

ภาคผนวก

ภาคผนวก ก

หนังสือรับรองผลการตรวจวิเคราะห์

คุณภาพอากาศ



คุณภาพอากาศจากแหล่งกำเนิด (Emission Stack)



Report No.

: 2026-500006421-4 / 003-1 (1) (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 21, 2026

Analysis Report

Sample Type

: Emission Air

Sampling Date

: March 16, 2026

Sampling Location

: HRSO 1, GPSC CUP4

Sampling Time

: 11:20-12:48 hrs. (For TSP)

Sampling By

: [REDACTED]

: [REDACTED]

: 12:01-12:30 hrs. (For SO₂ and NO_x)

Received Date

: March 17, 2026

Laboratory Name

: SGS (Thailand) Limited (1-197)

Analysis Date

: March 17-30, 2026

Parameter	Unit	Value	Standard ^{1/}	Standard ^{2/}	Standard ^{3/}	Analytical Method
Fuel Type	-	Natural Gas	-	-	-	-
Stack Diameter	cm.	330	-	-	-	-
Stack Temperature	°C	135.5	-	-	-	-
Dry Gas Temperature	°C	27.5	-	-	-	-
Absolute Stack Pressure	mm.Hg	756.7	-	-	-	-
Air Velocity	m/s	19.77	-	-	-	U.S.EPA Method 2
Volumetric Flow Rate at actual O ₂	Nm ³ /hr	403,637	-	-	-	U.S.EPA Method 2
Moisture	%	8.67	-	-	-	U.S.EPA Method 4
O ₂	%	13.86	-	-	-	U.S.EPA Method 3A
CO ₂	%	4.31	-	-	-	U.S.EPA Method 3A
TSP	at actual O ₂	mg/Nm ³	0.59	-	-	U.S.EPA Method 5
	at 7% O ₂	mg/Nm ³	1.17	7.108	60	
	Emission Rate	g/s	0.067	0.416	-	by Calculation
Sulfur Dioxide (SO ₂)	at actual O ₂	ppm	0.41	-	-	U.S.EPA Method 6C
	at 7% O ₂	ppm	0.81	1.66	20	
	Emission Rate	g/s	0.120	0.255	-	by Calculation
Oxide of Nitrogen as NO ₂	at actual O ₂	ppm	10.27	-	-	U.S.EPA Method 7E
	at 7% O ₂	ppm	20.27	26.58	120	
	Emission Rate	g/s	2.166	3.000	-	by Calculation

Remark :

- N = Normal condition means reference condition at temperature of 25 °C, pressure of 1 atm or 760 mmHg, dry basis.

Sources :

^{1/} Environmental Impact Assessment Report of GLOW ENERGY PUBLIC COMPANY LIMITED (GPSC CUP4).

^{2/} Notification of the Ministry of Natural Resources and Environment; Establishment of Standards for the Control of Emission from Power Plants, B.E. 2566 (2023).

^{3/} Notification of the Ministry of Industry; Determination of Emission Standards for Air Pollutants from Power Plants, B.E. 2567 (2024).

Reviewed by

[REDACTED]

Approved by

[REDACTED]

TY/KM/JK/JK

SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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คุณภาพอากาศในบรรยากาศ (Ambient Air)



Report No. : 2026-500006421-4 / 001-1 (Page 1 of 3) Issued date: April 3, 2026
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Ambient Air Sampling Date : March 12-19, 2026
Sampling Location : วัดประทุมมิตรบำรุง Coordination (UTM) : 47P 26450E, 1407369N
Sampling By : [Redacted] Received Date : March 20, 2026
Laboratory Name : SGS (Thailand) Limited Analysis Date : March 20-April 1, 2026

Station	Sampling Date	Result	
		TSP (µg/m³)	PM-10 (µg/m³)
วัดประทุมมิตรบำรุง	12-13/03/2026	57.8	41.3
	13-14/03/2026	64.2	29.8
	14-15/03/2026	77.1	46.6
	15-16/03/2026	54.2	29.0
	16-17/03/2026	66.0	35.3
	17-18/03/2026	49.5	22.1
	18-19/03/2026	62.1	25.3
Standard (avg. 24 hr) ^{1/}		≤200	≤100

Remarks : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method.
- Sampling and analytical technique for PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : ^{1/} Notification of the National Environment Board, subjected “The ambient air quality standards” B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

TY/NJ/JK/JK



Approved by



LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No. : 2026-500006421-4 / 001-1 (Page 2 of 3) Issued date: April 3, 2026
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Ambient Air Measurement Date : March 12-19, 2026
Measurement Location : วัดประทุมมิตรบำรุง Coordination (UTM) : 47P 26450E, 1407369N
Measured By : [Redacted]

Time	NO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
14:00-15:00	9.4	9.1	16.0	8.8	11.1	6.1	10.6
15:00-16:00	7.3	11.0	13.2	8.4	7.6	6.1	9.4
16:00-17:00	8.3	12.8	9.7	7.7	6.8	6.5	10.5
17:00-18:00	10.4	15.0	11.7	8.0	10.1	5.7	8.6
18:00-19:00	11.3	16.7	13.7	9.7	10.4	4.8	10.9
19:00-20:00	11.7	16.9	11.2	11.0	7.5	5.3	10.4
20:00-21:00	8.9	13.1	10.7	9.7	7.0	6.8	8.0
21:00-22:00	5.9	11.3	8.1	10.2	4.8	3.7	5.8
22:00-23:00	5.4	12.9	9.3	8.1	6.0	4.1	5.5
23:00-00:00	7.6	9.7	13.0	8.9	6.3	4.8	7.0
00:00-01:00	6.7	7.9	10.5	7.6	5.4	4.2	5.5
01:00-02:00	5.8	7.3	7.9	9.1	4.9	3.6	4.9
02:00-03:00	6.2	6.4	7.9	7.8	5.2	3.4	5.3
03:00-04:00	5.3	12.7	9.4	10.5	3.7	8.9	4.4
04:00-05:00	8.7	10.0	5.9	10.3	3.2	5.9	5.2
05:00-06:00	8.9	9.2	6.8	8.8	3.2	6.0	8.8
06:00-07:00	9.6	8.5	8.0	7.9	3.3	7.6	4.5
07:00-08:00	10.7	4.5	10.4	6.9	3.2	6.4	6.9
08:00-09:00	5.9	7.6	8.5	7.1	3.3	8.5	7.4
09:00-10:00	7.7	7.2	7.9	7.0	3.8	9.5	6.8
10:00-11:00	10.4	7.8	10.0	6.8	4.5	8.2	6.0
11:00-12:00	13.8	13.6	12.7	7.6	3.9	6.2	7.1
12:00-13:00	14.8	9.4	11.5	6.7	4.2	4.2	8.8
13:00-14:00	17.9	14.1	12.8	8.6	5.2	6.3	7.7
1 hr-Minimum	5.3	4.5	5.9	6.7	3.2	3.4	4.4
1 hr-Maximum	17.9	16.9	16.0	11.0	11.1	9.5	10.9
Standard ^{1/} (avg. 1 hr)	≤120						

Analytical Method : - Chemiluminescence Method.
Source : ^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

Approved by



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Report No.

: 2026-500006421-4 / 001-1 (Page 3 of 3)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: วัดประทุมมิตรบำรุง

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 26450E, 1407369N

Time	SO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
14:00-15:00	1.2	1.4	1.3	1.5	1.4	1.6	2.4
15:00-16:00	1.5	2.0	1.4	1.3	1.5	1.6	2.6
16:00-17:00	1.8	2.1	2.7	1.4	1.3	1.6	1.5
17:00-18:00	1.6	1.2	2.7	1.7	1.5	2.2	1.4
18:00-19:00	2.0	1.2	2.3	1.6	1.4	2.5	1.3
19:00-20:00	2.2	1.1	2.3	1.8	1.6	2.3	1.5
20:00-21:00	1.2	2.2	1.5	1.2	1.5	2.5	1.6
21:00-22:00	1.5	2.2	1.7	1.1	2.2	2.3	1.6
22:00-23:00	1.7	2.2	1.6	1.2	1.6	1.6	1.6
23:00-00:00	1.9	2.1	1.6	1.2	1.6	1.6	1.5
00:00-01:00	1.6	1.1	2.4	1.5	1.6	1.6	2.6
01:00-02:00	1.3	1.1	2.3	1.6	1.5	1.8	2.3
02:00-03:00	1.3	1.0	2.4	1.8	1.6	1.9	1.9
03:00-04:00	1.3	1.2	1.5	1.5	1.6	1.6	3.6
04:00-05:00	2.1	2.4	2.2	1.3	1.2	1.6	2.7
05:00-06:00	2.0	1.5	1.5	1.5	1.4	2.4	2.3
06:00-07:00	2.6	1.4	2.4	1.5	1.6	1.4	2.4
07:00-08:00	2.0	1.6	2.4	1.6	1.4	1.6	2.4
08:00-09:00	2.2	1.6	1.7	1.6	1.6	1.5	2.4
09:00-10:00	2.7	2.6	1.8	2.9	1.6	1.7	1.9
10:00-11:00	1.8	2.5	2.7	2.8	1.6	2.6	2.2
11:00-12:00	2.8	2.5	2.5	2.7	1.8	1.6	1.6
12:00-13:00	1.6	2.6	2.6	2.7	1.9	1.8	2.2
13:00-14:00	1.5	1.5	1.4	2.6	1.8	2.5	2.1
1 hr-Minimum	1.2	1.0	1.3	1.1	1.2	1.4	1.3
1 hr-Maximum	2.8	2.6	2.7	2.9	2.2	2.6	3.6
Average 24 hr	1.8	1.8	2.0	1.7	1.6	1.9	2.1
Standard ^{1/} (avg. 1 hr)	≤100						
Standard ^{1/} (avg. 24 hr)	≤50						

Analytical Method :

- UV Fluorescence Method

Source :

^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

Approved by



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Report No. : 2026-500006421-4 / 001-2 (Page 1 of 3) Issued date: April 3, 2026
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Ambient Air Sampling Date : March 12-19, 2026
Sampling Location : บ้านสำนักมะม่วง Coordination (UTM) : 47P 788238E, 1403406N
Sampling By : [Redacted] Received Date : March 20, 2026
Laboratory Name : SGS (Thailand) Limited Analysis Date : March 20-April 1, 2026

Station	Sampling Date	Result	
		TSP (µg/m³)	PM-10 (µg/m³)
บ้านสำนักมะม่วง	12-13/03/2026	61.4	40.4
	13-14/03/2026	60.6	36.2
	14-15/03/2026	68.9	35.6
	15-16/03/2026	62.9	28.9
	16-17/03/2026	53.2	30.9
	17-18/03/2026	41.8	21.2
	18-19/03/2026	42.7	21.9
Standard (avg. 24 hr) ^{1/}		≤200	≤100

Remarks : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method.
- Sampling and analytical technique for PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : ^{1/} Notification of the National Environment Board, subjected “The ambient air quality standards” B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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Approved by



LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No.

: 2026-500006421-4 / 001-2 (Page 2 of 3)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: บ้านสำนักมะม่วง

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 788238E, 1403406N

Time	NO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
16:00-17:00	8.9	7.8	7.3	8.1	8.6	4.4	3.1
17:00-18:00	6.3	7.7	6.8	7.7	9.2	7.6	3.4
18:00-19:00	7.8	6.8	10.0	7.6	8.7	7.8	9.0
19:00-20:00	8.4	6.4	7.2	8.0	8.6	7.5	6.5
20:00-21:00	9.5	7.4	7.1	7.7	9.9	6.3	6.9
21:00-22:00	8.7	6.8	7.0	9.8	10.2	5.9	6.0
22:00-23:00	7.9	6.1	7.9	7.0	6.8	5.4	5.8
23:00-00:00	7.8	7.2	7.6	7.2	7.4	7.2	6.3
00:00-01:00	7.3	6.7	6.9	7.6	6.8	7.2	6.2
01:00-02:00	6.8	8.1	7.2	7.3	6.3	6.5	5.8
02:00-03:00	6.4	7.7	7.3	7.6	6.8	6.5	7.7
03:00-04:00	6.3	8.5	7.1	8.0	6.7	6.4	6.7
04:00-05:00	6.4	8.8	7.7	7.6	6.5	6.7	3.0
05:00-06:00	5.6	4.9	7.1	7.9	6.2	6.5	3.4
06:00-07:00	5.7	5.6	7.0	8.1	6.3	7.0	3.6
07:00-08:00	5.6	4.8	8.5	9.2	5.7	6.9	7.9
08:00-09:00	5.1	3.8	7.8	4.5	6.2	7.3	7.0
09:00-10:00	5.1	4.3	9.4	4.5	6.7	7.4	7.6
10:00-11:00	4.9	3.5	5.2	3.8	6.3	7.5	9.5
11:00-12:00	7.1	3.7	5.0	4.5	5.6	4.0	8.1
12:00-13:00	5.2	3.8	5.6	4.2	6.0	6.4	7.7
13:00-14:00	4.8	4.5	4.6	3.1	6.5	5.6	8.0
14:00-15:00	7.3	4.3	4.8	7.4	7.2	6.4	6.8
15:00-16:00	7.7	8.8	4.6	7.9	4.5	7.1	7.0
1 hr-Minimum	4.8	3.5	4.6	3.1	4.5	4.0	3.0
1 hr-Maximum	9.5	8.8	10.0	9.8	10.2	7.8	9.5
Standard ^{1/} (avg. 1 hr)	≤120						

Analytical Method

: - Chemiluminescence Method.

Source

: ^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

Approved by



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Report No.

: 2026-500006421-4 / 001-2 (Page 3 of 3)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: บ้านสำนักมะม่วง

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 788238E, 1403406N

Time	SO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
16:00-17:00	2.5	1.3	2.5	3.6	1.5	1.6	1.7
17:00-18:00	3.6	3.3	1.5	3.4	1.6	1.7	2.6
18:00-19:00	2.9	3.4	1.5	3.5	1.5	1.6	3.6
19:00-20:00	2.7	2.5	2.6	2.5	2.6	1.6	3.5
20:00-21:00	2.0	2.6	2.4	2.5	2.4	2.8	3.5
21:00-22:00	3.4	2.5	2.3	2.7	2.6	2.6	2.3
22:00-23:00	2.4	3.5	1.5	1.5	2.5	1.8	2.3
23:00-00:00	1.6	3.5	1.2	1.5	2.3	1.7	2.4
00:00-01:00	1.8	2.6	1.2	1.6	1.7	1.7	1.6
01:00-02:00	3.0	2.7	1.3	1.6	1.7	1.7	1.6
02:00-03:00	2.7	3.4	2.4	2.6	1.7	2.7	2.7
03:00-04:00	2.4	3.4	3.4	2.8	3.6	2.9	2.7
04:00-05:00	2.4	2.3	3.4	2.9	2.8	2.0	2.2
05:00-06:00	3.6	2.5	2.6	2.6	2.8	1.6	2.3
06:00-07:00	3.4	1.6	3.3	2.4	2.4	1.7	3.4
07:00-08:00	3.3	1.4	2.6	1.6	2.6	2.5	3.4
08:00-09:00	2.5	1.3	3.6	1.7	2.7	2.5	3.3
09:00-10:00	1.8	1.5	3.5	1.8	1.6	2.7	3.6
10:00-11:00	2.0	1.4	1.7	1.7	2.7	1.7	2.5
11:00-12:00	2.6	2.7	1.9	3.0	2.7	1.8	2.7
12:00-13:00	2.6	2.7	2.8	2.9	2.7	1.7	2.6
13:00-14:00	2.6	2.7	2.6	1.4	3.9	1.3	1.5
14:00-15:00	1.5	2.7	2.6	1.6	3.0	1.5	1.5
15:00-16:00	1.4	1.7	3.6	1.5	2.9	1.6	1.5
1 hr-Minimum	1.4	1.3	1.2	1.4	1.5	1.3	1.5
1 hr-Maximum	3.6	3.5	3.6	3.6	3.9	2.9	3.6
Average 24 hr	2.5	2.5	2.4	2.3	2.4	2.0	2.5
Standard ^{1/} (avg. 1 hr)	≤100						
Standard ^{1/} (avg. 24 hr)	≤50						

Analytical Method

: - UV Fluorescence Method

Source

: ^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

Approved by



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Report No. : 2026-500006421-4 / 001-3 (Page 1 of 3) Issued date: April 3, 2026
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Ambient Air Sampling Date : March 12-19, 2026
Sampling Location : วัดชากลูกหญ้า Coordination (UTM) : 47P 730067E, 1409688N
Sampling By : [Redacted] Received Date : March 20, 2026
Laboratory Name : SGS (Thailand) Limited Analysis Date : March 20-April 1, 2026

Station	Sampling Date	Result	
		TSP (µg/m³)	PM-10 (µg/m³)
วัดชากลูกหญ้า	12-13/03/2026	57.3	24.3
	13-14/03/2026	57.3	20.6
	14-15/03/2026	51.8	23.7
	15-16/03/2026	56.4	21.6
	16-17/03/2026	57.1	21.9
	17-18/03/2026	64.5	22.1
	18-19/03/2026	59.0	21.3
Standard (avg. 24 hr) ^{1/}		≤200	≤100

Remarks : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method.
- Sampling and analytical technique for PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : ^{1/} Notification of the National Environment Board, subjected “The ambient air quality standards” B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No.

: 2026-500006421-4 / 001-3 (Page 2 of 3)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: วัดซากลูกหญ้า

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 730067E, 1409688N

Time	NO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
15:00-16:00	9.5	4.5	4.8	4.9	4.9	6.2	6.7
16:00-17:00	4.3	4.8	4.4	5.1	4.8	8.9	10.0
17:00-18:00	5.9	10.6	6.0	5.6	5.4	8.2	11.9
18:00-19:00	13.9	9.3	6.4	5.6	4.9	6.6	12.3
19:00-20:00	10.1	9.3	6.4	5.6	8.4	7.2	7.2
20:00-21:00	9.6	9.0	6.4	5.7	10.4	8.4	10.1
21:00-22:00	9.9	8.8	6.1	5.2	10.9	8.8	11.9
22:00-23:00	11.2	9.4	6.1	5.9	10.3	9.6	12.1
23:00-00:00	14.0	8.2	5.4	4.9	8.7	12.6	10.0
00:00-01:00	7.1	8.1	5.3	5.0	5.0	8.4	7.1
01:00-02:00	7.5	7.4	4.8	5.0	4.1	9.7	6.4
02:00-03:00	7.3	8.3	4.8	5.1	4.2	10.9	6.2
03:00-04:00	7.5	7.5	4.1	4.3	4.5	12.3	7.7
04:00-05:00	7.1	8.0	4.4	4.3	4.7	9.0	7.8
05:00-06:00	6.5	7.7	4.6	4.4	4.6	8.9	9.4
06:00-07:00	6.5	7.8	4.8	4.1	3.1	6.6	8.4
07:00-08:00	6.5	8.0	4.7	4.3	3.0	4.6	5.5
08:00-09:00	6.1	8.5	4.8	4.3	3.1	3.0	6.5
09:00-10:00	6.2	11.4	4.9	5.1	4.6	9.7	6.6
10:00-11:00	5.9	12.0	8.0	6.7	6.9	7.2	6.6
11:00-12:00	5.7	5.2	8.0	4.5	6.2	7.1	6.5
12:00-13:00	5.6	7.5	6.1	5.0	6.4	10.6	8.1
13:00-14:00	5.9	7.4	5.7	5.0	6.3	11.2	10.4
14:00-15:00	6.7	4.5	5.2	4.7	6.6	11.1	6.5
1 hr-Minimum	4.3	4.5	4.1	4.1	3.0	3.0	5.5
1 hr-Maximum	14.0	12.0	8.0	6.7	10.9	12.6	12.3
Standard ^{1/} (avg. 1 hr)	≤120						

Analytical Method

: - Chemiluminescence Method.

Source

: ^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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Report No.

: 2026-500006421-4 / 001-3 (Page 3 of 3)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: วัดซากลูกหญ้า

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 730067E, 1409688N

Time	SO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
15:00-16:00	2.4	1.1	2.3	2.6	1.3	1.5	1.6
16:00-17:00	1.5	3.2	1.4	2.4	1.5	1.5	2.5
17:00-18:00	3.7	3.3	1.4	2.5	1.3	1.4	3.4
18:00-19:00	3.5	2.4	2.4	2.4	2.4	2.4	3.3
19:00-20:00	1.8	2.4	2.2	2.3	2.3	2.6	3.3
20:00-21:00	3.2	1.2	2.1	2.5	2.4	2.5	2.1
21:00-22:00	2.2	1.2	1.7	1.3	2.3	1.7	2.1
22:00-23:00	1.4	1.5	1.9	1.3	2.1	1.5	2.2
23:00-00:00	1.6	1.9	1.8	1.4	1.5	1.5	1.5
00:00-01:00	2.8	1.9	1.8	1.4	1.6	1.5	1.4
01:00-02:00	2.6	2.6	2.3	2.4	1.6	2.6	2.5
02:00-03:00	1.3	2.6	2.2	2.6	3.4	2.7	2.5
03:00-04:00	1.3	2.1	2.3	2.8	2.6	1.8	2.0
04:00-05:00	1.4	2.3	2.4	2.4	2.6	1.5	2.2
05:00-06:00	3.3	1.4	3.1	2.2	2.2	1.5	2.4
06:00-07:00	3.2	1.2	2.5	1.4	2.4	2.3	2.4
07:00-08:00	2.3	1.1	3.4	1.5	2.6	2.3	3.1
08:00-09:00	1.7	1.3	3.3	1.6	1.4	2.5	3.4
09:00-10:00	1.9	1.2	1.6	1.5	1.5	1.5	2.7
10:00-11:00	2.4	2.5	1.7	2.0	1.6	1.6	3.3
11:00-12:00	1.5	2.5	2.6	1.9	1.6	2.4	3.9
12:00-13:00	2.5	2.5	1.6	1.2	3.8	1.5	2.0
13:00-14:00	1.3	2.5	1.6	1.2	3.9	1.7	2.0
14:00-15:00	1.2	1.5	2.6	1.1	3.7	2.5	1.4
1 hr-Minimum	1.2	1.1	1.4	1.1	1.3	1.4	1.4
1 hr-Maximum	3.7	3.3	3.4	2.8	3.9	2.7	3.9
Average 24 hr	2.2	2.0	2.2	1.9	2.2	1.9	2.5
Standard ^{1/} (avg. 1 hr)	≤100						
Standard ^{1/} (avg. 24 hr)	≤50						

Analytical Method :

- UV Fluorescence Method

Source :

^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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Report No. : 2026-500006421-4 / 001-4 (Page 1 of 6) Issued date: April 3, 2026
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Ambient Air Sampling Date : March 12-19, 2026
Sampling Location : วัดมาบขลุค Coordination (UTM) : 47P 730836E, 1407438N
Sampling By : [Redacted] Received Date : March 20, 2026
Laboratory Name : SGS (Thailand) Limited Analysis Date : March 20-April 1, 2026

Station	Sampling Date	Result	
		TSP (µg/m³)	PM-10 (µg/m³)
วัดมาบขลุค	12-13/03/2026	58.6	23.6
	13-14/03/2026	61.3	31.3
	14-15/03/2026	60.0	22.4
	15-16/03/2026	52.3	24.7
	16-17/03/2026	58.6	24.3
	17-18/03/2026	66.6	25.9
	18-19/03/2026	57.7	36.9
Standard (avg. 24 hr) ^{1/}		≤200	≤100

Remarks : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method.
- Sampling and analytical technique for PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : ^{1/} Notification of the National Environment Board, subjected “The ambient air quality standards” B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No. : 2026-500006421-4 / 001-4 (Page 2 of 6)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: April 3, 2026

Analysis Report

Sample Type : Ambient Air
Measurement Location : วัดมาบชลด
Measured By : 
Measurement Date : March 12-19, 2026
Coordination (UTM) : 47P 730836E, 1407438N

Time	NO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
16:00-17:00	7.5	6.5	7.9	6.1	6.1	4.8	6.2
17:00-18:00	6.3	6.8	7.4	6.3	6.1	4.5	5.5
18:00-19:00	4.3	5.0	7.4	10.8	6.6	4.8	5.4
19:00-20:00	7.8	7.6	7.7	9.8	6.1	5.1	5.9
20:00-21:00	5.3	7.5	7.7	9.8	9.6	5.7	6.8
21:00-22:00	4.8	7.2	7.8	6.9	11.7	7.0	9.6
22:00-23:00	5.0	7.1	7.4	8.5	12.1	7.3	11.4
23:00-00:00	6.3	7.6	7.5	7.2	11.6	8.1	11.6
00:00-01:00	9.2	6.4	6.7	6.2	9.9	11.1	9.5
01:00-02:00	7.1	6.3	6.7	6.2	6.2	6.9	8.6
02:00-03:00	7.0	5.7	6.2	6.3	5.3	5.2	7.9
03:00-04:00	6.8	10.4	6.1	6.4	5.4	5.4	7.7
04:00-05:00	7.0	9.7	5.8	5.5	5.7	6.8	7.2
05:00-06:00	6.6	10.2	5.8	5.5	5.9	6.5	5.4
06:00-07:00	5.0	9.9	5.5	5.6	5.9	6.4	4.9
07:00-08:00	5.1	10.0	5.7	5.4	5.3	5.1	4.9
08:00-09:00	5.1	10.2	5.5	5.5	5.2	4.9	5.0
09:00-10:00	4.6	10.7	5.6	5.6	4.3	5.4	6.0
10:00-11:00	4.8	13.6	5.8	6.4	5.8	5.2	6.1
11:00-12:00	4.5	14.2	3.9	7.9	5.4	4.8	6.1
12:00-13:00	4.2	15.1	3.9	5.7	4.7	4.6	6.1
13:00-14:00	4.1	10.8	7.3	6.2	5.0	5.2	7.6
14:00-15:00	7.0	10.6	6.9	6.2	4.9	5.7	9.9
15:00-16:00	7.8	10.4	6.4	6.0	5.1	5.6	5.9
1 hr-Minimum	4.1	5.0	3.9	5.4	4.3	4.5	4.9
1 hr-Maximum	9.2	15.1	7.9	10.8	12.1	11.1	11.6
Standard ^{1/} (avg. 1 hr)	≤120						

Analytical Method : - Chemiluminescence Method.
Source : ^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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Report No.

