S	1.2	NNE	
18:00 - 19:00	3.2	ESE	0.8	SW	1.8	E	
19:00 - 20:00	1.2	SSE	2.4	ESE	1.8	NNE	
20:00 - 21:00	0.5	NW	1.3	S	1.7	ESE	
21:00 - 22:00	2.0	ESE	1.5	S	0.8	NE	
22:00 - 23:00	2.2	SW	2.6	SSW	1.3	ENE	
23:00 - 24:00	1.9	SSW	2.4	S	2.7	SSE	
00:00 - 01:00	0.9	SSE	4.6	S	0.8	S	
01:00 - 02:00	2.4	S	2.6	SSW	1.1	ESE	
02:00 - 03:00	1.0	ESE	1.7	WSW	1.6	SW	
03:00 - 04:00	2.0	SSW	2.4	S	0.5	S	
04:00 - 05:00	1.4	S	0.8	W	2.4	ENE	
05:00 - 06:00	5.3	SSW	0.5	W	1.6	NE	
06:00 - 07:00	1.3	SSW	0.9	NNW	1.4	ENE	
07:00 - 08:00	2.2	SW	1.4	N	1.6	SW	
08:00 - 09:00	1.7	SSW	3.0	E	1.9	SSE	
09:00 - 10:00	2.0	SSW	1.2	ENE	1.7	SSW	

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-225007-North Fence 04-11 Apr 2025

(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 : 04-11 Apr 2025

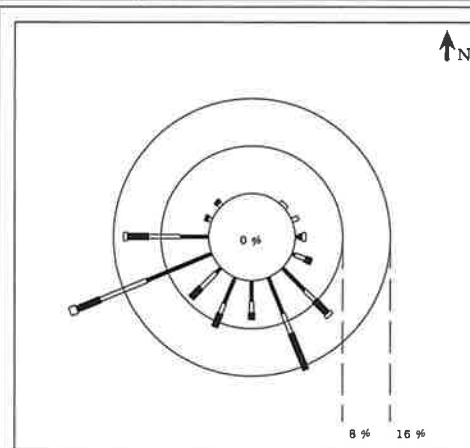
Wind Speed Model : Novalynx WS-25

Serial No : A4907

Wind Direction Model : Novalynx WS-25

Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0060	0.0000	0.0000	0.0060
ENE	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
E	0.0060	0.0000	0.0060	0.0060	0.0000	0.0000	0.0179
ESE	0.0060	0.0179	0.0119	0.0000	0.0000	0.0000	0.0357
SE	0.0536	0.0238	0.0298	0.0060	0.0000	0.0000	0.1131
SSE	0.0655	0.0357	0.0655	0.0000	0.0000	0.0000	0.1667
S	0.0357	0.0179	0.0119	0.0000	0.0000	0.0000	0.0655
SSW	0.0476	0.0179	0.0238	0.0000	0.0000	0.0000	0.0893
SW	0.0119	0.0357	0.0238	0.0000	0.0000	0.0000	0.0714
WSW	0.1190	0.0833	0.0417	0.0119	0.0000	0.0000	0.2560
W	0.0476	0.0536	0.0357	0.0060	0.0000	0.0000	0.1429
WNW	0.0000	0.0060	0.0060	0.0000	0.0000	0.0000	0.0119
NW	0.0000	0.0060	0.0060	0.0000	0.0000	0.0000	0.0119
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



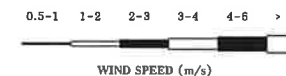
Application : WindPro Ver.1.0

Control : 16 Direction Calculation With

Calm Wind < 0.5 m/s

Data Unit : Direction in Deg.

Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-225007-South Fence 04-11 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

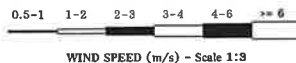
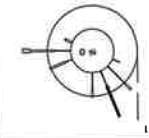
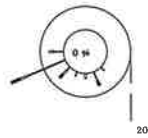
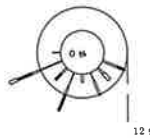
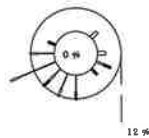


Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence Monitor period : 04-11 Apr 2025
Wind Speed Model : Novalynx WS-25 Serial No : A4907
Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	04-05 Apr 2025		05-06 Apr 2025		06-07 Apr 2025		07-08 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	2.9	S	0.8	W	0.9	WSW	1.5	WNW
10:00 - 11:00	0.9	WSW	1.4	SSE	0.8	SSW	2.2	SSE
11:00 - 12:00	0.9	SSW	1.5	S	0.7	WSW	0.7	SSE
12:00 - 13:00	0.8	SW	0.7	SSW	0.5	WSW	0.7	S
13:00 - 14:00	1.0	SSW	3.9	WSW	0.9	W	0.7	SSE
14:00 - 15:00	3.0	E	2.7	SW	1.5	SW	0.8	SE
15:00 - 16:00	1.5	W	3.0	SE	0.7	WSW	1.3	W
16:00 - 17:00	0.7	WSW	1.5	SSW	0.5	WSW	0.7	SE
17:00 - 18:00	2.9	ESE	2.2	ESE	2.3	SSE	0.7	SE
18:00 - 19:00	1.2	WSW	2.4	SSW	0.8	SE	1.1	WSW
19:00 - 20:00	0.8	WSW	1.1	ESE	2.3	SW	1.0	S
20:00 - 21:00	0.9	W	0.7	SSE	1.1	WSW	2.4	SSE
21:00 - 22:00	0.7	WSW	2.7	WSW	0.7	WSW	1.0	SE
22:00 - 23:00	1.0	SW	0.7	WSW	1.0	WSW	0.8	S
23:00 - 24:00	0.7	WSW	0.9	WSW	0.9	W	0.7	ESE
00:00 - 01:00	0.8	W	1.9	ESE	0.8	SW	1.9	W
01:00 - 02:00	0.8	S	2.3	WSW	0.9	WSW	1.3	W
02:00 - 03:00	0.7	S	1.3	SSE	1.5	S	0.9	W
03:00 - 04:00	2.5	SE	1.5	SE	0.7	SSE	0.8	W
04:00 - 05:00	3.0	NE	2.0	SSW	0.9	SSE	2.9	SSE
05:00 - 06:00	1.8	ESE	0.8	SSW	2.3	WSW	3.0	W
06:00 - 07:00	2.1	WNW	1.5	SW	0.7	WSW	0.9	WSW
07:00 - 08:00	2.5	SW	1.6	WSW	1.8	W	1.0	WSW
08:00 - 09:00	0.8	SSW	0.8	WSW	2.1	WSW	2.3	SSE

Wind Rose



File Control R:\Database\Windrose\FileControl\Win-225007-South Fence 04-11 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

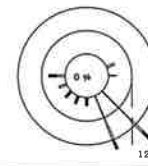
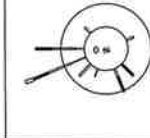
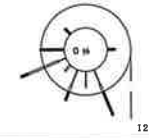


Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : South Fence Monitor period : 04-11 Apr 2025
Wind Speed Model : Novalynx WS-25 Serial No : A4907
Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	08-09 Apr 2025		09-10 Apr 2025		10-11 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	1.6	SW	0.9	W	1.0	ENE
10:00 - 11:00	2.5	E	2.2	SSE	2.8	SE
11:00 - 12:00	1.6	WSW	1.8	W	0.9	SE
12:00 - 13:00	1.3	WSW	1.5	NW	0.9	SE
13:00 - 14:00	2.9	NW	1.7	WSW	0.9	SSE
14:00 - 15:00	2.4	W	0.8	SSW	0.8	SE
15:00 - 16:00	0.8	SSW	2.7	SSE	2.2	SSW
16:00 - 17:00	1.0	WSW	3.4	WSW	1.4	SE
17:00 - 18:00	0.8	S	1.6	SSE	0.7	SE
18:00 - 19:00	2.5	SSE	2.2	WSW	0.8	E
19:00 - 20:00	2.6	WSW	1.1	SW	0.8	SSE
20:00 - 21:00	1.7	SSE	2.5	SE	0.9	SSE
21:00 - 22:00	0.9	SSE	1.5	WSW	1.0	SSE
22:00 - 23:00	0.8	SSE	2.8	SE	1.2	W
23:00 - 24:00	2.7	W	1.2	W	2.7	SE
00:00 - 01:00	2.8	SSE	2.7	W	2.1	W
01:00 - 02:00	2.1	SSW	1.7	WSW	2.4	SSE
02:00 - 03:00	2.2	SSE	2.2	WSW	0.8	SE
03:00 - 04:00	2.1	W	0.6	WSW	2.0	SW
04:00 - 05:00	0.8	WSW	2.4	W	2.1	S
05:00 - 06:00	0.9	S	0.9	WSW	1.5	WSW
06:00 - 07:00	1.0	SSW	1.6	W	0.6	SSE
07:00 - 08:00	1.0	WSW	1.5	SW	1.3	SSE
08:00 - 09:00	0.8	SSW	1.1	ENE	1.0	SE

Wind Rose



File Control R:\Database\Windrose\FileControl\Win-225007-South Fence 04-11 Apr 2025

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Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Map Chalut

Monitor period : 04-11 Apr 2025

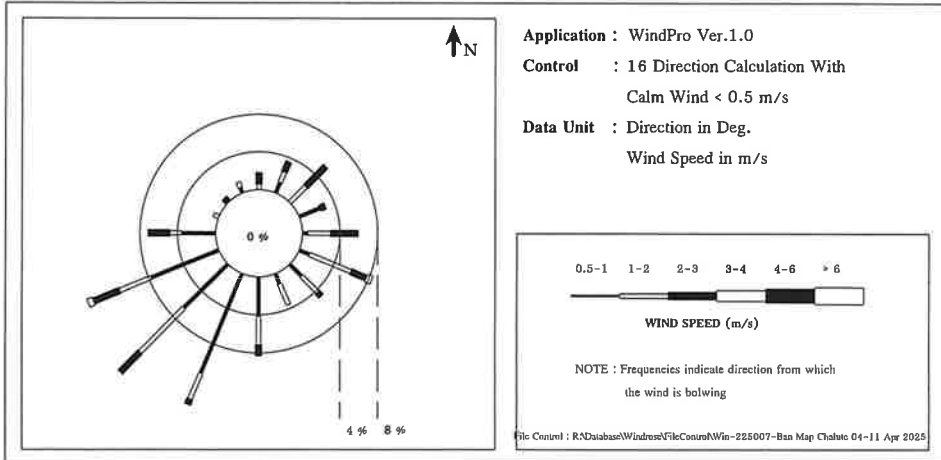
Wind Speed Model : Novalynx NL-32

Serial No : 1203

Wind Direction Model : Novalynx NL-32

Serial No : 1203

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	0.0119	0.0000	0.0000	0.0000	0.0179
NNE	0.0119	0.0119	0.0119	0.0000	0.0000	0.0000	0.0357
NE	0.0000	0.0238	0.0298	0.0000	0.0000	0.0000	0.0536
ENE	0.0238	0.0000	0.0060	0.0000	0.0000	0.0000	0.0298
E	0.0060	0.0238	0.0298	0.0000	0.0000	0.0000	0.0595
ESE	0.0119	0.0476	0.0179	0.0060	0.0000	0.0000	0.0833
SE	0.0179	0.0238	0.0060	0.0000	0.0000	0.0000	0.0476
SSE	0.0119	0.0238	0.0000	0.0000	0.0000	0.0000	0.0357
S	0.0417	0.0298	0.0119	0.0000	0.0000	0.0000	0.0833
SSW	0.1131	0.0298	0.0060	0.0000	0.0000	0.0000	0.1488
SW	0.0655	0.0655	0.0298	0.0000	0.0000	0.0000	0.1607
WSW	0.0774	0.0357	0.0298	0.0060	0.0000	0.0000	0.1488
W	0.0357	0.0119	0.0238	0.0000	0.0000	0.0000	0.0714
WNW	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NW	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
NNW	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
CALM	0.0000						



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Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
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Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Map Chalut

Monitor period : 04-11 Apr 2025

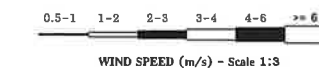
Wind Speed Model : Novalynx NL-32

Serial No : 1203

Wind Direction Model : Novalynx NL-32

Serial No : 1203

Time	04-05 Apr 2025		05-06 Apr 2025		06-07 Apr 2025		07-08 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	0.6	S	1.4	ESE	0.7	NNE	0.8	SW
11:00 - 12:00	2.1	S	2.5	E	1.7	SW	0.8	SSW
12:00 - 13:00	1.3	NE	2.9	SW	2.4	ESE	0.8	WSW
13:00 - 14:00	1.0	SSW	1.4	SSE	2.0	NE	0.7	WSW
14:00 - 15:00	0.7	S	2.0	SW	2.7	WSW	2.0	W
15:00 - 16:00	1.3	SW	1.0	SW	1.1	ESE	1.3	WSW
16:00 - 17:00	1.3	SW	1.4	SSE	1.8	NNE	0.8	WSW
17:00 - 18:00	2.2	E	0.7	S	1.1	WSW	1.0	W
18:00 - 19:00	2.3	NE	1.0	ESE	0.7	WSW	2.0	E
19:00 - 20:00	1.9	SW	1.0	ESE	1.2	NE	2.4	SW
20:00 - 21:00	1.6	ESE	2.4	WSW	0.8	ENE	1.8	N
21:00 - 22:00	1.8	SE	0.8	WSW	0.7	ENE	0.7	ENE
22:00 - 23:00	0.8	E	0.9	SW	1.9	SW	1.1	S
23:00 - 24:00	0.8	W	0.8	S	0.9	SSW	1.0	SE
00:00 - 01:00	1.4	E	2.7	W	0.8	SSW	0.8	ESE
01:00 - 02:00	1.8	WSW	1.1	SSW	2.3	N	1.0	SE
02:00 - 03:00	1.0	S	1.0	SW	1.4	SSW	2.3	ENE
03:00 - 04:00	2.2	E	0.9	S	0.7	SW	2.4	W
04:00 - 05:00	2.2	SW	0.8	S	0.9	SSW	2.5	NE
05:00 - 06:00	1.6	E	0.9	W	2.8	NW	1.5	ESE
06:00 - 07:00	1.3	SSW	0.7	SSW	1.0	WNW	0.7	S
07:00 - 08:00	1.5	SSE	1.5	S	3.0	WSW	2.4	WSW
08:00 - 09:00	1.3	SW	0.7	ESE	0.7	WSW	1.2	SSE
09:00 - 10:00	1.3	WSW	2.9	NNE	0.7	SSW	1.9	NE



File Control : R:\Database\Windrose\FileControl\Win-225007-Ban Map Chalut 04-11 Apr 2025

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Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Map Chalute

Monitor period : 04-11 Apr 2025

Wind Speed Model : Novalynx NL-32

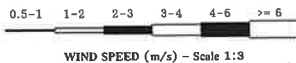
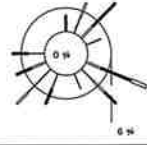
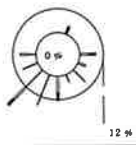
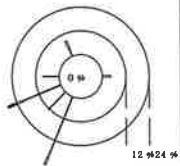
Serial No : 1203

Wind Direction Model : Novalynx NL-32

Serial No : 1203

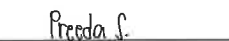
Time	08-09 Apr 2025		09-10 Apr 2025		10-11 Apr 2025		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
10:00 - 11:00	1.6	WSW	0.5	W	2.6	ESE	
11:00 - 12:00	1.3	E	0.7	SW	0.7	SSE	
12:00 - 13:00	1.3	SSW	0.6	SSW	0.9	SE	
13:00 - 14:00	0.6	SW	0.8	SW	1.1	NNE	
14:00 - 15:00	0.6	WSW	0.8	SW	2.1	SSW	
15:00 - 16:00	0.6	SSW	0.9	SSW	1.9	NE	
16:00 - 17:00	0.6	WSW	0.7	WSW	3.0	ESE	
17:00 - 18:00	0.7	SW	0.7	SSW	1.0	ESE	
18:00 - 19:00	0.6	WSW	1.0	S	2.3	NE	
19:00 - 20:00	0.5	SSW	1.0	W	0.9	ENE	
20:00 - 21:00	0.7	SSW	0.8	SSW	0.7	NNE	
21:00 - 22:00	0.7	SSW	1.0	SW	2.4	W	
22:00 - 23:00	0.7	WSW	2.3	NNE	2.3	ESE	
23:00 - 24:00	0.7	SSW	1.3	SW	2.5	N	
00:00 - 01:00	0.7	SSW	0.8	WSW	2.0	WSW	
01:00 - 02:00	0.6	SW	1.4	ESE	2.0	SE	
02:00 - 03:00	0.5	WSW	0.9	SSE	1.0	SE	
03:00 - 04:00	1.9	NNW	0.9	SE	2.3	NE	
04:00 - 05:00	0.6	W	0.8	SE	1.7	WSW	
05:00 - 06:00	0.5	NNW	2.1	SW	0.9	SSW	
06:00 - 07:00	0.6	W	2.7	E	0.7	SW	
07:00 - 08:00	2.0	WSW	1.2	S	0.7	W	
08:00 - 09:00	0.6	SSW	1.7	E	1.0	SW	
09:00 - 10:00	0.7	SSW	2.3	S	0.8	SW	

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-225007-Ban Map Chalute 04-11 Apr 2025


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Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Nong Feab

Monitor period : 04-11 Apr 2025

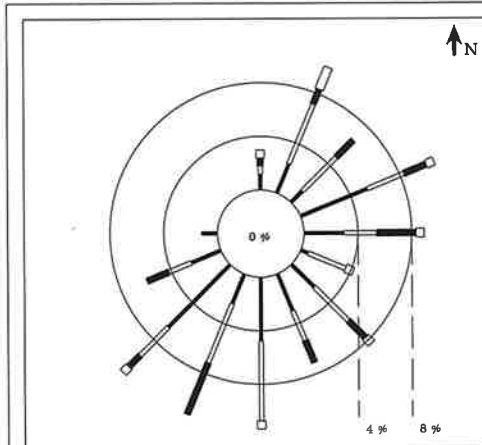
Wind Speed Model : Novalynx WS-25

Serial No : A5088

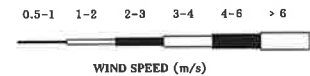
Wind Direction Model : Novalynx WS-25

Serial No : A5088

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						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	0.0119	0.0060	0.0060	0.0060	0.0000	0.0000	0.0298
NNE	0.0238	0.0476	0.0119	0.0179	0.0000	0.0000	0.1012
NE	0.0119	0.0357	0.0179	0.0000	0.0000	0.0000	0.0655
ENE	0.0536	0.0298	0.0179	0.0060	0.0000	0.0000	0.1071
E	0.0298	0.0238	0.0298	0.0060	0.0000	0.0000	0.0893
ESE	0.0060	0.0298	0.0000	0.0060	0.0000	0.0000	0.0417
SE	0.0238	0.0357	0.0179	0.0060	0.0000	0.0000	0.0833
SSE	0.0298	0.0238	0.0179	0.0000	0.0000	0.0000	0.0714
S	0.0476	0.0595	0.0000	0.0060	0.0000	0.0000	0.1131
SSW	0.0238	0.0476	0.0417	0.0000	0.0000	0.0000	0.1131
SW	0.0655	0.0298	0.0119	0.0060	0.0000	0.0000	0.1131
WSW	0.0238	0.0179	0.0179	0.0000	0.0000	0.0000	0.0595
W	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0119
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



Application : WindPro Ver.1.0

Control : 16 Direction Calculation With
Calm Wind < 0.5 m/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-225007-Ban Nong Feab 04-11 Apr 2025


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

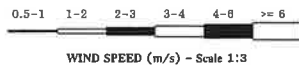
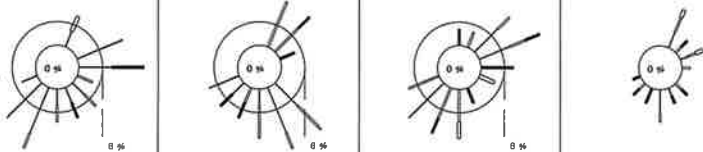


Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Nong Feab Monitor period : 04-11 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5088
 Wind Direction Model : Novalynx WS-25 Serial No : A5088

Time	04-05 Apr 2025		05-06 Apr 2025		06-07 Apr 2025		07-08 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	0.6	NNE	1.5	SSW	2.1	E	2.2	SE
13:00 - 14:00	1.6	S	0.5	SSE	2.8	N	1.2	S
14:00 - 15:00	2.6	SSE	0.9	WSW	2.7	SSW	2.6	SW
15:00 - 16:00	0.8	SSW	0.7	SW	1.5	S	2.4	NE
16:00 - 17:00	0.8	SW	0.5	SE	0.5	NE	0.6	ENE
17:00 - 18:00	2.1	E	0.7	SSE	1.4	SSW	0.7	NNE
18:00 - 19:00	3.3	NNE	0.5	SSE	0.8	SW	1.0	ENE
19:00 - 20:00	0.7	SSW	0.7	SE	2.5	ENE	2.4	WSW
20:00 - 21:00	0.8	E	1.4	NE	0.8	ENE	1.4	NNE
21:00 - 22:00	1.1	ESE	1.0	NNE	0.5	ENE	0.7	NNE
22:00 - 23:00	0.8	ENE	1.8	SE	0.6	SW	0.8	S
23:00 - 24:00	0.6	WSW	0.8	S	1.0	WSW	0.7	SSE
00:00 - 01:00	0.7	ENE	2.3	SSW	0.9	SW	0.7	S
01:00 - 02:00	0.9	SW	2.7	ENE	0.5	NE	1.0	E
02:00 - 03:00	0.5	SSE	0.8	WSW	1.7	S	3.0	NNE
03:00 - 04:00	0.7	E	1.0	NE	2.9	E	2.8	SSW
04:00 - 05:00	0.8	SSW	1.6	NNE	1.1	WSW	3.0	ENE
05:00 - 06:00	0.7	ENE	1.6	S	1.3	NNE	2.1	SSE
06:00 - 07:00	0.5	S	1.0	S	1.5	SSW	1.3	SE
07:00 - 08:00	0.5	SE	1.2	SE	1.9	NE	2.2	SSW
08:00 - 09:00	1.7	SSW	1.3	SSE	3.1	ESE	0.8	S
09:00 - 10:00	0.7	SW	2.2	NE	1.0	ENE	1.6	NNE
10:00 - 11:00	1.7	SE	1.0	NNE	2.9	SSE	1.6	SW
11:00 - 12:00	2.2	E	2.6	SW	3.9	S	1.3	NE

Wind Rose



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team

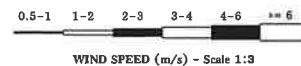
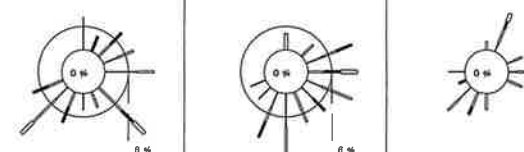


Meteorological Monitoring Results : Wind Rose MTR-PTTGC, Branch 2 (Power Plant)

Location : Ban Nong Feab Monitor period : 04-11 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5088
 Wind Direction Model : Novalynx WS-25 Serial No : A5088

Time	08-09 Apr 2025		09-10 Apr 2025		10-11 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	2.3	WSW	1.9	ENE	0.8	E
13:00 - 14:00	1.2	ENE	0.7	SE	1.8	ENE
14:00 - 15:00	2.0	NNE	3.2	N	2.0	SSW
15:00 - 16:00	2.1	SE	2.0	SE	2.0	NNE
16:00 - 17:00	1.4	SE	2.2	ENE	1.9	ESE
17:00 - 18:00	1.2	SW	2.7	SSW	1.1	ESE
18:00 - 19:00	1.1	E	1.0	NE	1.3	N
19:00 - 20:00	1.4	SSW	1.8	ESE	0.9	NNE
20:00 - 21:00	1.9	SE	1.9	SSW	0.6	ENE
21:00 - 22:00	0.5	N	0.9	WSW	2.2	WSW
22:00 - 23:00	3.0	SE	0.6	ENE	1.7	E
23:00 - 24:00	2.8	SSW	0.9	SW	1.3	NNE
00:00 - 01:00	0.5	ENE	0.7	S	0.8	SW
01:00 - 02:00	0.8	N	1.7	SSE	1.0	S
02:00 - 03:00	0.9	S	0.8	ESE	1.2	S
03:00 - 04:00	0.6	E	1.0	S	3.9	NNE
04:00 - 05:00	1.5	SW	1.0	SSE	1.7	NNE
05:00 - 06:00	0.9	E	0.6	SSW	1.8	SW
06:00 - 07:00	2.2	NE	2.6	E	0.9	W
07:00 - 08:00	1.5	NE	0.7	S	1.0	SSW
08:00 - 09:00	1.5	SSE	3.5	E	1.0	SW
09:00 - 10:00	0.9	SW	1.5	S	0.7	SW
10:00 - 11:00	1.1	WSW	1.8	ESE	1.0	SSW
11:00 - 12:00	3.0	SW	1.5	E	0.7	W

Wind Rose



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(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. : 225007 Amb (Cert.)/TSP/Apr 2025
Branch 2, Power Plant SAMPLING DATE : 04-11/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 19-22/04/2025
RECEIVED DATE : 19/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 SITE OPERATOR : Mr. Siwanon Kulawong
LOCATION DESCRIPTIO : 1. Ban Map Chalute
2. Ban Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS		STANDARD*	REFERENCE METHODS
			1	2		
TSP (24 hr)	04-05/04/2025	mg/m ³	0.036	0.032	0.330	High Volume Air
	05-06/04/2025	mg/m ³	0.036	0.031		Sampler/Gravimetric
	06-07/04/2025	mg/m ³	0.033	0.029		Method
	07-08/04/2025	mg/m ³	0.029	0.029		
	08-09/04/2025	mg/m ³	0.028	0.034		
	09-10/04/2025	mg/m ³	0.036	0.027		
	10-11/04/2025	mg/m ³	0.037	0.028		

Miss Pornnapa Budthum

(Miss Pornnapa Budthum)

Analyst

Miss 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).



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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. : 225007 Amb (Cert.)/PM-10/Apr 2025
Branch 2, Power Plant SAMPLING DATE : 04-11/04/2025
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 19-22/04/2025
RECEIVED DATE : 19/04/2025 SAMPLE CONDITION : Normal
REPORT DATE : 24/04/2025 SITE OPERATOR : Mr. Siwanon Kulawong
LOCATION DESCRIPTIO : 1. Ban Map Chalute
2. Ban Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS		STANDARD*	REFERENCE METHODS
			1	2		
PM-10 (24 hr)	04-05/04/2025	mg/m ³	0.025	0.027	0.120	High Volume Air Sampler
	05-06/04/2025	mg/m ³	0.027	0.026		(Hi-Vol PM-10 Size
	06-07/04/2025	mg/m ³	0.021	0.027		Selective Inlet)/
	07-08/04/2025	mg/m ³	0.024	0.020		Gravimetric Method
	08-09/04/2025	mg/m ³	0.023	0.028		
	09-10/04/2025	mg/m ³	0.023	0.022		
	10-11/04/2025	mg/m ³	0.023	0.015		

Miss Pornnapa Budthum

(Miss Pornnapa Budthum)

Analyst

Miss 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 Monitor Period : 04-11 Apr 2025
Analyzer Model : API 100A Station No : SS2-21
Serial No : 342 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 10 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 09 Jan 2026

Time	SO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
10:00 - 11:00	0.0070	0.0092	0.0039	0.0071	0.0100	0.0090	0.0075
11:00 - 12:00	0.0078	0.0083	0.0047	0.0036	0.0085	0.0116	0.0082
12:00 - 13:00	0.0079	0.0084	0.0037	0.0080	0.0098	0.0103	0.0076
13:00 - 14:00	0.0065	0.0081	0.0084	0.0091	0.0087	0.0116	0.0033
14:00 - 15:00	0.0061	0.0077	0.0083	0.0070	0.0111	0.0093	0.0067
15:00 - 16:00	0.0052	0.0089	0.0081	0.0076	0.0100	0.0072	0.0053
16:00 - 17:00	0.0054	0.0074	0.0083	0.0104	0.0071	0.0074	0.0052
17:00 - 18:00	0.0058	0.0081	0.0077	0.0077	0.0096	0.0058	0.0055
18:00 - 19:00	0.0066	0.0077	0.0107	0.0074	0.0098	0.0085	0.0048
19:00 - 20:00	0.0041	0.0087	0.0091	0.0059	0.0059	0.0038	0.0090
20:00 - 21:00	0.0068	0.0077	0.0108	0.0050	0.0052	0.0055	0.0034
21:00 - 22:00	0.0016	0.0087	0.0105	0.0066	0.0052	0.0028	0.0042
22:00 - 23:00	0.0080	0.0091	0.0103	0.0028	0.0072	0.0030	0.0085
23:00 - 00:00	0.0082	0.0075	0.0086	0.0040	0.0047	0.0078	0.0053
00:00 - 01:00	0.0097	0.0079	0.0094	0.0063	0.0065	0.0066	0.0080
01:00 - 02:00	0.0047	0.0056	0.0107	0.0067	0.0102	0.0083	0.0041
02:00 - 03:00	0.0090	0.0069	0.0073	0.0066	0.0110	0.0058	0.0067
03:00 - 04:00	0.0083	0.0073	0.0063	0.0052	0.0113	0.0063	0.0068
04:00 - 05:00	0.0046	0.0027	0.0062	0.0039	0.0057	0.0086	0.0088
05:00 - 06:00	0.0036	0.0028	0.0054	0.0063	0.0025	0.0040	0.0067
06:00 - 07:00	0.0061	0.0052	0.0022	0.0067	0.0058	0.0086	0.0077
07:00 - 08:00	0.0072	0.0038	0.0066	0.0070	0.0091	0.0081	0.0066
08:00 - 09:00	0.0079	0.0058	0.0064	0.0102	0.0106	0.0076	0.0066
09:00 - 10:00	0.0102	0.0067	0.0033	0.0088	0.0107	0.0075	0.0068
Average-24Hr*	0.0065	0.0071	0.0074	0.0067	0.0082	0.0073	0.0064
Max-1Hr	0.0102	0.0092	0.0108	0.0104	0.0113	0.0116	0.0090
Min-1Hr	0.0016	0.0027	0.0022	0.0028	0.0025	0.0028	0.0033
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Nong Feab Monitor Period : 04-11 Apr 2025
Analyzer Model : API 100A Station No : SCT-14
Serial No : 906 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 10 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 09 Jan 2026