: 2026-500006421-4 / 001-4 (Page 3 of 6)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Ambient Air

Measurement Location

: วัดมาบชลด

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 730836E, 1407438N

Time	SO ₂ Concentration (ppb)						
	12-13/03/2026	13-14/03/2026	14-15/03/2026	15-16/03/2026	16-17/03/2026	17-18/03/2026	18-19/03/2026
16:00-17:00	1.6	1.1	3.2	3.4	1.3	1.4	2.2
17:00-18:00	1.7	3.1	3.3	3.2	1.4	1.5	2.4
18:00-19:00	1.0	3.2	2.3	3.3	1.2	1.4	2.6
19:00-20:00	1.5	2.3	2.3	2.3	2.4	2.3	2.5
20:00-21:00	1.8	2.4	2.1	2.2	2.2	2.6	2.5
21:00-22:00	3.1	2.2	2.1	2.4	2.4	2.4	1.3
22:00-23:00	2.1	2.3	1.3	1.3	2.3	2.6	1.3
23:00-00:00	2.4	2.4	1.6	1.2	3.1	2.4	2.1
00:00-01:00	2.6	2.4	1.4	1.3	1.7	1.4	2.1
01:00-02:00	2.8	3.3	1.4	1.3	1.8	1.4	2.0
02:00-03:00	2.5	2.2	2.2	2.4	1.8	2.5	1.4
03:00-04:00	3.2	2.2	2.2	2.5	1.6	2.7	2.7
04:00-05:00	3.2	2.1	2.2	2.7	2.5	1.7	2.3
05:00-06:00	2.4	2.3	2.4	2.4	2.5	1.4	2.4
06:00-07:00	3.2	2.1	3.1	2.2	2.1	1.5	1.5
07:00-08:00	3.1	1.1	2.4	3.4	2.3	2.2	1.5
08:00-09:00	2.2	1.0	3.3	3.4	2.5	2.3	1.5
09:00-10:00	1.6	1.2	2.2	3.5	2.4	2.5	1.6
10:00-11:00	1.8	1.2	1.5	3.5	2.5	2.4	1.5
11:00-12:00	2.3	2.5	1.6	2.8	2.8	2.6	2.4
12:00-13:00	1.4	2.4	2.6	2.7	2.8	2.5	2.4
13:00-14:00	2.4	2.4	2.4	2.6	3.0	1.4	1.4
14:00-15:00	1.3	2.5	2.4	2.6	3.1	1.6	1.4
15:00-16:00	1.2	3.4	3.4	2.5	2.9	2.3	1.3
1 hr-Minimum	1.0	1.0	1.3	1.2	1.2	1.4	1.3
1 hr-Maximum	3.2	3.4	3.4	3.5	3.1	2.7	2.7
Average 24 hr	2.2	2.2	2.3	2.6	2.3	2.0	1.9
Standard ^{1/} (avg. 1 hr)	≤100						
Standard ^{1/} (avg. 24 hr)	≤50						

Analytical Method :

- UV Fluorescence Method

Source :

^{1/} Notification of the National Environment Board, subjected "The ambient air quality standards" B.E. 2569 (2026), published in the Royal Government Gazette, Vol. 143, Part 20D, dated January 21, B.E. 2569 (2026).

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Report No.

: 2026-500006421-4 / 001-4 (Page 4 of 6)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Wind Speed and Direction

Measurement Location

: วัดมาบขุด

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 730836E, 1407438N

Time	12-13/03/2026		13-14/03/2026		14-15/03/2026		15-16/03/2026		16-17/03/2026		17-18/03/2026		18-19/03/2026	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
16:00-17:00	-	CALM	SE	2.2	SE	1.3	SSW	2.2	-	CALM	SSE	1.8	SSE	1.8
17:00-18:00	-	CALM	NW	4.9	SW	1.3	SW	1.3	SSE	0.9	SSE	1.8	SSE	2.2
18:00-19:00	-	CALM	N	2.7	SSW	1.3	SSW	0.9	SW	0.9	SSE	0.9	SSE	1.3
19:00-20:00	-	CALM	NE	0.9	SW	0.9	-	CALM	-	CALM	-	CALM	-	CALM
20:00-21:00	-	CALM	E	1.3	WNW	0.9	SW	0.9	-	CALM	-	CALM	SSE	1.3
21:00-22:00	-	CALM	-	CALM	-	CALM	WSW	0.9	-	CALM	-	CALM	-	CALM
22:00-23:00	W	0.9	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
23:00-00:00	W	0.9	-	CALM	-	CALM	W	0.9	-	CALM	-	CALM	-	CALM
00:00-01:00	-	CALM	N	0.9	-	CALM	W	0.9	-	CALM	-	CALM	W	0.9
01:00-02:00	-	CALM	N	0.9	-	CALM	-	CALM	-	CALM	-	CALM	WNW	0.9
02:00-03:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	-	CALM	WNW	0.9	SSE	0.9	-	CALM	NW	1.3	-	CALM
04:00-05:00	-	CALM	-	CALM	WNW	0.9	-	CALM	-	CALM	NW	0.9	-	CALM
05:00-06:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
06:00-07:00	-	CALM	-	CALM	-	CALM	-	CALM	E	2.7	-	CALM	WNW	0.9
07:00-08:00	WNW	0.9	N	0.9	-	CALM	-	CALM	NNE	2.2	-	CALM	WNW	0.9
08:00-09:00	-	CALM	N	1.8	NW	0.9	-	CALM	N	1.8	-	CALM	-	CALM
09:00-10:00	NNE	0.9	N	1.8	NNE	0.9	-	CALM	N	1.3	-	CALM	-	CALM
10:00-11:00	NE	1.3	NE	1.3	NNE	1.3	-	CALM	N	0.9	-	CALM	SSE	1.8
11:00-12:00	E	1.8	NE	1.8	ENE	1.8	-	CALM	SE	0.9	-	CALM	SE	1.8
12:00-13:00	E	1.8	NE	1.3	SE	2.2	E	2.2	SE	1.8	SE	1.8	SE	0.9
13:00-14:00	E	2.2	NW	1.8	SE	2.7	SW	1.3	SSE	1.8	SSE	2.2	SE	0.9
14:00-15:00	E	4.0	SSE	1.8	SSE	2.7	WNW	1.3	SSE	2.2	SE	1.8	-	CALM
15:00-16:00	ESE	3.1	SSE	1.8	SSE	2.2	-	CALM	SSE	1.3	SSE	2.2	-	CALM

Remarks : - WS = Wind Speed
- WD = Wind Direction

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Report No.

: 2026-500006421-4 / 001-4 (Page 5 of 6)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

April 3, 2026

Analysis Report

Sample Type

: Wind Speed and Direction

Measurement Location

: วัดมาบชูด

Measured By

:

Measurement Date

: March 12-19, 2026

Coordination (UTM)

: 47P 730836E, 1407438N

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	2.38	2.38	0.60	-	-
NNE	1.19	0.60	0.60	-	-
NE	0.60	2.38	-	-	-
ENE	-	0.60	-	-	-
E	-	1.79	1.79	0.60	-
ESE	-	-	-	0.60	-
SE	1.79	2.98	1.79	-	-
SSE	1.79	5.95	3.57	-	-
S	-	-	-	-	-
SSW	0.60	0.60	0.60	-	-
SW	1.79	1.79	-	-	-
WSW	0.60	-	-	-	-
W	2.98	-	-	-	-
WNW	4.17	0.60	-	-	-
NW	1.19	1.19	-	-	0.60
NNW	-	-	-	-	-
CALM	49.40				

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Report No. : 2026-500006421-4 / 001-4 (Page 6 of 6)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: April 3, 2026

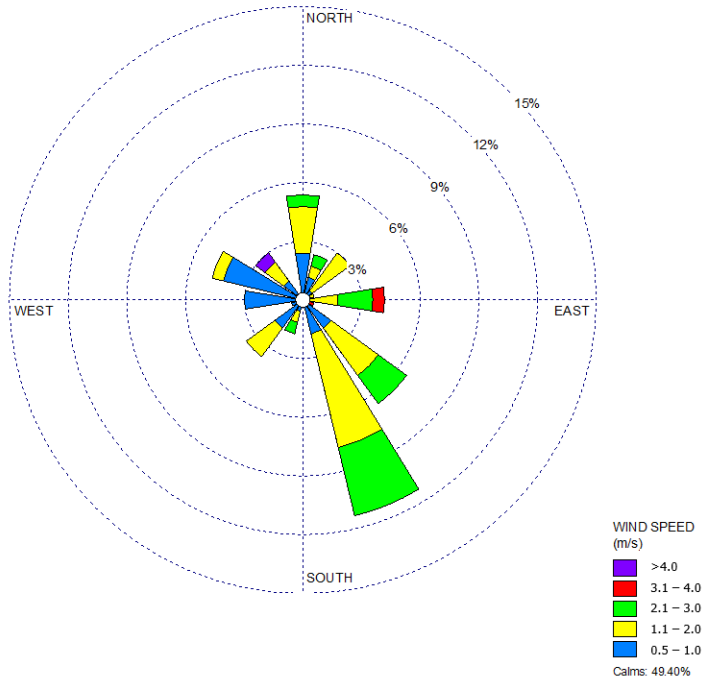
Analysis Report

Sample Type : Wind Speed and Direction
Measurement Location : วัดมาบชลด
Measured By : [REDACTED]

Measurement Date : March 12-19, 2026
Coordination (UTM) : 47P 730836E, 1407438N

WIND ROSE PLOT

Measurement Location : วัดมาบชลด
Measurement Date : March 12-19, 2026



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SGS (Thailand) Limited | 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yannawa, Bangkok 10120 t +66 (0)2 678 18 13 www.sgs.co.th

คุณภาพอากาศในสถานประกอบการ (Workplace Air)



Report No. : 2026-500006421-4 / 003-3 (Page 1 of 1)

Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: May 5, 2026

Analysis Report

Sample Type : Emission Air

Sampling Location : HRSR 1, GPSC CUP4

Sampling By : [Redacted]

Laboratory Name : SGS (Thailand) Limited (๓-197)

Sampling Date : March 16, 2026

Sampling Time : 11:30-13:43 hrs.

Received Date : March 17, 2026

Analysis Date : March 17 - May 5, 2026

Parameter		Unit	Value	Analytical Method
Fuel Type		-	Natural Gas	-
Stack Diameter		cm.	330	-
Stack Temperature		°C	135.5	-
Dry Gas Temperature		°C	27.5	-
Absolute Stack Pressure		mm.Hg	756.7	-
Air Velocity		m/s	19.77	U.S.EPA Method 2
Volumetric Flow Rate at actual O ₂		Nm ³ /hr	403,637	U.S.EPA Method 2
Moisture		%	8.67	U.S.EPA Method 4
O ₂		%	13.86	U.S.EPA Method 3A
CO ₂		%	4.31	U.S.EPA Method 3A
Ammonia (NH ₃)	at actual O ₂	ppm	N.D. (<0.0291)	U.S.EPA Method 17
	at 7% O ₂	ppm	N.D. (<0.0575)	
	Emission Rate	g/s	N.D. (<0.0023)	by Calculation

Remark : - N = Normal condition means reference condition at temperature of 25 °C, pressure of 1 atm or 760 mmHg, dry basis.

Reviewed by



Approved by



TY/KM/JK/JK

SGS (THAILAND) LIMITED



LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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ระดับเสียง (Sound Level)

ระดับเสียงในบรรยากาศ (Ambient Noise)



Report No.

: 2026-500006421-4 / 001-1 (Page 1 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 24, 2026

Analysis Report

Sample Type

: Ambient Noise

Measurement Date

: March 12-19, 2026

Measurement Location

: รังวัดโรงงานด้านทางเข้าโรงงาน
(47P 727960E, 1405418N)

Measured By

:

Calibrator Data

: Model CR:515 Cirrus Research plc, Serial No. 88346
Calibration Value Reference : 94.0 dB(A) Pre Cal : 94.0 dB(A) Post Cal : 94.0 dB(A)

Sound Level Meter

: Model NL-53, RION, Serial No. 00452075

Time	Sound Level [dB(A)]												Standard ^{1/2/}
	March 12-13, 2026			March 13-14, 2026			March 14-15, 2026			March 15-16, 2026			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	61.6	88.4	50.0	57.9	82.6	49.5	60.6	90.0	51.0	59.1	84.7	49.1	
11:00-12:00	57.9	83.0	47.9	57.0	80.1	49.8	56.5	80.7	49.5	58.1	80.4	50.7	
12:00-13:00	58.6	86.6	48.0	62.9	94.1	52.1	59.3	84.4	51.9	59.8	82.9	52.3	
13:00-14:00	60.5	85.8	48.1	59.7	83.5	51.7	61.0	91.0	53.1	60.9	91.1	53.4	
14:00-15:00	58.5	84.9	49.0	58.5	75.3	52.6	60.4	85.2	52.4	62.1	90.3	52.7	
15:00-16:00	55.6	80.3	50.3	61.5	87.9	52.7	60.8	83.5	52.0	62.2	91.0	53.3	
16:00-17:00	58.0	91.6	50.7	60.7	80.0	53.0	60.4	88.2	52.4	62.7	82.6	53.9	
17:00-18:00	53.4	80.9	51.0	62.0	86.8	55.7	65.0	89.2	59.3	64.1	85.8	56.1	
18:00-19:00	52.9	66.8	51.7	60.9	89.4	51.1	61.6	84.0	53.6	63.6	96.9	53.7	
19:00-20:00	53.4	77.6	51.1	54.4	77.4	50.4	55.0	77.9	49.2	62.7	89.4	53.2	
20:00-21:00	59.1	79.5	51.2	54.4	81.5	49.6	54.5	75.0	52.8	60.6	89.1	53.0	
21:00-22:00	59.5	91.0	52.2	52.8	77.3	49.7	53.5	74.2	51.6	57.8	81.4	51.1	
22:00-23:00	61.2	94.1	51.5	53.4	79.7	49.8	51.5	69.5	49.9	52.7	75.8	49.9	
23:00-00:00	62.3	95.9	51.7	53.3	80.9	50.3	51.2	62.3	50.0	54.4	72.9	50.2	
00:00-01:00	60.5	82.3	53.3	50.3	59.2	49.6	50.8	65.2	49.8	50.8	59.6	49.7	
01:00-02:00	64.7	88.7	56.1	52.1	79.2	50.0	52.0	75.5	50.1	50.8	63.4	49.7	
02:00-03:00	61.7	85.3	52.0	51.4	65.6	50.5	51.5	67.8	50.1	50.6	64.1	49.7	
03:00-04:00	59.6	84.5	50.9	51.8	79.8	50.3	50.8	69.4	49.7	52.0	80.1	49.4	
04:00-05:00	58.8	86.4	51.5	57.4	78.3	53.2	58.8	79.1	52.4	62.4	86.2	56.0	
05:00-06:00	55.3	74.4	52.0	60.4	82.8	51.3	62.8	84.3	54.2	59.8	78.9	52.8	
06:00-07:00	54.9	76.4	51.3	59.1	85.4	50.9	61.5	93.1	51.1	60.8	89.6	55.1	
07:00-08:00	55.1	76.9	50.6	58.3	84.7	51.6	59.9	83.6	54.5	59.9	82.0	53.0	
08:00-09:00	59.6	83.3	51.2	60.6	93.0	51.7	58.1	80.3	52.2	61.1	87.6	51.7	
09:00-10:00	60.1	90.6	51.2	59.2	94.1	51.8	60.9	84.9	52.8	60.7	85.4	51.3	
Leq 24 hrs.	59.4	-	-	58.5	-	-	59.3	-	-	60.3	-	-	70
Ldn	67.0	-	-	63.0	-	-	64.3	-	-	64.6	-	-	-
Lmax	-	95.9	-	-	94.1	-	-	93.1	-	-	96.9	-	115
L90	-	-	51.4	-	-	51.5	-	-	52.6	-	-	52.6	-

Sources: ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).
^{2/} Notification of Ministry of Industry regarding the Standard of Nuisance Noise and Noise Level from Factory, B.E. 2548.

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Report No.

: 2026-500006421-4 / 001-1 (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 24, 2026

Analysis Report

Sample Type

: Ambient Noise

Measurement Date

: March 12-19, 2026

Measurement Location

: รังวัดโรงงานด้านทางเข้าโรงงาน
(47P 727960E, 1405418N)

Measured By

:

Calibrator Data

: Model CR:515 Cirrus Research plc, Serial No. 88346
Calibration Value Reference : 94.0 dB(A) Pre Cal : 94.0 dB(A) Post Cal : 94.0 dB(A)

Sound Level Meter

: Model NL-53, RION, Serial No. 00452075

Time	Sound Level [dB(A)]									Standard ^{1/2/}
	March 16-17, 2026			March 17-18, 2026			March 18-19, 2026			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	59.4	83.7	49.1	61.8	80.5	54.3	61.0	86.2	49.9	
11:00-12:00	59.0	83.4	50.5	60.1	87.0	49.1	59.1	90.0	49.9	
12:00-13:00	60.0	83.7	52.7	58.5	77.7	51.4	56.8	76.0	49.7	
13:00-14:00	61.9	94.8	52.9	58.4	76.6	51.8	56.7	74.9	50.1	
14:00-15:00	60.4	85.8	52.5	60.3	86.3	52.1	58.6	84.6	50.4	
15:00-16:00	62.0	81.7	52.1	64.3	94.1	54.1	60.3	81.0	52.4	
16:00-17:00	64.4	94.4	52.4	59.9	82.4	53.2	58.2	80.7	51.5	
17:00-18:00	61.4	83.1	53.1	62.0	84.5	54.5	60.3	82.8	52.8	
18:00-19:00	58.5	79.3	51.3	59.2	79.2	52.1	57.5	77.5	50.4	
19:00-20:00	58.2	87.4	50.7	56.5	77.7	50.9	54.8	76.0	49.2	
20:00-21:00	54.9	79.2	51.0	53.3	79.6	49.2	51.6	77.9	47.5	
21:00-22:00	55.8	76.4	50.9	51.8	75.5	49.2	50.1	73.8	47.5	
22:00-23:00	57.9	73.0	51.2	52.4	76.6	49.1	50.7	74.9	47.4	
23:00-00:00	58.4	81.5	53.1	50.1	68.4	48.9	48.4	66.7	47.2	
00:00-01:00	58.6	72.7	53.6	50.2	65.6	49.1	48.5	63.9	47.4	
01:00-02:00	52.8	75.0	51.4	50.8	74.1	49.2	49.1	72.4	47.5	
02:00-03:00	51.8	60.0	51.1	51.6	81.3	49.3	49.9	79.6	47.6	
03:00-04:00	51.9	69.0	50.9	49.9	69.7	48.8	48.2	68.0	47.1	
04:00-05:00	56.3	81.3	52.2	54.9	78.8	50.0	53.2	77.1	48.3	
05:00-06:00	60.8	83.1	52.0	60.5	86.0	50.2	58.8	84.3	48.5	
06:00-07:00	68.9	87.1	62.9	59.5	81.7	51.3	57.8	80.0	49.6	
07:00-08:00	62.0	84.2	54.4	60.3	84.6	53.6	58.6	82.9	51.9	
08:00-09:00	62.9	87.7	55.0	59.8	83.4	50.7	58.1	81.7	49.0	
09:00-10:00	60.5	85.7	53.4	58.4	81.4	49.9	56.7	79.7	48.2	
Leq 24 hrs.	60.9	-	-	58.7	-	-	56.8	-	-	70
Ldn	67.6	-	-	62.7	-	-	61.0	-	-	-
Lmax	-	94.8	-	-	94.1	-	-	90.0	-	115
L90	-	-	53.8	-	-	51.3	-	-	49.6	-

Sources: ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).
^{2/} Notification of Ministry of Industry regarding the Standard of Nuisance Noise and Noise Level from Factory, B.E. 2548.

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Report No.

: 2026-500006421-4 / 001-2 (Page 1 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 24, 2026

Analysis Report

Sample Type

: Ambient Noise

Measurement Date

: March 12-19, 2026

Measurement Location

: บ้านสำนักมะม่วง
(47P 728251E, 1403372N)

Measured By

:

Calibrator Data

: Model CR:515 Cirrus Research plc, Serial No. 88346
Calibration Value Reference : 94.0 dB(A) Pre Cal : 94.0 dB(A) Post Cal : 94.0 dB(A)

Sound Level Meter

: Model NL-53, RION, Serial No. 00452080

Time	Sound Level [dB(A)]												Standard ^{1/2/}
	March 12-13, 2026			March 13-14, 2026			March 14-15, 2026			March 15-16, 2026			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	45.0	67.6	42.7	49.1	65.9	44.1	50.1	66.9	47.3	50.9	70.4	47.6	
11:00-12:00	45.0	62.7	42.7	47.6	65.4	43.8	51.9	83.1	47.3	49.2	67.8	47.5	
12:00-13:00	47.0	67.4	42.6	48.3	68.1	44.1	50.4	75.5	46.8	49.9	75.1	47.5	
13:00-14:00	45.9	66.5	43.1	50.2	78.8	44.0	49.0	67.1	47.8	50.9	69.0	47.3	
14:00-15:00	45.9	63.6	43.6	45.5	63.2	44.0	49.6	69.5	47.7	51.1	70.2	47.0	
15:00-16:00	47.9	68.3	43.5	45.7	65.6	43.9	49.6	69.6	47.7	53.4	78.6	47.4	
16:00-17:00	46.7	67.4	43.7	45.7	72.0	44.0	48.7	61.2	47.7	50.2	70.4	47.7	
17:00-18:00	50.7	74.2	43.5	45.4	52.2	44.3	51.5	76.3	48.0	49.1	65.9	47.5	
18:00-19:00	49.3	78.1	43.1	46.1	63.7	45.2	49.6	66.2	47.8	48.8	66.8	47.3	
19:00-20:00	45.4	69.1	43.3	45.7	67.3	44.8	48.1	66.8	47.3	48.1	59.8	47.1	
20:00-21:00	45.4	64.9	43.4	45.6	63.7	44.8	48.6	63.1	47.9	48.6	68.3	46.9	
21:00-22:00	44.7	71.3	43.2	44.5	64.7	43.5	48.7	73.0	47.9	47.4	63.0	46.8	
22:00-23:00	44.7	66.4	43.4	43.7	54.6	42.9	48.7	66.2	48.2	47.7	60.2	47.2	
23:00-00:00	45.5	59.4	44.5	45.1	67.6	43.3	48.7	58.5	48.2	48.0	59.6	47.4	
00:00-01:00	45.0	66.6	44.0	64.1	81.2	59.6	48.7	64.4	48.3	47.9	56.2	47.4	
01:00-02:00	44.9	63.0	44.1	54.0	72.5	50.6	48.7	70.1	48.3	47.9	57.3	47.5	
02:00-03:00	44.4	64.0	43.3	54.7	66.1	52.1	48.7	66.8	48.2	48.0	63.6	47.5	
03:00-04:00	43.1	59.1	42.3	51.5	70.3	48.0	48.4	57.1	48.0	48.0	55.4	47.5	
04:00-05:00	43.3	56.6	42.3	49.3	69.2	45.0	48.5	65.5	48.0	48.1	57.8	47.5	
05:00-06:00	63.0	80.5	58.8	49.8	66.6	44.5	51.9	72.4	47.9	49.6	66.4	47.4	
06:00-07:00	55.6	73.1	49.9	48.7	68.9	45.4	56.3	80.8	49.0	57.6	80.3	49.6	
07:00-08:00	54.5	67.7	51.7	59.5	84.9	53.3	52.0	70.8	49.1	58.2	79.1	53.4	
08:00-09:00	51.0	66.8	48.2	54.8	81.2	51.3	50.3	69.7	48.3	52.8	73.1	49.0	
09:00-10:00	49.3	69.6	44.5	50.9	75.2	48.0	49.2	72.1	46.0	51.9	72.1	48.1	
Leq 24 hrs.	51.8	-	-	53.6	-	-	50.3	-	-	51.4	-	-	70
Ldn	60.4	-	-	61.9	-	-	57.1	-	-	57.4	-	-	-
Lmax	-	80.5	-	-	84.9	-	-	83.1	-	-	80.3	-	115
L90	-	-	48.0	-	-	49.5	-	-	47.9	-	-	48.1	-

Sources: ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).
^{2/} Notification of Ministry of Industry regarding the Standard of Nuisance Noise and Noise Level from Factory, B.E. 2548.

Approved by



TY/NJ/JK/JK

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Report No.

: 2026-500006421-4 / 001-2 (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 24, 2026

Analysis Report

Sample Type

: Ambient Noise

Measurement Date

: March 12-19, 2026

Measurement Location

: บ้านสำนักมะม่วง
(47P 728251E, 1403372N)

Measured By

:

Calibrator Data

: Model CR:515 Cirrus Research plc, Serial No. 88346
Calibration Value Reference : 94.0 dB(A) Pre Cal : 94.0 dB(A) Post Cal : 94.0 dB(A)

Sound Level Meter

: Model NL-53, RION, Serial No. 00452080

Time	Sound Level [dB(A)]									Standard ^{1/2/}
	March 16-17, 2026			March 17-18, 2026			March 18-19, 2026			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	53.7	73.6	51.1	50.4	67.2	45.4	48.5	65.5	45.9	
11:00-12:00	53.4	76.9	50.7	48.9	66.7	45.1	50.8	81.7	45.9	
12:00-13:00	49.3	70.4	45.9	47.9	69.9	45.0	45.8	66.1	44.1	
13:00-14:00	48.3	67.4	44.6	48.6	75.0	45.1	47.4	70.0	43.8	
14:00-15:00	49.6	65.4	45.0	47.9	71.8	44.9	47.3	68.5	43.6	
15:00-16:00	47.8	71.9	45.0	50.0	68.4	45.2	47.1	69.6	44.0	
16:00-17:00	47.5	63.5	45.1	48.5	77.6	45.0	49.8	74.9	44.5	
17:00-18:00	55.3	75.4	45.2	49.0	71.0	45.2	50.0	82.5	45.1	
18:00-19:00	50.6	79.4	44.4	47.4	68.1	44.5	50.6	78.2	45.0	
19:00-20:00	46.7	70.4	44.6	46.1	65.6	44.7	46.8	67.1	44.5	
20:00-21:00	46.7	66.2	44.7	46.8	68.5	44.8	45.8	68.4	44.0	
21:00-22:00	46.0	72.6	44.5	46.3	70.8	45.1	45.4	62.7	43.8	
22:00-23:00	46.0	67.7	44.7	46.2	58.2	44.9	45.0	63.5	43.8	
23:00-00:00	46.8	60.7	45.8	46.5	59.7	45.3	45.3	63.0	44.1	
00:00-01:00	46.3	67.9	45.3	45.8	61.0	44.9	45.0	67.5	44.3	
01:00-02:00	46.2	64.3	45.4	63.0	81.7	59.5	45.1	58.0	44.4	
02:00-03:00	45.7	65.3	44.6	46.9	65.8	46.1	44.9	62.8	44.0	
03:00-04:00	44.4	60.4	43.6	46.5	54.6	45.8	44.8	62.6	44.1	
04:00-05:00	44.6	57.9	43.6	46.4	65.8	45.3	44.5	53.9	43.8	
05:00-06:00	64.3	81.8	60.1	51.0	70.2	45.1	50.8	74.0	44.0	
06:00-07:00	56.9	74.4	51.2	53.9	78.7	47.1	52.6	81.6	46.8	
07:00-08:00	55.8	69.0	53.0	57.9	83.5	51.4	51.8	88.3	46.5	
08:00-09:00	52.3	68.1	49.5	54.0	79.8	50.6	47.4	72.8	44.2	
09:00-10:00	50.6	70.9	45.8	49.5	73.8	46.7	47.3	71.5	43.9	
Leq 24 hrs.	53.6	-	-	52.6	-	-	48.3	-	-	70
Ldn	61.8	-	-	60.7	-	-	54.2	-	-	-
Lmax	-	81.8	-	-	83.5	-	-	88.3	-	115
L90	-	-	49.7	-	-	48.9	-	-	44.6	-

Sources: ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).
^{2/} Notification of Ministry of Industry regarding the Standard of Nuisance Noise and Noise Level from Factory, B.E. 2548.

Approved by



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คุณภาพน้ำ (Waste Water)



Report No.

: 2026-500006421 / 001-1 (1) (Page 1 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

January 23, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited (๗-197)

Sample Condition

: Colorless and turbid

Sampling Date

: January 8, 2026

Sampling Time

: 10:34 hr.

Received Date

: January 8, 2026

Analysis Date

: January 8-20, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	7.9	5.5-9.0
Temperature*	C°	SM 2550B (on site)	25.10	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	8	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	242	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.

- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

TY/RS/DS/DS

SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No.

: 2026-500006421 / 001-1 (1) (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

January 23, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: Colorless and turbid

Sampling Date

: January 8, 2026

Sampling Time

: 10:34 hr.