Time	SO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
11:00 - 12:00	0.0076	0.0088	0.0022	0.0041	0.0103	0.0102	0.0074
12:00 - 13:00	0.0070	0.0070	0.0014	0.0072	0.0092	0.0089	0.0031
13:00 - 14:00	0.0062	0.0084	0.0091	0.0095	0.0090	0.0101	0.0050
14:00 - 15:00	0.0052	0.0083	0.0079	0.0067	0.0103	0.0102	0.0072
15:00 - 16:00	0.0040	0.0057	0.0089	0.0037	0.0097	0.0112	0.0066
16:00 - 17:00	0.0040	0.0084	0.0086	0.0106	0.0077	0.0058	0.0077
17:00 - 18:00	0.0062	0.0090	0.0094	0.0050	0.0088	0.0055	0.0064
18:00 - 19:00	0.0040	0.0097	0.0077	0.0074	0.0076	0.0080	0.0067
19:00 - 20:00	0.0006	0.0097	0.0087	0.0062	0.0031	0.0083	0.0070
20:00 - 21:00	0.0027	0.0083	0.0075	0.0056	0.0033	0.0032	0.0057
21:00 - 22:00	0.0027	0.0082	0.0075	0.0072	0.0074	0.0050	0.0068
22:00 - 23:00	0.0092	0.0085	0.0089	0.0044	0.0050	0.0061	0.0082
23:00 - 00:00	0.0077	0.0086	0.0076	0.0048	0.0075	0.0068	0.0038
00:00 - 01:00	0.0043	0.0100	0.0095	0.0065	0.0068	0.0044	0.0044
01:00 - 02:00	0.0063	0.0043	0.0103	0.0071	0.0102	0.0065	0.0056
02:00 - 03:00	0.0068	0.0045	0.0037	0.0062	0.0106	0.0039	0.0081
03:00 - 04:00	0.0012	0.0060	0.0055	0.0077	0.0058	0.0050	0.0043
04:00 - 05:00	0.0024	0.0050	0.0036	0.0061	0.0069	0.0070	0.0059
05:00 - 06:00	0.0057	0.0027	0.0049	0.0033	0.0040	0.0072	0.0060
06:00 - 07:00	0.0044	0.0060	0.0060	0.0057	0.0030	0.0049	0.0071
07:00 - 08:00	0.0030	0.0017	0.0027	0.0048	0.0084	0.0029	0.0032
08:00 - 09:00	0.0074	0.0061	0.0033	0.0082	0.0082	0.0065	0.0068
09:00 - 10:00	0.0075	0.0067	0.0064	0.0094	0.0091	0.0081	0.0064
10:00 - 11:00	0.0080	0.0043	0.0046	0.0091	0.0096	0.0068	0.0035
Average-24Hr*	0.0052	0.0069	0.0065	0.0065	0.0076	0.0068	0.0060
Max-1Hr	0.0092	0.0100	0.0103	0.0106	0.0106	0.0112	0.0082
Min-1Hr	0.0006	0.0017	0.0014	0.0033	0.0030	0.0029	0.0031
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



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

Location : North Fence Monitor Period : 04-11 Apr 2025
Analyzer Model : API 200A Station No : Mobile 18
Serial No : 2387 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 08 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
09:00 - 10:00	0.0089	0.0027	0.0040	0.0059	0.0063	0.0058	0.0098
10:00 - 11:00	0.0066	0.0045	0.0026	0.0057	0.0066	0.0060	0.0085
11:00 - 12:00	0.0074	0.0046	0.0051	0.0046	0.0099	0.0054	0.0072
12:00 - 13:00	0.0088	0.0050	0.0062	0.0088	0.0054	0.0071	0.0038
13:00 - 14:00	0.0074	0.0072	0.0070	0.0050	0.0063	0.0032	0.0081
14:00 - 15:00	0.0053	0.0060	0.0057	0.0053	0.0040	0.0054	0.0047
15:00 - 16:00	0.0074	0.0075	0.0046	0.0042	0.0069	0.0057	0.0091
16:00 - 17:00	0.0055	0.0064	0.0052	0.0059	0.0084	0.0041	0.0068
17:00 - 18:00	0.0084	0.0064	0.0048	0.0076	0.0036	0.0040	0.0080
18:00 - 19:00	0.0037	0.0089	0.0069	0.0076	0.0083	0.0088	0.0083
19:00 - 20:00	0.0106	0.0107	0.0048	0.0099	0.0100	0.0090	0.0116
20:00 - 21:00	0.0065	0.0089	0.0062	0.0083	0.0070	0.0077	0.0117
21:00 - 22:00	0.0079	0.0099	0.0046	0.0071	0.0105	0.0035	0.0072
22:00 - 23:00	0.0037	0.0079	0.0054	0.0054	0.0051	0.0084	0.0062
23:00 - 00:00	0.0031	0.0099	0.0062	0.0071	0.0072	0.0043	0.0120
00:00 - 01:00	0.0054	0.0052	0.0091	0.0044	0.0073	0.0051	0.0138
01:00 - 02:00	0.0034	0.0056	0.0049	0.0023	0.0021	0.0047	0.0051
02:00 - 03:00	0.0107	0.0087	0.0065	0.0063	0.0071	0.0064	0.0037
03:00 - 04:00	0.0070	0.0081	0.0082	0.0074	0.0079	0.0069	0.0051
04:00 - 05:00	0.0066	0.0094	0.0062	0.0090	0.0075	0.0062	0.0046
05:00 - 06:00	0.0068	0.0093	0.0060	0.0091	0.0073	0.0070	0.0037
06:00 - 07:00	0.0129	0.0068	0.0076	0.0128	0.0080	0.0027	0.0073
07:00 - 08:00	0.0088	0.0060	0.0081	0.0145	0.0064	0.0076	0.0064
08:00 - 09:00	0.0058	0.0034	0.0056	0.0075	0.0065	0.0074	0.0047
Average-24Hr*	0.0070	0.0070	0.0059	0.0072	0.0069	0.0059	0.0074
Max-1Hr	0.0129	0.0107	0.0091	0.0145	0.0105	0.0090	0.0138
Min-1Hr	0.0031	0.0027	0.0026	0.0023	0.0021	0.0027	0.0037
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

Location : South Fence Monitor Period : 04-11 Apr 2025
Analyzer Model : RP 8400N Station No : SS2-20
Serial No : 096 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 08 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
09:00 - 10:00	0.0092	0.0058	0.0025	0.0047	0.0073	0.0074	0.0089
10:00 - 11:00	0.0082	0.0047	0.0067	0.0040	0.0065	0.0049	0.0052
11:00 - 12:00	0.0054	0.0032	0.0064	0.0037	0.0085	0.0040	0.0074
12:00 - 13:00	0.0090	0.0033	0.0034	0.0092	0.0086	0.0066	0.0033
13:00 - 14:00	0.0052	0.0066	0.0053	0.0046	0.0052	0.0029	0.0056
14:00 - 15:00	0.0074	0.0088	0.0031	0.0072	0.0038	0.0058	0.0064
15:00 - 16:00	0.0076	0.0044	0.0052	0.0024	0.0100	0.0035	0.0066
16:00 - 17:00	0.0043	0.0060	0.0039	0.0078	0.0091	0.0043	0.0071
17:00 - 18:00	0.0079	0.0044	0.0081	0.0081	0.0073	0.0060	0.0073
18:00 - 19:00	0.0038	0.0057	0.0064	0.0074	0.0102	0.0086	0.0076
19:00 - 20:00	0.0094	0.0063	0.0067	0.0112	0.0072	0.0059	0.0115
20:00 - 21:00	0.0089	0.0080	0.0053	0.0060	0.0056	0.0102	0.0093
21:00 - 22:00	0.0085	0.0090	0.0069	0.0102	0.0088	0.0051	0.0082
22:00 - 23:00	0.0038	0.0066	0.0050	0.0059	0.0054	0.0036	0.0059
23:00 - 00:00	0.0063	0.0097	0.0046	0.0095	0.0096	0.0020	0.0145
00:00 - 01:00	0.0047	0.0049	0.0058	0.0075	0.0078	0.0059	0.0135
01:00 - 02:00	0.0044	0.0035	0.0048	0.0039	0.0036	0.0046	0.0025
02:00 - 03:00	0.0079	0.0075	0.0054	0.0066	0.0097	0.0050	0.0074
03:00 - 04:00	0.0066	0.0088	0.0059	0.0105	0.0065	0.0084	0.0055
04:00 - 05:00	0.0072	0.0092	0.0088	0.0073	0.0067	0.0060	0.0047
05:00 - 06:00	0.0089	0.0062	0.0085	0.0063	0.0066	0.0050	0.0050
06:00 - 07:00	0.0118	0.0091	0.0073	0.0124	0.0085	0.0033	0.0035
07:00 - 08:00	0.0089	0.0045	0.0074	0.0141	0.0071	0.0070	0.0056
08:00 - 09:00	0.0079	0.0063	0.0048	0.0094	0.0071	0.0107	0.0056
Average-24Hr*	0.0072	0.0063	0.0057	0.0075	0.0074	0.0057	0.0070
Max-1Hr	0.0118	0.0097	0.0088	0.0141	0.0102	0.0107	0.0145
Min-1Hr	0.0038	0.0032	0.0025	0.0024	0.0036	0.0020	0.0025
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Map Chalute Monitor Period : 04-11 Apr 2025
Analyzer Model : API 200A Station No : SS2-21
Serial No : 2384 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 08 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
10:00 - 11:00	0.0046	0.0057	0.0036	0.0064	0.0056	0.0039	0.0048
11:00 - 12:00	0.0061	0.0034	0.0034	0.0062	0.0056	0.0037	0.0047
12:00 - 13:00	0.0042	0.0029	0.0051	0.0050	0.0067	0.0045	0.0055
13:00 - 14:00	0.0032	0.0057	0.0055	0.0054	0.0030	0.0063	0.0032
14:00 - 15:00	0.0032	0.0051	0.0053	0.0053	0.0056	0.0065	0.0039
15:00 - 16:00	0.0064	0.0046	0.0060	0.0029	0.0063	0.0026	0.0026
16:00 - 17:00	0.0035	0.0038	0.0056	0.0047	0.0044	0.0052	0.0031
17:00 - 18:00	0.0035	0.0054	0.0047	0.0053	0.0039	0.0055	0.0061
18:00 - 19:00	0.0052	0.0055	0.0030	0.0067	0.0037	0.0050	0.0051
19:00 - 20:00	0.0031	0.0058	0.0044	0.0048	0.0062	0.0026	0.0036
20:00 - 21:00	0.0062	0.0065	0.0057	0.0061	0.0035	0.0060	0.0028
21:00 - 22:00	0.0041	0.0048	0.0045	0.0042	0.0039	0.0046	0.0039
22:00 - 23:00	0.0039	0.0051	0.0063	0.0064	0.0036	0.0056	0.0049
23:00 - 00:00	0.0030	0.0040	0.0030	0.0052	0.0045	0.0058	0.0079
00:00 - 01:00	0.0070	0.0054	0.0045	0.0037	0.0058	0.0041	0.0139
01:00 - 02:00	0.0033	0.0046	0.0030	0.0047	0.0045	0.0026	0.0052
02:00 - 03:00	0.0067	0.0057	0.0041	0.0058	0.0045	0.0037	0.0053
03:00 - 04:00	0.0051	0.0067	0.0063	0.0067	0.0037	0.0041	0.0063
04:00 - 05:00	0.0029	0.0062	0.0039	0.0042	0.0062	0.0030	0.0042
05:00 - 06:00	0.0060	0.0055	0.0029	0.0045	0.0028	0.0031	0.0034
06:00 - 07:00	0.0079	0.0046	0.0064	0.0105	0.0052	0.0055	0.0040
07:00 - 08:00	0.0099	0.0065	0.0065	0.0113	0.0052	0.0031	0.0064
08:00 - 09:00	0.0033	0.0031	0.0066	0.0043	0.0060	0.0060	0.0060
09:00 - 10:00	0.0040	0.0042	0.0036	0.0044	0.0045	0.0025	0.0039
Average-24Hr*	0.0048	0.0050	0.0047	0.0056	0.0048	0.0044	0.0050
Max-1Hr	0.0099	0.0067	0.0066	0.0113	0.0067	0.0065	0.0139
Min-1Hr	0.0029	0.0029	0.0029	0.0029	0.0028	0.0025	0.0026
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



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

Location : Ban Nong Feab Monitor Period : 04-11 Apr 2025
Analyzer Model : API 200A Station No : SCT-14
Serial No : 2385 Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0102326
Certified Date : 08 Jan 2025 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
11:00 - 12:00	0.0050	0.0025	0.0055	0.0045	0.0040	0.0041	0.0045
12:00 - 13:00	0.0028	0.0021	0.0060	0.0021	0.0041	0.0024	0.0057
13:00 - 14:00	0.0059	0.0035	0.0060	0.0050	0.0044	0.0050	0.0052
14:00 - 15:00	0.0031	0.0042	0.0037	0.0056	0.0031	0.0059	0.0053
15:00 - 16:00	0.0026	0.0027	0.0055	0.0053	0.0031	0.0027	0.0026
16:00 - 17:00	0.0024	0.0039	0.0042	0.0053	0.0043	0.0022	0.0050
17:00 - 18:00	0.0050	0.0050	0.0060	0.0047	0.0047	0.0051	0.0059
18:00 - 19:00	0.0039	0.0038	0.0055	0.0042	0.0056	0.0043	0.0052
19:00 - 20:00	0.0054	0.0041	0.0026	0.0049	0.0052	0.0029	0.0024
20:00 - 21:00	0.0052	0.0060	0.0037	0.0026	0.0050	0.0039	0.0034
21:00 - 22:00	0.0058	0.0026	0.0056	0.0023	0.0051	0.0053	0.0029
22:00 - 23:00	0.0043	0.0034	0.0031	0.0058	0.0022	0.0031	0.0039
23:00 - 00:00	0.0021	0.0058	0.0036	0.0024	0.0027	0.0030	0.0060
00:00 - 01:00	0.0035	0.0053	0.0049	0.0024	0.0060	0.0037	0.0124
01:00 - 02:00	0.0048	0.0058	0.0047	0.0052	0.0051	0.0024	0.0039
02:00 - 03:00	0.0046	0.0042	0.0031	0.0031	0.0022	0.0020	0.0041
03:00 - 04:00	0.0054	0.0021	0.0026	0.0048	0.0040	0.0044	0.0043
04:00 - 05:00	0.0043	0.0044	0.0034	0.0027	0.0028	0.0023	0.0048
05:00 - 06:00	0.0037	0.0046	0.0055	0.0057	0.0028	0.0057	0.0048
06:00 - 07:00	0.0070	0.0046	0.0029	0.0082	0.0034	0.0052	0.0030
07:00 - 08:00	0.0071	0.0046	0.0039	0.0113	0.0046	0.0054	0.0036
08:00 - 09:00	0.0039	0.0033	0.0045	0.0060	0.0056	0.0032	0.0040
09:00 - 10:00	0.0047	0.0038	0.0050	0.0054	0.0047	0.0025	0.0058
10:00 - 11:00	0.0028	0.0051	0.0053	0.0037	0.0022	0.0035	0.0028
Average-24Hr*	0.0044	0.0041	0.0045	0.0047	0.0040	0.0038	0.0046
Max-1Hr	0.0071	0.0060	0.0060	0.0113	0.0060	0.0059	0.0124
Min-1Hr	0.0021	0.0021	0.0026	0.0021	0.0022	0.0020	0.0024
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