Received Date

: January 8, 2026

Analysis Date

: January 8-20, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	15.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	6.31	-
Free Chlorine	mg/L	Photometric, DPD	0.01	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

TY/RS/DS/DS

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Report No.

: 2026-500006421-2 / 001-1 (1) (Page 1 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

February 20, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited (๗-197)

Sample Condition

: yellow and turbid

Sampling Date

: February 5, 2026

Sampling Time

: 10:00 hr.

Received Date

: February 5, 2026

Analysis Date

: February 5-18, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	7.4	5.5-9.0
Temperature*	°C	SM 2550B (on site)	27.15	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	2	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	54	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.
- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

TY/RS/JK/JK

SGS (THAILAND) LIMITED

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Report No.

: 2026-500006421-2 / 001-1 (1) (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

February 20, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: yellow and turbid

Sampling Date

: February 5, 2026

Sampling Time

: 10:00 hr.

Received Date

: February 5, 2026

Analysis Date

: February 5-18, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	0.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	7.81	-
Free Chlorine	mg/L	Photometric, DPD	<0.01	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

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SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No.

: 2026-500006421-3 / 001-1 (1) (Page 1 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 18, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited (๗-197)

Sample Condition

: Yellow and Turbid

Sampling Date

: March 5, 2026

Sampling Time

: 10:50 hr.

Received Date

: March 5, 2026

Analysis Date

: March 5-16, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	7.7	5.5-9.0
Temperature*	°C	SM 2550B (on site)	29.79	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	5	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	69	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.
- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

TY/RS/JK/JK

SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No.

: 2026-500006421-3 / 001-1 (1) (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 18, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: Yellow and Turbid

Sampling Date

: March 5, 2026

Sampling Time

: 10:50 hr.

Received Date

: March 5, 2026

Analysis Date

: March 5-16, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	0.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	7.11	-
Free Chlorine	mg/L	Photometric, DPD	0.06	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

Approved by

TY/RS/JK/JK

SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No. : 2026-500007163-1 / 001-1 (1) (Page 1 of 2)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: April 30, 2026

Analysis Report

Sample Type : Wastewater
Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)
Sampling By : 
Laboratory Name : SGS (Thailand) Limited (๗-197)
Sample Condition : Yellow and Turbid

Sampling Date : April 20, 2026
Sampling Time : 17:11 hr.
Received Date : April 20, 2026
Analysis Date : April 20 – May 8, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	7.7	5.5-9.0
Temperature*	°C	SM 2550B (on site)	31.7	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	2	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	102	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.
- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.
Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



TY/RS/JK/JK

Approved by




SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No. : 2026-500007163-1 / 001-1 (1) (Page 2 of 2)

Issued date: April 30, 2026

Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Analysis Report

Sample Type : Wastewater
Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)
Sampling By : 
Laboratory Name : SGS (Thailand) Limited
Sample Condition : Yellow and Turbid
Sampling Date : April 20, 2026
Sampling Time : 17:11 hr.
Received Date : April 20, 2026
Analysis Date : April 20 – May 8, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	0.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	6.84	-
Free Chlorine	mg/L	Photometric, DPD	0.04	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by 

TY/RS/JK/JK



Approved by 

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Report No. : 2026-500007163-2 / 001-1 (1) (Page 1 of 2)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: May 20, 2026

Analysis Report

Sample Type : Wastewater
Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)
Sampling By : 
Laboratory Name : SGS (Thailand) Limited (จ-197)
Sample Condition : Colorless and Turbid

Sampling Date : May 7, 2026
Sampling Time : 10:28 hr.
Received Date : May 7, 2026
Analysis Date : May 7-24, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	7.8	5.5-9.0
Temperature*	°C	SM 2550B (on site)	29.9	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	<2	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	110	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.
- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.
Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



TY/RS/JK/JK

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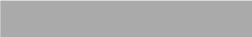
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Report No. : 2026-500007163-2 / 001-1 (1) (Page 2 of 2)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: May 20, 2026

Analysis Report

Sample Type : Wastewater
Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)
Sampling By : 
Laboratory Name : SGS (Thailand) Limited
Sample Condition : Colorless and Turbid

Sampling Date : May 7, 2026
Sampling Time : 10:28 hr.
Received Date : May 7, 2026
Analysis Date : May 7-24, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	0.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	7.79	-
Free Chlorine	mg/L	Photometric, DPD	0.06	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.
Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



TY/RS/JK/JK

Approved by



SGS (THAILAND) LIMITED



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Report No. : 2026-500007692 / 001-1 (1) (Page 1 of 2)

Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: June 25, 2026

Analysis Report

Sample Type : Wastewater

Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling By : Rawin Sangiemngam (๗-197-๙-0002)

Laboratory Name : SGS (Thailand) Limited (๗-197)

Sample Condition : Yellow and turbid

Sampling Date : June 5, 2026

Sampling Time : 10:42 hr.

Received Date : June 5, 2026

Analysis Date : June 5-24, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
pH	-	SM 4500-H ⁺ B	8.1	5.5-9.0
Temperature*	°C	SM 2550B (on site)	30.2	≤45
Biochemical Oxygen Demand (BOD)	mg/L	SM 4500-O G and 5210 B	9	≤500
Total Dissolved Solids (TDS)	mg/L	SM 2540 C	498	≤3,000
Oil and Grease	mg/L	SM 5520 B	<2	≤10

Remarks: * Under Inspection Body's accredited scope.
- SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by 

(Phatsakorn Soonthornwiphat)

Technical Specialist Section Head

License ID: ๗-197-๙-0004

Approved by 

(Thepsan Yommana)

Technical Specialist Manager

License ID: ๗-197-๙-0005

TY/RS/JK/JK



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Report No.

: 2026-500007692 / 001-1 (1) (Page 2 of 2)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

June 25, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Date

: June 5, 2026

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 320 ลบ.ม. (Holding Pond)

Sampling Time

: 10:42 hr.

Sampling By

: Rawin Sangiemngam

Received Date

: June 5, 2026

Laboratory Name

: SGS (Thailand) Limited

Analysis Date

: June 5-24, 2026

Sample Condition

: Yellow and turbid

Parameter	Unit	Method	Result	Standard ^{1/}
Flow Rate	m ³ /hr	Flow meter	0.0	-
Dissolved Oxygen (DO)	mg/L	SM 4500 O-G	4.73	-
Free Chlorine	mg/L	Photometric, DPD	0.08	≤1

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

(Phatsakorn Soonthornwiphat)

Technical Specialist Section Head

Approved by

(Thepsan Yommana)

Technical Specialist Manager

TY/RS/JK/JK

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Report No.

: 2026-500006421 / 001-2 (1) (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

January 23, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: Yellow and turbid

Sampling Date

: January 8, 2026

Sampling Time

: 10:16 hr.

Received Date

: January 8, 2026

Analysis Date

: January 8-20, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	2	-
- Dibromochloromethane	ug/L	SM 6200 B	1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	1	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



TY/RS/DS/DS

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Report No.

: 2026-500006421-2 / 001-2 (1) (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

February 20, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: Yellow and turbid

Sampling Date

: February 5, 2026

Sampling Time

: 09:23 hr.

Received Date

: February 5, 2026

Analysis Date

: February 5-18, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	4	-
- Dibromochloromethane	ug/L	SM 6200 B	<1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	4	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

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Approved by

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Report No.

: 2026-500006421-3 / 001-2 (1) (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

March 18, 2026

Analysis Report

Sample Type

: Wastewater

Sampling Location

: บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม. (Holding Pond)

Sampling By

:

Laboratory Name

: SGS (Thailand) Limited

Sample Condition

: Yellow and Turbid

Sampling Date

: March 5, 2026

Sampling Time

: 10:28 hr.

Received Date

: March 5, 2026

Analysis Date

: March 5-16, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	<1	-
- Dibromochloromethane	ug/L	SM 6200 B	<1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	<1	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

TY/RS/JK/JK

Approved by

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Report No. : 2026-500007163-4 / 001 (1) (Page 1 of 1)

Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: May 19, 2026

Analysis Report

Sample Type : Wastewater

Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม.
(Holding Pond)

Sampling By : [Redacted]

Laboratory Name : SGS (Thailand) Limited

Sample Condition : Yellow and Clear

Sampling Date : April 30, 2026

Sampling Time : 10:20 hr.

Received Date : April 30, 2026

Analysis Date : April 30 – May19, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	4	-
- Dibromochloromethane	ug/L	SM 6200 B	<1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	4	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by

[Redacted Signature]

TY/RS/JK/JK

Approved by

[Redacted Signature]

SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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Report No. : 2026-500007163-2 / 001-2 (1) (Page 1 of 1)
Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130
Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: May 20, 2026

Analysis Report

Sample Type : Wastewater
Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม. (Holding Pond)
Sampling By : 
Laboratory Name : SGS (Thailand) Limited
Sample Condition : Colorless and Turbid

Sampling Date : May 7, 2026
Sampling Time : 10:04 hr.
Received Date : May 7, 2026
Analysis Date : May 7-20, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	6	-
- Dibromochloromethane	ug/L	SM 6200 B	<1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	6	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.
Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



TY/RS/JK/JK

Approved by



SGS (THAILAND) LIMITED

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Client : GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address : 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location : Central Utility Plant 4 (CUP4), Rayong

Issued date: June 25, 2026

Analysis Report

Sample Type : Wastewater

Sampling Location : บ่อตรวจวัดคุณภาพน้ำทิ้ง ขนาด 1,800 ลบ.ม. (Holding Pond)

Sampling By : Rawin Sangiemngam

Laboratory Name : SGS (Thailand) Limited

Sample Condition : Yellow and turbid

Sampling Date : June 5, 2026

Sampling Time : 10:19 hr.

Received Date : June 5, 2026

Analysis Date : June 5-24, 2026

Parameter	Unit	Method	Result	Standard ^{1/}
Total Trihalomethane (THM)	ug/L	SM 6200 B	4	-
- Dibromochloromethane	ug/L	SM 6200 B	<1	-
- Bromoform (Tribromomethane)	ug/L	SM 6200 B	<1	-
- Chloroform (Trichloromethane)	ug/L	SM 6200 B	4	-
- Bromodichloromethane	ug/L	SM 6200 B	<1	-

Remark: - SM = Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th ed., 2023.

Sources: ^{1/} Notification of the Industrial Estate Authority of Thailand No.029/2567: General Standards for Wastewater drainage into central wastewater Treatment systems in Industrial Estates.

Reviewed by



(Phatsakorn Soonthornwiphat)
Technical Specialist Section Head

Approved by



(Thepsan Yommana)
Technical Specialist Manager

TY/RS/JK/JK



SGS (THAILAND) LIMITED

LABORATORY ADDRESS: 1/209, and 1/211 Moo1, Soi Sukhumvit 2, Banchang, Banchang, Rayong, 21130

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อาชีพอนามัยและความปลอดภัย

ความร้อนในสถานที่ทำงาน (Heat Stress)



Report No.

: 2026-500007163-3 / 002-1 (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

May 18, 2026

Analysis Report

Sample Type

: Heat Stress

Measurement Date

: May 7, 2026

Sampling Location

: Central Utility Plant 4 (CUP4)

Measured By

:

Heat Stress Monitor No.

: Model QT-34, 3M Thailand Serial No. TEM030026, TEM030028

Station	Period (hrs.)	Type	T _{NWB} (°C) (Wet- bulb)	T _{DB} (°C) (Dry-bulb)	T _{GT} (°C) (Globe)	T _{WBGT} (°C)	Average Heat Stress (WBGT, °C)
GTG	10:15-12:15	Outdoor	26.8	30.7	33.2	28.5	28.5
HRSG	10:05-12:05	Outdoor	27.1	28.9	32.4	28.3	28.3
Standard ^{1/}			Light Work				≥34

Remarks:

- Sampling and Analytical Method followed the Standard Method of National Institute for Occupational Safety and Health (NIOSH)

- Work load category is determined by averaging metabolic rates for tasks as follows:

1) Light work

: ≤200

kcal/hour

2) Moderate work

: >200-350

kcal/hour

3) Heavy work

: >350

kcal/hour

Source:

^{1/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

Approved by



TY/CW/JK/JK

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ปริมาณเสียงสะสมแบบติดตัวบุคคล (Noise Dose)



Report No.

: 2026-500007163-3 / 003 (Page 1 of 1)

Client

: GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

Address

: 1/2 Moo 2, Banchang, Banchang, Rayong 21130

Project Location

: Central Utility Plant 4 (CUP4), Rayong

Issued date:

May 18, 2026

Analysis Report

Sample Type

: Noise Dose

Measurement Date

: May 7, 2026

Sampling Location

: Central Utility Plant 4 (CUP4)

Measured By

:

Calibrator Data

: Model CR2 PLUS, CRIFFER, Serial No. 37001157, Pre Cal: 114.0 dB(A), Post Cal: 114.0 dB(A)

Sound Level Meter No.

: Model dBadge2, CASELLA, Serial No. 5037537, 5037620, 5037338, 5037312

Name	Position	Measurement Time (hrs.)	Noise Dose (%)	Time Weighted Average [dB(A)]
คุณภูมิเวศ ต้นทา	FO#1 (Day)	07:15-19:15	10.2	75.1
คุณวัชรกร มณีนิล	FO#1 (Night)	19:33-07:33	10.5	75.2
คุณกวินกิตต์ เอกศิริวิฑูรกุล	FO#2 (Day)	07:15-19:15	17.6	77.4
คุณชัย บัวยันต์	FO#2 (Night)	19:31-07:31	29.9	79.7
คุณสมภาพ ไทยสุริโย	CO#1 (Day)	07:18-19:18	0.2	57.1
คุณเจริญศักดิ์ เกิดเนตร	CO#1 (Night)	19:29-07:29	0.4	60.6
คุณเกษมพันธุ์ ชนะทัฬห	Maintenance	08:43-16:43	0.0	51.9
Standard for TWA ₍₈₎ ^{1/, 2/}				≥85
Standard of Hearing Conservation Program (working 8 hrs) ^{3/}				≥85

Remarks:

-

Setting values for noise dosimeter were as follows:

• Range

=

70-140 dB

• Criterion level

=

85 dB

• Exchange rate

=

3

• Threshold level

=

80 dB

• Response time

=

Slow

• Frequency weighting

=

A

-

TWA₍₈₎: Time Weighted Average for 8 working hours per day

Sources:

1/

Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', dated January 26, B.E. 2561 (2018).

2/

Notification of the Department of Labour Protection and Welfare, Subject 'The criteria, measurement methods and analysis of working condition related to heat, light or noise including a period of time and a category of business to be carried out', dated March 12, B.E. 2561 (2018).

3/

Notification of the Department of Labour Protection and Welfare, Subject 'Rules and Procedures for preparation of a hearing conservation program in the workplace', dated June 12, B.E. 2561 (2018).

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ภาคผนวก ข

หนังสือรับรองมาตรฐานบริษัท เอสจีเอส (ประเทศไทย) จำกัด

หนังสือฉบับนี้จะสิ้นสุดอายุในวันที่ ๑๒ ตุลาคม ๒๕๖๒ หากประสงค์จะต่ออายุหนังสือ
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงาน
อุตสาหกรรมภายใน ๖๐ วัน ก่อนวันสิ้นสุดของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ



กองวิจัยและเตือนภัยมลพิษโรงงาน
ศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคตะวันออก
โทร. ๐ ๓๓๑๓ ๖๐๕๙ ต่อ ๕๐๐๑-๒
ไปรษณีย์อิเล็กทรอนิกส์ eirw@diw.mail.go.th



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”



เอกสารแนบท้ายหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอสจีเอส (ประเทศไทย) จำกัด (สาธารณะ) เลขทะเบียน ๖-๑๙๗
ที่ อก ๐๓๑๐(๓)/ ๙ ๒ ๓ ๐ ลงวันที่ ๑๓ พฤศจิกายน ๒๕๖๘

ขอขยาสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๕ รายการ

น้ำ/น้ำเสีย จำนวน 44 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
2	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
3	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
5	Arsenic	Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
6	Barium	Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
7	Biochemical Oxygen Demand	5-Day BOD Test, Membrane-Electrode Method ⁽⁴⁾
8	Cadmium	Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
9	Chemical Oxygen Demand	Closed Reflux, Titrimetric Method ⁽⁴⁾
10	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
11	Chromium	Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
12	Color	ADMI Weighted-Ordinate Spectrophotometric Method ⁽⁴⁾
13	Copper	Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
14	Cyanide	Total Cyanide after Distillation, Colorimetric Method ⁽⁴⁾
15	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
16	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
17	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾

18 Endosulfan Sulfate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
19	Endrin	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
20	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
21	Formaldehyde	Distillation, Colorimetric Method ^[4]
22	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
23	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
24	Hexavalent Chromium	Colorimetric Method ^[4]
25	Lead	Digestion, Inductively Coupled Plasma Method ^[4]
26	Manganese	Digestion, Inductively Coupled Plasma Method ^[4]
27	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]
28	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
29	Nickel	Digestion, Inductively Coupled Plasma Method ^[4]
30	o,p'-DDT	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
31	Oil and Grease	Liquid-Liquid, Partition-Gravimetric Method ^[4]
32	pH	Electrometric Method ^[4]
33	Phenols	Distillation, Direct Photometric Method ^[4]
34	Selenium	Digestion, Inductively Coupled Plasma Method ^[4]
35	Temperature	Laboratory and Field Methods ^[4]
36	Total Dissolved Solids	Dried at 180 °C ^[4]
37	Total Kjeldahl Nitrogen	Macro-Kjeldahl Method ^[4]
38	Total Suspended Solids	Dried from 103 to 105 °C ^[4]
39	Trivalent Chromium	Calculation ^[4]
40	Zinc	Digestion, Inductively Coupled Plasma Method ^[4]

41 α-BHC...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
41	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
42	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
43	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
44	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]

น้ำใต้ดิน จำนวน 123 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
2	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
3	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
4	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
5	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
6	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
7	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
8	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
9	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
10	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]

11 1,3-Dichlorobenzene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
12	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
13	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
14	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
15	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
16	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
17	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
18	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
19	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
20	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
21	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
22	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
23	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
24	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
25	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
26	3,3'-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

27 Acenaphthene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
28	Acetone	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
29	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
30	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
31	Antimony	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
32	Arsenic	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
33	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
34	Barium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
35	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
36	Benzo(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
37	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
38	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
39	Benzo(ghi)perylene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
40	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

41 Benzoic acid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
41	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
42	Beryllium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
43	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
44	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
45	Bromodichloromethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
46	Bromoform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
47	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
48	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
49	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
50	Carbon disulfide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
51	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
52	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
53	Chlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
54	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
55	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]

56 Chromium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
56	Chromium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
57	Chromium (III)	Calculation ^[4]
58	Chromium (VI)	Colorimetric Method ^[4]
59	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
60	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
61	Cyanide	Total Cyanide after Distillation, Colorimetric Method ^[4]
62	DDD	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
63	DDE	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
64	DDT	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
65	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
66	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
67	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
68	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
69	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
70	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
71	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

72 Ethylbenzene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
72	Ethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
73	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
74	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
75	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
76	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
77	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
78	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
79	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
80	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
81	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
82	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
83	Lead	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
84	Manganese	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
85	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]

86 Methoxychlor...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
86	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
87	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
88	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
89	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
90	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
92	n-Hexane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
93	Nickel	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
94	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
95	N-Nitrosodi-n-propylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
96	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
97	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
98	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
99	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
100	pH	Electrometric Method ^[4]
101	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

102 Phenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
102	Phenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
103	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
104	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
105	Selenium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
106	Silver	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
107	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
108	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
109	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
110	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
111	TPH (C5-C8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
112	TPH (C>8-C16)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
113	TPH (C>16-C35)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
114	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]

116 Vanadium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
116	Vanadium	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
117	Vinyl Acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
118	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
119	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[4]
120	Zinc	1) Digestion, Inductively Coupled Plasma Method ^[4] 2) Digestion, Inductively Coupled Plasma-Mass Spectrometry Method ^[4]
121	α -BHC	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
122	β -BHC	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]
123	γ -HCH	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4]

อากาศเสีย (ปล่อยระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
2	Arsenic	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
3	Beryllium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
4	Cadmium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
5	Carbon Monoxide	Instrumental Analyzer Method ^[5]
6	Chlorine	Isokinetic Sampling, Ion Chromatographic Method ^[5]

7 Chromium...

ดับที่	สารมลพิษ	วิธีวิเคราะห์
7	Chromium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
8	Cobalt	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
9	Copper	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
10	Cresol	Adsorption Sampling, Gas Chromatographic/Mass Spectrometric Method ^[5]
11	Dioxins/Furans	Isokinetic Sampling ^[5]
12	Hydrogen Chloride	Isokinetic Sampling, Ion Chromatographic Method ^[5]
13	Hydrogen Fluoride	Isokinetic Sampling, Ion Chromatographic Method ^[5]
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ^[5]
15	Lead	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
16	Manganese	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
17	Mercury	Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[5]
18	Nickel	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
19	Opacity	Ringelmann's Method ^[1]
20	Oxides of Nitrogen	1) Instrumental Analyzer Method ^[5] 2) Absorption Sampling, Alkaline Permanganate/Colorimetric Method ^[5]
21	Selenium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
22	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method ^[5] 2) Instrumental Analyzer Method ^[5]
23	Sulfuric acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5]
24	Tellurium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]

25 Tin...

ดับที่	สารมลพิษ	วิธีวิเคราะห์
25	Tin	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
26	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method ^[5]
27	Vanadium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
28	Xylene	Adsorption Sampling, Gas Chromatographic Method ^[5]

สิ่งปลูกหรือวัสดุที่ไม่ใช้แล้ว จำนวน ๓๗ รายการ

ดับที่	สารมลพิษ	วิธีวิเคราะห์
1	2,4-D	Ultrasonic Extraction, Gas Chromatographic Method ^[6]
2	Aldrin	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
3	Antimony	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1,9,10]
4	Arsenic	1) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[9,11] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1,9,11]
5	Barium	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
6	Beryllium	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
7	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
8	Chlordane	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]

9 Chromium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
9	Chromium	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
10	Chromium (III)	Calculation ^[1,9,10,12]
11	Chromium (VI)	1) Alkaline Digestion, Colorimetric Method ^[12] 2) Waste Extraction, Colorimetric Method ^[1,12]
12	Cobalt	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
13	Copper	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
14	DDD	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
15	DDE	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
16	DDT	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
17	Dieldrin	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
18	Endrin	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
19	Heptachlor	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
20	Kepone	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
21	Lead	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
22	Lindane	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]

23 Mercury...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[15] 2) Waste Extraction, Digestion, Thermal Decomposition Atomic Absorption Spectrometric Method ^[1,15]
24	Methoxychlor	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
25	Mirex	Ultrasonic Extraction, Gas Chromatographic Method ^[7,8]
26	Molybdenum	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
27	Nickel	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
28	PCBs	Ultrasonic Extraction, Gas Chromatographic Method ^[8,16]
29	Pentachlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
30	Selenium	1) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[9,11] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1,9,11]
31	Silver	1) Digestion, Inductively Coupled Plasma Method ^[9,10] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,9,10]
32	Silvex	Ultrasonic Extraction, Gas Chromatographic Method ^[6]
33	Thallium	1) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[9,11] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1,9,11]

34 Toxaphene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
34	Toxaphene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
35	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
36	Vanadium	1) Digestion, Inductively Coupled Plasma Method ^(9,10) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,9,10)
37	Zinc	1) Digestion, Inductively Coupled Plasma Method ^(9,10) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,9,10)

ดิน จำนวน ๑๒๓ รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
2	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
3	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
4	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
5	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
6	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
7	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
8	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
9	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)

10 1,3,5-Trimethylbenzene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
11	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
12	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
13	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
14	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
15	2,4,5-Trichlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
16	2,4,6-Trichlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
17	2,4-D	Ultrasonic Extraction, Gas Chromatographic Method ⁽⁶⁾
18	2,4-Dichlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
19	2,4-Dimethylphenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
20	2,4-Dinitrophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
21	2,4-Dinitrotoluene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
22	2,6-Dinitrotoluene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
23	2-Chlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
24	2-Methylnaphthalene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
25	2-Methylphenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)

26 3,3'-Dichlorobenzidine...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
26	3,3'-Dichlorobenzidine	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
27	Acenaphthene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
28	Acetone	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
29	Aldrin	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
30	Anthracene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
31	Antimony	Digestion, Inductively Coupled Plasma Method ^(10,19)
32	Arsenic	Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(11,19)
33	Atrazine	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
34	Barium	Digestion, Inductively Coupled Plasma Method ^(10,19)
35	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
36	Benzo(a)anthracene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
37	Benzo(a)pyrene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
38	Benzo(b)fluoranthene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
39	Benzo(ghi)perylene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
40	Benzo(k)fluoranthene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
41	Benzoic acid	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)

42 Beryllium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
42	Beryllium	Digestion, Inductively Coupled Plasma Method ^(10,19)
43	Bis(2-chloroethyl)ether	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
44	Bis(2-ethylhexyl)phthalate	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
45	Bromodichloromethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
46	Bromoform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
47	Butyl benzyl phthalate	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
48	Cadmium	Digestion, Inductively Coupled Plasma Method ^(10,19)
49	Carbazole	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
50	Carbon disulfide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
51	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
52	Chlordane	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
53	Chlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
54	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
55	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
56	Chromium	Digestion, Inductively Coupled Plasma Method ^(10,19)
57	Chromium (III)	Calculation ^(9,10,12)
58	Chromium (VI)	Alkaline Digestion, Colorimetric Method ⁽¹²⁾
59	Chrysene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)

60 cis-1,2-Dichloroethylene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
60	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
61	Cyanide	Extraction, Distillation, Colorimetric Method ^[20,21,22]
62	DDD	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
63	DDE	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
64	DDT	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
65	Dibenz(a,h)anthracene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
66	Dieldrin	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
67	Diethyl phthalate	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
68	Di-n-butyl phthalate	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
69	Di-n-Octyl phthalate	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
70	Endosulfan	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
71	Endrin	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
72	Ethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
73	Fluoranthene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
74	Fluorene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
75	Heptachlor	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]

76 Heptachlor Epoxide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	Heptachlor Epoxide	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
77	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
78	Hexachlorobenzene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
79	Hexachlorocyclopentadiene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
80	Hexachloroethane	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
81	Indeno(1,2,3-cd)pyrene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
82	Isophorone	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
83	Lead	Digestion, Inductively Coupled Plasma Method ^[10,19]
84	Manganese	Digestion, Inductively Coupled Plasma Method ^[10,19]
85	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[15]
86	Methoxychlor	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]
87	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
88	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
89	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
90	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[17,18]
91	Naphthalene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^[13,14]

92 n-Hexane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
92	n-Hexane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
93	Nickel	Digestion, Inductively Coupled Plasma Method ^(10,19)
94	Nitrobenzene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
95	N-Nitrosodi-n-propylamine	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
96	N-Nitrosodiphenylamine	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
97	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
98	PCBs	Ultrasonic Extraction, Gas Chromatographic Method ^(8,16)
99	p-Chloroaniline	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
100	Pentachlorophenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
101	Phenanthrene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
102	Phenol	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
103	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
104	Pyrene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
105	Selenium	Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(11,19)
106	Silver	Digestion, Inductively Coupled Plasma Method ^(10,19)
107	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
108	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)

109 Toluene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
109	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
110	Toxaphene	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
111	TPH (C5-C8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽¹⁷⁾
112	TPH (C>8-C16)	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁸⁾
113	TPH (C>16-C35)	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁸⁾
114	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
116	Vanadium	Digestion, Inductively Coupled Plasma Method ^(10,19)
117	Vinyl Acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
118	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
119	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(17,18)
120	Zinc	Digestion, Inductively Coupled Plasma Method ^(10,19)
121	α-HCH	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
122	β-HCH	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)
123	γ-HCH	Microwave Extraction, Gas Chromatographic/Mass Spectrometric Method ^(13,14)

เอกสารอ้างอิง...