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

(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 : 04-11 Apr 2025
SLM Model : Cirrus CR161B	Serial No : G301354
Site Operator : Mr. Siwanon Kulawong	
Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.2/-0.5	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-087	

Time	Equivalent Sound Pressure Level (dB(A))						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
13:00 - 14:00	67.2	67.3	66.1	66.9	67.0	66.8	67.4
14:00 - 15:00	66.6	67.5	66.4	66.6	67.3	66.6	67.1
15:00 - 16:00	66.8	67.7	66.9	66.9	67.2	66.7	67.9
16:00 - 17:00	67.6	68.8	68.5	67.6	68.1	67.5	68.7
17:00 - 18:00	68.0	68.5	67.2	67.5	68.2	67.8	68.1
18:00 - 19:00	68.3	69.1	67.8	68.0	68.0	68.4	68.9
19:00 - 20:00	67.1	67.9	67.1	67.3	67.3	68.7	69.4
20:00 - 21:00	67.6	68.4	66.6	67.5	67.3	66.9	67.8
21:00 - 22:00	66.3	67.3	66.2	66.0	66.6	65.6	66.1
22:00 - 23:00	67.2	67.6	66.2	66.6	67.2	65.9	66.5
23:00 - 00:00	67.0	67.4	65.7	66.7	66.2	65.4	66.2
00:00 - 01:00	66.5	67.1	65.4	66.2	66.1	65.4	66.0
01:00 - 02:00	66.4	66.9	65.4	66.7	65.9	65.4	65.9
02:00 - 03:00	65.7	66.4	65.4	66.0	65.5	65.3	65.7
03:00 - 04:00	66.2	65.8	65.5	66.0	65.4	65.5	65.6
04:00 - 05:00	65.7	66.0	65.6	66.1	66.0	65.5	65.8
05:00 - 06:00	66.5	66.4	66.4	66.9	67.3	66.7	66.5
06:00 - 07:00	69.5	68.2	68.9	69.5	69.7	69.4	68.9
07:00 - 08:00	68.4	67.1	67.6	68.8	68.3	71.4	67.8
08:00 - 09:00	67.4	66.8	67.3	70.1	67.7	69.0	67.6
09:00 - 10:00	66.8	66.3	66.6	68.1	67.6	68.0	67.2
10:00 - 11:00	67.1	66.5	67.1	67.6	67.3	68.0	66.9
11:00 - 12:00	67.4	66.5	67.2	67.4	67.2	68.0	67.1
12:00 - 13:00	67.4	66.2	66.4	67.3	66.6	67.6	67.0

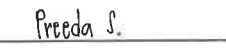
Leq(24)*	67.2	67.3	66.8	67.4	67.2	67.4	67.3
Ldn	73.4	73.4	72.7	73.4	73.3	73.0	73.1
Lmax **	92.0	89.1	90.5	91.4	92.4	99.2	91.2

Standard-24Hr	70 dB(A)
Standard-Max	115 dB(A)

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

** Maximum Sound Pressure Level between 13:00-13:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-PTTGC, Branch 2 (Power Plant)

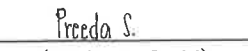
Location : The North of Fence	Monitor Period : 04-11 Apr 2025
SLM Model : Cirrus CR161B	Serial No : G301354
Site Operator : Mr. Siwanon Kulawong	
Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.2/-0.5	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-087	

Time	L90 (dB(A))						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
13:00 - 14:00	64.8	65.8	64.9	65.0	65.2	64.3	64.9
14:00 - 15:00	64.5	66.0	64.8	64.9	65.2	64.5	64.8
15:00 - 16:00	64.6	66.1	65.3	64.8	65.0	64.7	65.5
16:00 - 17:00	65.1	66.4	65.5	64.7	65.3	65.0	65.4
17:00 - 18:00	65.2	66.5	65.5	65.2	65.4	65.3	65.4
18:00 - 19:00	65.2	66.7	66.4	65.7	65.5	65.4	66.5
19:00 - 20:00	65.1	66.6	65.7	65.2	65.5	65.0	67.5
20:00 - 21:00	65.4	66.8	65.2	65.0	65.5	64.6	65.0
21:00 - 22:00	65.3	66.3	65.1	64.6	65.4	64.4	64.8
22:00 - 23:00	65.5	66.7	64.8	65.0	66.1	64.5	64.7
23:00 - 00:00	65.6	66.6	64.5	65.8	64.7	64.4	65.3
00:00 - 01:00	65.5	66.1	64.4	64.8	64.9	64.4	65.1
01:00 - 02:00	65.1	66.1	64.5	65.3	64.5	64.5	65.1
02:00 - 03:00	64.9	65.4	64.5	64.9	64.4	64.4	64.8
03:00 - 04:00	65.2	65.2	64.6	64.5	64.5	64.5	64.7
04:00 - 05:00	64.8	65.2	64.7	64.6	64.6	64.5	64.9
05:00 - 06:00	65.0	65.2	64.8	64.7	66.0	64.8	64.9
06:00 - 07:00	65.9	65.5	65.8	66.8	66.5	65.7	65.7
07:00 - 08:00	65.0	65.2	64.9	66.3	65.4	66.0	65.2
08:00 - 09:00	64.8	65.1	64.9	66.6	64.8	65.8	65.2
09:00 - 10:00	64.7	64.9	64.8	65.2	64.8	65.4	64.8
10:00 - 11:00	65.1	64.9	64.9	65.6	65.2	65.3	64.7
11:00 - 12:00	65.2	64.8	65.0	65.0	64.6	65.1	64.7
12:00 - 13:00	65.7	64.7	64.5	65.3	64.4	65.0	64.9

L90(avg)*	65.1	65.8	65.0	65.3	65.2	64.9	65.2
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Remark : * Average time between 13:00-13:00


(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 : 04-11 Apr 2025
SLM Model : Cirrus CR161B Serial No : G302356
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.4/-0.7 Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-087

Time	Equivalent Sound Pressure Level (dB(A))						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
13:00 - 14:00	62.7	65.3	63.1	66.3	63.5	61.9	62.3
14:00 - 15:00	62.5	66.7	66.1	66.5	64.8	65.2	62.5
15:00 - 16:00	62.5	67.7	66.4	67.5	64.8	65.7	62.4
16:00 - 17:00	67.1	65.2	66.7	65.7	65.1	66.9	62.8
17:00 - 18:00	62.8	66.7	65.6	66.3	65.4	63.4	64.9
18:00 - 19:00	62.0	65.3	65.4	64.1	64.5	62.5	62.4
19:00 - 20:00	61.9	64.3	63.9	63.1	65.5	61.2	61.5
20:00 - 21:00	61.8	66.9	62.6	62.0	63.1	60.9	61.3
21:00 - 22:00	61.8	66.8	62.2	62.5	62.8	60.5	61.8
22:00 - 23:00	72.7	66.7	62.4	62.6	60.4	60.6	60.9
23:00 - 00:00	72.9	65.9	62.6	63.0	60.6	60.5	60.1
00:00 - 01:00	70.8	65.7	62.9	62.8	60.9	61.1	60.2
01:00 - 02:00	71.0	65.3	62.8	62.5	60.8	61.4	60.2
02:00 - 03:00	64.9	63.2	62.3	61.3	60.7	61.2	60.9
03:00 - 04:00	65.8	62.8	61.2	61.4	60.6	61.4	60.7
04:00 - 05:00	65.3	62.2	61.5	62.0	60.9	61.4	60.9
05:00 - 06:00	64.1	62.5	61.9	62.0	60.6	61.7	60.5
06:00 - 07:00	63.7	61.4	61.9	62.5	61.5	62.2	61.7
07:00 - 08:00	61.7	62.3	62.4	63.1	62.3	68.8	63.9
08:00 - 09:00	62.9	64.0	62.7	66.7	62.0	63.9	63.4
09:00 - 10:00	66.2	67.6	64.3	65.1	63.1	62.2	62.3
10:00 - 11:00	64.6	65.0	64.0	63.7	62.2	62.4	63.2
11:00 - 12:00	62.8	63.6	63.3	63.0	63.4	62.0	61.6
12:00 - 13:00	63.0	63.0	63.0	62.7	61.6	61.8	62.1
Leq(24)*	66.6	65.2	63.7	64.1	62.9	63.2	62.0
Ldn	75.3	71.0	69.0	69.2	67.8	68.2	67.5
Lmax**	88.1	86.1	81.0	91.0	97.4	91.8	95.7
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

** Maximum Sound Pressure Level between 13:00-13:00

(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 : 04-11 Apr 2025
SLM Model : Cirrus CR161B Serial No : G302356
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.4/-0.7 Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-087

Time	L90 (dB(A))						
	04-05 Apr 2025	05-06 Apr 2025	06-07 Apr 2025	07-08 Apr 2025	08-09 Apr 2025	09-10 Apr 2025	10-11 Apr 2025
13:00 - 14:00	61.1	63.6	62.2	62.7	62.0	60.7	60.8
14:00 - 15:00	60.8	64.3	64.0	64.2	62.8	61.0	61.2
15:00 - 16:00	60.6	64.9	65.2	65.0	63.2	62.4	61.1
16:00 - 17:00	61.3	63.3	65.3	63.7	63.2	64.6	61.4
17:00 - 18:00	61.1	63.5	64.5	63.0	63.0	60.4	61.7
18:00 - 19:00	60.7	63.6	63.7	62.5	62.9	60.5	60.9
19:00 - 20:00	60.5	62.5	63.0	61.4	62.9	60.0	60.6
20:00 - 21:00	61.0	64.4	61.9	61.1	61.6	60.0	60.6
21:00 - 22:00	60.9	63.5	61.6	61.6	60.3	59.7	60.7
22:00 - 23:00	61.1	64.3	61.9	61.6	59.9	59.9	60.1
23:00 - 00:00	65.7	64.0	62.0	61.9	59.8	59.7	59.6
00:00 - 01:00	67.9	63.7	62.2	61.6	60.5	60.6	59.5
01:00 - 02:00	64.6	62.6	62.2	61.3	60.3	60.9	59.5
02:00 - 03:00	63.2	61.8	61.6	60.2	60.2	60.7	60.2
03:00 - 04:00	64.1	61.5	60.7	60.4	60.2	60.9	60.2
04:00 - 05:00	63.8	61.2	60.9	61.1	60.3	60.8	60.3
05:00 - 06:00	62.8	61.3	61.4	61.2	59.9	61.0	60.0
06:00 - 07:00	62.1	60.1	61.5	61.3	60.5	60.8	60.2
07:00 - 08:00	60.8	60.0	61.6	61.2	60.6	60.8	60.1
08:00 - 09:00	61.2	60.7	61.7	61.6	60.5	60.3	60.6
09:00 - 10:00	63.2	63.7	61.9	62.8	61.4	60.7	60.2
10:00 - 11:00	62.3	54.8	61.9	62.1	61.0	61.1	61.3
11:00 - 12:00	61.8	61.8	61.5	61.6	60.7	60.8	60.1
12:00 - 13:00	62.0	62.1	61.6	61.6	60.7	60.6	60.0
L90(avg)*	62.7	62.8	62.5	62.1	61.3	60.9	60.5

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

(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.	: 0056/68
	Branch 2 (Power Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:48
SAMPLING DATE	: 09/01/2025	ANALYTICAL DATE	: 10-17/01/2025
RECEIVED DATE	: 10/01/2025	SITE OPERATOR	: Miss Salisa Ainree
REPORT DATE	: 18/01/2025	FILE CODE	: 225007_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	31.2	≤ 40
pH	-	4500-H ⁺ B	< 0.10	8.12	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	1,600	36,940 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	3.5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.0	≤ 20
COD	mg/l	5220 C	< 15.00	22.50	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	ND	≤ 1
Nitrate*	mg/l	4500-NO ₃ -E	< 0.02	0.07	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	0.82	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	ND	≤ 2
Iron (Fe)*	mg/l	3500-Fe B	< 0.05	0.14	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	0.50	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22nd ED. 2017 (AWWA APHA WEF)

(Miss Pornnapa Budthum)

Analyst

REG. NO. 7-239-0-0018

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-0-0004

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

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

3. ^{1/} Notification of the Ministry of Natural Resources and Environment B.E.2565 (2022).

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 09, 2025 found to be 31,940 mg/l therefore the Standard of TDS found to be 36,940 mg/l).

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

6. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 0055/68
	Branch 2 (Power Plant)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 12:00
SAMPLING DATE	: 09/01/2025	ANALYTICAL DATE	: 10-17/01/2025
RECEIVED DATE	: 10/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 18/01/2025	FILE CODE	: 225007_SW_January
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	30.8	^{2/}
pH	-	4500-H ⁺ B	< 0.10	8.89	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	7,048	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	4.2	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	2.2	^{2/}
COD	mg/l	5220 C	< 15.00	<15.00	^{2/}

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22nd ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insom)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0055/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:50
SAMPLING DATE : 09/01/2025 ANALYTICAL DATE : 10-17/01/2025
RECEIVED DATE : 10/01/2025 SITE OPERATOR : Miss Thipsuda Wannakran
REPORT DATE : 18/01/2025 FILE CODE : 225007_SW_January
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโหลินส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	31.4	2/
pH		4500-H ⁺ B	< 0.10	8.12	2/
Total Dissolved Solids	mg/l	2540 C	< 25	1,447	2/
Total Suspended Solids	mg/l	2540 D	< 2.5	6.8	2/
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	1.5	2/
COD	mg/l	5220 C	< 15.00	30.26	2/

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

(Miss Khemchuda Insorn)

Analyst

(Mrs. Araya Tipparuk)

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

4. ^{2/} No standard.

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0279/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 08:50
SAMPLING DATE : 13/02/2025 ANALYTICAL DATE : 14-21/02/2025
RECEIVED DATE : 14/02/2025 SITE OPERATOR : Mr.Chanapon Oakkharaplon
REPORT DATE : 24/02/2025 FILE CODE : 225007_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	32.0	≤ 40
pH		4500-H ⁺ B	< 0.10	7.23	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	1,648	36,580 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	3.0	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.3	≤ 20
COD	mg/l	5220 C	< 15.00	30.92	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	0.02	≤ 1
Nitrate	mg/l	4500-NO ₃ -E	< 0.02	0.10	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	1.2	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2
Iron (Fe)	mg/l	3500-Fe B	< 0.05	0.30	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	0.47	≤ 5

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

(Miss Pornnapa Budithum)

Analyst

REG. NO. 2-239-0-0018

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-0-0004

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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 13,2025 found to be 31,580 mg/l therefore the Standard of TDS found to be 36,580 mg/l).

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0280/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:26
SAMPLING DATE : 13/02/2025 ANALYTICAL DATE : 14-21/02/2025
RECEIVED DATE : 14/02/2025 SITE OPERATOR : Mr. Song Hengchwankul
REPORT DATE : 21/02/2025 FILE CODE : 225007_SW_February
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโหล่ฟีนัส

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	34.9	^{2/}
pH		4500-H ⁺ B	< 0.10	9.21	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	7,616	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	56	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	2.4	^{2/}
COD	mg/l	5220 C	< 15.00	< 15.00	^{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

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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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0280/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:40
SAMPLING DATE : 13/02/2025 ANALYTICAL DATE : 14-21/02/2025
RECEIVED DATE : 14/02/2025 SITE OPERATOR : Mr. Song Hengchwankul
REPORT DATE : 21/02/2025 FILE CODE : 225007_SW_February
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	32.6	^{2/}
pH		4500-H ⁺ B	< 0.10	7.74	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	1,928	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	7.5	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	2.2	^{2/}
COD	mg/l	5220 C	< 15.00	21.40	^{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

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

4. ^{2/} No standard.