เอกสารอ้างอิง

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Certificate No. QMS26004/1916

certification

ISO 9001
QUALITY MANAGEMENT SYSTEM

This certificate is issued to certify that

SGS (Thailand) Limited

Address of head office : 238 TRR Tower, 19th-21st Floor Naradhiwas Rajanagarindra Road,
Chong Monsi, Yannawa District, Bangkok 10120, Thailand

has been assessed and found to be conforming to the requirements of Quality management
systems.

TIS 9001-2559 (ISO 9001:2015)

For scope of:

As detailed in the accompanying schedule of scope

This is multi-site certification. Certified sites are listed on the subsequent page.



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 25 July 2026
Current certification cycle 25 July 2026 to 24 July 2029
which remains valid, subject to satisfactory surveillance audits.
Recertification audit is due 60 days before the expiry date.
Previous cycle expire date 24 July 2026
First issue date 4 March 2026



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FP-005-02 Rev. 10 01/2019 (S/N)

CR006-0023 2026-07-13 07:38:52

Certificate No. QMS26004/1916

certification

ISO 9001
QUALITY MANAGEMENT SYSTEM

SGS (Thailand) Limited

Premise(s)

Activities in the scope

SGS (Thailand) Limited Head Office
Certificate No.: QMS26004/1916/M01
238 TRR Tower, 19th-21st Floor Naradhiwas
Rajanagarindra Road, Chong Monsi, Yannawa District,
Bangkok 10120, Thailand

Management of QMS, Inspection, and Fumigation
Service

SGS (Thailand) Limited Rayong Branch
Certificate No.: QMS26004/1916/M02
1/209 and 1/211 Moo 1, Ban Chang, Ban Chang District,
Rayong 21130, Thailand

Inspection and Testing Service

SGS (Thailand) Limited Sriracha Branch
Certificate No.: QMS26004/1916/M03
165/61-62 Moo 10, Surasak, Sriracha District, Chonburi
20110, Thailand

Inspection and Fumigation Service

SGS (Thailand) Limited Nakornratchasima Branch
Certificate No.: QMS26004/1916/M04
949/32 Moo 1, Ban Koh, Muang Nakornratchasima
District, Nakornratchasima 30000, Thailand

Inspection and Fumigation Service



By
Management System Certification Institute (Thailand),
Foundation for Industrial Development

Date of issue 25 July 2026
Current certification cycle 25 July 2026 to 24 July 2029
which remains valid, subject to satisfactory surveillance audits.
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FP-005-02 Rev. 10 01/2019 (S/N)

CR006-0023 2026-07-13 07:38:52

Certificate No. QMS26004/1916

certification

ISO 9001
 QUALITY MANAGEMENT SYSTEM


SGS (Thailand) Limited

Premise(s)	Activities in the scope
SGS (Thailand) Limited Hat Yai Branch Certificate No.: QMS26004/1916/M05 57, 59 and 61 Soi 10, Phetkasem Road, Hat Yai, Hat Yai District, Songkhla 90110, Thailand	Inspection and Testing Service
SGS (Thailand) Limited Rama III Branch – Laboratory Services Certificate No.: QMS26004/1916/M06 10, 10/1-4, 12 Soi Rama III, Soi 59 Rama III Road, Chongnonsee, Yannawa District, Bangkok 10120, Thailand	Testing and Calibration Service
SGS (Thailand) Limited Rama III Branch - Soft Line & Hard goods Laboratory Services Certificate No.: QMS26004/1916/M07 1025/1 Soi Rama III, Soi 61, Rama III Road, Chongnonsee, Yannawa District, Bangkok 10120, Thailand	Testing Service


 By
 Management System Certification Institute (Thailand),
 Foundation for Industrial Development

 Date of issue 25 July 2026
 Current certification cycle 25 July 2026 to 24 July 2029
 which remains valid, subject to satisfactory surveillance audits.
 Recertification audit is due 60 days before the expiry date.
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FP-005-02 Rev. 10 01/2018 (S.L.)

CR006-002 2026-07-13 07:38:52

Page 3 / 4

Certificate No. QMS26004/1916

certification

ISO 9001
 QUALITY MANAGEMENT SYSTEM


SGS (Thailand) Limited

Premise(s)	Activities in the scope
SGS (Thailand) Limited Surat Thani Branch Certificate No.: QMS26004/1916/M08 55/57-58 Moo 1, Kanjanavithi Road, Bangkoong, Muang District, Suratthani 84000, Thailand	Inspection and fumigation Service
SGS (Thailand) Limited SGS (Cambodia) Limited Certificate No.: QMS26004/1916/M09 1076 A-f, Street No. 371, Phum Trea II, Sangkat Steung Meanchey, Khan Meanchey, Phnom Penh, Kingdom of Cambodia	Inspection Service


 By
 Management System Certification Institute (Thailand),
 Foundation for Industrial Development

 Date of issue 25 July 2026
 Current certification cycle 25 July 2026 to 24 July 2029
 which remains valid, subject to satisfactory surveillance audits.
 Recertification audit is due 60 days before the expiry date.
 Previous cycle expire date 24 July 2026
 First issue date 4 March 2026


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FP-005-02 Rev. 10 01/2018 (S.L.)

CR006-002 2026-07-13 07:38:52

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ISO 9001
QUALITY MANAGEMENT SYSTEM

SGS (Thailand) Limited Head Office

has been assessed and found to be conforming to the requirements of Quality management systems.

TIS 9001-2559 (ISO 9001:2015)

For scope of:

Management of QMS, Inspection, and Fumigation Service

The validity of this certificate depends on the validity and the certified scope of main certificate: QMS26004/1916



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 25 July 2026
Current certification cycle 25 July 2026 to 24 July 2029
which remains valid, subject to satisfactory surveillance audits.
Recertification audit is due 60 days before the expiry date.
Previous cycle expire date 24 July 2026

First issue date 4 March 2026



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ISO 9001
QUALITY MANAGEMENT SYSTEM

SGS (Thailand) Limited Rayong Branch

has been assessed and found to be conforming to the requirements of Quality management systems.

TIS 9001-2559 (ISO 9001:2015)

For scope of:

Inspection and Testing Service

The validity of this certificate depends on the validity and the certified scope of main certificate: QMS26004/1916



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 25 July 2026
Current certification cycle 25 July 2026 to 24 July 2029
which remains valid, subject to satisfactory surveillance audits.
Recertification audit is due 60 days before the expiry date.
Previous cycle expire date 24 July 2026

First issue date 4 March 2026



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ใบรับรองเลขที่ 23-LB0119
(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 เอสจีเอส (ประเทศไทย) จำกัด ห้องปฏิบัติการทดสอบสิ่งแวดล้อม (สาขาระยอง)
(SGS (Thailand) Limited, Environmental Laboratory (Rayong Branch))

ตั้งอยู่เลขที่
(Address)

๑/๒๐๙ และ ๑/๒๑๑ หมู่ที่ ๑ ตำบลบ้านฉาง อำเภอบ้านฉาง จังหวัดระยอง
1/209 and 1/211 Moo 1, Ban Chang, Ban Chang, Rayong

ได้รับการรับรองความสามารถ
(Certificate of competence)

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

ข้อกำหนดทั่วไปว่าด้วยความสามารถของ ห้องปฏิบัติการทดสอบและห้องปฏิบัติการสอบเทียบ
General requirements for the competence of testine and calibration laboratories

หมายเลขการรับรองที่ ทดสอบ ๐๔๗๐
(Accreditation No. Testing 0470)

โดยมีรายละเอียดสาขาและขอบข่ายที่ได้รับรอง 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 ๒๐ กุมภาพันธ์ พ.ศ. ๒๕๖๖
(Issue date : 20 February B.E. 2566 (2023))



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



รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 23-I B0119

ใบรับรองเลขที่ 23-LB0119

(Certification No. 23-LB0119)

ชื่อห้องปฏิบัติการ

(Laboratory Name)

หมายเลขการรับรองที่

(Accreditation No.)

ฉบับที่ 04

(Issue No. 04)

สถานภาพห้องปฏิบัติการ

(Laboratory status)

บริษัท เอสจีเอส (ประเทศไทย) จำกัด ห้องปฏิบัติการทดสอบสิ่งแวดล้อม (สาธารณะ)

(SGS (Thailand) Limited, Environmental Laboratory (Rayong Branch))

ทดสอบ 0470

(Testing 0470)

ออกให้ตั้งแต่วันที่ 28 ตุลาคม พ.ศ. 2567

(Valid from) (28 October B.E. 2567 (2024))

☒ ๓๖๖

(Permanent)

☐ นอกสถานที่ ☐ ชั่วโมง

(Site) (Temporal)

(Site)

☐ ชั่วคราว
(Temporary)

ถึงวันที่ 10 พฤศจิกายน พ.ศ. 2570

(Until) (10 November B.E. 2570 (2027))

☐ เคลื่อนที่ (Mobile)

☐ หลายสาขา (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสสิ่งแวดล้อม (Environmental field) 1. น้ำและน้ำเสีย (Water and wastewater)	- Heavy metal ● Barium (Ba) 0.01 mg/L to 10 mg/L ● Cadmium (Cd) 0.002 mg/L to 10 mg/L ● Chromium (Cr) 0.01 mg/L to 10 mg/L ● Copper (Cu) 0.01 mg/L to 10 mg/L ● Iron (Fe) 0.02 mg/L to 10 mg/L ● Lead (Pb) 0.01 mg/L to 10 mg/L ● Manganese (Mn) 0.01 mg/L to 5 mg/L ● Nickel (Ni) 0.004 mg/L to 10 mg/L ● Silver (Ag) 0.01 mg/L to 10 mg/L ● Zinc (Zn) 0.02 mg/L to 10 mg/L ● Arsenic (As) 0.001 mg/L to 0.50 mg/L ● Selenium (Se) 0.003 mg/L to 0.50 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 3030 K and part 3120 B - ENWA-02142 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 3030 K and part 3114 C.

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 23-LB0119

(Certification No. 23-LB0119)



ฉบับที่ 04

(Issue No. 04)

ออกให้ตั้งแต่วันที่ 28 ตุลาคม พ.ศ. 2567

(Valid from) (28 October B.E. 2567 (2024))

ถึงวันที่ 10 พฤศจิกายน พ.ศ. 2570

(Until) (10 November B.E. 2570 (2027))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ ชั่วคราว
(Temporary)

☐ เคลื่อนที่
(Mobile)

☐ หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสังแวดล้อม (Environmental field) 1. น้ำและน้ำเสีย (ต่อ) (Water and wastewater) ((Cont.))	- Biochemical oxygen demand (BOD) 2 mg/L to 5 000 mg/L - Chemical oxygen demand (COD) 40 mg/L to 10 000 mg/L - Chloride (Cl) 1 mg/L to 10 000 mg/L - Chromium hexavalent (Cr(VI)) 0.01 mg/L to 2.00 mg/L - Oil and grease 2 mg/L to 100 mg/L - pH 2.0 to 10.0 - Phenols 0.50 mg/L to 1.00 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 5210 B and part 4500-O G - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 5220 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 4500-Cl D - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 3500-Cr B - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 5520 B - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 4500-H⁺ B - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 5530 B and part 5530 D

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 23-LB0119

(Certification No. 23-LB0119)



ฉบับที่ 04

(Issue No. 04)

ออกให้ตั้งแต่วันที่ 28 ตุลาคม พ.ศ. 2567

(Valid from) (28 October B.E. 2567 (2024))

ถึงวันที่ 10 พฤศจิกายน พ.ศ. 2570

(Until) (10 November B.E. 2570 (2027))

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ ถาวร
(Permanent)

☐ นอกสถานที่
(Site)

☐ ชั่วคราว
(Temporary)

☐ เคลื่อนที่
(Mobile)

☐ หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสังแวดล้อม (Environmental field) 1. น้ำและน้ำเสีย (ต่อ) (Water and wastewater) ((Cont.))	- Phenols 0.01 mg/L to 0.50 mg/L - Sulfate (SO₄²⁻) 1 mg/L to 40 mg/L - Total hardness 1 mg/L to 1 000 mg/L (expressed as CaCO₃) - Total solids (TS) 2.5 mg/L to 10 000 mg/L - Total dissolved solids (TDS) 2.5 mg/L to 20 000 mg/L	- ENWA-10232 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 5530 B and part 5530 D - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 4500-SO₄²⁻ E - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 2340 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 2540 B - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 2540 C - ENWA-10243 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24th edition, 2023, part 2540 C (dried at 103 - 105 °C)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 23-LB0119

(Certification No. 23-LB0119)



ฉบับที่ 04

(Issue No. 04)

ออกให้ตั้งแต่วันที่ 28 ตุลาคม พ.ศ. 2567

(Valid from)

(28 October B.E. 2567 (2024))

ถึงวันที่ 10 พฤศจิกายน พ.ศ. 2570

(Until) (10 November B.E. 2570 (2027))

สถานภาพห้องปฏิบัติการ

(Laboratory status)

☒ ถาวร

(Permanent)

☐ นอกสถานที่

(Site)

☐ชั่วคราว

(Temporary)

☐เคลื่อนที่

(Mobile)

☐หลายสถานที่

(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสังแวดล้อม (Environmental field)		
1. น้ำและน้ำเสีย (ต่อ) (Water and wastewater) ((Cont.))	- Total suspended solids (TSS) 2.5 mg/L to 10 000 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24 th edition, 2023, part 2540 D
2. อากาศที่ระบายออก (Emission air)	- Hydrogen chloride (HCl) 1.54 µg/sample to 257.00 µg/sample - Hydrogen chloride (HCl) 15.42 µg/sample to 2 570.00 µg/sample - Hydrogen fluoride (HF) 1.05 µg/sample to 263.25 µg/sample - Hydrogen fluoride (HF) 10.53 µg/sample to 2 632.50 µg/sample	- US EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26, 30 May 2023 (Exclude sampling) - US EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26A, 7 October 2020 (Exclude sampling) - US EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26, 30 May 2023 (Exclude sampling) - US EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26A, 7 October 2020 (Exclude sampling)
3. บรรยากาศของสถานที่ทำงาน (Workplace air)	- Benzene 1 µg/tube to 20 µg/tube - Ethylbenzene 1 µg/tube to 20 µg/tube	- NIOSH Manual of Analytical Method (NMAM), 4 th edition, method 1501, Issue 3, 15 March 2003 (Exclude sampling) - NIOSH Manual of Analytical Method (NMAM), 4 th edition, method 1501, Issue 3, 15 March 2003 (Exclude sampling)

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

หน้าที่ 4/4



แบบ กมช./ชมอ.๒
Form NSC/TISI 2

ใบรับรองเลขที่ 25-IB0009
(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 เอสจีเอส (ประเทศไทย) จำกัด
(SGS (Thailand) Limited)

ตั้งอยู่เลขที่
(Address)

๒๓๘ อาคารไทยรุ่งเรือง ชั้น ๑๙ - ๒๑ ถนนราชมารดาสาขนครินทร์ แขวงช่องนนทรี เขตยานนาวา
กรุงเทพมหานคร

(238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsee, Yannawa, Bangkok)

ได้รับการรับรองความสามารถ
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๗๐๒๐ - ๒๕๕๖
(Standard No. ISO/IEC 17020 : 2012)

การตรวจสอบและรับรอง-ข้อกำหนดสำหรับหน่วยตรวจ
(Conformity assessment — Requirements for the operation of various types of bodies performing inspection)

หมายเลขการรับรองที่ หน่วยตรวจ ๐๐๓๔
(Accreditation No. Inspection 0034)

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 ๒๔ เมษายน พ.ศ. ๒๕๖๘
(Issue date : 24 April B.E. 2568 (2025))



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



รายละเอียดแนบท้ายใบรับรองระบบงานหน่วยตรวจ
ใบรับรองเลขที่ 25-IB0009



ชื่อหน่วยตรวจ : บริษัท เอสจีเอส (ประเทศไทย) จำกัด

ที่ตั้งสถานประกอบการของหน่วยตรวจและข้อมูลติดต่อ

ที่ตั้งสำนักงานใหญ่

238 อาคารไทยรุ่งเรือง ชั้น 19-21 ถนนราชมรรคาซอย 19
แขวงช่องนนทรี เขตยานนาวา กรุงเทพมหานคร

ที่ตั้งสำนักงานสาขา (กรณีแตกต่างจากที่ตั้งสำนักงานใหญ่)

1) สำนักงานศรีราชา

165/61-62 หมู่ 10 ตำบลสุรศักดิ์ อำเภอสัตหีบ จังหวัดชลบุรี

2) สำนักงานนครราชสีมา

1340/46 ถนนสุรนารายณ์ ตำบลในเมือง อำเภอเมืองนครราชสีมา
จังหวัดนครราชสีมา

3) สาขาหาดใหญ่

57, 59, 61 ซอย 10 ถนนเพชรเกษม ตำบลหาดใหญ่
อำเภอหาดใหญ่ จังหวัดสงขลา

หมายเลขการรับรอง : หน่วยตรวจ 0034

ประเภทของหน่วยตรวจ : ประเภท A

หมวดหมู่ / สาขาการตรวจ	ขั้นตอนและช่วงการตรวจ	ข้อกำหนดที่ใช้
1. เครื่องแต่งกาย : เสื้อผ้าสำเร็จรูป (เฉพาะสำนักงานใหญ่)	การตรวจสอบการผลิตและการตรวจสอบก่อนการ ส่งมอบ ในรายการต่อไปนี้ - ลักษณะทั่วไป - รูปแบบและขนาด - ปริมาณและการบรรจุ (เฉพาะการ ตรวจสอบก่อนการส่งมอบ)	- วิธีปฏิบัติงานของบริษัทหมายเลข P-INSP-WI-SL-001 - ข้อกำหนดของลูกค้า
2. ผลิตภัณฑ์อาหาร : การตรวจสอบผลิตภัณฑ์อาหาร (เฉพาะสำนักงานใหญ่และ สาขาหาดใหญ่)	การตรวจสอบระหว่างการผลิตและการตรวจสอบก่อน การส่งมอบ สำหรับกลุ่มผลิตภัณฑ์อาหารแช่ แข็งและกลุ่มผลิตภัณฑ์อาหารกระป๋อง	- ขั้นตอนการดำเนินงานของบริษัท หมายเลข P-CORP-I-09 - ข้อกำหนดของลูกค้า
3. ยานยนต์ : รถยนต์ (เฉพาะสำนักงานใหญ่และ สำนักงานศรีราชา)	การตรวจสอบสภาพทั่วไปก่อนการส่งมอบ ใน รายการต่อไปนี้ - จำนวน - สภาพความสมบูรณ์ภายนอกของ รถยนต์ เช่น สภาพของกระจก สภาพ ทั่วไปของตัวถัง สภาพยางและล้อ ความสะอาด และอื่น ๆ ที่อยู่ภายนอก	- ขั้นตอนการดำเนินงานของบริษัท หมายเลข PR-TH-NR-OGC-IN-001 และ PR-TH-NR-OGC-IN-002 - เอกสาร New Vehicle Receiving and Inspection Procedures Issued May 1, 1989 ของ Federal Chamber of Automotive Industries

รายละเอียดแนบท้ายใบรับรองระบบงานหน่วยตรวจ
ใบรับรองเลขที่ 25-IB0009



ชื่อหน่วยตรวจ : บริษัท เอสจีเอส (ประเทศไทย) จำกัด

หมายเลขการรับรอง : หน่วยตรวจ 0034

ประเภทของหน่วยตรวจ : ประเภท A

หมวดหมู่ / สาขาการตรวจ	ขั้นตอนและช่วงการตรวจ	ข้อกำหนดที่ใช้
4. เครื่องจักรกล : ถังก๊าซปิโตรเลียมเหลว (เฉพาะสำนักงานใหญ่)	การตรวจสอบกระบวนการผลิตและการควบคุม คุณภาพ ในรายการต่อไปนี้ - การตรวจสอบชิ้นส่วนประกอบการผลิตถัง - การตรวจสอบระหว่างการประกอบ - การทำกระบวนการทางความร้อน - การทดสอบทั้งทางกล การรั่ว การขยายตัวและการระเบิด และ การตรวจสอบปริมาตร - การตรวจสอบก่อนการส่งมอบ	- ขั้นตอนการดำเนินงานของบริษัท หมายเลข PR-TH-I&E-IN-071 - ข้อกำหนดของลูกค้า
5. สินค้าเกษตร : ข้าวหอมมะลิไทย (เฉพาะสำนักงานใหญ่และ สำนักงานนครราชสีมา)	การตรวจในขั้นตรวจปล่อย ในรายการต่อไปนี้ - ปริมาณ - คุณภาพทางกายภาพและลักษณะ ทั่วไป ดังต่อไปนี้ • ประเภท ชนิด • ความบริสุทธิ์ • ความชื้น • ขนาดของเมล็ดข้าว • ส่วนผสม (ข้าวเต็มเมล็ด ข้าวหัก ต้นข้าว) • ข้าวและสิ่งที่มีปนได้ (เมล็ดเสีย เมล็ดเลื้อย เมล็ดท้องไข เมล็ดแดง ฯลฯ) • ไม่มีแมลงที่ยังมีชีวิต • ระดับการขัดสี ไม่ครอบคลุมการตรวจความบริสุทธิ์ด้วยวิธี วิเคราะห์ในห้องปฏิบัติการในรายการ ปริมาณอมิโลส (Amylose content) และ ค่าการสลายเมล็ดข้าวในด่าง (Alkali spreading value)	- ประกาศกระทรวงพาณิชย์ เรื่อง หลักเกณฑ์และวิธีการจัดให้มีการ ตรวจสอบมาตรฐานสินค้าและการ ตรวจสอบมาตรฐานสินค้าข้าวหอม มะลิไทย - ขั้นตอนการดำเนินงานของบริษัท หมายเลข PR-TH-NR-AGR-IN-004 และ PR-TH-NR-AGR-IN-005 - ข้อกำหนดของลูกค้า

รายละเอียดแนบท้ายใบรับรองระบบงานหน่วยตรวจ
ใบรับรองเลขที่ 25-IB0009



ชื่อหน่วยตรวจ : บริษัท เอสจีเอส (ประเทศไทย) จำกัด
หมายเลขการรับรอง : หน่วยตรวจ 0034
ประเภทของหน่วยตรวจ : ประเภท A

หมวดหมู่ / สาขาการตรวจ	ขั้นตอนและช่วงการตรวจ	ข้อกำหนดที่ใช้
6. สินค้าเกษตร : น้ำตาลทรายขาวและ น้ำตาลทรายดิบ (เฉพาะสำนักงานใหญ่ สำนักงานศรีราชา และ สำนักงานนครราชสีมา)	การตรวจลักษณะทั่วไปและปริมาณ ทั้งนี้ไม่รวมผลวิเคราะห์ในห้องปฏิบัติการ	- ขั้นตอนการดำเนินงานของบริษัท - หมายเลข PR-TH-NR-AGR-IN-002 และ PR-TH-NR-AGR-IN-003 - ข้อกำหนดของลูกค้า
7. สินค้าเกษตร : ถ่านหิน ซีเมนต์ อีพซีเอ็ม ปูนเม็ด หินปูน และ หินตะกอน (เฉพาะสำนักงานใหญ่ สำนักงานศรีราชา และ สาขาหาดใหญ่)	การตรวจสอบสภาพทั่วไปและการสุ่มตัวอย่าง	- ขั้นตอนการดำเนินงานของบริษัท - หมายเลข PR-TH-NR-MIN-IN-001 และ PR-TH-NR-MIN-IN-002
8. การตรวจโรงงานเพื่อการรับรอง คุณภาพผลิตภัณฑ์ (เฉพาะสำนักงานใหญ่)	การตรวจกระบวนการผลิต ระบบคุณภาพ และการตรวจประเมินผลิตภัณฑ์ สำหรับกลุ่ม ผลิตภัณฑ์ ดังต่อไปนี้ - วัสดุก่อสร้าง คอนกรีต สุขภัณฑ์ เซรามิก และเครื่องเรือน - บริษัทสองล้อ - ไฟฟ้ากำลัง - เครื่องใช้ไฟฟ้า - เครื่องใช้อิเล็กทรอนิกส์ - โภคภัณฑ์ และของเล่น - ยาง เคมี สิ่งทอ ปีโตรเลียม และอาหาร - ยานยนต์ ชิ้นส่วนยานยนต์ และ เครื่องกล	- หลักเกณฑ์การตรวจสอบเพื่อการ อนุญาตของสำนักงานมาตรฐาน ผลิตภัณฑ์อุตสาหกรรม - หลักเกณฑ์เฉพาะในการตรวจสอบเพื่อ การอนุญาตผลิตภัณฑ์ที่เกี่ยวข้อง และ มาตรฐานผลิตภัณฑ์อุตสาหกรรมที่ เกี่ยวข้อง - เอกสารขั้นตอนการดำเนินงานของ บริษัทหมายเลข THLPP-01

ออกให้ครั้งแรกเมื่อวันที่ 11 กันยายน พ.ศ. 2561
กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองระบบงานหน่วยตรวจ
ใบรับรองเลขที่ 25-IB0009



ชื่อหน่วยตรวจ : บริษัท เอสจีเอส (ประเทศไทย) จำกัด
หมายเลขการรับรอง : หน่วยตรวจ 0034
ประเภทของหน่วยตรวจ : ประเภท A

หมวดหมู่ / สาขาการตรวจ	ขั้นตอนและช่วงการตรวจ	ข้อกำหนดที่ใช้
9. สิ่งแวดล้อม (เฉพาะสำนักงานใหญ่)	การตรวจคุณภาพสิ่งแวดล้อมภายในอาคาร ใน รายการต่อไปนี้ - ระดับเสียง - ความร้อนสะสม - ปริมาณ CO, CO₂, PM-10, Ozone, Total VOCs - อุณหภูมิ - ความชื้นสัมพัทธ์ - ความเร็วลม - ระดับความเข้มแสง	- ขั้นตอนการดำเนินงานของบริษัท - หมายเลข PR-TH-I&E-IN-035, PR-TH-I&E-IN-036, PR-TH-I&E-IN-038, PR-TH-I&E-IN-050, PR-TH-I&E-IN-051, PR-TH-I&E-IN-052, PR-TH-I&E-IN-054 และ PR-TH-I&E-IN-055 - ข้อกำหนดของลูกค้า - กฎหมาย กฎและระเบียบต่าง ๆ ที่เกี่ยวข้อง
	การตรวจคุณภาพสิ่งแวดล้อมภายนอกอาคาร ในรายการต่อไปนี้ ระบบการตรวจสอบคุณภาพอากาศ จากปล่องแบบอัตโนมัติอย่างต่อเนื่อง (Continuous Emission Monitoring Systems : CEMs) ด้วยเครื่องมือหรือ เครื่องอุปกรณ์พิเศษ (ปริมาณ CO, SO₂, NO₂, O₂, CO₂, NO และ NO_x)	- ขั้นตอนการดำเนินงานของบริษัท - หมายเลข PR-TH-I&E-IN-015 และ PR-TH-I&E-IN-032 - ข้อกำหนดของลูกค้า - กฎหมาย กฎและระเบียบต่างๆ ที่เกี่ยวข้อง
	การตรวจคุณภาพน้ำ ในรายการ - การเก็บตัวอย่างน้ำ - ลักษณะทางกายภาพ (สี สีตะกอน) - ความเป็นกรด-ด่าง - อุณหภูมิ - ปริมาณออกซิเจนที่ละลายน้ำ (Dissolved Oxygen : DO) - ค่าการนำไฟฟ้า - ค่าความเค็ม - ค่าความขุ่น ทั้งนี้ไม่รวมผลวิเคราะห์ในห้องปฏิบัติการ	- ขั้นตอนการดำเนินงานของบริษัท - หมายเลข PR-TH-I&E-IN-043 - ข้อกำหนดของลูกค้า - กฎหมาย กฎและระเบียบต่าง ๆ ที่เกี่ยวข้อง