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0478/68
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	09:45
SAMPLING DATE	13/03/2025	ANALYTICAL DATE	14-21/03/2025
RECEIVED DATE	14/03/2025	SITE OPERATOR	Mr. Tanachot Changlor
REPORT DATE	21/03/2025	FILE CODE	225007_WW_March
SAMPLE CONDITION	Normal		

LOCATION DESCRIPTION : I = ก่อนปล่อยเข้าสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	31.0	≤ 40
pH	-	4500-H ⁺ B	< 0.10	6.18	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	2,450	33,120 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	3.2	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	34.89	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	0.06	≤ 1
Nitrate*	mg/l	4500-NO ₃ -E	< 0.02	ND	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	1.6	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2
Iron (Fe)*	mg/l	3500-Fe B	< 0.05	0.21	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	0.49	≤ 5

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

(Miss Pornnapa Budthum)

Analyst

REG. NO. 2-239-9-0018

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-9-0004

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

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3. ^{1/} Notification of the Ministry of Natural Resources and Environment B.E.2565 (2022).

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 13, 2025 found to be 28,120 mg/l therefore the Standard of TDS found to be 33,120 mg/l).

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

6. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	0479/68
	Branch 2 (Power Plant)	SAMPLING METHOD	Grab
SAMPLING BY	SECOT Co., Ltd.	SAMPLING TIME	13:00
SAMPLING DATE	13/03/2025	ANALYTICAL DATE	14-21/03/2025
RECEIVED DATE	14/03/2025	SITE OPERATOR	Mr. Song Hengchwankul
REPORT DATE	22/03/2025	FILE CODE	225007_SW_March
SAMPLE CONDITION	Normal		

LOCATION DESCRIPTION : I = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION I	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	30.5	2/
pH	-	4500-H ⁺ B	< 0.10	7.60	2/
Total Dissolved Solids	mg/l	2540 C	< 25	912	2/
Total Suspended Solids	mg/l	2540 D	< 2.5	279	2/
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	5.3	2/
COD	mg/l	5220 C	< 15.00	49.74	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

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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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, REQUEST SERVICE No. : 0479/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 13:15
SAMPLING DATE : 13/03/2025 ANALYTICAL DATE : 14-21/03/2025
RECEIVED DATE : 14/03/2025 SITE OPERATOR : Mr. Song Hengchwankul
REPORT DATE : 22/03/2025 FILE CODE : 225007_SW_March
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	30.0	^{2/}
pH		4500-H ⁺ B	< 0.10	7.33	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	1,064	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	58	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	3.7	^{2/}
COD	mg/l	5220 C	< 15.00	46.03	^{2/}

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

4. ^{2/} No standard.

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited, REQUEST SERVICE No. : 0662/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 11:40
SAMPLING DATE : 10/04/2025 ANALYTICAL DATE : 11-22/04/2025
RECEIVED DATE : 11/04/2025 SITE OPERATOR : Mr.Thanawut Duanseng
REPORT DATE : 23/04/2025 FILE CODE : 225007_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	32.5	≤ 40
pH		4500-H ⁺ B	< 0.10	7.80	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	1,958	15,440 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	8.8	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	48.67	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	0.10	≤ 1
Nitrate*	mg/l	4500-NO ₃ -E	< 0.02	0.29	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	3.1	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2
Iron (Fe)*	mg/l	3500-Fe B	< 0.05	0.26	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	0.74	≤ 5

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

Pornnapa Budthum

(Miss Pornnapa Budthum)

Analyst

REG. NO. 2-239-9-0018

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-9-0004

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

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3. ^{1/} Notification of the Ministry of Natural Resources and Environment B.E.2565 (2022).

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 10, 2023 found to be 10,440 mg/l therefore the Standard of TDS found to be 15,440 mg/l).

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

6. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , **REQUEST SERVICE No.** : 0661/68
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 11:20
SAMPLING DATE : 10/04/2025 **ANALYTICAL DATE** : 11-22/04/2025
RECEIVED DATE : 11/04/2025 **SITE OPERATOR** : Mr.Chanapon Oakkharaplon
REPORT DATE : 23/04/2025 **FILE CODE** : 225007_SW_April
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโม่หินสี

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	29.0	^{2/}
pH	-	4500-H ⁺ B	< 0.10	8.55	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	1,556	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	88	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	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	34.14	^{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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , **REQUEST SERVICE No.** : 0661/68
Branch 2 (Power Plant) **SAMPLING METHOD** : Grab
SAMPLING BY : SECOT Co., Ltd. **SAMPLING TIME** : 11:36
SAMPLING DATE : 10/04/2025 **ANALYTICAL DATE** : 11-22/04/2025
RECEIVED DATE : 11/04/2025 **SITE OPERATOR** : Mr.Chanapon Oakkharaplon
REPORT DATE : 23/04/2025 **FILE CODE** : 225007_SW_April
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโม่หินสี

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	30.4	^{2/}
pH	-	4500-H ⁺ B	< 0.10	8.06	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	1,006	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	4.4	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	3.0	^{2/}
COD	mg/l	5220 C	< 15.00	30.51	^{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

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

4. ^{2/} No standard.

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited REQUEST SERVICE No. : 0830/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 10:51
SAMPLING DATE : 08/05/2025 ANALYTICAL DATE : 09-19/05/2025
RECEIVED DATE : 09/05/2025 SITE OPERATOR : Miss Wiraya Patchimboon
REPORT DATE : 19/05/2025 FILE CODE : 225007_WW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				I	
Temperature	°C	2550 B	< 0.5	34.7	≤ 40
pH		4500-H ⁺ B	< 0.10	7.74	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	2,830	31,860 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	4.7	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	1.6	≤ 20
COD	mg/l	5220 C	< 15.00	40.89	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	0.09	≤ 1
Nitrate	mg/l	4500-NO ₃ -E	< 0.02	ND	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	3.5	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2
Iron (Fe)	mg/l	3500-Fe B	< 0.05	0.14	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	1.03	≤ 5

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

Pornapa Budthum

(Miss Pornapa Budthum)

Analyst

REG. NO. 7-239-0-0018

Mrs. Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-0-0004

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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 08,2025 found to be 26,860 mg/l therefore the Standard of TDS found to be 31,860 mg/l).

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited REQUEST SERVICE No. : 0829/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 13:27
SAMPLING DATE : 08/05/2025 ANALYTICAL DATE : 09-19/05/2025
RECEIVED DATE : 09/05/2025 SITE OPERATOR : Mr.Tanachot Changlor
REPORT DATE : 19/05/2025 FILE CODE : 225007_SW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโม่หิน

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD ^{1/}
				I	
Temperature	°C	2550 B	< 0.5	33.4	2/
pH		4500-H ⁺ B	< 0.10	7.93	2/
Total Dissolved Solids	mg/l	2540 C	< 25	4,632	2/
Total Suspended Solids	mg/l	2540 D	< 2.5	62	2/
Fat Oil & Grease	mg/l	5520 B	< 2.0	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	34.60	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

Mrs. Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 0829/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 13:35
SAMPLING DATE : 08/05/2025 ANALYTICAL DATE : 09-19/05/2025
RECEIVED DATE : 09/05/2025 SITE OPERATOR : Mr.Tanachot Changlor
REPORT DATE : 19/05/2025 FILE CODE : 225007_SW_May
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโอเลฟินส์

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	2	
Temperature	°C	2550 B	< 0.5	32.8	^{2/}
pH		4500-H ⁺ B	< 0.10	7.72	^{2/}
Total Dissolved Solids	mg/l	2540 C	< 25	866	^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	4.3	^{2/}
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	^{2/}
Phenols	mg/l	5530 B,C	< 0.001	ND	^{2/}
BOD ₅	mg/l	5210 B	< 1.0	1.9	^{2/}
COD	mg/l	5220 C	< 15.00	23.59	^{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

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

4. ^{2/} No standard.

5. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1081/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:18
SAMPLING DATE : 12/06/2025 ANALYTICAL DATE : 13-21/06/2025
RECEIVED DATE : 13/06/2025 SITE OPERATOR : Mr.Thanawut Duansaeng
REPORT DATE : 21/06/2025 FILE CODE : 225007_WW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = ก่อนปล่อยลงสู่คลองระบายน้ำทิ้งของนิคมฯ (Final Check Basin)

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	1	
Temperature	°C	2550 B	< 0.5	33.6	≤ 40
pH		4500-H ⁺ B	< 0.10	7.19	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 25	4,512	33,860 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 2.5	2.8	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD ₅	mg/l	5210 B	< 1.0	3.0	≤ 20
COD	mg/l	5220 C	< 15.00	70.45	≤ 120
Free Cl ₂	mg/l	4500-Cl G	< 0.01	0.08	≤ 1
Nitrate*	mg/l	4500-NO ₃ ⁻ E	< 0.02	ND	≤ 10
TKN	mg/l	4500-Norg B	< 0.20	3.4	≤ 100
Copper (Cu)	mg/l	3120 B	< 0.001	< 0.02	≤ 2
Iron (Fe)*	mg/l	3500-Fe B	< 0.05	0.26	≤ 1
Zinc (Zn)	mg/l	3120 B	< 0.003	0.79	≤ 5

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

(Miss Pornnapa Buidthum)

Analyst

REG. NO. 2-239-ก-0018

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

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

3. ^{1/} Notification of the Ministry of Natural Resources and Environment B.E.2565 (2022).

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 12, 2025 found to be 28,860 mg/l therefore the Standard of TDS found to be 33,860 mg/l).

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

6. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1082/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:30
SAMPLING DATE : 12/06/2025 ANALYTICAL DATE : 13-21/06/2025
RECEIVED DATE : 13/06/2025 SITE OPERATOR : Mr. Jeerawat Khothamhan
REPORT DATE : 21/06/2025 FILE CODE : 225007_SW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 1 = คลองระบายน้ำทิ้งของนิคมฯ ก่อนจุดปล่อยน้ำของโรงโอเลฟินส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	31.2	2/
pH		4500-H ⁺ B	< 0.10	9.37	2/
Total Dissolved Solids	mg/l	2540 C	< 25	4,708	2/
Total Suspended Solids	mg/l	2540 D	< 2.5	36	2/
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	2/
Phenols	mg/l	5530 B,C	< 0.001	ND	2/
BOD ₅	mg/l	5210 B	< 1.0	1.8	2/
COD	mg/l	5220 C	< 15.00	< 15.00	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

NT

(Mrs. Araya Tipparuk)

Technical Management Team

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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.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Company Limited , REQUEST SERVICE No. : 1082/68
Branch 2 (Power Plant) SAMPLING METHOD : Grab
SAMPLING BY : SECOT Co., Ltd. SAMPLING TIME : 09:38
SAMPLING DATE : 12/06/2025 ANALYTICAL DATE : 13-21/06/2025
RECEIVED DATE : 13/06/2025 SITE OPERATOR : Mr. Jeerawat Khothamhan
REPORT DATE : 21/06/2025 FILE CODE : 225007_SW_June
SAMPLE CONDITION : Normal
LOCATION DESCRIPTION : 2 = คลองระบายน้ำทิ้งของนิคมฯ หลังจุดปล่อยน้ำของโรงโอเลฟินส์

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	31.5	2/
pH		4500-H ⁺ B	< 0.10	7.71	2/
Total Dissolved Solids	mg/l	2540 C	< 25	1,404	2/
Total Suspended Solids	mg/l	2540 D	< 2.5	10.0	2/
Fat Oil & Grease	mg/l	5520 B	< 2.0	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	47.20	2/

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

NT

(Mrs. Araya Tipparuk)

Technical Management Team

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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 13, 2025
SLM Model : SCARLET ST-21D Serial No : 820731
Site Operator : Miss Salisa Ainree

Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-032

Time	Equivalent Sound Pressure Level (dB(A))	
	Feb 13, 2025	
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	82.8	
08:00 - 09:00	83.1	
09:00 - 10:00	83.2	
10:00 - 11:00	83.2	
11:00 - 12:00	83.6	
12:00 - 13:00	83.5	
13:00 - 14:00	83.0	
14:00 - 15:00	83.0	
15:00 - 16:00	83.0	
16:00 - 17:00	83.1	
17:00 - 18:00	83.2	
18:00 - 19:00	83.1	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	83.2	
Lmax **	98.2	
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 Monitor Period : Feb 13, 2025
SLM Model : SCARLET ST-21D Serial No : 820725
Site Operator : Miss Salisa Ainree

Calibrator Model : Cirrus CR:515 Serial No : 97097
Calibration Ref dB(A) : 94.0 Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-032

Time	Equivalent Sound Pressure Level (dB(A))	
	Feb 13, 2025	
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	76.7	
08:00 - 09:00	76.4	
09:00 - 10:00	76.3	
10:00 - 11:00	76.4	
11:00 - 12:00	76.7	
12:00 - 13:00	76.7	
13:00 - 14:00	76.4	
14:00 - 15:00	76.4	
15:00 - 16:00	76.4	
16:00 - 17:00	76.5	
17:00 - 18:00	76.4	
18:00 - 19:00	76.4	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	76.5	
Lmax **	91.6	
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 : Air Intake Monitor Period : May 15, 2025
SLM Model : SCARLET ST-21D Serial No : 820726
Site Operator : Miss Wiraya Patchimboon

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-117

Time	Equivalent Sound Pressure Level (dB(A))
	May 15, 2025
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	85.4
08:00 - 09:00	85.5
09:00 - 10:00	85.7
10:00 - 11:00	85.7
11:00 - 12:00	85.8
12:00 - 13:00	85.9
13:00 - 14:00	85.8
14:00 - 15:00	85.9
15:00 - 16:00	85.9
16:00 - 17:00	85.9
17:00 - 18:00	85.7
18:00 - 19:00	85.9
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	85.8
Lmax **	88.1
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 Monitor Period : May 15, 2025
SLM Model : SCARLET ST-21D Serial No : 820727
Site Operator : Miss Wiraya Patchimboon

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-117

Time	Equivalent Sound Pressure Level (dB(A))
	May 15, 2025
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	79.7
08:00 - 09:00	79.2
09:00 - 10:00	79.1
10:00 - 11:00	79.1
11:00 - 12:00	79.1
12:00 - 13:00	79.2
13:00 - 14:00	79.2
14:00 - 15:00	79.3
15:00 - 16:00	79.3
16:00 - 17:00	79.2
17:00 - 18:00	79.4
18:00 - 19:00	79.4
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	79.3
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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 6 Jan 25

Barometric press, Pb

Initial	Final	Average
758	758	758

 mmHg

Dry Gas Meter Data

Console No. M50-07

Serial No. 358794

Metering System ID

Model S110

DGM Number 90331

Correction factor (Yr) 1.0077

DGM Model MST-C2-1

Last Calibration Date 25 Oct 24

Calibrated by Montri P.

Reference Dry Gas Meter Data

Orifice manometer setting, ΔH mm H ₂ O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time @ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.1	101.0	25	25	24	24.5	8.67	0.9958	42.5842
25.0	99.9	100.8	25	25	24	24.5	6.23	0.9946	44.2513
50.0	100.0	100.9	25	25	24	24.5	4.62	0.9920	48.4414
76.0	100.1	99.3	25	25	24	24.5	3.63	1.0074	45.4868
100.0	100.2	100.7	25	25	24	24.5	3.63	0.9921	47.7831
150.0	99.9	99.4	25	25	24	24.5	2.62	0.9970	46.7598
Average								0.9965	45.8844

Approved by :



PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 03-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS20-01

Calibrated by : Mr. Montri P.

A Side Calibration

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

C_{P(A),avg} 0.8401

B Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.0	21.0	0.8367	0.0065
2	15.0	21.5	0.8269	-0.0033
3	15.0	21.5	0.8269	-0.0033

C_{P(B),avg} 0.8302

| CP(A)-CP(B) | = 0.0099

C_{P(Avg)} = 0.8351

Approved by :

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



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 6 Jan 25

Barometric press, Pb

Initial	Final	Average
758	758	758

mmHg

Dry Gas Meter Data

Console No. M50-06

Metering System ID

DGM Number 917415

DGM Model MST-C2-1

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0077

Last Calibration Date 25 Oct 24

Orifice manometer setting, ΔH mm H2O	Ref.	DGM	Temperature (°C)				Time @ min	DGM Correction factor (Y)	ΔH@ mm
	DGM	Volume	Ref DGM T _r	Dry Gas Meter					
	Volume V _r Liters	V _m Liters		Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.0	99.8	25	25	24	24.5	8.92	1.0071	45.1453
25.0	100.2	100.4	25	25	24	24.5	6.13	1.0020	42.5581
50.0	100.0	100.9	25	25	24	24.5	4.33	0.9923	42.6407
76.0	100.1	102.5	25	25	24	24.5	3.53	0.9756	43.0400
100.0	100.1	102.2	25	25	24	24.5	3.53	0.9755	43.5926
150.0	100.0	101.5	25	25	24	24.5	2.53	0.9774	43.7294

Average

0.9883	43.4510
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Approved by :



PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Type S Pitot No. : PS20-02

Calibration Date : 03-01-2025

Coefficient (Cp) : 0.99

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.0	20.5	0.8468	0.0000
2	15.0	20.5	0.8468	0.0000
3	15.0	20.5	0.8468	0.0000

C_{P(A),avg} 0.8468

B Side Calibration

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

C_{P(B),avg} 0.8401

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

C_{P(Avg)} = 0.8435

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** |CP(A)-CP(B)| must also be < 0.01 if average of Cp(A) and Cp(B) is not be used ***

Sheet No. : CAL-M5009/01/25



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 9 Jan 25

Initial Final Average
Barometric press, Pb 758 758 758 mmHg

Dry Gas Meter Data

Console No. M50-09

Serial No. 358794

Metering System ID

Model S110

DGM Number 333249

Correction factor (Yr) 1.0077

DGM Model ES-110

Last Calibration Date 25 Oct 24

Calibrated by : Montri P.

Orifice manometer setting, ΔH mm H ₂ O	Ref. DGM Volume V _r , Liters	DGM Volume V _m Liters	Temperature (°C)				Time ⊙ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.1	101.3	25	25	24	24.5	8.57	0.9926	41.6238
25.0	100.2	100.4	25	25	24	24.5	6.23	1.0012	44.0131
50.0	100.1	100.5	25	25	24	24.5	4.42	0.9965	44.2732
76.0	100.2	99.7	25	25	24	24.5	3.58	1.0037	44.1905
100.0	100.3	99.6	25	25	24	24.5	3.58	1.0034	45.3098
150.0	100.3	99.2	25	25	24	24.5	2.60	1.0029	45.7895
Average								1.0000	44.2000

Approved by :

Sheet No. : CAL-PI-PS10-01/2025



PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 03-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS10-01

Calibrated by : Mr. Montri P.

A Side Calibration

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

C_{P(A),avg} 0.8401

B Side Calibration

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

C_{P(B),avg} 0.8401

| CP(A) - CP(B) | = 0.0000

C_{P(Avg)} = 0.8401

Approved by :

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



High Volume TSP&PM-10 Calibration Report

Date: 14-Jan-25

Ta (°C): 27

Pa (mm Hg): 761

Orifice Transfer Standard Calibration

Equipment: Orifice
 Model No: TE-5025A
 Serial No: 3674
 Manufacturer: TISCH
 Slope (m): 2.14057
 Intercept (b): -0.07783

Unit Under Test

Equipment: High-vol pump
 Model No: TE-5005X
 Serial No: BH-014

High Volume TSP&PM-10 Calibration Report

Plate	TRUE (in H ₂ O)	Indicate (X) (cm H ₂ O)	Actual Flow (Y) (cfm)	Remark
18	13.06	19.46	60.745	
13	10.57	16.15	54.778	
10	7.16	12.22	45.311	
7	4.81	8.28	37.370	
5	2.58	4.55	27.713	

Linear Regression

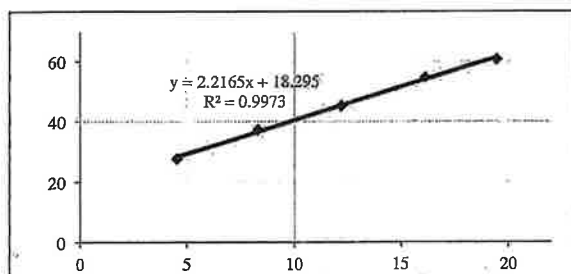
Slope: 2.2165

Intercept: 18.2948

Corr. Coeff: 0.9987

Flow PM-10: 9.7925

Flow TSP: 14.3041



Calibrated by: Wilhaya K.

Approved by: [Signature]



High Volume TSP&PM-10 Calibration Report

Date: 15-Jan-25

Ta (°C): 33

Pa (mm Hg): 759

Orifice Transfer Standard Calibration

Equipment: Orifice
 Model No: TE-5025A
 Serial No: 3674
 Manufacturer: TISCH
 Slope (m): 2.14057
 Intercept (b): -0.07783

Unit Under Test

Equipment: High-vol pump
 Model No: TE-5005X
 Serial No: BH-002

High Volume TSP&PM-10 Calibration Report

Plate	TRUE (in H ₂ O)	Indicate (X) (cm H ₂ O)	Actual Flow (Y) (cfm)	Remark
18	12.04	17.70	57.740	
13	9.71	12.88	51.984	
10	7.41	11.51	45.574	
7	4.62	7.57	36.256	
5	3.01	4.78	29.512	

Linear Regression

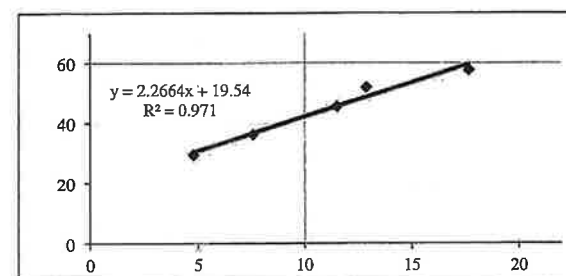
Slope: 2.2664

Intercept: 19.5402

Corr. Coeff: 0.9854

Flow PM-10: 9.0276

Flow TSP: 13.4399



Calibrated by: Wilhaya K.

Approved by: [Signature]



High Volume TSP&PM-10 Calibration Report

Date: 13-Jan-25

Ta (°C): 21

Pa (mm Hg): 763

Orifice Transfer Standard Calibration

Equipment: Orifice
 Model No: TE-5025A
 Serial No: 3674
 Manufacturer: TISCH
 Slope (m): 2.14057
 Intercept (b): -0.07783

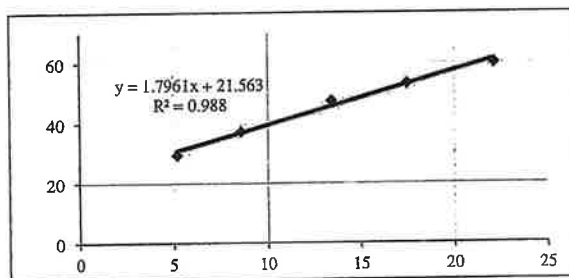
Unit Under Test

Equipment: High-vol pump
 Model No: TE-5005X
 Serial No: BH-019

High Volume TSP&PM-10 Calibration Report

Plate	TRUE (in H ₂ O)	Indicate (X) (cm H ₂ O)	Actual Flow (Y) (cfm)	Remark
18	12.48	22.12	60.077	
13	9.77	17.50	53.303	
10	7.72	13.41	47.525	
7	4.7	8.56	37.364	
5	2.87	5.18	29.478	

Linear Regression



Slope: 1.7961
 Intercept: 21.5625
 Corr. Coeff: 0.9940
 Flow PM-10: 10.2655
 Flow TSP: 15.8332

Calibrated by: Wittaya K.Approved by: [Signature]

High Volume TSP&PM-10 Calibration Report

Date: 14-Jan-25

Ta (°C): 27

Pa (mm Hg): 760

Orifice Transfer Standard Calibration

Equipment: Orifice
 Model No: TE-5025A
 Serial No: 3674
 Manufacturer: TISCH
 Slope (m): 2.14057
 Intercept (b): -0.07783

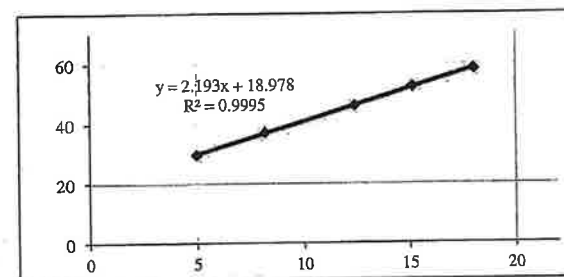
Unit Under Test

Equipment: High-vol pump
 Model No: TE-5005X
 Serial No: BH-015

High Volume TSP&PM-10 Calibration Report

Plate	TRUE (in H ₂ O)	Indicate (X) (cm H ₂ O)	Actual Flow (Y) (cfm)	Remark
18	12.04	18.06	58.339	
13	9.71	15.16	52.521	
10	7.44	12.42	46.134	
7	4.78	8.20	37.233	
5	2.98	4.98	29.669	

Linear Regression



Slope: 2.1930
 Intercept: 18.9785
 Corr. Coeff: 0.9997
 Flow PM-10: 9.5859
 Flow TSP: 14.1459

Calibrated by: Wittaya K.Approved by: [Signature]



SO2 Analyzer Performance Test

Date: 10 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

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

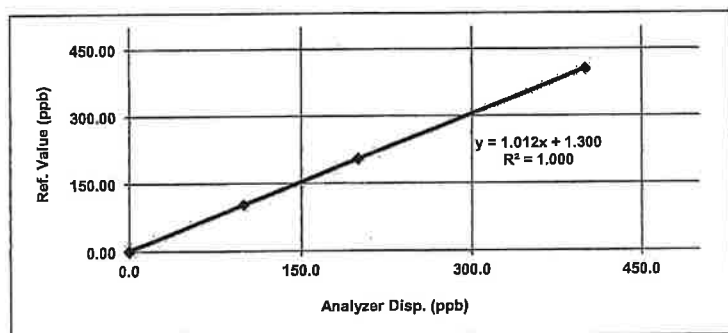
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

Single Point Calibration

Supply Gas	Ref Value	Analyzer Disp.	Zero-Span Error %	Slope - Offset
Zero	0.00	0.30	-	-
Span	450.00	456.10	-	1.012

MultiPoint Calibration

Ref Value	Analyzer Disp.	Output Difference		
		Diff	Percent Diff	Percent Diff abs.
0.0	0.50	0.50	-	-
100.0	103.10	3.10	3.10	3.10
200.0	204.30	4.30	2.15	2.15
400.0	405.50	5.50	1.38	1.38
		Average Diff (%)		2.21

Calibrated by: Wattaya K.Approved by: [Signature]

SO2 Analyzer Performance Test

Date: 10 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	SO2
Brand :	API
Model :	100A
S/N :	906

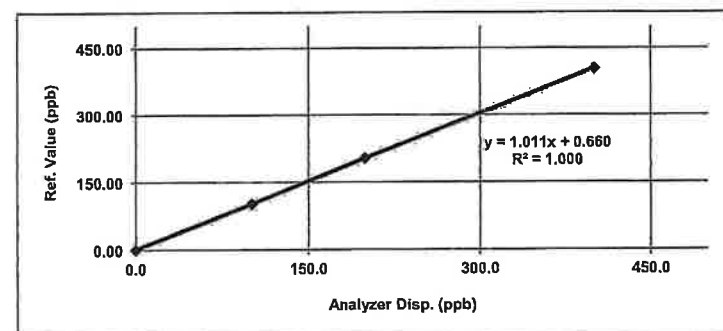
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

Single Point Calibration

Supply Gas	Ref Value	Analyzer Disp.	Zero-Span Error %	Slope - Offset
Zero	0.00	0.50	-	-
Span	450.00	454.30	-	1.011

MultiPoint Calibration

Ref Value	Analyzer Disp.	Output Difference		
		Diff	Percent Diff	Percent Diff abs.
0.0	0.20	0.20	-	-
100.0	102.10	2.10	2.10	2.10
200.0	203.10	3.10	1.55	1.55
400.0	404.60	4.60	1.15	1.15
		Average Diff (%)		1.60

Calibrated by: Wattaya K.Approved by: [Signature]



NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	2387

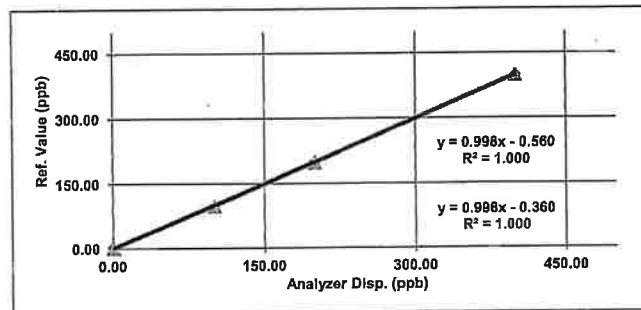
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	1.20	0.90	0.998
Span	450.0	451.2	449.60	0.998

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	1.20	0.90	-	-
100.00	97.80	97.60	2.2	2.4
200.00	198.60	198.60	0.7	0.7
400.00	399.60	399.30	0.1	0.2
		Average Diff (%)	1.0	1.1



Calibrated by : W. Haya H.

Approved by:



NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	RP
Model :	8400N
S/N :	096

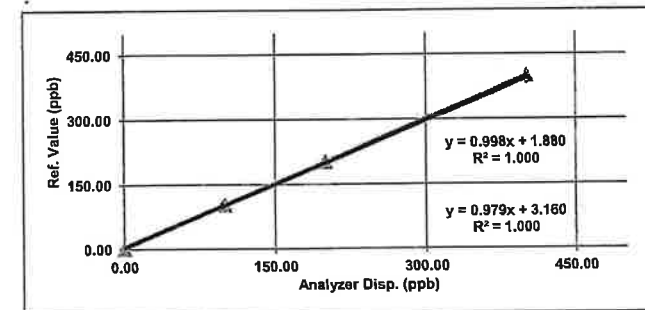
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	1.0	0.9	0.998
Span	450.0	449.8	448.60	0.998

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	1.00	0.90	-	-
100.00	103.30	102.30	3.3	2.3
200.00	200.00	202.60	0.0	1.3
400.00	393.80	400.50	1.6	0.1
		Average Diff (%)	1.6	1.2



Calibrated by : W. Haya H.