ออกให้ครั้งแรกเมื่อวันที่ 11 กันยายน พ.ศ. 2561
กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองระบบงานหน่วยตรวจ
ใบรับรองเลขที่ 25-IB0009



ชื่อหน่วยตรวจ : บริษัท เอสจีเอส (ประเทศไทย) จำกัด
หมายเลขการรับรอง : หน่วยตรวจ 0034
ประเภทของหน่วยตรวจ : ประเภท A

หมวดหมู่ / สาขาการตรวจ	ขั้นตอนและช่วงการตรวจ	ข้อกำหนดที่ใช้
10. สินค้าเกษตร : ข้าวสาลีและกากถั่วเหลือง (เฉพาะสำนักงานใหญ่และ สำนักงานศรีราชา)	การตรวจสอบสภาพทั่วไป การสุ่มตัวอย่าง และการสังเกตการณ์การชั่งน้ำหนัก	- GAFTA Weighing Rules No. 123 - GAFTA Sampling Rules No.124 - วิธีปฏิบัติงานของบริษัทหมายเลข PR-TH-NR-AGR-IN-006 - ข้อกำหนดของลูกค้า
11. การตรวจสอบสถาน ประกอบการผลิตวัตถุ อันตราย (ที่สำนักงาน คณะกรรมการอาหารและ ยารับผิดชอบ) (เฉพาะสำนักงานใหญ่)	การตรวจสอบสถานที่ และกระบวนการผลิตด้าน การจัดการระบบคุณภาพ การสุขาภิบาล และความปลอดภัย	- หลักเกณฑ์วิธีการที่ดีในการผลิตวัตถุ อันตราย ที่สำนักงานคณะกรรมการ อาหารและยารับผิดชอบ (GMP) - ขั้นตอนการดำเนินงานของบริษัท หมายเลข THLPP.3100

ตั้งแต่ วันที่ 26 กุมภาพันธ์ พ.ศ. 2568
ถึง วันที่ 10 กันยายน พ.ศ. 2569
ออกให้ ณ วันที่ 24 เมษายน พ.ศ. 2568

ออกให้ครั้งแรกเมื่อวันที่ 11 กันยายน พ.ศ. 2561
กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

Scope of Accreditation for Inspection Body
Certificate No. 25-IB0009



Name of Inspection Body : SGS (Thailand) Limited

Addresses and contact details

Head office or primary location

238 TRR Tower, 19th-21st Floor, Naradhiwas
Rajanagerindra Road, Chong Nonsee, Yannawa,
Bangkok

Additional Locations (If different from Head Office)

- Sriracha Office**
165/61-62 Moo 10, Surasak, Sriracha, Chonburi
- Nakhon Ratchasima Office**
1340/46 Suranarai Road, Nai-Muang, Muang Nakhonratchasima,
Nakhonratchasima
- Hat Yai Branch**
57, 59 and 61 Soi 10, Phetkasem Road, Hat Yai, Hat Yai,
Songkhla

Accreditation No. : INSPECTION 0034

Type of Inspection Body : Type A

Category / Field of Inspection	Stage and Range of Inspection	Inspection Requirements or Criteria
1. Apparel : Readymade Garment (Head office)	In-line process and Pre-shipment inspection of readymade garment with the items as follows : - General appearance - Style, Size and Weight of unit - Quantity and Packing (Pre-shipment inspection)	- Work instruction of SGS (Thailand) Limited : P-INSP-WI-SL-001 - Customer's requirements
2. Food Products : Food Inspection (Head Office and Hat Yai Branch)	During process inspection and Pre-shipment inspection of food products covering frozen food products and canned food products	- Operating procedure of SGS (Thailand) Limited : P-CORP-I-09 - Customer's requirements
3. Motor Vehicle : Automotive (Head Office and Sriracha Office)	Pre-shipment inspection of general condition of vehicle with the items as follows : - Quantity - Visual inspection of external condition e.g. glass, body, tires, wheels, cleanliness etc.	- Operating procedure of SGS (Thailand) Limited : PR-TH-NR-OGC- IN-001 and PR-TH-NR-OGC-IN-002 - New Vehicle Receiving and Inspection Procedures Issued May 1, 1989 of Federal Chamber of Automotive Industries

Date of Initial Issue : 11 September BE. 2561 (2018)
Ministry of Industry Thailand, Thai Industrial Standards Institute

Scope of Accreditation for Inspection Body
Certificate No. 25-IB0009



Name of Inspection Body : SGS (Thailand) Limited
Accreditation No. : INSPECTION 0034
Type of Inspection Body : Type A

Category / Field of Inspection	Stage and Range of Inspection	Inspection Requirements or Criteria
4. Machinery : LPG Cylinder (Head Office)	Production process and quality control inspection with the items as follows : – Component parts – During assembly – Heat treatment – Mechanical, Hydraulic pressure leak, Volumetric expansion, Burst test and Capacity check – Pre-delivery inspection	– Operating procedure of SGS (Thailand) Limited : PR-TH-I&E-IN-071 – Customer's requirements
5. Agricultural Products : Thai Hom Mali Rice (Head Office and Nakhon Ratchasima Office)	Pre-shipment inspection with the items as follows : – Quantity – Physical quality and general feature as follows : • Type, Grade • Purity • Moisture • Kernel size • Composition (whole kernel, broken, head rice) • Rice and matters that may be present (damaged kernel, yellow kernel, chalky kernel, red kernel, etc.) • No live insects • Milling degree Not covering the purity check by laboratory analysis for determination of Amylose content and Alkali spreading value	– Notification of Ministry of Commerce on Criteria and procedures of organizing the inspection of commodity standards and the inspection of the standards of Thai Hom Mali Rice – Operating procedure of SGS (Thailand) Limited : PR-TH-NR-AGR-IN-004 and PR-TH-NR-AGR-IN-005 – Customer's requirements

Scope of Accreditation for Inspection Body
Certificate No. 25-IB0009



Name of Inspection Body : SGS (Thailand) Limited
Accreditation No. : INSPECTION 0034
Type of Inspection Body : Type A

Category / Field of Inspection	Stage and Range of Inspection	Inspection Requirements or Criteria
6. Agricultural Products : White sugar and raw sugar (Head Office, Sriracha Office and Nakhon Ratchasima Office)	General appearance and quantity inspection Excluding analysis by laboratory testing	– Operating procedure of SGS (Thailand) Limited : PR-TH-NR-AGR-IN-002 and PR-TH-NR-AGR-IN-003 – Customer's requirements
7. Bulk Solids : Coal, cement, gypsum, clinker, limestone and sedimentary rock (Head Office, Sriracha Office and Hat Yai Branch)	General appearance inspection and sampling	– Operating procedure of SGS (Thailand) Limited : PR-TH-NR-MIN-IN-001 and PR-TH-NR-MIN-IN-002
8. Manufacturing inspection for product certification (Head Office)	Production process and quality control system inspection including the evaluation of the following group of products : – Construction materials, concretes, sanitary wares, ceramics, and furniture – Electrical lighting and similar equipment – Electrical power devices – Electrical appliances – Electronic apparatus, parts, and components – Consumer goods and toys – Rubbers, chemicals, textiles, petroleum, and food products – Automotive products, parts, and mechanical products	– Criteria for product certification of Thai Industrial Standards Institute – Criteria for the relevant particular requirements and Thai Industrial Standards for product certification – Operating procedure of SGS (Thailand) Limited : THLPP.01

Scope of Accreditation for Inspection Body
Certificate No. 25-IB0009



Name of Inspection Body : SGS (Thailand) Limited
Accreditation No. : INSPECTION 0034
Type of Inspection Body : Type A

Category / Field of Inspection	Stage and Range of Inspection	Inspection Requirements or Criteria
9. Environmental (Head Office)	Indoor Environment Inspection with the items as follows : – Sound level – Heat stress – CO, CO ₂ , PM-10, Ozone, Total VOCs – Temperature – Relative humidity – Air velocity – Light intensity	– Operating procedure of SGS (Thailand) Limited : PR-TH-I&E-IN-035, PR-TH-I&E-IN-036, PR-TH-I&E-IN-038, PR-TH-I&E-IN-050, PR-TH-I&E-IN-051, PR-TH-I&E-IN-052, PR-TH-I&E-IN-054, and PR-TH-I&E-IN-055 – Customer's requirement – Related laws and regulations
	Outdoor Environment Inspection, the items as follows : – Continuous Emission Monitoring System : CEMS (CO, SO ₂ , NO ₂ , O ₂ , CO ₂ , NO, and NO _x)	– Operating procedure of SGS (Thailand) Limited : PR-TH-I&E-IN-015 and PR-TH-I&E-IN-032 – Customer's requirement – Related laws and regulations
	Water Inspection, the items as follows : – Water sampling – Physical appearance (Color, Suspended Solids) – pH – Temperature – Dissolved Oxygen : DO – Conductivity – Salinity – Turbidity Excludes laboratory analysis result	– Operating procedure of SGS (Thailand) Limited : PR-TH-I&E-IN-043 – Customer's requirement – Related laws and regulations

Scope of Accreditation for Inspection Body
Certificate No. 25-IB0009



Name of Inspection Body : SGS (Thailand) Limited
Accreditation No. : INSPECTION 0034
Type of Inspection Body : Type A

Category / Field of Inspection	Stage and Range of Inspection	Inspection Requirements or Criteria
10. Agricultural Products : Wheat and soybean meal (Head Office and Sriracha Office)	General appearance inspection, Sampling, and weighing observation	– GAFTA Weighing Rules No. 123 – GAFTA Sampling Rules No.124 – Operating procedure of SGS (Thailand) Limited : PR-TH-NR-AGR-IN-006 – Customer's requirement
11. Factory inspection of hazardous substance manufacturer (under the responsibility of the Food and Drug Administration) (Head office)	Inspection of physical location and production processes regarding the management of quality, sanitation and safety	– Criteria for Good Manufacturing Practice for Hazardous Substances under the Responsibility of the Food and Drug Administration – Procedure of SGS (Thailand) Limited : THLPP.3100

Valid from : 26 February B.E. 2568 (2025)
Until : 10 September B.E. 2569 (2026)
Issue Date : 24 April B.E. 2568 (2025)

Certificate No. OHSMS26002/261

certification

ISO 45001
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

This certificate is issued to certify that

SGS (Thailand) Limited

Address of head office : 238 TRR Tower, 19th-21st Floor Naradhiwas Rajanagarindra Road,
Chong Monsi, Yannawa District, Bangkok 10120, Thailand

has been assessed and found to be conforming to the requirements of Occupational health
and safety management systems.

TIS 45001-2561 (ISO 45001:2018)

For scope of:

As detailed in the accompanying schedule of scope

This is multi-site certification. Certified sites are listed on the subsequent page.



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 7 September 2026
Current certification cycle 7 September 2026 to 6 September 2029
which remains valid, subject to satisfactory surveillance audits.
Recertification audit is due 60 days before the expiry date.
Previous cycle expire date 6 September 2026
First issue date 4 March 2026



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CP-003-02 Rev. 16 09/01/03 0/0/0 CR2606-0022 2026-09-13 07:38:14

Certificate No. OHSMS26002/261

certification

ISO 45001
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

SGS (Thailand) Limited

Premise(s)

Activities in the scope

SGS (Thailand) Limited Head Office
Certificate No.: OHSMS26002/261/M01
238 TRR Tower, 19th-21st Floor Naradhiwas
Rajanagarindra Road, Chong Monsi, Yannawa District,
Bangkok 10120, Thailand

Management of OHS, Inspection, and Fumigation
Service

SGS (Thailand) Limited Rayong Branch
Certificate No.: OHSMS26002/261/M02
1/209 and 1/211 Moo 1, Ban Chang, Ban Chang District,
Rayong 21130, Thailand

Inspection and Testing Service

SGS (Thailand) Limited Sriracha Branch
Certificate No.: OHSMS26002/261/M03
165/61-62 Moo 10, Surasak, Sriracha District, Chonburi
20110, Thailand

Inspection and Fumigation Service

SGS (Thailand) Limited Nakomatchasima Branch
Certificate No.: OHSMS26002/261/M04
949/32 Moo 1, Ban Koh, Muang Nakomatchasima
District, Nakomatchasima 30000, Thailand

Inspection and Fumigation Service



By
Management System Certification Institute (Thailand),
Foundation for Industrial Development

Date of issue 7 September 2026
Current certification cycle 7 September 2026 to 6 September 2029
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CP-003-02 Rev. 16 09/01/03 0/0/0 CR2606-0022 2026-09-13 07:38:14

Certificate No. OHSMS26002/261

certification

ISO 45001
 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM


SGS (Thailand) Limited

Premise(s)	Activities in the scope
SGS (Thailand) Limited Hat Yai Branch Certificate No.: OHSMS26002/261/M05 57, 59 and 61 Soi 10, Phetkasem Road, Hat Yai, Hat Yai District, Songkhla 90110, Thailand	Inspection and Testing Service
SGS (Thailand) Limited Rama III Branch – Laboratory Services Certificate No.: OHSMS26002/261/M06 10, 10/1-4, 12 Soi Rama III, Soi 59 Rama III Road, Chongnonsee, Yannawa District, Bangkok 10120, Thailand	Testing and Calibration Service
SGS (Thailand) Limited Rama III Branch - Soft Line & Hard goods Laboratory Services Certificate No.: OHSMS26002/261/M07 1025/1 Soi Rama III, Soi 61, Rama III Road, Chongnonsee, Yannawa District, Bangkok 10120, Thailand	Testing Service



By
 Management System Certification Institute (Thailand),
 Foundation for Industrial Development

Date of issue 7 September 2026
 Current certification cycle 7 September 2026 to 6 September 2029
 which remains valid, subject to satisfactory surveillance audits.
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 Previous cycle expire date 6 September 2026
 First issue date 4 March 2026



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77-003-02 Rev. 12.00000-05 0/0

CR2606-0022 2625-07-13 07:38:14

Page 3 / 4

Certificate No. OHSMS26002/261

certification

ISO 45001
 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM


SGS (Thailand) Limited

Premise(s)	Activities in the scope
SGS (Thailand) Limited Eastern Seaboard Branch Certificate No.: OHSMS26002/261/M08 300/109 Moo 1, Ta Sit, Muak Daeng District, Rayong 21140, Thailand	Testing Service
SGS (Thailand) Limited Amata City Chonburi Branch Certificate No.: OHSMS26002/261/M09 700/693 Moo 7, Don Hua Roh, Muang Chonburi District, Chonburi 20000, Thailand	Testing Service
SGS (Thailand) Limited Surat Thani Branch Certificate No.: OHSMS26002/261/M10 55/57-58 Moo 1, Kanjanavithi Road, Bangkoong, Muang District, Suratthani 84000, Thailand	Inspection and Fumigation Service



By
 Management System Certification Institute (Thailand),
 Foundation for Industrial Development

Date of issue 7 September 2026
 Current certification cycle 7 September 2026 to 6 September 2029
 which remains valid, subject to satisfactory surveillance audits.
 Recertification audit is due 60 days before the expiry date.
 Previous cycle expire date 6 September 2026
 First issue date 4 March 2026



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CR2606-0022 2625-07-13 07:38:14

Page 4 / 4

Certificate No. OHSMS26002/261/M01

certification

ISO 45001
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM



This certificate is issued to certify that

SGS (Thailand) Limited Head Office

Address of premises : 238 TRR Tower, 19th-21st Floor Maradhiwas Rajanagarindra Road,
Chong Monsi, Yannawa District, Bangkok 10120, Thailand

has been assessed and found to be conforming to the requirements of Occupational health
and safety management systems.

TIS 45001-2561 (ISO 45001:2018)

For scope of:

Management of OHS, Inspection, and Fumigation Service

The validity of this certificate depends on the validity and the certified scope of main certificate: OHSMS26002/261



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 7 September 2026

Current certification cycle 7 September 2026 to 6 September 2029

which remains valid, subject to satisfactory surveillance audits.

Recertification audit is due 60 days before the expiry date.

Previous cycle expire date 6 September 2026

First issue date 4 March 2026



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TP-005-07 Rev. 10 09/08/05 v1.0

CR2606-0022 2026-07-13 07:38:14

Certificate No. OHSMS26002/261/M02

certification

ISO 45001
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM



This certificate is issued to certify that

SGS (Thailand) Limited Rayong Branch

Address of premises : 1/209 and 1/211 Moo 1, Ban Chang, Ban Chang District, Rayong 21130,
Thailand

has been assessed and found to be conforming to the requirements of Occupational health
and safety management systems.

TIS 45001-2561 (ISO 45001:2018)

For scope of:

Inspection and Testing Service

The validity of this certificate depends on the validity and the certified scope of main certificate: OHSMS26002/261



By
Management System Certification Institute (Thailand)
Foundation for Industrial Development

Date of issue 7 September 2026

Current certification cycle 7 September 2026 to 6 September 2029

which remains valid, subject to satisfactory surveillance audits.

Recertification audit is due 60 days before the expiry date.

Previous cycle expire date 6 September 2026

First issue date 4 March 2026



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TP-005-07 Rev. 10 09/08/05 v1.0

CR2606-0022 2026-07-13 07:38:14

ภาคผนวก ค

สำเนาใบรับรองการสอบเทียบเครื่องมือการตรวจวัด

#1908 17908



THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

Calibration Certificate

Issued by : Calibration & Test Section : Meteorological Instruments Bureau

Date of Issue : 1 April, 2025

Certification No. 196/25

Page : 1 of 6

Object : Precision Weather Station

Manufacturer : Davis Instruments

Type : Vantage Pro 2 Model No. : 6152C

Mfg Code : Display AZ170619023 Transmitter AZ170619023

Customer : SGS (Thailand) Limited.

238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road,
Chong Nonsi, Yannawa, Bangkok 10120.

Calibration Condition : Temperature 25.1 °C Barometric Pressure 1011.1 hPa

NATIONAL STANDARD WIND TUNNEL : Vane Angel Bench Stand Model 18112

: Micromanometer Theodor Friedrichs FC014 Serial No. 9310119 : HOOK GAGE NO 1425

N.I.S.T. Test Reference Number 731/241460 : Standard Velocity at 20 - 30 m/sec

: Ultrasonic Anemometer Model DA-650-3TV (sensor TR-90AH)
Serial Number 110730029 (sensor 120629586)

JAPAN QUALITY ASSURANCE ORGANIZATION : Standard Velocity at 0 - 20 m/sec

STANDARD THERMOMETER : Theodor Friedrich : Dry No.8390/94 Wet No. 8389/94

: Thermoschneider No.9188 : testo, testo 645 Serial No. 02848057

STANDARD BAROMETER : Digital Barometer Vaisala Type PTB220 No. V1220016

Calibrated by : [Signature]

Signature



THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

The Result of Calibration

Certification No. 196/25

1 April, 2025

Page : 2 of 6

Standard	HOOK GAGE NO. 1425			TESTED ANEMOMETER	
	Pressure	Vacuum	Velocity	Velocity	Correction
m/sec	inches H ₂ O	inches H ₂ O	m/sec	m/sec	m/sec
1.00	-	-	-	0.9	0.10
3.02	-	-	-	2.7	0.32
5.00	-	-	-	4.9	0.10
7.00	-	-	-	6.7	0.30
9.02	-	-	-	8.9	0.12
11.01	-	-	-	11.0	0.01
13.01	-	-	-	12.9	0.11
15.01	-	-	-	15.0	0.01
17.02	-	-	-	17.0	0.02
20.02	-	-	-	19.3	0.72

Vane Angel Bench Stand Model 18112	
Young Meteorological Instruments	
WIND DIRECTION	TESTED WIND DIRECTION
0	0
90	90
180	180
270	270

Calibrated by : [Signature]



THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 0-2396-0156, 0-2399-0469

The Result of Calibration

Certification No. 196/25

1 April, 2025

Page : 3 of 6

Standard Barometer	Tested Barometer	Correction
Pressure	Pressure	(mmHg)
756.43	757.7	-1.27
756.82	758.0	-1.18
755.58	756.8	-1.22
754.01	755.3	-1.29
754.14	755.4	-1.26
755.39	756.7	-1.31
755.05	756.9	-1.25
755.72	757.0	-1.28
755.83	757.1	-1.27
755.96	757.2	-1.24
756.93	758.1	-1.17
758.38	759.5	-1.12
758.59	759.9	-1.31
758.30	759.6	-1.30
757.85	759.2	-1.35
757.59	758.9	-1.31
756.14	757.4	-1.26
756.28	757.5	-1.22
756.44	757.7	-1.26
756.99	758.2	-1.21

Average -1.25

Calibrated by : [Signature]



THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

The Result of Calibration

Certification No. 196/25

1 April, 2025

Page : 4 of 6

Standard	Temperature Sensor Reading	
	Reading	Correction
Temp. °C	°C	°C
45.3	45.4	-0.1
30.3	30.3	0.0
15.4	15.4	0.0

Calibrated by : [Signature]





THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

The Result of Calibration

Certification No. 196/25

1 April, 2025

Page : 5 of 6

Standard Humidity	Relative Humidity Sensor Reading	
	Reading	Correction
% R.H.	% R.H.	% R.H.
86.24	89	-2.76
65.28	67	-1.72
45.16	47	-1.84

Calibrated by :

Calibration & Test Section
Meteorological Instruments Bureau



Date of Issue 1 April, 2025

Certification No. 196/25

Page: 6 of 6

ใบรับรอง

หนังสือฉบับนี้ขอรับรองว่า เครื่องวัดฝน อีพัส Davis Instruments แบบ TIPPING BUCKET Product No. 6152C Mfg. Code. AZ170619023 ที่ทำการสอบเทียบกับแก้ววัดฝนแบบ แก้ววัดวง GAUGE DIAMETER 8.0 INCHES, NEGRETTI & ZAMBRA LONDON No. 71082 และสามารถนำไปใช้ได้ มีค่าถูกต้องตามรายละเอียดของเครื่องมือ (0.01 in./TIP)



ถึง ๔๐



JIRANATEE ASSOCIATES CO., LTD.

Jiranatee Associates Co., Ltd.
62/14-15, 6/25-26
Petchburi 171, 181 Sothaporn, Bangkok 10500 (Thailand)
Tel: +66(0)2-0112
Mobile: +66(0)9-099453
E-mail: jnac-calibration@jiranatee.com
Web site: www.jiranatee.com

Accredited calibration laboratory
ISO/IEC 17025:2017
NSC-TIS 115-115 17025
CALIBRATION 0367

Flow measurement laboratory
Calibration services department.



NSC-TIS 115-115 17025
CALIBRATION 0367

CERTIFICATE OF CALIBRATION

Certificate No. : CCF-039-68

Page 1 of 2 Pages

MEASUREMENT ITEM
MANUFACTURER
MODEL/TYPE
SERIAL NUMBER
ID NUMBER
CONDITION AS RECEIVED
CUSTOMER

: Top Load Office
: TISCH
: TE-5028A
: 1547
:-
: Used Item

: SGS (Thailand) Limited (Head Office)
238 TNR Tower, 19th-21st Floor, Naradhiwas Rajinagarindra Road,
Chong Nonsi, Yannawa, Bangkok 10120.

RECEIVED DATE
MEASUREMENT DATE
ISSUE DATE

: 23 Sep 2025
: 24 Sep 2025
: 24 Sep 2025

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:
Temperature : 23.0 ± 3.0 °C
Relative Humidity : 55.0 ± 15.0 %RH
Atmospheric Pressure : 1010 ± 10 hPa

CALIBRATION CONDITION:

Preconditioning : 24 hours at ambient conditions.
Measurement Condition : The average values during measurement are 23.0 °C and 50.4 %RH.

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:

The table on next page give the measured values.

Calibration procedure:
The Orifice gas flow device was calibrated against
Standard Rotary Displacement Meter (Roots
Meter) Model GSGMAC/WZg. The M-CL-004
was used as a calibration guideline.

Traceability:
This certificate provides a traceability of the
measurement to recognized the national
standards and to realization of the international
system of units (SI) through the NIMT (National
Metrology Institute of Thailand) via Certificate
number: NMV-6316-25.

Uncertainty of Measurement:
The reported uncertainty of measurement is based
on the standard uncertainty multiplied by a
coverage factor k=2, Which for a normal
distribution corresponds to a coverage probability
of approximately 95%. The standard uncertainty
has been determined in accordance with the GUM
'Evaluation of measurement data - Guide to the
expression of uncertainty in measurement'



JIRANATEE ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CCF-039-68

Page 2 of 2 Pages

MEASUREMENT RESULTS:

The Orifice gas flow device was calibrated by direct comparison method with the Standard Rotary Displacement Meter (Roots Meter). The humid air was used as a medium in the system. The standard conditions are 25°C (298.15 K) and 760 mmHg for standard temperature and standard pressure respectively.

Table 1: The results of Q Standard calibration data

Plate	Flow rate m³/min	Pressure [Pa] mmHg	Temperature [Ta] °C	Temperature [Tm] °C	Ap_meter mmHg	Ap_Orifice mmHg	Y	Standard Flow [Qs] m³/min
1	0.702	752.272	22.79	22.18	41.514	0.969	0.983	0.663
2	1.001	752.276	23.14	22.54	28.186	2.150	1.463	0.962
3	1.118	752.254	23.32	22.84	23.157	2.749	1.854	1.081
4	1.163	752.233	23.28	22.90	21.278	3.014	1.732	1.127
5	1.412	752.178	23.32	22.91	13.073	4.622	2.345	1.381

Slope (m): 1.61333
Intercept (b): -0.08705
Correlation coefficient (r): 0.99977
Uncertainty (k=2): 0.015 m³/min

Table 2: The results of Q actual calibration data

Plate	Flow rate m³/min	Pressure [Pa] mmHg	Temperature [Ta] °C	Temperature [Tm] °C	Ap_meter mmHg	Ap_Orifice mmHg	Y	Standard Flow [Qs] m³/min
1	0.702	752.272	22.79	22.18	41.514	0.969	0.617	0.664
2	1.001	752.276	23.14	22.54	28.186	2.150	0.920	0.966
3	1.118	752.254	23.32	22.84	23.157	2.749	1.041	1.085
4	1.163	752.233	23.28	22.90	21.278	3.014	1.090	1.132
5	1.412	752.178	23.32	22.91	13.073	4.622	1.350	1.389

Slope (m): 1.01894
Intercept (b): -0.05458
Correlation coefficient (r): 0.99977
Uncertainty (k=2): 0.015 m³/min

End of Certificate of Calibration

Calibrated by:

☐ Ms. Surin Thachulad
☐ Miss Jittaporn Lertsomphol



Approved signatory:



ห้างหุ้นส่วนจำกัด บลู คอนซัลแตนท์ Blue Consultant Limited Partnership
32/751 ถนนประชาอุทิศ แขวงทุ่งครุ เขตทุ่งครุ กรุงเทพฯ 10140
โทร.0-2873-6045-6 โทรสาร 0-2873-6046
ห้องปฏิบัติการวิเคราะห์ห้องอากาศในอาคารเมื่อวันที่ 22 สิงหาคม 2566

CALIBRATION REPORT

Equipment : SO₂ Analyzer
Serial No. : 2707,2712,3569, 43C-73378-373
Brand/Model : Teledyne-API/T100, Thermo/43C
Date of Calibrate : March 8, 2026
Reference Standard : Cylinder No.: EB0128767
Certification Date: October 29, 2019
Expiry Date: October 29, 2027
Component: SO₂: 55.62 ppm, NO: 57.21 ppm, CO: 4,551 ppm

Calibration Check (Before adjust)						
Serial No.	Zero			Span		
	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)
2707	-0.2	0	-0.2	399.3	400	-0.7
2712	0.3	0	0.3	397.6	400	-2.4
3569	0.1	0	0.1	398.2	400	-1.8
43C-73378-373	0	0	0.1	398.2	400	-1.8
Calibration Check (After adjust)						
Serial No.	Zero			Span		
	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)
2707	0	0	0	400	400	0
2712	0	0	0	400	400	0
3569	0	0	0	400	400	0
43C-73378-373	0	0	0	400	400	0

ในนามห้องปฏิบัติการห้างหุ้นส่วนจำกัด บลู คอนซัลแตนท์

ห้างหุ้นส่วนจำกัด บลู คอนซัลแตนท์ Blue Consultant Limited Partnership
32/751 ถนนประชาอุทิศ แขวงทุ่งครุ เขตทุ่งครุ กรุงเทพฯ 10140
โทร.0-2873-6045-6 โทรสาร 0-2873-6046
ห้องปฏิบัติการวิเคราะห์ห้องอากาศในอาคารเมื่อวันที่ 22 สิงหาคม 2566

CALIBRATION REPORT

Equipment : NO_x Analyzer
Serial No. : 2508, 374, 4088
Brand/Model : Teledyne-API/200E, Teledyne-API/T200
Date of Calibrate : March 8, 2026
Reference Standard : Cylinder No.: EB0128767
Certification Date: October 29, 2019
Expiry Date: October 29, 2027
Component: SO₂: 55.62 ppm, NO: 57.21 ppm, CO: 4,551 ppm

Calibration Check (Before adjust)						
Serial No.	Zero			Span		
	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)
	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x
2508	2.7/1.0/3.7	0/0/0	2.7/1.0/3.7	396.4/3.0/399.4	400/0/400	-3.6/3.0/-0.6
374	3.1/0.5/3.6	0/0/0	3.1/0.5/3.6	397.5/3.7/401.2	400/0/400	-2.5/3.7/1.2
4088	4.5/1.3/5.8	0/0/0	4.5/1.3/5.8	403.8/4.2/408.0	400/0/400	3.8/4.2/8.0
Calibration Check (After adjust)						
Serial No.	Zero			Span		
	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)	Reading Value (ppb)	Expected Value (ppb)	Drift (ppb)
	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x	NO/NO ₂ /NO _x
2508	0/0/0	0/0/0	0/0/0	400/0/400	400/0/400	0/0/0
374	0/0/0	0/0/0	0/0/0	400/0/400	400/0/400	0/0/0
4088	0/0/0	0/0/0	0/0/0	400/0/400	400/0/400	0/0/0

ในนามห้องปฏิบัติการห้างหุ้นส่วนจำกัด บลู คอนซัลแตนท์



บริษัท ไคเนติกส์ คอร์ปอเรชั่น จำกัด
KINETICS CORPORATION LTD.

รายงานผลการสอบและปรับเทียบอุปกรณ์วัดตรวจวัดคุณภาพอากาศ
ลูกค้า / หน่วยงาน : SGS (Thailand) Co., Ltd.
รายชื่ออุปกรณ์ / เครื่องมือ : NO_x Analyzer
รุ่นของอุปกรณ์ / เครื่องมือ : T200
วันที่ : 16 กรกฎาคม 2568
บริษัทผู้ผลิต : Teledyne API
หมายเลขอุปกรณ์ / เครื่องมือ : 2975

TEST VALUES			
API MODEL T200		BEFORE	AFTER
1 RANGE	50 - 20,000 PPB	500.0	500.0
2 STABILITY	≤ 1 PPB	0.0	0.3
3 SAMPLE FLOW	500 ± 10% c/min	501	500
4 OZONE FLOW	80 ± 10% c/min	82	82
5 PMT	mV	56.6	56.1
6 NORM PMT	mV	25.6	32.6
7 A ZERO	-20 To 150 mV	51.2	38.9
8 HPVS	400 - 900 V	775	775
9 RX CELL TEMP	50 ± 1 °C	50.0	50.0
10 BOX TEMP	AMBIENT ± 5 °C	28.4	28.1
11 PMT TEMP	7 ± 2 °C	7.4	7.5
12 MOLY TEMP	315 ± 5 °C	315.0	314.0
13 RX CELL PRESSURE	<10 in - Hg-A	4.8	4.8
14 SAMPLE PRESSURE	25 - 36 in - Hg-A	29.0	29.0
15 NOX SLOPE	1.0 ± 0.3	1.031	0.998
16 NOX OFFSET	-50 To 150	24.0	1.8
17 NO SLOPE	1.0 ± 0.3	0.936	0.944
18 NO OFFSET	-50 To 150	-1.8	-1.1
19 NO SAMPLE READING	PPB	2.6	0.6
20 NO ₂ SAMPLE READING	PPB	9.1	2.5
21 NO _x SAMPLE READING	PPB	11.9	3.1
22 OPTIC TEST	2000 ± 1000 mV	1131.2	1142.5
23 ELECTRICAL TEST	2000 ± 1000 mV	1256.0	1259.1
24 VOLTAGE TEST	+5 V, +12 V, +15 V, -15 V	5.26 / 12.44 / 15.86 / 15.28	5.26 / 12.44 / 15.86 / 15.28
25 ZERO GAS NO/NO ₂	0.00 ± 0.00 PPB	0.5 / -0.4	0.0 / 0.1
26 SPAN GAS NO/NO ₂	400.00 ± 0.00 PPB	410.8 / 412.6	399.8 / 400.2

หมายเหตุ

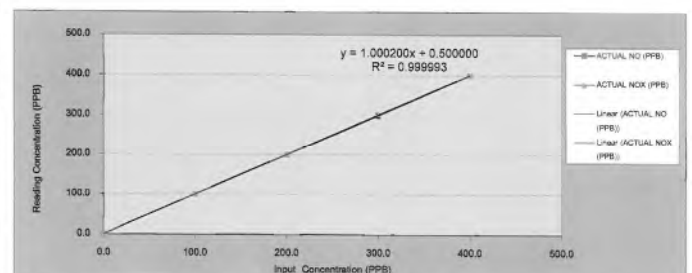
- ทำการเปลี่ยน Silencer Filter 3 ชิ้น, Spring 3 ชิ้น, O-ring 6 ชิ้น
- ทำการ Calibrate Multi-point

MULTI-POINT CALIBRATION REPORT

CUSTOMER NAME : SGS (Thailand) Co., Ltd.
EQUIPMENT NAME : NO_x Analyzer
MANUFACTURER : Teledyne - API MODEL : T200 SERIAL NO : 2975
STANDARD GAS CONCENTRATION (PPM) : 53.16 CYLINDER NO : EB0169291
CYLINDER PRESSURE (psig) : 1550 CERTIFIED DATE : Nov 08, 2023
CERTIFIED BY : AIRGAS SPECIALTY GASES EXPIRED DATE : Nov 08, 2031

CALIBRATION RESULTS

POINT NO	CALIBRATION RESULTS						
	IDEAL (PPB)	ACTUAL NO (PPB)	ERROR NO (PPB)	% ERROR NO	ACTUAL NO ₂ (PPB)	ERROR NO ₂ (PPB)	% ERROR NO ₂
ZERO	0.0	0.0	0.0	-	0.1	0.1	-
1	100.0	100.2	0.2	0.2	101.0	1.0	1.0
2	200.0	199.7	-0.3	-0.2	200.4	0.4	0.2
3	300.0	299.9	-1.1	-0.4	301.0	1.0	0.3
4	400.0	399.8	-0.2	0.0	400.2	0.2	0.0
AVERAGE (%)				0.2	0.4		



CALIBRATED BY : คุณสมาน มาหาญ DATE : 16 กรกฎาคม 2568
ต้องการข้อมูลเพิ่มเติมหรือทราบค่าทางเทคนิค กรุณาติดต่อ : คุณสมาน มาหาญ โทรศัพท์ : 02-515-8987

เลขที่ 388 ถนนรัชดาภิเษก แขวงจันทริก เขตจตุจักร กรุงเทพฯ 10900 โทรศัพท์ : 0-2515-8999 โทรสาร : 0-2515-8988 E-Mail : info@kinetics.co.th

CERTIFICATE OF ANALYSIS **Grade of Product: EPA PROTOCOL STANDARD**

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E04NI99E80A0041
Cylinder Number: ET0049508
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12025
Gas Code: CO,NO,NOX,SO2,BALN

Reference Number: 160-403431357-1
Cylinder Volume: 83.0 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: 660
Certification Date: Oct 06, 2025

Expiration Date: Oct 06, 2026

Triad Data Available Upon Request

NOTES: Gross Weight: 17.7 Kg
Net Weight: 2.7 Kg
PO# 4225003218



Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 808R-12031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. 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	45.00 PPM	44.82 PPM	G1	+/- 0.9% NIST Traceable	09/29/2025, 10/06/2025
NITRIC OXIDE	45.00 PPM	44.77 PPM	G1	+/- 0.7% NIST Traceable	09/29/2025, 10/06/2025
SULFUR DIOXIDE	45.00 PPM	45.24 PPM	G1	+/- 0.9% NIST Traceable	09/29/2025, 10/06/2025
CARBON MONOXIDE	4500 PPM	4522 PPM	G1	+/- 0.6% NIST Traceable	09/29/2025
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
GMS	DCR1201202233	CC750375	49.07 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	May 03, 2026
PRM	12404	APX 1324257	50.04 PPM NITRIC OXIDE/NITROGEN	+/- 0.4%	Dec 22, 2023
GMS	124200098126	CC2323292	4.367 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.9%	Jan 04, 2027
PRM	CC2360001.1	D153495	9.87 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 22, 2024
GMS	15310042024202	CC502382	9.897 PPM NITROGEN DIOXIDE/AIR	+/- 2.1%	Sep 18, 2027
NTRM	160610-01	CC473196	49.02 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Mar 22, 2028
GMS	160403186449105	CC359439	51.58 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.9%	Jan 28, 2033
CARBON MONOXIDE	080123	KAL004712	4857 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	Feb 20, 2030

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS ULTRAMAT 6 T4-443	NDIR	Sep 10, 2025
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Sep 17, 2025
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Oct 02, 2025
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Sep 25, 2025



Approved for Release



Approved for Release

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited. Certificate No : 25-ACT-068
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Request No : Req-2025-0995
Chong Nonsi, Yannawa, Bangkok 10120

Unit Under Calibration Details

Measurement item : Acoustic Calibrator Class : 1
Manufacturer : Cirrus Range : 94 dB / 1000 Hz
Model : CR-515 Instrument Status : Used
Serial Number : 88346
ID : ENSL 19174

Calibration Environment and Details

Temperature : (23 ±2 °C)
Humidity : (50 ± 20 %RH)
Barometric Pressure : (1013 ±10.0 hPa)
Received Date : 9 May 2025
Calibration Date : 13 May 2025
Location of Calibration : LAB 1 Acoustic
Calibration Procedure : In-house method CP-ACT-02 based on IEC 60942:2017 Electroacoustics - Sound calibrators

Reference Standard	Model	Serial Number	Traceable	Due Calibration
Sound Calibrator	SV 35A	58079	EEI	12 June 2025
THD Multimeter	2015	1047765	NIMT	4 February 2026

Traceability : This certificate provides traceability of measurement to recognized national standard, and to the realization of the international System of Units (SI).

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k=2$, providing a level of confidence approximately 95 %.

Calibrated By :

[Signature]

Approved By :

[Signature]

Issue Date : 13 May 2025

The results stated only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-ACT-02 Rev 04 Issue date 17/2/25

Certificate No : 25-ACT-068

Request No : Req-2025-0995

Sound pressure level

Calibration Results : Without Adjustment

Calibration Range (dB)	Without Adjustment (dB)		Adjustment (dB)		Uncertainty (± dB)
	Measured	Deviated value	Measured	Deviated value	
94 dB / 1000 Hz	93.95	-0.05	-	-	0.12

Frequency of Sound pressure level

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)
	Measured (Hz)	Deviated value	Measured (Hz)	Deviated value	
94 dB / 1000 Hz	1000.0	0.00	-	-	0.01

Total Harmonic Distortion plus Noise of Sound pressure level (THD+N %)

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)
	Measured (%)	Deviated value	Measured (%)	Deviated value	
94 dB / 1000 Hz	0.95	-	-	-	0.17

Note :

- The calibration results exclude the calibrator pressure correction

- The calibration results exclude the microphone volume correction

End of Calibration

The results stated only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-ACT-02 Rev 04 Issue date 17/2/25

SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

451-451/1 Sirthorn Road, Bangbunru, Bangplud, Bangkok, 10700 Thailand
Tel: +66 2433 8331 Email: calibration@sithiporn.com



Cert. No. : ACL25205
Pages : 1 of 8

Calibration Certificate

ENSL 25994

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NL-53 / Microphone UC-59 / Preamplifier NH-25
Serial No.: 00452075 / 26810 / 55055
ID No.: -

Condition As Found : GOOD

Customer : SGS (THAILAND) LIMITED.
238 TRR TOWER, 19th-21st FLOOR,
NARADHIWAS RAJANAGARINDRA ROAD,
CHONG NONSI, YANNAWA, BANGKOK 10120
THAILAND.

Location : -
Ambient Temperature : (23.0 ± 3) °C
Pressure : (101.3 ± 3) kPa
Relative Humidity : (50.0 ± 20) %

Received Date : 22 MAY 2025
Calibration Date : 27 MAY 2025
Date of Issue : 29 MAY 2025

Calibrated by :

[Signature]

Approved by :

[Signature]

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

SITHIPORN associates

SITHIPORN ASSOCIATES CALIBRATION LABORATORY

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 2 of 8

Calibration Procedure : CP-AC-02

Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM). The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0011-25	11-FEB-26
Waveform Generator	33511B	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	34461A	MY60024273	CA2025120EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Electrical And Electronics Institute (EEI).

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 3 of 8

Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.1	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25205
Job No. : VC68AC0104
Page : 4 of 8

Result of calibration :

1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	94.0	0.0	±0.3

2. Self-generated noise

2.1 Normal test

Measured Value (dB)
15.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A - weight	11.9
C - weight	15.7
Flat	21.3

3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.0
1000	0.2	0.2	0.2	± 0.7
8000	-1.0	-1.0	-1.0	+ 1.5, - 2.5

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 5 of 8

4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.1	±1.0
125	0.0	0.1	0.0	±1.0
250	0.0	0.0	0.0	±1.0
500	0.0	0.0	-0.1	±1.0
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±1.0
4000	-0.1	0.0	-0.1	±1.0
8000	-0.1	-0.1	-0.1	+ 1.5, - 2.5
16000	0.0	-0.8	-0.8	+ 2.5, -16.0

5. Frequency and time weightings at 1 kHz

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

6. Long - term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.1

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 6 of 8

7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±0.8
136.0	136.0	0.0	±0.8
135.0	135.0	0.0	±0.8
134.0	134.0	0.0	±0.8
133.0	133.0	0.0	±0.8
132.0	132.0	0.0	±0.8
131.0	131.0	0.0	±0.8
129.0	129.0	0.0	±0.8
124.0	124.0	0.0	±0.8
119.0	119.1	0.1	±0.8
114.0	114.0	0.0	±0.8
109.0	109.1	0.1	±0.8
104.0	104.0	0.0	±0.8
99.0	99.0	0.0	±0.8
94.0	94.0	0.0	±0.8
89.0	89.0	0.0	±0.8
84.0	84.0	0.0	±0.8
79.0	79.0	0.0	±0.8
74.0	74.0	0.0	±0.8
69.0	69.0	0.0	±0.8
64.0	64.0	0.0	±0.8
59.0	59.0	0.0	±0.8
54.0	54.0	0.0	±0.8
49.0	49.0	0.0	±0.8
44.0	44.0	0.0	±0.8
39.0	39.0	0.0	±0.8
34.0	34.0	0.0	±0.8
30.0	30.0	0.0	±0.8
29.0	29.0	0.0	±0.8
28.0	28.0	0.0	±0.8
27.0	27.0	0.0	±0.8
26.0	26.0	0.0	±0.8
25.0	25.0	0.0	±0.8

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 7 of 8

8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±0.8

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	28.9	-0.1	±0.8

9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	108.0	0.0	1.0 ; -3.0
	2	8	117.0	117.0	0.0	1.0 ; -1.5
	200	800	134.0	134.1	0.1	±0.5
Slow	2	8	108.0	108.0	0.0	1.0 ; -3.0
	200	800	127.6	127.6	0.0	±0.5
	0.25	1	99.0	98.9	-0.1	1.0 ; -3.0
SEL	2	8	108.0	108.0	0.0	1.0 ; -1.5
	200	800	128.0	128.1	0.1	±0.5

Cert. No. : ACL25205
Job No. : VC68AC0104
Pages : 8 of 8

10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L _{peak} (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±2.0
One	133.4	133.4	0.0	±2.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±1.0
Positive half cycle	135.4	135.2	-0.2	±1.0
Negative half cycle	135.4	135.2	-0.2	±1.0

11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	±0.1

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

SITHIPORN ASSOCIATES CO., LTD.
CALIBRATION LABORATORY451-451/1 Sirinthorn Road, Bangbunmu, Bangplud, Bangkok, 10700 Thailand
Tel : +66 2433 8331 Email : calibration@sithiporn.comCert. No. : ACL25210
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NL-53 / Microphone UC-59 / Preamplifier NH-25
Serial No.: 00452080 / 26815 / 55060
ID No.: -

Condition As Found : GOOD

Customer : SGS (THAILAND) LIMITED.
238 TRR TOWER, 19th-21st FLOOR,
NARADHIWAS RAJANAGARINDRA ROAD,
CHONG NONSI, YANNAWA, BANGKOK 10120
THAILAND.

Location : -
Ambient Temperature : (23.0 ± 3) °C
Pressure : (101.3 ± 3) kPa
Relative Humidity : (50.0 ± 20) %

Received Date : 22 MAY 2025
Calibration Date : 27 MAY 2025
Date of Issue : 29 MAY 2025

Calibrated by :

Approved by :

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 2 of 8

Calibration Procedure : CP-AC-02

Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0011-25	11-FEB-26
Waveform Generator	33511B	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	34461A	MY60024273	CA2025120EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Electrical And Electronics Institute (EEI).

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 3 of 8

Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25210
Job No. : VC68AC0104
Page : 4 of 8

Result of calibration :

1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	94.0	0.0	±0.3

2. Self-generated noise

2.1 Normal test

Measured Value (dB)
14.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A - weight	11.3
C - weight	15.0
Flat	20.7

3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.0
1000	0.2	0.2	0.2	± 0.7
8000	-1.1	-1.1	-1.1	+ 1.5, - 2.5

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 5 of 8

4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±1.0
125	0.0	0.0	0.0	±1.0
250	0.0	0.0	0.0	±1.0
500	0.0	0.0	0.0	±1.0
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±1.0
4000	0.0	0.0	0.0	±1.0
8000	-0.1	0.0	0.0	+ 1.5, - 2.5
16000	0.0	-0.8	-0.7	+ 2.5, -16.0

5. Frequency and time weightings at 1 kHz

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

6. Long - term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.1

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 6 of 8

7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±0.8
136.0	136.0	0.0	±0.8
135.0	135.0	0.0	±0.8
134.0	134.0	0.0	±0.8
133.0	133.0	0.0	±0.8
132.0	132.0	0.0	±0.8
131.0	131.0	0.0	±0.8
129.0	129.0	0.0	±0.8
124.0	124.0	0.0	±0.8
119.0	119.0	0.0	±0.8
114.0	114.0	0.0	±0.8
109.0	109.0	0.0	±0.8
104.0	104.0	0.0	±0.8
99.0	99.0	0.0	±0.8
94.0	94.0	0.0	±0.8
89.0	89.0	0.0	±0.8
84.0	84.0	0.0	±0.8
79.0	79.0	0.0	±0.8
74.0	74.0	0.0	±0.8
69.0	69.0	0.0	±0.8
64.0	64.0	0.0	±0.8
59.0	59.0	0.0	±0.8
54.0	54.0	0.0	±0.8
49.0	49.0	0.0	±0.8
44.0	44.0	0.0	±0.8
39.0	39.0	0.0	±0.8
34.0	34.0	0.0	±0.8
30.0	30.0	0.0	±0.8
29.0	29.0	0.0	±0.8
28.0	28.0	0.0	±0.8
27.0	26.9	-0.1	±0.8
26.0	26.0	0.0	±0.8
25.0	24.9	-0.1	±0.8

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 7 of 8

8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±0.8

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	28.9	-0.1	±0.8

9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.0 ; -3.0
	2	8	117.0	116.9	-0.1	1.0 ; -1.5
	200	800	134.0	134.0	0.0	±0.5
Slow	2	8	108.0	108.0	0.0	1.0 ; -3.0
	200	800	127.6	127.6	0.0	±0.5
SEL	0.25	1	99.0	98.9	-0.1	1.0 ; -3.0
	2	8	108.0	108.0	0.0	1.0 ; -1.5
	200	800	128.0	128.0	0.0	±0.5

Cert. No. : ACL25210
Job No. : VC68AC0104
Pages : 8 of 8

10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L _{peak} (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±2.0
One	133.4	133.4	0.0	±2.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±1.0
Positive half cycle	135.4	135.2	-0.2	±1.0
Negative half cycle	135.4	135.2	-0.2	±1.0

11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	±0.1

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

Certificate of Calibration

Customer
Name : SGS (Thailand) Limited.
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yannaawa, Bangkok 10120

Certificate No : 25-TPM-310
Request No : Req-2025-1539
Page : 1/2

Unit Under Calibration Details

Calibration Parameter : Temperature
Instrument Name : Area Heat Stress Monitor
Manufacturer : 3M
Model : QT-34
Serial Number : TEM030026
Resolution : 0.1 °C
ID Number : ENWP 090

Range Calibration : 50°C to 40°C
Type of Sensor : RTD
Sensor Diameter (mm) : 4.5
Calibration Position (mm) : 67.5
Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 3 °C
Humidity : 55 %RH ± 15 %RH
Received Date : 7 July 2025
Calibrated Date : 14 July 2025
Calibration Procedure : In-house method CP-TPM-01 by Comparison with Standard Thermometer.

Reference Standard : Digital Thermometer with Sensor, Manufacturer: GINGO/INGO, Model: GT11/ RTD100, SN: 12000077, ID: AR-TPM Which was calibrated on 15 October 2024, Calibration Certificate No.: QR24-2836

Traceability : This Certificate is traceable to SI Unit through Quality Reborn Co., Ltd., NSC-ONSC Accreditation No.: Calibration 0292

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k=2$, providing a level of confidence approximately 95 %.

Approved By : 

Issue Date : 14 July 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.
FM-708-TPM-01 Rev.01 Issue date 13/02/20

Calibration Note

UUC Adjustment : Not Adjust

Certificate No : 25-TPM-310

Request No : Req-2025-1539

Page : 2/2

Result of Calibration :

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty in °C
WET	25.002	24.9	+ 0.1	0.14
	35.004	34.9	+ 0.1	0.14
	45.003	44.9	+ 0.1	0.14
DRY	25.003	24.8	+ 0.2	0.14
	35.003	34.8	+ 0.2	0.14
	45.002	44.9	+ 0.1	0.14
GLOBE	25.003	24.8	+ 0.2	0.14
	35.002	34.8	+ 0.2	0.14
	45.003	44.9	+ 0.1	0.14

End of Certificate

Calibrated By : 

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.
FM-708-TPM-01 Rev.01 Issue date 13/02/20

Certificate of Calibration

Customer
Name : SGS (Thailand) Limited.
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yannaawa, Bangkok 10120

Certificate No : 26-TPM-026
Request No : Req-2026-0074
Page : 1/2

Unit Under Calibration Details

Calibration Parameter : Temperature
Instrument Name : Area Heat Stress Monitor
Manufacturer : 3M
Model : QT-34
Serial Number : TEM030028
ID Number : ENHS 17006
Resolution : 0.1 °C

Range Calibration : 25 °C - 45 °C
Type of Sensor : RTD
Sensor Diameter (mm) : 4.5
Immersion Depth (mm) : 67.5
Instrument Condition : Used

Calibration Environment and Details

Temperature : 23 °C ± 3 °C
Humidity : 55 %RH ± 15 %RH
Received Date : 9 January 2026
Calibrated Date : 20 January 2026
Calibration Procedure : In-house method CP-TPM-01 by Comparison with Standard Thermometer.

Reference Standard : Digital Thermometer with Sensor, Manufacturer: GINGO/INGO, Model: GT11/ RTD100, SN: 12000077, ID: AR-TPM Which was calibrated on 10 October 2025, Calibration Certificate No.: QR25-2938

Traceability : This Certificate is traceable to SI Unit through Quality Reborn Co., Ltd., NSC-ONSC Accreditation No.: Calibration 0292

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k=2$, providing a level of confidence approximately 95 %.

Approved By : 

Issue Date : 20 January 2026

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.
FM-708-TPM-01 Rev.02 Issue date 01/09/25

Calibration Note

UUC Adjustment : Without Adjustment

Certificate No : 26-TPM-026

Request No : Req-2026-0074

Page : 2/2

Result of Calibration :

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty in °C
WET	25.003	25.0	0.0	0.14
	35.004	35.0	0.0	0.14
	45.002	45.0	0.0	0.14
DRY	25.003	24.9	+ 0.1	0.14
	35.003	34.9	+ 0.1	0.14
	45.005	44.9	+ 0.1	0.14
GLOBE	25.003	24.9	+ 0.1	0.14
	35.002	34.9	+ 0.1	0.14
	45.003	44.9	+ 0.1	0.14

End of Certificate

Calibrated By : 

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.
FM-708-TPM-01 Rev.02 Issue date 01/09/25

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited. Certificate No : 25-ACT-112
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yammawa, Bangkok 10120 Request No : Req-2025-1542

Unit Under Calibration Details

Measurement item : Acoustic Calibrator Class : 1
Manufacturer : CRIFFER Range : 94 , 114 dB 1000 Hz
Model : CR2 PLUS Instrument Status : Used
Serial Number : 37001157
ID : ENSL 22193

Calibration Environment and Details

Temperature : (23 ±2 °C)
Humidity : (50 ± 20 %RH)
Barometric Pressure : (1013 ±10.0 hPa)
Received Date : 7 July 2025
Calibration Date : 15 July 2025
Location of Calibration : LAB 1 Acoustic
Calibration Procedure : In-house method CP-ACT-02 based on IEC 60942:2017 Electroacoustics - Sound calibrators

Reference Standard	Model	Serial Number	Traceable	Due Calibration
Sound Calibrator	SV 35A	58079	EEL	20 June 2026
THD Multimeter	2015	1047765	NIMT	4 February 2026

Traceability : This certificate provides traceability of measurement to recognized national standard, and to the realization of the international System of Units (SI).

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k=2$, providing a level of confidence approximately 95 %.