Approved by:



NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

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

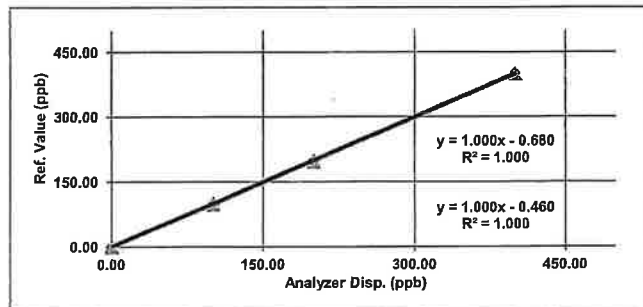
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	0.50	0.60	1.000
Span	450.0	447.3	446.50	1.000

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	0.50	0.60	-	-
100.00	99.10	98.60	0.9	1.4
200.00	198.40	197.70	0.8	1.2
400.00	400.40	400.10	0.1	0.0
		Average Diff (%)	0.6	0.9

Calibrated by : Wittaya K.Approved by : [Signature]

NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

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

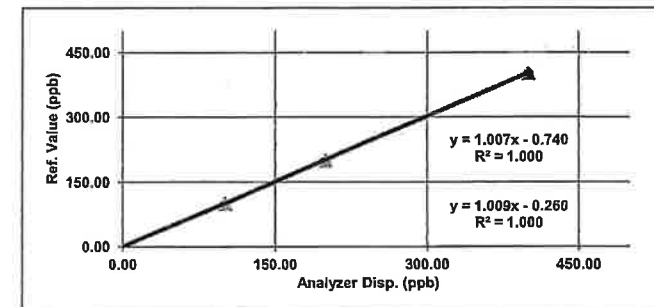
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	-0.30	-0.30	1.007
Span	450.0	453.4	451.20	1.007

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	-0.30	-	-
100.00	100.90	99.70	0.9	0.3
200.00	201.30	200.30	0.7	0.2
400.00	403.50	402.50	0.9	0.6
		Average Diff (%)	0.8	0.4

Calibrated by : Wittaya K.Approved by : [Signature]

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	13080206	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	CC606710	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 document shall not be reproduced in full without written approval of the issuer.



TESTING CERT No. 3082.05

[Signature]
Approved for Release



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



Certificate of Calibration

Cert.No.: 24CH1275
Page.: 1 of 3

Equipment : pH Meter
Manufacturer : Mettler Toledo
Model : Seven2Go
Serial No. : C033160713
ID No. : ID.20
Condition As-Received: Used Item
Received Date : 08 October 2024
Calibration Date : 09 October 2024
Reference : 2410-0258DN-3
Submitted by : Secot Co.,Ltd.
239 Rimklongprapa Road,
Bangsue, Bangkok 10800
Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM)
- CP-CH8 by comparison with temperature standard

Calibrated by : Warakorn Lerngagtrakul

Approved by :

Saithip

Approved Signatory

() Unnopphol Harachai
() Ponpan Paipim
(✓) Saithip Meangmal

Issue Date : 10 October 2024

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.: 24CH1275
Page.: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	54030049	130RC116	24E2759	25 Aug 2025
2) Ref. Standard Thermometer	4982054	110RC044	24I757	14 July 2025

- This Certification is traceable to SI Through Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials :The measurement results are traceable to SI through Hach Lenge GmbH Ltd.,
Deutsche Akkreditierungsstelle, Accredited No.D-RM-15164-01-00
: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	1034203	27 Sep 2026
pH 6.999	Hach Lenge GmbH	C03145	28 Feb 2026
pH 9.997	CPA chem	970853	25 Apr 2025

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

Calibration Results

Function : mV Measurement

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

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement (\pm mV)	Coverage factor k
	pH	mV	mV	pH		
pH Meter S/N.: C033160713	4.00	177.48	178	4.00	0.58	2.00
	7.00	0.00	0	7.00	0.58	2.00
	10.00	-177.48	-177	10.00	0.58	2.00



Cert.No.: 24CH1275
Page.: 3 of 3

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 (\pm)	Coverage factor k
pH Electrode S/N.: 3234329	4.008	4.01	163	0.0079	2.00
	6.999	7.00	-12	0.0085	2.00
	9.997	10.00	-183	0.0095	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab®Expert Go-ISM
- Serial No. : 3234329

Dimension of probe

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

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (\pm °C)	Coverage factor k
25.0	25.003	25.1	0.097	0.13	2.00
30.0	30.002	30.1	0.098	0.13	2.00
35.0	35.002	35.2	0.198	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 %.



THAI CALIBRATION SERVICES CO., LTD.

19/8 Moo 9 Soi Railing 30 Puttamonthon 5 Rd., Sampran, Nakornpatom 73210

Tel. 0-3439-7682-5 Fax: 0-3439-7687

www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com



CALIBRATION CERTIFICATE

Certificate No.S2504633S

page 1 of 2

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

Equipment : Non-automatic weighing instrument (Electronic instrument)

Manufacturer : Mettler Toledo **Order No. :** 68S1723-1

Model : AG245 **Ambient temperature :** (25.3 ± 5.0) °C

Accuracy class : - **Relative humidity :** (39.9 ± 10.0) %

Capacity : 41 g / 210 g **Received date :** 23-Apr-2025

Resolution : 0.00001 g / 0.0001 g **Date of calibration :** 23-Apr-2025

Serial No. : 1117293916 **Date of issue :** 24-Apr-2025

ID No. : - **Condition of the balance :** Good working conditions

Place of calibration : LAB

Calibration method

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

Condition of reference standard weight

Instrument	Nominal value	Serial No.	Certificate No.	Due-date	Density (kg/m ³)
1 Standard weight set	1 mg to 2 kg	15885+15849	M2410001S	5-Oct-2025	7950

Traceability of the reference standard weight

This certificate is traceable to SI unit through Mass Calibration Laboratory Thai Calibration Services Co., Ltd., NSC-ONSC accredited no. Calibration 0189.

Calibrated By

Teerawat Intanom
Technician

Approved Signatory :

Somwang Wongduang

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



THAI CALIBRATION SERVICES CO., LTD.

19/8 Moo 9 Soi Railing 30 Puttamonthon 5 Rd., Sampran, Nakornpatom 73210

Tel. 0-3439-7682-5 Fax: 0-3439-7687

www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com



CALIBRATION CERTIFICATE

Certificate No.S2504633S

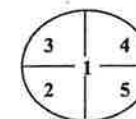
page 2 of 2

The repeatability of indication

Nominal Value (g)	Standard Deviation of reading (g)	Maximum difference between successive reading (g)	n
40	0.000008	0.00002	5
200	0.00000	0.0000	5

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

Position	Balance Reading (g)
Point 1	100.0000
Point 2	100.0000
Point 3	100.0000
Point 4	100.0000
Point 5	99.9997
Eccentric Value	0.0003



The error of indication

Nominal Value (g)	Value of Reference Standard Weight (g)	Balance Reading (g)	Correction (g)	Uncertainty (±) (g)	k
Unload	0.00000	0.00000	0.00000	0.000024	2.52
0.5	0.50000	0.49997	+0.00003	0.000028	2.13
1	1.00000	1.00000	0.00000	0.000030	2.08
10	9.99999	10.00000	-0.00001	0.000050	2.00
20	19.99999	19.99998	+0.00001	0.000068	2.00
40	39.99994	39.99999	-0.00005	0.00014	2.00
60	60.00000	60.00000	0.00000	0.00017	2.00
80	79.99999	80.00000	-0.00001	0.00023	2.00
100	100.00000	100.00000	0.00000	0.00022	2.00
120	120.00000	120.00000	0.00000	0.00028	2.00
140	140.00000	139.99999	+0.00001	0.00034	2.00
160	160.00000	160.00000	0.00000	0.00036	2.00
180	180.00000	179.99999	+0.00001	0.00043	2.00
200	200.00002	200.00000	+0.00002	0.00041	2.00

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

Uncertainty of measurement

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

This report will certify of the calibrated equipment only.

--End--

Calibration Certificate

Certificate No.: 2503097-001-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
 Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)

Manufacturer: MEMMERT

Model: UF 55

Serial No.: B213.0295

ID No.: N/A


Order No.: 2503097

Operation No.: 2503097-001

Date of Receipt: 23 May 2025

Date of Calibration: 23 May 2025

Calibrated by Mr. Manas Somsak
 Specialist

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

Date of Issue: 26 May 2025

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

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



Calibration Report

Certificate No.: 2503097-001-01
Equipment: CHAMBER (Hot Air Oven)
 Model: UF 55 Serial No.: B213.0295
 Resolution: 0.1 °C ID No.: N/A
 Manufacturer: MEMMERT
Date of Calibration: 23 May 2025

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (30.7 ± 1) °C
 Relative Humidity (56.0 ± 3) %
 Line Voltage (224.9 ± 1) Volt

Condition of this results of Calibration:

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

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY59002902	2502797-002-01	3 May 2026	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 80.0, 104.0 and 180.0 °C
 Fresh air Damper ☒ Open Position ☒
☒ Close Fan 50%
☒ Not Available

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



Calibration Report

Certificate No.: 2503097-001-01
Equipment: CHAMBER (Hot Air Oven)
 Model: UF 55 Serial No.: B213.0295
 Resolution: 0.1 °C ID No.: N/A
 Manufacturer: MEMMERT

Date of Calibration: 23 May 2025

Calibration point: 80.0, 104.0 and 180.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	30.6	52.6	223.5
MAX	30.8	59.4	226.2

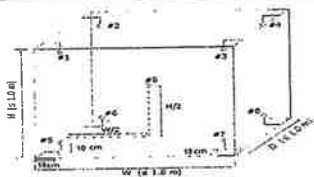


Table 1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
80.0	79.77	79.86	79.92	79.93	79.77	79.78	80.16	80.00	80.06	0.46
104.0	103.70	103.86	103.94	103.93	103.66	103.75	104.30	104.11	104.18	0.53
180.0	179.72	179.97	179.98	180.02	179.61	179.65	180.57	180.36	180.52	0.90

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
80.0	80.0	80.0	80.0	0.041	0.29	0.47
104.0	104.0	104.0	104.0	0.055	0.52	0.73
180.0	180.0	180.0	180.0	0.086	0.92	1.1

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 -----

Handwritten signature



Calibration Certificate

Certificate No.: 2503097-002-01
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.: B499.1400

ID No.: N/A

Order No.: 2503097

Operation No.: 2503097-002

Date of Receipt: 23 May 2025

Date of Calibration: 23 May 2025

Calibrated by Mr.Manas Somsak
 Specialist

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

Date of Issue: 26 May 2025

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

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



Calibration Report

Certificate No.: 2503097-002-01
Equipment: CHAMBER (Hot Air Oven)
 Model: UM 400 Serial No.: B499.1400
 Resolution: 1 °C ID No.: N/A
 Manufacturer: MEMMERT
Date of Calibration: 23 May 2025

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (30.9 ± 1) °C
 Relative Humidity (56.0 ± 3) %
 Line Voltage (224.9 ± 1) Volt

Condition of this results of Calibration:

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

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY59002902	2502797-002-01	3 May 2026	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 150 °C
 Fresh air Damper ☐ Open Position ☐
☒ Close Fan ☐
☐ Not Available

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

AB



Calibration Report

Certificate No.: 2503097-002-01
Equipment: CHAMBER (Hot Air Oven)
 Model: UM 400 Serial No.: B499.1400
 Resolution: 1 °C ID No.: N/A
 Manufacturer: MEMMERT

Date of Calibration: 23 May 2025

Page 3 of 3

Calibration point: 150 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	30.6	52.6	223.5
MAX	31.3	59.4	226.2

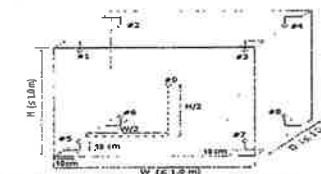


Table 1 : Reporting of Temperature

Calibration point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	
150	150.07	150.68	149.82	150.63	148.76	149.47	149.36	148.79	149.64	1.3

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	176	176	176	0.89	1.0	3.5

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 -----

AB




Calibration Certificate

Certificate No.: 2403705-001-01
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.: 2403705
Operation No.: 2403705-001
Date of Receipt: 18 July 2024
Date of Calibration: 18 July 2024

Calibrated by Mr.Taveesak Seilee
Scientist

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

Date of Issue: 24 July 2024

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.: 2403705-001-01
Equipment: CHAMBER (Incubator)
Model: ICP 400 Serial No.: K406.0004
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT
Date of Calibration: 18 July 2024

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (31.0 ± 1) °C
Relative Humidity (58 ± 1) %
Line Voltage (221 ± 1) Volt

Condition of this results of Calibration:

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

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY49018263	TE 670368-01	23 March 2025	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 20.0 °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.: 2403705-001-01
Equipment: CHAMBER (Incubator)
 Model: ICP 400 Serial No.: K406.0004
 Resolution: 0.1 °C ID No.: N/A
 Manufacturer: MEMMERT

Date of Calibration: 18 July 2024

Page 3 of 3

Calibration point: 20.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
MIN	30.0	57	220.3
MAX	32.0	59	222.1

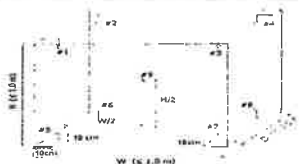


Table 1 : Reporting of Temperature

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	20.10	20.18	20.21	20.26	20.28	20.20	20.21	20.13	20.22	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	0.13	0.12	0.40

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.: 2403705-002-01
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.: I698.0051

ID No.: N/A


Order No.: 2403705

Operation No.: 2403705-002

Date of Receipt: 18 July 2024

Date of Calibration: 18 July 2024

Calibrated by Mr.Taveesak Seilee
 Scientist

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

Date of Issue: 24 July 2024

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.: 2403705-002-01

Equipment: Water Bath

Model: WB 29 Serial No.: I698.0051

Resolution: 0.1 °C ID No.: N/A

Manufacturer: MEMMERT

Date of Calibration: 18 July 2024 Page 2 of 3

Location: Laboratory, SECOT CO., LTD.

Environment Condition:

Ambient Temperature (30 ± 1) °C

Relative Humidity (58 ± 1) %

Line Voltage (221 ± 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 (2022): 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	MY49018263	TE 670368-01	23-Mar-25	NATIONAL FOOD INSTITUTE
	RTD	RTD #201-205 / CH#201-205			

- 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

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Calibration Report

Certificate No.: 2403705-002-01

Equipment: Water Bath

Model: WB 29 Serial No.: I698.0051

Resolution: 0.1 °C ID No.: N/A

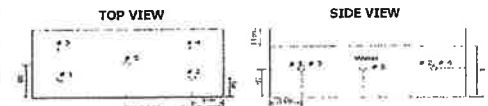
Manufacturer: MEMMERT

Date of Calibration: 18 July 2024 Page 3 of 3

Calibration point: 95.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
Min	29.9	57	220.3
Max	31.3	59	222.1



Sensor Installation Location

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.5 is REF)					Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	
95.0	94.93	95.13	94.92	95.09	95.03	0.29

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	0.19	0.11	0.67

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 -----

Handwritten signature



**THAI CALIBRATION SERVICES CO., LTD.**

19/8 Moo 9 Soi Raiking 30 Puttamonthon 5 Rd., Sampran, Nakhon Pathom 73210

Tel. 0-3439-7682-5 Fax: 0-3439-7687

www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

**CALIBRATION CERTIFICATE**

Certificate No.S25046358

page 1 of 2

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

Equipment : Non-automatic weighing instrument (Electronic instrument)

Manufacturer : Sartorius **Order No. :** 68S1640-1

Model : ME5 **Ambient temperature :** (24.2 ± 5.0) °C

Accuracy class : - **Relative humidity :** (40.2 ± 10.0) %

Capacity : 5.1 g **Received date :** 23-Apr-2025

Resolution : 0.000001 g **Date of calibration :** 23-Apr-2025

Serial No. : SWB26602268 **Date of issue :** 24-Apr-2025

ID No. : - **Condition of the balance :** Good working conditions

Place of calibration : LAB

Calibration method

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

Condition of reference standard weight

Instrument	Nominal value	Serial No.	Certificate No.	Due-date	Density (kg/m ³)
1 Standard weight set	1 mg to 2 kg	15885+15849	M2410001S	5-Oct-2025	7950

Traceability of the reference standard weight

This certificate is traceable to SI unit through Mass Calibration Laboratory Thai Calibration Services Co., Ltd., NSC-ONSC accredited no. Calibration 0189.