Calibrated By :



Approved By :



Issue Date : 15 July 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-ACT-02 Rev 04 Issue date 17/2/25

Certificate No : 25-ACT-112
Request No : Req-2025-1542

Sound pressure level

Calibration Results : Without Adjustment

Calibration Range (dB)	Without Adjustment (dB)		Adjustment (dB)		Uncertainty (± dB)
	Measured	Deviated value	Measured	Deviated value	
94 dB / 1000 Hz	93.86	-0.14	-	-	0.12
114 dB / 1000 Hz	113.85	-0.15	-	-	0.11

Frequency of Sound pressure level

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)
	Measured (Hz)	Deviated value	Measured (Hz)	Deviated value	
94 dB / 1000 Hz	1000.00	0.00	-	-	0.01
114 dB / 1000 Hz	1000.00	0.00	-	-	0.01

Total Harmonic Distortion plus Noise of Sound pressure level (THD+N %)

Calibration Range (Hz)	Without Adjustment	Adjustment	Uncertainty (± %)
	Measured (%)	Measured (%)	
94 dB / 1000 Hz	1.89	-	0.17
114 dB / 1000 Hz	2.10	-	0.17

Note :

- The calibration results exclude the calibration pressure correction
- The calibration results exclude the microphone volume correction

End of Calibration

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-ACT-02 Rev 04 Issue date 17/2/25

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited. Certificate No : 25-NDM-139
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yammawa, Bangkok 10120 Request No : Req-2025-1380

Unit Under Calibration Details

Measurement item : Noise Dosimeter Microphone Class : 2
Manufacturer : CASELLA Microphone Model : -
Model : dBadge2 Microphone S/N : 105426
Serial Number : 5037537 Preamplifier Model : -
ID : ENSL 24215 Preamplifier S/N : -
Resolution : 0.1 dB Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 2 °C
Humidity : 50 %RH ± 20 %RH
Barometric Pressure : 1013 hPa ± 10 hPa
Received Date : 17 June 2025
Calibration Date : 19 June 2025
Calibration Procedure : In-house method CP-NDM-01 based on IEC 61252 : 2017
Location of Calibration : Lab Acoustic

Reference Standard

Instrument	Brand	Model	SN.	Due calibration	Traceability
Standard Microphone	Brueel&Kjaer	4192	2294985	25 June 2025	NIMT
Audio Generator	Svantech	SVAN 401	131	9 October 2025	WK Electric
Timer	EXTECH	-	05-ACT	11 March 2026	TPA

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k=2$, providing a level of confidence approximately 95 %.

Calibrated By :



Approved By :



Issue Date : 19 June 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev 06 Issue date 17/2/25

Certificate No : 25-NDM-139
Request No : Req-2025-1380

1. Absolute acoustical sensitivity

UUC Setting	Time		Exposure Measurement			UNCERTAINTY
	Ref	UUC	Ref	UUC	Error	
FAST / A / 54-140						
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
1000 Hz 114 dB	120	120	3.53	3.55	+0.6	3.1

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand CASELLA, Model CEL-1202, SN. 3865016

2. Frequency weightings

UUC Setting	Deviation from various Frequency Weighting		UNCERTAINTY (± dB)
	A	C	
FAST / 54-140			
STD Setting	(dB)	(dB)	
*63 Hz	-0.6	-0.4	0.40
125 Hz	-0.2	-0.3	0.40
250 Hz	-0.2	-0.4	0.40
500 Hz	-0.1	-0.2	0.40
1000 Hz	0.0	0.0	0.40
2000 Hz	0.4	0.1	0.40
4000 Hz	0.8	0.6	0.40
8000 Hz	0.0	-0.1	0.40

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev 06 Issue date 17/2/25

Certificate No : 25-NDM-139
Request No : Req-2025-1380

3. Linearity of response to steady signals

a. Sound exposure meter, linearity of response for changes of input sinusoidal signal level

UUC Setting		FAST / A / High										
1000 Hz	Ref	(dB)	54.0	80.0	90.0	100.0	110.0	114.0	120.0	130.0	140.0	
	Level A	(dB)	54.6	80.1	90.1	100.0	110.0	114.0	120.0	130.0	140.0	
	Error	(dB)	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
8000 Hz	Ref	(dB)			88.9	98.9	108.9	112.9	118.9	128.9	138.9	
	Level A	(dB)			89.0	99.0	108.9	112.9	118.9	128.8	138.8	
	Error	(dB)			0.1	0.1	0.0	0.0	0.0	-0.1	-0.1	
63 Hz	Ref	(dB)						87.8	93.8	103.8	113.8	
	Level A	(dB)						87.8	93.8	103.8	113.8	
	Error	(dB)						0.0	0.0	0.0	0.0	
UNCERTAINTY		(±dB)	0.3									

b. Sound exposure meter linearity of error

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)	
1000 Hz 110 dB	27	27	0.30	0.30	0.00	5.6	
1000 Hz 110 dB	45	45	0.50	0.50	0.00		
1000 Hz 110 dB	90	90	1.00	0.99	-1.00		
1000 Hz 110 dB	180	180	2.00	1.98	-1.00		
1000 Hz 120 dB	36	36	4.00	3.97	-0.75		
1000 Hz 120 dB	72	72	8.00	7.95	-0.62	5.6	
1000 Hz 120 dB	90	90	10.00	9.93	-0.70		
1000 Hz 120 dB	180	180	20.00	19.87	-0.65		
1000 Hz 120 dB	360	360	40.00	39.73	-0.68		
1000 Hz 120 dB	720	720	80.00	79.46	-0.68		

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd

PM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-139
Request No : Req-2025-1380

4. Response to short duration

a. Response for sinusoidal signals - reference level

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(Pa ² h)	(Pa ² h)	
4000 Hz 95 dB	2846	2846	1.00	1.00	0.00	0.052	

b. Sound exposure meter response for series of toneburst impulses

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)	
Burst 1 ms, 95 dB	2846	2846	1.00	1.00	0.00	5.6	
Burst 1 ms, 100 dB	900	900	1.00	1.00	0.00		
Burst 1 ms, 108 dB	143	143	1.00	1.01	+1.00		

5. Response to unipolar pulse

UUC Setting	Time	Exposure Measurement		UNCERTAINTY
FAST / A / 54-140	UUC	UUC	Different	
Calibrator Setting	(s)	(Pa h)	(%)	(%)
Continuous Rectangle +	27	10.17	+0.49	3.7
Continuous Rectangle -		10.22		

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd

PM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited.
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road,
Chong Nonsi, Yannawa, Bangkok 10120

Certificate No : 25-NDM-173

Request No : Req-2025-1538

Unit Under Calibration Details

Measurement item : Noise Dosimeter
Manufacturer : CASELLA
Model : dBadge2
Serial Number : 5037620
ID : ENSL 24220
Resolution : 0.1 dB
Microphone Class : 2
Microphone Model : -
Microphone S/N : 105748
Preamplifier Model : -
Preamplifier S/N : -
Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 2 °C
Humidity : 50 %RH ± 20 %RH
Barometric Pressure : 1013 hPa ± 10 hPa
Received Date : 7 July 2025
Calibrated Date : 15 July 2025
Calibration Procedure : In-house method CP-NDM-01 based on IEC 61252 : 2017
Location of Calibration : Lab Acoustic

Reference Standard

Instrument	Brand	Model	SN	Due calibration	Traceability
Multifunction Acoustic Calibrator	Brüel&Kjaer	4226	3412381	8 May 2026	NIMT
Audio Generator	SvanteK	SVAN 401	131	9 October 2025	WK Electric
Timer	EXTECH	-	05-ACT	11 March 2026	TPA

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k = 2$, providing a level of confidence approximately 95 %.

Calibrated By :

Approved By :

Issue Date : 15 July 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd

PM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-173
Request No : Req-2025-1538

1. Absolute acoustical sensitivity

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)	
1000 Hz 114 dB	120	120	3.53	3.56	+0.8	3.1	

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand CASELLA, Model CEL-120/2, SN. 3865016

2. Frequency weightings

UUC Setting	Deviation from various Frequency Weighting		UNCERTAINTY
	A	C	
STD Setting	(dB)	(dB)	(± dB)
*63 Hz	-0.3	-0.1	0.40
125 Hz	-0.1	-0.2	0.40
250 Hz	-0.2	-0.4	0.40
500 Hz	-0.1	-0.2	0.40
1000 Hz	0.0	0.0	0.40
2000 Hz	0.2	0.1	0.40
4000 Hz	0.4	0.4	0.40
8000 Hz	-0.2	0.0	0.40

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd

PM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-173
Request No : Req-2025-1538

3. Linearity of response to steady signals

a. Sound exposure meter, linearity of response for changes of input sinusoidal signal level

UUC Setting		FAST / A / High									
1000 Hz	Ref	(dB)	94.0	90.0	90.0	100.0	110.0	114.0	120.0	130.0	140.0
	Level A	(dB)	54.6	80.1	90.1	100.0	110.0	114.0	120.0	130.0	140.0
	Error	(dB)	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8000 Hz	Ref	(dB)			88.9	98.9	108.9	112.9	118.9	128.9	138.9
	Level A	(dB)			89.0	99.0	108.9	112.9	118.9	128.8	138.8
	Error	(dB)			0.1	0.1	0.0	0.0	0.0	-0.1	-0.1
63 Hz	Ref	(dB)						87.8	93.8	103.8	113.8
	Level A	(dB)						87.8	93.8	103.8	113.8
	Error	(dB)						0.0	0.0	0.0	0.0
UNCERTAINTY		(#dB)	0.3								

b. Sound exposure meter linearity of error

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
1000 Hz 110 dB		27	27	0.30	0.30	0.00	5.6
1000 Hz 110 dB		45	45	0.50	0.50	0.00	
1000 Hz 110 dB		90	90	1.00	1.01	+1.00	
1000 Hz 110 dB		180	180	2.00	2.02	+1.00	
1000 Hz 120 dB		36	36	4.00	4.01	+0.25	
1000 Hz 120 dB		72	72	8.00	8.03	+0.37	5.6
1000 Hz 120 dB		90	90	10.00	10.03	+0.30	
1000 Hz 120 dB		180	180	20.00	20.06	+0.30	
1000 Hz 120 dB		360	360	40.00	40.13	+0.33	
1000 Hz 120 dB		720	720	80.00	80.26	+0.33	

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-173
Request No : Req-2025-1538

4. Response to short duration

a. Response for sinusoidal signals - reference level

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(Pa ² h)	(Pa ² h)
4000 Hz 95 dB		2846	2846	1.00	0.99	-0.01	0.052

b. Sound exposure meter response for series of toneburst impulses

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
Burst 1 ms, 95 dB		2846	2846	1.00	0.99	-1.00	5.6
Burst 1 ms, 100 dB		900	900	1.00	0.99	-1.00	
Burst 1 ms, 108 dB		143	143	1.00	1.00	0.00	

5. Response to unipolar pulse

UUC Setting		Time	Exposure Measurement		UNCERTAINTY
FAST / A / 54-140		UUC	UUC	Different	
Calibrator Setting		(s)	(Pa ² h)	(%)	
Continuous Rectangle +		28	10.11	+1.38	
Continuous Rectangle -			10.25		

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited.
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road,
Chong Nonsi, Yannawa, Bangkok 10120

Certificate No : 25-NDM-136

Request No : Req-2025-1377

Unit Under Calibration Details

Measurement item : Noise Dosimeter
Manufacturer : CASELLA
Model : dBadge2
Serial Number : 5037338
ID : ENSL 24204
Resolution : 0.1 dB
Microphone Class : 2
Microphone Model : -
Microphone S/N : 106927
Preamplifier Model : -
Preamplifier S/N : -
Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 2 °C
Humidity : 50 %RH ± 20 %RH
Barometric Pressure : 1013 hPa ± 10 hPa
Received Date : 17 June 2025
Calibration Date : 19 June 2025
Calibration Procedure : In-house method CP-NDM-01 based on IEC 61252 : 2017
Location of Calibration : Lab Acoustic

Reference Standard

Instrument	Brand	Model	SN.	Due calibration	Traceability
Standard Microphone	Brüel&Kjaer	4192	2294985	25 June 2025	NIMT
Audio Generator	Scantech	SVAN 401	131	9 October 2025	WK Electric
Timer	EXTECH	-	05-ACT	11 March 2026	TPA

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k = 2$, providing a level of confidence approximately 95 %.

Calibrated By :

Approved By :

Issue Date : 19 June 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-136

Request No : Req-2025-1377

1. Absolute acoustical sensitivity

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
1000 Hz 114 dB		120	120	3.53	3.55	+0.6	3.1

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand CASELLA, Model CEL-1202, SN. 3865016

2. Frequency weightings

UUC Setting		Deviation from various Frequency Weighting		UNCERTAINTY
FAST / 54-140		A	C	
STD Setting		(dB)	(dB)	(± dB)
*63 Hz		-0.4	-0.2	0.40
125 Hz		-0.1	-0.6	0.40
250 Hz		-0.1	-0.7	0.40
500 Hz		-0.1	-0.2	0.40
1000 Hz		0.0	0.0	0.40
2000 Hz		0.2	-0.1	0.40
4000 Hz		0.5	0.3	0.40
8000 Hz		-0.3	-0.5	0.40

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-136
Request No : Req-2025-1377

3. Linearity of response to steady signals

a. Sound exposure meter, linearity of response for changes of input sinusoidal signal level

UUC Setting		FAST / A / High									
1000 Hz	Ref	(dB)	54.0	80.0	90.0	100.0	110.0	114.0	120.0	130.0	140.0
	Level A	(dB)	54.4	80.0	90.0	100.0	110.0	114.0	119.9	129.9	140.0
	Error	(dB)	0.4	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0
8000 Hz	Ref	(dB)	88.9	98.9	108.9	112.9	118.9	128.9	138.9		
	Level A	(dB)	89.0	99.0	108.9	112.9	118.9	128.8	138.8		
	Error	(dB)	0.1	0.1	0.0	0.0	0.0	-0.1	-0.1		
63 Hz	Ref	(dB)					87.8	93.8	103.8	113.8	
	Level A	(dB)					87.8	93.8	103.8	113.8	
	Error	(dB)					0.0	0.0	0.0	0.0	
UNCERTAINTY		(±dB)	0.3								

b. Sound exposure meter linearity of error

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)	
1000 Hz 110 dB	27	27	0.30	0.30	0.00	5.6	
1000 Hz 110 dB	45	45	0.50	0.50	0.00		
1000 Hz 110 dB	90	90	1.00	0.99	-1.00		
1000 Hz 110 dB	180	180	2.00	1.98	-1.00		
1000 Hz 120 dB	36	36	4.00	4.00	0.00		
1000 Hz 120 dB	72	72	8.00	7.95	-0.62	5.6	
1000 Hz 120 dB	90	90	10.00	9.92	-0.80		
1000 Hz 120 dB	180	180	20.00	19.79	-1.05		
1000 Hz 120 dB	360	360	40.00	39.53	-1.18		
1000 Hz 120 dB	720	720	80.00	79.06	-1.18		

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-136
Request No : Req-2025-1377

4. Response to short duration

a. Response for sinusoidal signals - reference level

UUC Setting	Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error	
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(Pa ² h)	
4000 Hz 95 dB	2846	2846	1.00	1.00	0.00	0.052

b. Sound exposure meter response for series of toneburst impulses

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error		
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)	
Burst 1 ms, 95 dB	2846	2846	1.00	1.00	0.00	5.6	
Burst 1 ms, 100 dB	900	900	1.00	1.00	0.00		
Burst 1 ms, 108 dB	143	143	1.00	1.01	+1.00		

5. Response to unipolar pulse

UUC Setting	Time	Exposure Measurement		UNCERTAINTY
FAST / A / 54-140	UUC	UUC	Different	
Calibrator Setting	(s)	(Pa ³ h)	(%)	(%)
Continuous Rectangle +	28	10.09	+1.78	3.7
Continuous Rectangle -		10.27		

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate of Calibration

Customer

Name : SGS (Thailand) Limited.
Address : 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road,
Chong Nonsi, Yannawa, Bangkok 10120

Certificate No : 25-NDM-145

Request No : Req-2025-1386

Unit Under Calibration Details

Measurement item : Noise Dosimeter
Manufacturer : CASELLA
Model : dBadge2
Serial Number : 5037312
ID : ENSL 24203
Resolution : 0.1 dB
Microphone Class : 2
Microphone Model : -
Microphone S/N : 106313
Preamplifier Model : -
Preamplifier S/N : -
Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 2 °C
Humidity : 50 %RH ± 20 %RH
Barometric Pressure : 1013 hPa ± 10 hPa
Received Date : 17 June 2025
Calibrated Date : 20 June 2025
Calibration Procedure : In-house method CP-NDM-01 based on IEC 61252 : 2017
Location of Calibration : Lab Acoustic

Reference Standard

Instrument	Brand	Model	SN.	Due calibration	Traceability
Standard Microphone	Brüel&Kjaer	4192	2294985	25 June 2025	NIMT
Audio Generator	Svanick	SVAN 401	131	9 October 2025	WK Electric
Timer	EXTTECH	-	05-ACT	11 March 2026	TPA

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor $k = 2$, providing a level of confidence approximately 95 %.

Calibrated By :

Approved By :

Issue Date : 20 June 2025

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-145
Request No : Req-2025-1386

1. Absolute acoustical sensitivity

UUC Setting	Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140	Ref	UUC	Ref	UUC	Error	
Calibrator Setting	(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	
					(%)	
1000 Hz 114 dB	120	120	3.53	3.55	+0.6	3.1

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand CASELLA, Model CEL-1202, SN. 3865016

2. Frequency weightings

UUC Setting	Deviation from various Frequency Weighting		UNCERTAINTY
	A	C	
FAST / 54-140	(dB)	(dB)	(± dB)
STD Setting	(dB)	(dB)	
*63 Hz	-0.8	-0.6	0.40
125 Hz	-0.2	-0.3	0.40
250 Hz	-0.2	-0.4	0.40
500 Hz	-0.1	-0.2	0.40
1000 Hz	0.0	0.0	0.40
2000 Hz	0.4	0.3	0.40
4000 Hz	0.9	0.9	0.40
8000 Hz	-0.2	-0.2	0.40

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-145
Request No : Req-2025-1386

3. Linearity of response to steady signals

a. Sound exposure meter, linearity of response for changes of input sinusoidal signal level

UUC Setting		FAST / A / High									
1000 Hz	Ref	(dB)	54.0	80.0	90.0	100.0	110.0	114.0	120.0	130.0	140.0
	Level A	(dB)	54.2	80.0	90.0	100.0	110.0	114.0	120.0	130.0	140.0
	Error	(dB)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8000 Hz	Ref	(dB)			88.9	98.9	108.9	112.9	118.9	128.9	138.9
	Level A	(dB)			89.0	99.0	109.0	112.9	118.9	128.8	138.8
	Error	(dB)			0.1	0.1	0.1	0.0	0.0	-0.1	-0.1
63 Hz	Ref	(dB)						87.8	93.8	103.8	113.8
	Level A	(dB)						87.8	93.8	103.8	113.8
	Error	(dB)						0.0	0.0	0.0	0.0
UNCERTAINTY		(±dB)	0.3								

b. Sound exposure meter linearity of error

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
1000 Hz 110 dB		27	27	0.30	0.30	0.00	5.6
1000 Hz 110 dB		45	45	0.50	0.50	0.00	
1000 Hz 110 dB		90	90	1.00	0.99	-1.00	
1000 Hz 110 dB		180	180	2.00	1.98	-1.00	
1000 Hz 120 dB		36	36	4.00	3.97	-0.75	
1000 Hz 120 dB		72	72	8.00	7.94	-0.75	5.6
1000 Hz 120 dB		90	90	10.00	9.92	-0.80	
1000 Hz 120 dB		180	180	20.00	19.84	-0.80	
1000 Hz 120 dB		360	360	40.00	39.72	-0.70	
1000 Hz 120 dB		720	720	80.00	79.48	-0.65	

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

Certificate No : 25-NDM-145
Request No : Req-2025-1386

4. Response to short duration

a. Response for sinusoidal signals - reference level

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(Pa ² h)	(Pa ² h)
4000 Hz 95 dB		2846	2846	1.00	1.00	0.00	0.052

b. Sound exposure meter response for series of toneburst impulses

UUC Setting		Time		Exposure Measurement			UNCERTAINTY
FAST / A / 54-140		Ref	UUC	Ref	UUC	Error	
Calibrator Setting		(s)	(s)	(Pa ² h)	(Pa ² h)	(%)	(%)
Burst 1 ms, 95 dB		2846	2846	1.00	1.00	0.00	5.6
Burst 1 ms, 100 dB		900	900	1.00	1.00	0.00	
Burst 1 ms, 108 dB		143	143	1.00	1.01	+1.00	

5. Response to unipolar pulse

UUC Setting	Time	Exposure Measurement		UNCERTAINTY
FAST / A / 54-140	UUC	UUC	Different	
Calibrator Setting	(s)	(Pa ² h)	(%)	(%)
Continuous Rectangle +	28	10.16	+1.08	3.7
Continuous Rectangle -		10.27		

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-708-NDM-01 Rev.06 Issue date 17/2/25

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02N187E3HA0000 Reference Number: 82-401420324-1
Cylinder Number: GN0019211 Cylinder Volume: 260.5 CF
Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2214 PSIG
PGVP Number: B52019 Valve Outlet: 580
Gas Code: CO2,BALN Certification Date: Feb 14, 2019

Expiration Date: Feb 14, 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. 6.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	13.00 %	13.02 %	G1	+/- 0.7% NIST Traceable	02/14/2019
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060629	CC413730	13.359 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	May 09, 2019
ANALYTICAL EQUIPMENT					
Instrument/Make/Model			Analytical Principle		
Horiba V5A 510-CO2-19GYCSEG			Last Multipoint Calibration		
			Feb 04, 2019		

Triad Data Available Upon Request

NOTES:
Gross Weight: 108.50 lbs.
Net Weight: 20.23 lbs.
PO# 521900555

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



Approved for Release

Page 1 of 82-401420324-1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E02N179E3HA0000 Reference Number: 160-402500111-1
Cylinder Number: ND11246 Cylinder Volume: 271.0 CF
Laboratory: 124 - Plumsteadville - PA Cylinder Pressure: 2214 PSIG
PGVP Number: A12022 Valve Outlet: 580
Gas Code: CO2,BALN Certification Date: Aug 08, 2022

Expiration Date: Aug 08, 2030

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 mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 6.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	21.00 %	21.02 %	G1	+/- 0.4% NIST Traceable	08/08/2022
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	200605-04	608826EY	24.63 % CARBON DIOXIDE/NITROGEN	+/- 0.4%	Feb 08, 2027
ANALYTICAL EQUIPMENT					
Instrument/Make/Model			Analytical Principle		
HORIBA VAS011 TSVSVP NDIR CO2			Last Multipoint Calibration		
			Aug 03, 2022		

Triad Data Available Upon Request

NOTES: Gross Weight: 49.2 Kg
Net Weight: 10.0 Kg
PO# 5222003790



Approved for Release

Page 1 of 1



Certificate of Conformity

BANGKOK INDUSTRIAL GAS CO.,LTD.
1 Park Silom Tower, 24th Floor, Convent Road
Silom, Bangkok, Bangkok 10500 Thailand
Tel : (662) 481-6789 Fax : (662) 481-6790

Customer Name : SGS (Thailand) Limited Delivery Date : 03 Jul 2025
Product : 1100060 Analysis Date :
Product Name : CY N2 UHP 7M3 47S CGA580 Best if Use By :
Cylinder Type : 47 LITERS STEEL Delivery Order : 3300010176
Cylinder Valve : CGA 580 Inspection Lot : 40000005366
Filling Pressure : 2000 PSIG @ 27°C Gas Content : 7 M3

COMPONENT	UNIT	LOWER LIMIT	UPPER LIMIT	NOMINAL VALUE	ACTUAL VALUE	ANALYTICAL ACCURACY	TEST METHOD
Purity	%	99.9990					
Oxygen	ppm(V)			<3.0000			
Moisture	ppm(V)			<3.0000			
Carbon Monoxide	ppm(V)			<1.0000			
Carbon Dioxide	ppm(V)			<1.0000			
Total Hydrocarbon as CH4	ppm(V)			<1.0000			

Batch : 010725N201
Sampling Cylinder :
Cylinder Serial Number : D892075,11D062106,D9143166,11D126047
Remark :

This certificate is issued electronically and is valid without a signature.

HORIBA

HORIBA (THAILAND) LIMITED

48/8 Rungthongrak Rd., 1/F, 2nd Fl., Rungthongrak Rd., Huai Khwang, Bangkok 10310 THAILAND
Telephone: +66 (0) 2881 5885, +66 (0) 2734-4434 Fax: +66 (0) 2881 5890
Website: <http://www.horiba.com>

MULTI-POINT GAS TEST REPORT OF NITRIC OXIDE

Equipment Information

Manufacturer: Horiba Calibration Date: 30-Oct-25
Model: HORIBA PG-350 Background: 1
Serial Number: J4D2YU7S Coefficient: 1.0389
Room Temperature: 25.4 °C

Standard Gas Information

Zero Gas: Span Gas
Cylinder Number: D9143166 Cylinder Number: ND58962
Component: N2 Component: NO
Concentration: 99.999 % Concentration: 89.94 ppm
Expiration Date: 28-Sep-30

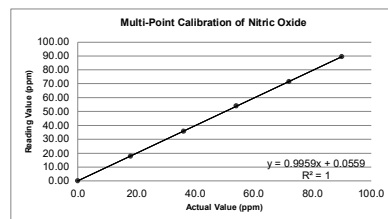
Measurement Range: 100
% Measurement Range: 89.94

Multi-Point Gas Test Data

Level	Actual Value	1	2	3	Average	Difference
0%	0.0	0.1	0.2	0.2	0.17	0.17
20%	17.99	17.80	17.80	17.90	17.83	-0.15
40%	35.98	35.50	35.80	35.80	35.70	-0.28
60%	53.96	54.20	54.09	54.12	54.14	0.17
80%	71.95	71.40	71.60	71.70	71.57	-0.39
100%	89.94	89.40	89.70	89.80	89.63	-0.31
						Average
						0.56
						Result
						PASS

Slope	0.9959	Interception	0.0559	Correlation Coefficient	1.0000
%Slope	-0.4146%	% Interception	0.0559%	% Correlation Coefficient	-0.0018%
Result	PASS	Result	PASS	Result	PASS

Multi-Point Gas Test Chart



Test By: [Signature] Approve By: [Signature]
Date: 30-Oct-2025 Date: 1-Nov-2025

MULTI-POINT GAS TEST REPORT OF SULFUR DIOXIDE

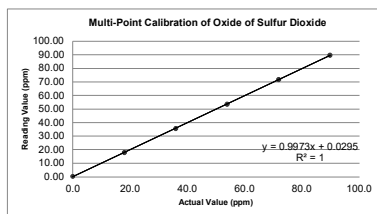
Equipment Information		
Manufacturer	Horiba	
Model	HORIBA PG-350	
Serial Number	J4DZYUYS	
Standard Gas Information		
Zero Gas	Span Gas	
Cylinder Number	D9143166	Cylinder Number ND58962
Component	N2	Component SO2
Concentration	99.99 %	Concentration 89.71 ppm
Expiration Date	-	Expiration Date 28-Sep-30
Measurement Range		200
% Measurement Range		44.855

Multi-Point Gas Test Data

Level	Actual Value	Reading Value (ppm)				Difference	
		1	2	3	Average	ppm	%
0%	0.0	0.2	0.3	0.3	0.27	-0.27	
20%	17.94	17.87	17.80	18.00	17.89	-0.05	0.29
40%	33.88	35.30	35.30	35.70	35.70	-0.32	0.88
60%	53.83	53.20	53.60	53.70	53.50	-0.33	0.61
80%	71.77	71.40	71.80	72.00	71.73	-0.03	0.05
100%	89.71	89.40	89.70	89.80	89.63	-0.08	0.09
					Average	Result	PASS

Slope	0.9973	Interception	0.0295	Correlation Coefficient	1.0000
%Slope	-0.2665%	% Interception	0.0148%	% Correlation Coefficient	-0.0018%
Result	PASS	Result	PASS	Result	PASS

Multi-Point Gas Test Chart



Test By Approve By
Date 30-Oct-2025 Date 1-Nov-2025

MULTI-POINT GAS TEST REPORT OF CARBON MONOXIDE

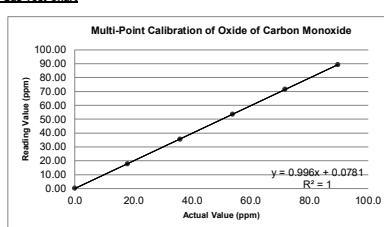
Equipment Information		
Manufacturer	Horiba	
Model	HORIBA PG-350	
Serial Number	J4D2YU7S	
Standard Gas Information		
Zero Gas	D9143166	
Cylinder Number	ND58962	
Component	N2	
Concentration	89.999 %	
Expiration Date	-	
Span Gas	CO	
Cylinder Number	ND58962	
Component	CO	
Concentration	89.58 % ppm	
Expiration Date	28-Sep-30	
Measurement Range	200	
% Measurement Range	44.79	

Multi-Point Gas Test Data

Level	Actual Value	Reading Value (ppm)			Difference		
		1	2	3	Average	ppm	%
0%	0.0	0.2	0.3	0.3	0.27	0.27	
20%	17.92	17.92	17.87	17.70	17.83	-0.09	0.48
40%	35.83	35.20	35.60	35.70	35.50	-0.33	0.93
60%	53.75	53.90	53.70	53.90	53.83	-0.11	0.21
80%	71.66	71.40	71.70	71.80	71.63	-0.03	0.04
100%	89.58	89.00	89.40	89.40	89.27	-0.31	0.35
					Average	0.40	

Slope	0.9960	Interception	0.0781	Correlation Coefficient	1.0000
% Slope	-0.4013%	% Interception	0.0390%	% Correlation Coefficient	-0.0013%

Multi-Point Gas Test Chart



Test By Approve By
 Date 30-Oct-2025 Date 1-Nov-2025

MULTI-POINT GAS TEST REPORT OF CARBON DIOXIDE

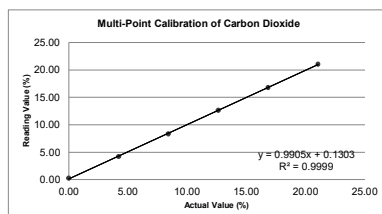
Equipment Information			
Manufacturer	Horiba	Calibration Date	30-Oct-25
Model	HCR10A PG-350	Background	0
Serial Number	14022175	Coefficient	1.0042
		Room Temperature	25.4 °C
Standard Gas Information			
Zero Gas	D9143166	Span Gas	
Cylinder Number		Cylinder Number	ND11246
Component	N2	Component	CO2
Concentration	99.999 %	Concentration	21.02 %
Expiration Date	-	Expiration Date	8-Aug-30
		Measurement Range	30
		% Measurement Range	70.07

Multi-Point Gas Test Data

Level	Actual Value	Reading Value (%)			Difference	
		1	2	3	Average	%
0%	0.00	0.20	0.30	0.30	0.27	-0.27
20%	4.13	4.16	4.17	4.17	4.21	-0.01 0.14
40%	8.41	8.30	8.38	8.39	8.36	-0.05 0.61
60%	12.61	12.58	12.61	12.64	12.61	0.00 0.02
80%	16.82	16.75	16.77	16.80	16.77	-0.04 0.25
100%	21.02	21.00	21.03	21.05	21.03	0.01 0.03
Average					0.21	
Result					PASS	

Slope	0.9905	Interception	0.1303	Correlation Coefficient	0.9999
%Slope	-0.9492%	% Interception	0.4344%	% Correlation Coefficient	-0.0069%
Result	PASS	Result	PASS	Result	PASS

Multi-Point Gas Test Chart



Test By: [Redacted] Approve By: [Redacted]
Date: 30-Oct-2025 Date: 1-Nov-2025

MULTI-POINT GAS TEST REPORT OF OXYGEN

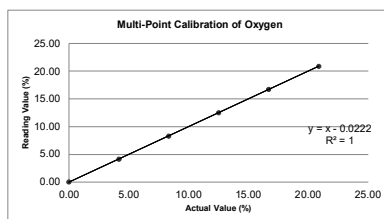
Equipment Information		Calibration Date	
Manufacturer	Horiba		30-Oct-25
Model	HORIBA PG-350	Background	16
Serial Number	J4D2YJTS	Coefficient	1.0286
		Room Temperature	25.4 °C
Standard Gas Information		Span Gas	
Zero Gas	D9143166	Cylinder Number	ND60790
Component	N2	Component	O2
Concentration	99.99 %	Concentration	20.87 %
Expiration Date	-	Expiration Date	20-Jan-30
		Measurement Range	25
		% Measurement Range	8.2

Multi-Point Gas Test Data

Level	Actual Value	Reading Value (%)			Difference	
		1	2	3	Average	%
0%	0.00	0.00	0.00	0.00	0.00	
20%	4.17	4.13	4.18	4.14	4.15	-0.02 0.57
40%	8.33	8.34	8.23	8.26	8.28	-0.07 0.85
60%	12.52	12.48	12.50	12.53	12.50	-0.02 0.15
80%	16.70	16.68	16.72	16.73	16.71	0.01 0.08
100%	20.87	20.82	20.84	20.85	20.84	-0.03 0.16
					Average	0.36
						PASS

Slope	1.0000	Interception	-0.0222	Correlation Coefficient	1.0000
%Slope	0.0000%	% Interception	-0.0889%	% Correlation Coefficient	-0.0007%
Result	PASS	Result	PASS	Result	PASS

Multi-Point Gas Test Chart



Test By		Approve By	
Date	30-Oct-2025	Date	1-Nov-2025

LOWER DETECTABLE LIMIT TESTING REPORT

Equipment Information

Manufacturer	Horiba	Calibration Date	30-Oct-25
Model	HORIBA PG-350	Room Temperature	25.4 °C
Serial Number	J4D2YU7S		

Standard Gas Information

Zero Gas		Component	N2
Cylinder Number	D9143166	Concentration	99.999 %

Parameters	Measurement Range	Unit	Background	Coefficient
NO	100	ppm	1	1.0389
SO ₂	200	ppm	0	1.1295
CO	200	ppm	0	1.3248
CO ₂	30	%	0	1.0042
O ₂	25	%	16	1.0266

TESTING REPORT RESULTS

Parameters	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	STDEV.
NO	0.00	0.10	0.10	0.10	-0.10	-0.10	0.00	-0.10	0.10	0.10	0.092
SO ₂	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.008
CO	0.30	0.30	0.20	0.20	0.30	0.20	0.30	0.30	0.30	0.30	0.048
CO ₂	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.004
O ₂	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.00	0.012

Conclusion

NO Lower detectable limit (LDL) value is	0.092	ppm
SO ₂ Lower detectable limit (LDL) value is	0.008	ppm
CO Lower detectable limit (LDL) value is	0.048	ppm
CO ₂ Lower detectable limit (LDL) value is	0.004	% Vol.
O ₂ Lower detectable limit (LDL) value is	0.012	% Vol.

Test By

Approve By

Date 30-Oct-2025

Date 1-Nov-2025

Dry Gas Meter ID. : ENSS 071
Instrument Brand : Apex / Model 572Date of Calibration : 12-Aug-2025
Calibrated By : SY

Wet gas meter Information

Wet gas Brand : Shinagawa
Wet gas Model : W-NK-2.5A
Wet gas S/N : 544122
Expire Date : 10-Jun-2027

Orifice Setting ΔH@ (mm H ₂ O)	Wet gas		Metering System		Time (min)	Yi	ΔH@
	V _w (L)	T _w (°C)	V _s (L)	T _m (°C)			
13	139.52	25.2	140.0	21.5	12.28	0.9830	49.805
13	139.28	25.2	140.0	22.0	12.26	0.9829	49.626
26	138.42	25.0	140.0	22.0	8.49	0.9763	50.526
26	138.32	24.9	140.0	22.5	8.50	0.9776	50.671
40	277.34	24.9	280.0	23.0	14.31	0.9805	52.334
40	277.68	24.6	280.0	23.0	14.32	0.9826	52.238
50	275.34	24.3	280.0	23.5	12.54	0.9760	52.180
50	275.48	24.1	280.0	24.0	12.53	0.9788	51.835
70	273.06	23.9	280.0	24.0	10.45	0.9689	51.456
70	273.56	23.8	280.0	24.0	10.45	0.9712	51.216
90	270.90	23.6	280.0	24.0	9.26	0.9604	51.755
90	272.32	22.8	280.0	24.0	9.26	0.9563	52.202
Average						0.9745	51.320

Remark :
Yi ≤ ± 0.02 from average
Yi = 1.00 ± 0.05
ΔH@ ≤ ± 5.08 mm H₂O from average
ΔH@ = 46.7 ± 5.4 mm H₂O

Checked By :

Approved By :

Position :

Position :

Date : 12/8/2025

Date : 14/08/2025

SGS (Thailand) Limited | 238 TRR Tower, 19th-21st Floor, Naradhiwas Rajanagarindra Road, Chong Nonsi, Yannawa, Bangkok 10120 t +66 (0)2 678 18 13 www.sgs.co.th

Member of the SGS Group

Temperature Display Verification

Dry Gas Meter ID. : ENSS 071
Instrument Brand : Apex / Model 572
Date of Calibration : 12-Aug-2025
Calibrated By : PK

Temperature Simulator Information

Simulator Brand : Handy Cal
Simulator Model : CA11E
Simulator S/N : T1L1015
Expire Date : 24-Jul-2026

Standard Value	Instrument Display				
	Stack	Probe	Filter	Aux	Exit
300	300	300	300	301	-
200	200	201	200	201	-
150	150	151	151	152	-
100	101	101	101	102	-
50	50	50	50	51	51
0	0	0	0	1	1
Difference	0.3%	1.0	1.0	2.0	1.0

Remark :
Stack ≤ ± 1.5 % Absolute
Probe ≤ ± 3.0 °C
Filter ≤ ± 3.0 °C
Aux Exit ≤ ± 3.0 °C

Checked By :

Approved By :

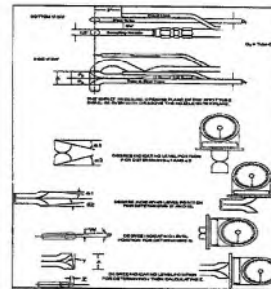
Position :

Position :

Date : 12/8/2025

Date : 14/08/2025

Certificate of Calibration

S-Type Geometric Pitot Tube Calibration
See the Code of Federal Regulations, Title 40, Part 60, Appendix A, Method 2, Item 4

Pitot tube/Probe No. No.37/A8463

Parameter	Value	Allowable Range	Check
Assembly Level?	Y	Yes or y	PASS
Ports Damaged?	N	No or n	PASS
a1	1.9	-10° < α1 < +10°	PASS
a2	0.9	-10° < α2 < +10°	PASS
b1	-1.2	-5° < α1 < +5°	PASS
b2	0.4	-5° < α2 < +5°	PASS
z	1.9	N/A	-
θ	1.2	N/A	-
D _h	0.375	0.188" to 0.375"	PASS
A	0.915748	2.10 ≤ A ≤ 3.00	PASS
A/2D _h	1.220997	1.05 ≤ P _h /D _h ≤ 1.5	PASS
Z = A tan γ	0.028779	Z ≤ 0.125"	PASS
W = A tan θ	0.019182	W ≤ 0.031"	PASS

I certify that pitot tube/probe No.37/A8463 meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube certification factor of 0.84. See 40 CFR Pt. 60, App A, EPA Method 2.

Standard Device

Device Name : Digital Inclinator

Manufacturer : BASLINE

Model : 22-1057

ID No. : QC-3824

Certified by

Expiration date : 14-Nov-26

ENSS No. : ENSS 22159

Date

Approved by

Date

12/8/2025

14/8/26

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E04NI99E3HA0032
Cylinder Number: GN0029553
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12024

Reference Number: 160-402967999-1
Cylinder Volume: 247.0 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: B60
Certification Date: Feb 27, 2024

Expiration Date: Feb 27, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	45.00 PPM	45.56 PPM	G1	+/- 1.1% NIST Traceable	02/20/2024, 02/27/2024
CARBON MONOXIDE	45.00 PPM	45.56 PPM	G1	+/- 0.7% NIST Traceable	02/20/2024
NITRIC OXIDE	45.00 PPM	45.56 PPM	G1	+/- 1.1% NIST Traceable	02/20/2024, 02/27/2024
SULFUR DIOXIDE	45.00 PPM	45.44 PPM	G1	+/- 0.7% NIST Traceable	02/20/2024, 02/27/2024
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	120112-32	KAL0204540	49.24 PPM CARBON MONOXIDE/NITROGEN	+/- 0.8%	Aug 31, 2024
NTRM	210607-21	CC708065	48.41 PPM NITRIC OXIDE/NITROGEN	+/- 1.2%	Sep 21, 2025
GMS	402531833-1	CC740452	51.54 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Dec 05, 2030
PRM	12395	D887660	9.91 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Feb 22, 2022
GMS	124206899139	CC323707	4.997 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Sep 03, 2024
PRM	C2302001.1	D153445	9.87 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 22, 2024
GMS	124206899128	CC323207	4.239 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Jan 04, 2027
SRM	1693a	FF25467	50.33 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.7%	Jun 27, 2023
GMS	07120222817	EB0141234	50.05 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.7%	Dec 21, 2026

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

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Feb 01, 2024
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Feb 08, 2024
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Feb 22, 2024
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Feb 15, 2024



Approved for Release

Page 1 of 1

Triad Data Available Upon Request

NOTES: Gross Weight: 48.3 Kg
Net Weight: 8.2 Kg



CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E04NI99E3HA0031
Cylinder Number: GN0029540
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12024
Gas Code: CO,NO,NOX,SO2,BALN

Reference Number: 160-402968380-1
Cylinder Volume: 247.0 CF
Cylinder Pressure: 2215 PSIG
Valve Outlet: B60
Certification Date: Mar 05, 2024

Expiration Date: Mar 05, 2032

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	90.00 PPM	90.86 PPM	G1	+/- 0.6% NIST Traceable	02/27/2024, 03/05/2024
CARBON MONOXIDE	90.00 PPM	90.13 PPM	G1	+/- 0.5% NIST Traceable	02/27/2024
NITRIC OXIDE	90.00 PPM	90.85 PPM	G1	+/- 0.6% NIST Traceable	02/27/2024, 03/05/2024
SULFUR DIOXIDE	90.00 PPM	89.35 PPM	G1	+/- 0.6% NIST Traceable	02/27/2024, 03/05/2024
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	110101-08	KAL003090	97.31 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	May 25, 2028
PRM	C2219101	APR1514048	100.19 PPM NITRIC OXIDE/NITROGEN	± 0.3%	Feb 28, 2025
GMS	2023042530	CC754387	96.54 PPM NITRIC OXIDE/NITROGEN	+/- 0.4%	Apr 25, 2031
PRM	C2302001.1	D153445	9.87 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 22, 2024
GMS	124206899128	CC323207	4.239 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Jan 04, 2027
NTRM	160102-22	KAL003820	97.89 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Nov 01, 2027

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

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Feb 01, 2024
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Feb 08, 2024
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Feb 22, 2024
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Feb 15, 2024

Triad Data Available Upon Request

NOTES: Gross Weight: 48.2 Kg
Net Weight: 8.1 Kg
PO# 5224000763



Approved for Release

Page 1 of 1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E02N188E200000C
Cylinder Number: 5139917Y
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12023
Gas Code: O2,BALN

Reference Number: 160-402891090-1
Cylinder Volume: 216.6 CF
Cylinder Pressure: 2014 PSIG
Valve Outlet: 590
Certification Date: Nov 27, 2023

Expiration Date: Nov 27, 2031

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	12.00 %	12.07 %	G1	+/- 0.4% NIST Traceable	11/27/2023
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010205	K001516	23.2 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2024

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Nov 08, 2023

Triad Data Available Upon Request

NOTES: Gross Weight: 59.3Kg
Net Weight: 7.2 Kg
PO# 5223006228



Approved for Release

Page 1 of 1

CERTIFICATE OF ANALYSIS
Grade of Product: EPA PROTOCOL STANDARD

Customer: BANGKOK INDUSTRIAL
GAS CO LTD
Part Number: E02N179E3HAC2EC
Cylinder Number: ND60790
Laboratory: 124 - Plumsteadville - PA
PGVP Number: A12022
Gas Code: O2,BALN

Reference Number: 160-402311012-1
Cylinder Volume: 250.6 CF
Cylinder Pressure: 2214 PSIG
Valve Outlet: 590
Certification Date: Jan 20, 2022

Expiration Date: Jan 20, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document (EPA 600/R-12/031), using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	21.00 %	20.87 %	G1	±0.4% NIST Traceable	01/20/2022
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010230	K005228	23.20 % OXYGEN/NITROGEN	±0.4%	Jun 01, 2022
ANALYTICAL EQUIPMENT					
Instrument/Make/Model	Analytical Principle		Last Multipoint Calibration		
SIEMENS OXYMAT 6 - N1-WS-051 - O2	PARAMAGNETIC		Jan 05, 2022		

Triad Data Available Upon Request

NOTES: Gross Weight: 49.5 Kg
Net Weight: 9 Kg
Cylinder: 300 Aluminum
Valve: CGA 590 Brass
PO# 5221006285



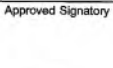
Approved for Release





Certificate of Calibration

Cert.No.: 26CH581
Page.: 1 of 3

Equipment : pH / Conductivity Meter
Manufacturer : Mettler Toledo
Model : S213
Serial No. : B902060027
ID No. : P20190019
Condition As-Received: Used Item
Received Date : 28 May 2026
Calibration Date : 29 May 2026
Reference : 2605-0926WSC-3
Submitted by : SGS (Thailand) Limited
1/209, 1/211 Moo 1, T. Ban Chang, A. Ban Chang, Rayong 21130
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 : 
Approved by : 
(✓) Chakrit Waewwanjua
() Ponpan Paipim
() Saithip Meangmai
Issue Date : 01 June 2026

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.: 26CH581
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	25E2743	25 Aug 2026
2) Ref. Standard Thermometer	4982054	110RC044	25I708	03 July 2026

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

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

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 1.685	CPA chem	1005300	15 June 2026
pH 4.008	CPA chem	1187328	18 Jan 2028
pH 6.979	CPA chem	1187330	18 Jan 2027
pH 10.010	CPA chem	1187332	18 Jan 2027

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 (1.7,4,7,10)

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement	Coverage factor
	pH	mV	mV	pH	($\pm$ mV)	k
pH Meter S/N.: B902060027	1.680	314.73	314.6	1.680	0.058	2.00
	4.000	177.48	177.4	4.000	0.058	2.00
	7.000	0.00	0.0	7.000	0.058	2.00
	10.000	-177.48	-177.4	10.000	0.058	2.00



Thermology Co., Ltd.

96/177-96/178 Moo 6, T. La-harn, A. Bangbuthong, Nonthaburi 11110
Tel : 0 2191 6479 Fax : 0 2191 6480 website : www.thermology.co



CALIBRATION CERTIFICATE

Date of Issue Mar 26, 2026
Cert No. 26/1091
Order No. 26030156

Customer SGS (Thailand) Limited.
1/209, 1/211 Moo 1, T. Ban Chang, A. Ban Chang Rayong 21130 Thailand.

Place of Calibration Sample Area

Description Incubator
Model SRI20-2
Serial No. 08027015
ID.No. C2015019
Date of Receipt Mar 25, 2026
Date of Calibration Mar 25, 2026
Environment
Temperature (Min) 21.7 °C (Max) 22.5 °C
Relative Humidity (Min) 45.0 %rh (Max) 51.6 %rh

Calibration Method

- This calibration was performed using work instruction No. WI-17 which based on AS2853:1986.
- The Temperature Scale in use at this laboratory is The International Temperature Scale of 1990 (ITS-90).
- The measurement is traceable to The International System of Units (SI).

Standard Equipment Serial No. Certificate No. Due Date
1) Data Acquisition Switch Unit with Sensor MY49013906 QR25-1085 08 Apr 2026



Cert.No.: 26CH581
Page.: 3 of 3

Calibration Results

Function : pH Measurement

Performing four buffers standard curve by using buffer nominal pH (1.7,4,7,10)

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.: 8512743	1.685	1.680	320.9	0.0044	2.00
	4.008	4.007	183.1	0.0044	2.00
	6.979	6.979	9.2	0.0084	2.00
	10.010	10.011	-163.4	0.0070	2.00

Function : Temperature Measurement

(°) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab Expert Pro-ISM
- Serial No. : 8512743

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	25.001	25.0	-0.001	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 %.

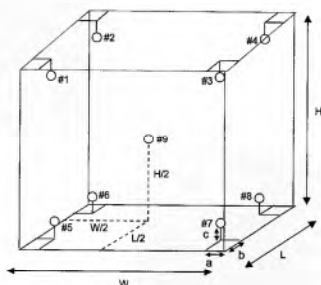


CALIBRATION CERTIFICATE

Date of Issue Mar 26, 2026

Cert No. 26/1091
Order No. 26030156

Results (without adjustment)



Position of reference thermometers were placed

Note:

- 1). Dimension (W x L x H) is 70 cm x 60 cm x 140 cm
- 2). Stability - greatest one half of difference between max peak and min peak of each reference probe measured temperature obtained during the calibration interval.
- 3). 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 or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady state conditions. The reference sensor should preferably be located at the geometric center of the chamber.

Page 2 of 3

CALIBRATION CERTIFICATE

Date of Issue Mar 26, 2026

Cert No. 26/1091
Order No. 26030156

Results (without adjustment)

Cal Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Reference Thermometer (°C)	Stability ±(°C)	Uniformity (°C)	Uncertainty ±(°C)
10.0	25.0	25.0	Position 1	9.570	0.111	0.36
			Position 2	9.441		
			Position 3	9.638		
			Position 4	9.336		
			Position 5	9.438		
			Position 6	9.829		
			Position 7	9.588		
			Position 8	9.455		
			Position 9	9.168		

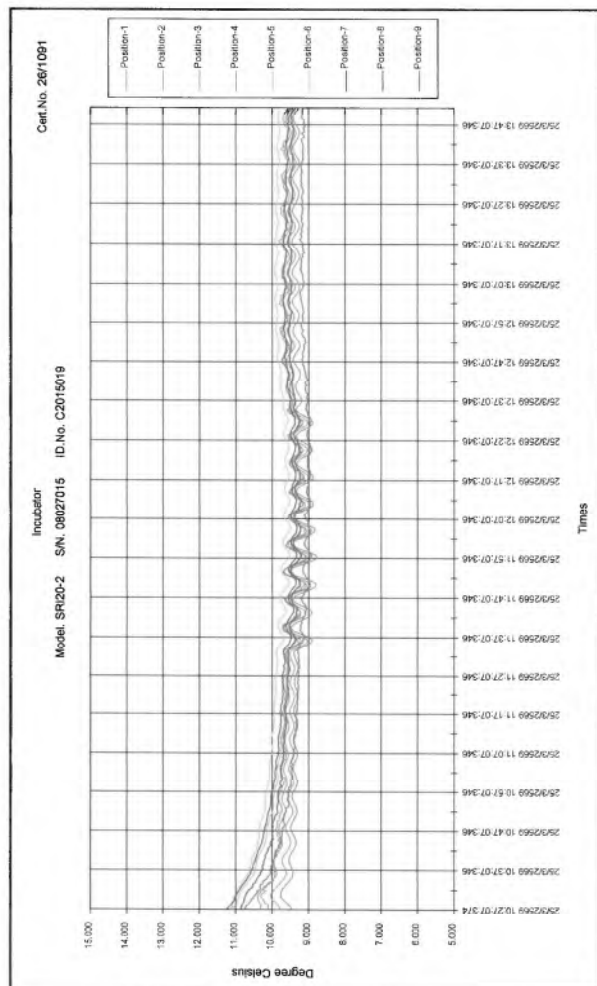
The stability and uniformity were taken into account in the measurement uncertainty stated.

The above results are valid exclusively for calibration samples as mentioned in this report.

This reported expanded uncertainty was based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with ONAC requirements.

APPROVED SIGNATORY :

Page 3 of 3



Calibration Certificate ID
TH3066-001-031626-ACC-TH

Mettler-Toledo (Thailand) Ltd.

846/4 - 846/5 Lasalle Rd., Bangna Tai Sub-District
Bangna District, Bangkok 10260
+662 723 0382
MT-TH-ServiceSupport@mt.com

METTLER TOLEDO



Accuracy Calibration Certificate

Customer

Company: SGS (Thailand) Co., Ltd.
Address: 1/209, 1/211 Moo 1, Ban Chang
City: Ban Chang
Zip / Postal: 21130
State / Province: Rayong
Order Number: 0555551252

Contact: Sukanda Kerdongsang

Weighing Device

Manufacturer: Mettler Toledo
Model: XS205DU
Serial No.: B036065880
Instrument Type: Weighing Instrument
Asset Number: N/A

Terminal Model: SAT
Terminal Serial No.: B036065880
Terminal Asset No.: N/A
Building: LABORATORY
Floor: 1
Room: Balance

Procedure

Calibration Guideline: EURAMET cg-18 v. 4.0 (11/2015)

METTLER TOLEDO Work Instruction: CPW002/20

This calibration certificate contains measurements for As Found and As Left calibrations.

The sensitivity/span of the weighing instrument was adjusted before As Found and As Left calibrations with a built-in weight.

In accordance with EURAMET cg-18 (11/2015), the test loads were selected to reflect the specific use of the weighing device or to accommodate specific calibration conditions.

	Temperature		Humidity	
	As Found	As Left	As Found	As Left
Start:	19.6 °C	19.1 °C	46.2 %	43.7 %
End:	19.1 °C	18.7 °C	43.7 %	40.2 %

As Found Calibration Date: 16-Mar-2026
As Left Calibration Date: 16-Mar-2026
Issue Date: 17-Mar-2026

Calibrator:

Approved Signatory:

Technical Manager / Head of Calibration Center

Measurement Results

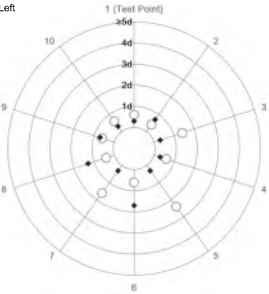
Repeatability

Test Load: 70 g

	As Found	As Left
1	69,99996 g	70,00009 g
2	69,99997 g	70,00010 g
3	69,99998 g	70,00009 g
4	69,99996 g	70,00009 g
5	69,99999 g	70,00009 g
6	69,99996 g	70,00011 g
7	69,99995 g	70,00009 g
8	69,99997 g	70,00008 g
9	69,99996 g	70,00010 g
10	69,99996 g	70,00009 g

Standard Deviation	0.000012 g	0.000008 g
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○ As Found
◆ As Left



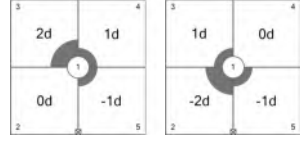
The "d" in the graph represents the