Calibrated By : Teerawat Intanorn
Technician

Approved Signatory :
Somwang Wongduang

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

**THAI CALIBRATION SERVICES CO., LTD.**

19/8 Moo 9 Soi Raiking 30 Puttamonthon 5 Rd., Sampran, Nakhon Pathom 73210

Tel. 0-3439-7682-5 Fax: 0-3439-7687

www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

**CALIBRATION CERTIFICATE**

Certificate No.S25046358

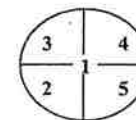
page 2 of 2

The repeatability of indication

Nominal Value (g)	Standard Deviation of reading (g)	Maximum difference between successive reading (g)	n
5	0.0000007	0.000002	5

The effect of eccentric application of a load on the indication (test load : 2 g)

Position	Balance Reading (g)
Point 1	2.000001
Point 2	2.000006
Point 3	2.000007
Point 4	2.000007
Point 5	2.000004
Eccentric Value	0.000006

**The error of indication**

Nominal Value (g)	Value of Reference Standard Weight (g)	Balance Reading (g)	Correction (g)	Uncertainty (±) (g)	k
Unload	0.000000	0.000000	0.000000	0.0000020	2.43
0.001	0.001002	0.001004	-0.000002	0.0000046	2.00
0.005	0.004998	0.005004	-0.000006	0.0000046	2.00
0.01	0.010002	0.010006	-0.000004	0.0000056	2.00
0.05	0.049997	0.050000	-0.000003	0.0000086	2.00
0.1	0.100001	0.100004	-0.000003	0.000012	2.00
0.2	0.200004	0.200004	0.000000	0.000014	2.00
0.5	0.499996	0.499995	+0.000001	0.000018	2.00
1	0.999996	1.000006	-0.000010	0.000022	2.00
1.5	1.499992	1.500000	-0.000008	0.000039	2.00
2	2.000011	2.000001	+0.000010	0.000028	2.00
3	3.000007	3.000007	0.000000	0.000049	2.00
5	4.999968	4.999942	+0.000026	0.000036	2.00

Remark : Adjustment, Internal weight

Uncertainty of measurement


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

This report will certify of the calibrated equipment only.

--End--

Atomic Absorption Spectrometry	
PinAAcle900T	
Operational Qualification (OQ)	
Company Name:	SECOT Co.,Ltd.
Address:	239 Rimkhlong Prapa Rd. Khwang Bang Sue, Khet Bang Sue, Bangkok 10800, Thailand
Location, Room:	SECOT INST-1
Serial Number or System Name:	PTDS23051001
Issue Date:	29-Apr-2025
Date Tested:	30-Apr-2025
Valid if tested within 1 year of Issue Date	
Recertification Period	Recommended at 12 Months
Recertification Due Date:	30-Apr-2026

Release History

Part Number	Release	Publication Date	
09350815	G	August 2023	

Any comments about the documentation for this product should be addressed to:
 User Assistance
 PerkinElmer (UK) Ltd
 Chalfont Road
 Seer Green
 Beaconsfield
 Bucks HP9 2FX
 United Kingdom

PerkinElmer Technical Support
 M/S 215
 710 Bridgeport Avenue
 Shelton
 Connecticut 06484-4794
 U.S.A.

Service/
Support
PerkinElmer
Validation Program
 Engineering



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Apr 4, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
13	Cirrus	CR161B	G301354	94.2	-0.5
32	Cirrus	CR161B	G302356	94.4	-0.7

PinAAcle900T OQ Rev. G

Calibrated by :

Approved by : Preeda S.



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Feb 13, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
4	SCARLET	ST-21D	820725	93.8	0.0
10	SCARLET	ST-21D	820731	93.8	0.0

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: May 15, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
5	SCARLET	ST-21D	820726	93.8	0.0
6	SCARLET	ST-21D	820727	93.8	0.0

Calibrated by :

Approved by :



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

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

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

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



Certificate No.: CP20240363EA
Operation No.: CP2024090339

Certificate of Calibration

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 97097
ID No.:
Customer: SECOT Co.,Ltd.
Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand
Received Date: 30 September 2024
Calibrated Date: 2 October 2024
Issued Date: 4 October 2024
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.: CP20240363EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 97097
ID No.:
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa

Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1007-24	6 June 2025
2) Waveform Generator	33511B	MY52302264	CK20240047EA	23 June 2025
3) Audio Analyzing DMM	2015-P	000136E	E1U2303776	7 December 2024
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P240022 CD20240180EA	20 March 2025 7 August 2025

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
 - NA Caltechnologies Co., Ltd.; ANAB Accredited Calibration No.AC-2658.

Result of Calibration:-

1. Function : Sound pressure level

Normalinal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value ^[1] (dB)	Acceptance limit ^[3] (dB)
1000	94	94.09	0.09	±0.25

2. Function : Frequency

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

Certificate No.: CP20240363EA

Calibration Report

3. Function : Total distortion + noise

Norminal Sound Pressure level (dB)	Norminal Frequency (Hz)	Measured value ^[4] (%)	Acceptance limit ^[5] (%)
94	1000	0.60	2.50

Uncertainty of measurement

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

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

- Remarks:
- 1. Acceptance limit was IEC 60942:2017 Class 1.
 - 2. Maximum-permitted uncertainty of measurement was IEC 60942:2017 Class 1.
 - 3. The coverage factor $k = 2.00$

-- End of Report --

ภาคผนวก จ

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๐ กรกฎาคม ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอต จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๗ เมษายน ๒๕๖๖

- สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๙ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอต จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สลนที่ ดังเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอต จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

- ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย ตามสิ่งที่ส่งมาด้วย ๒
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

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

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม คำทรงษ์)

กองวิจัยและเตือนภัยมลพิษโรงงาน
ผู้ชำนาญการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”



ส่งที่ส่งมาด้วย ๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอต จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

- ๑) นายขรรชัย เกรียงไกรอุดม
- ๒) นางสมฤดี เกรียงไกรอุดม
- ๓) นางสาวอารยา ทิพรัักษ์
- ๔) นางสาวเชมชุตตา อินทร์ศรี
- ๕) นางสาวปรีดา สมใจ
- ๖) นางสาวอริญา มาตา
- ๗) นางสาวลดาวัลย์ วงศ์เจริญ
- ๘) นางสาวณัฏฐพร เกตะวันดี
- ๙) นางสาวนริสา ภูวสรเพ็ชญ์
- ๑๐) นางสาวศิริวรรณ นิยมสง่า

- ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๒
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๓
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๔
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๕
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๖
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๗
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๘
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๙
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๑๐
ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๑๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ข. เจ้าหน้าที่ยื่นขอต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย

- ๑) นางสาวสุดาพร สุนทร
- ๒) นางสาวสุธาทิพย์ เทียนดี
- ๓) นางสาวสุนันทา ศิริพัฒนานนท์
- ๔) นายบรรดิษฐ์
- ๕) นางสาวเกศรินทร์ วรเดชวิทยา
- ๖) นายอนันต์ วัฒนนา
- ๗) นายชิตพล สมประสงค์
- ๘) นางสาวศศิธร พรหมประเสริฐ
- ๙) นายศิระนนท์ กุลวงษ์
- ๑๐) นางสาวอลิษา คณิธรานนท์
- ๑๑) นางสาวสิริวรรณ แก้วชิงดวง
- ๑๒) นางสาวปัทมวรรณ สุวรรณวิโรจน์
- ๑๓) นางสาวกนิษฐา เจริญเชื้อ
- ๑๔) นายวัชรกานต์ ประมาคเต
- ๑๕) นายทอง เฮงชวลกุล
- ๑๖) นางสาวกฤษณา จันทุม
- ๑๗) นางสาวพรนภา บุตรธรรม
- ๑๘) นางสาวธรรณี อาจปลิว
- ๑๙) นายธนโชติ ช่างล้อ
- ๒๐) นางสาวพัชรา สมานพันธ์
- ๒๑) นางสาวจุฑารัตน์ แจ่มเรือน
- ๒๒) นางสาวณิสิตา กุ้ยอ่อน
- ๒๓) นายกิตติพงศ์ ตะเกียงสุข
- ๒๔) นายจิรวัฒน์ โคตรคำหาญ
- ๒๕) นายชนะพล อัครผล
- ๒๖) นางสาวทิพย์สุดา วรณการ
- ๒๗) นายสิทธิชัย สว่างวงศ์ไชย
- ๒๘) นายพิษณุ สีนามเพ็ง
- ๒๙) นายรัตนชัย ขอบทำกิจ
- ๓๐) นายธนาวุฒิ ด่วนแสง
- ๓๑) นายณัฐชัย ไชยโคตร
- ๓๒) นายณัฐดนัย กฤษณะโสม
- ๓๓) นายศุภชัย สุขใหม่
- ๓๔) นายธนากร เทียมมาต
- ๓๕) นางสาวสุภาวดี บัวแก้ว
- ๓๖) นางสาวมาลีณี ฮาแว
- ๓๗) นางสาววิรัชชา ปิจฉิมบุรณ์
- ๓๘) นางสาวศลิษา อินริย์

- ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๑
ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๒
ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๔
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ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๔
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ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๙

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เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๕ รายการ

น้ำเสีย จำนวน 45 รายการ

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

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

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

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

3) Digestion...

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

น้ำใต้ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
2	Acetone	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
3	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
5	Antimony	Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
8	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
10	Benzene	Purge and Trap Gas Chromatographic/Mass spectrometric Method ^[4]
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] 31mg)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
16	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
19	Bromodichloromethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
20	Bromoform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
21	Butanol	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
23	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
25	Carbon disulfide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
26	Carbon tetrachloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4] 31mg)

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

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

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

2) Liquid-Liquid...

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

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 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]
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
86	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]

87 Methylene chloride...

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

99 Phenanthrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
100	Phenol	1) Distillation, Chloroform Extraction Method ^[4] 2) Distillation, Direct Photometric Method ^[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
102	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
103	Silver	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4]
104	Styrene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
105	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
106	Tetrachloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
107	Toluene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]
108	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[12,25]
109	TPH (C ₈ -C ₁₆)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[9,21] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[9,25]
110	TPH (C ₁₆ -C ₃₅)	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[9,21] <i>simul</i>

2) Separatory...

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

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

อากาศเสีย (ปล่อยระบาย) จำนวน 27 รายการ

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

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

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

สิ่งปฏิกูล...

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

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

2) Waste Extraction...

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

3) Digestion...

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

13 2,4-D...

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

17 Dieldrin...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
20	Lead	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14]

3) Digestion...

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


24 Molybdenum...

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


4) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
30	Silver	4) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
31	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
32	Trichloroethylene	1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[1,12,26] 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[12,26]
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]

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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27] 

2 Acetone...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
2	Acetone	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
3	Aldrin	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,27]
4	Anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
5	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
7	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method ^[11,24]
8	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
9	Benz(a)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
10	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
11	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
12	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
13	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,27] 

14 Benzo(a)pyrene...

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

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

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

54 1,2-Dichloropropane...

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

67 Fluoranthene...

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

78 Hexachloroethane...

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

90 Methyl tert-butyl ether...

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

2) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
102	Silver	2) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
103	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
106	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
107	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
108	TPH (C ₈ -C ₁₆)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^[10,26]
109	TPH (C ₁₆ -C ₃₅)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/Mass spectrometric Method ^[10,26]
110	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
111	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
112	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
113	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]

114 2,4,5-Trichlorophenol...

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

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ที่ อก ๐๓๑๐(๑)/ ๕ ๐ ๕๔



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๗ พฤษภาคม ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๑ พฤษภาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท ซีคอฟ จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙
สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร
ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๒ ราย ได้แก่

- | | |
|---------------------------|----------------------------|
| ๑) นายวัชรกานต์ ประมาคะเด | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๔ |
| ๒) นายรัตนชัย ขอบทำกิจ | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๐ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายพรชิต ก้องกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๕๔ ๗



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๑ พฤศจิกายน ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๕ พฤศจิกายน ๒๕๖๗

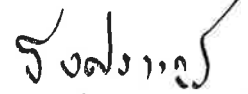
ตามคำขอที่อ้างถึง บริษัท ซีคอฟ จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙
สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอยกเลิกบุคลากร
ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๓ ราย ได้แก่

- | | |
|--------------------------|----------------------------|
| ๑) นางสาวพัชรา สมานฉันท์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๑ |
| ๒) นางสาวสุภาวดี บัวแก้ว | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๖ |
| ๓) นางสาวมารียามณี ฮาแว | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๗ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายธีรทัศน์ อิศรางกูร ณ อยุธยา)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ภาคผนวก ข

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



แบบ กมช./สมอ.๒
Form NSC/TISI 2

ใบรับรองเลขที่ 24-LB0026
(Certificate No.)

ใบรับรองระบบงาน (Certificate of Accreditation)

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

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้
(Issues this certificate to)

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

ตั้งอยู่เลขที่
(Address)

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

ได้รับการรับรองความสามารถ
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๓๐๒๕ - ๒๕๖๑
(Standard No. TIS 17025-2561 (2018) (ISO/IEC 17025: 2017))

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

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔
(Accreditation No. Testing 0394)

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

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

(นายวีระศักดิ์ เพ็งหล่ง)

ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ

ปฏิบัติราชการแทน

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



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

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



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



ชื่อห้องปฏิบัติการ
(Laboratory Name)

หมายเลขการรับรองที่
(Accreditation No.)

ฉบับที่ 02
(Issue No.02)

สถานภาพห้องปฏิบัติการ
(Laboratory status)

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

ทดสอบ 0394
(Testing 0394)

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

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

ถึงวันที่ 8 กันยายน พ.ศ. 2571
(Until (8 September B.E.2571 (2028)))
☐เคลื่อนที่ (Mobile) ☐หลายสถานที่ (Multisite)

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

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

หน้า 1/9

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☒ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☒ นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

ภาคผนวก ข

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน
จากกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๑๕๐๓-๐๓-๒๕๒๕-๐๑๕๘

อนุญาตให้ บริษัท จีเอสที จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๑๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประเวศ 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

(นายสมพงษ์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม

๗-๑๓-๐๔๐๓-๐๔๘-๐๑-๖๕

(ลงนาม)

(นายทะเบียน)

(นายศักดิ์ศิลป์ ตูลาธอร์)

ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาพการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

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

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

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพนธ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาพการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

- | | |
|-------------------|-------------|
| ๑. นางสาวศลิษา | อินริย์ |
| ๒. นางสาวมาริยาณี | ยาแนว |
| ๓. นางสาววิระยา | ปัจฉิมนุรณ์ |

ทั้งนี้ ตั้งแต่วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖



(นายสมพนธ์ กวางแก้ว)

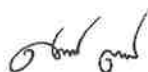
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นายพงศ์ศิริ จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘



(นายศักดิ์ศิลป์ ตูลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน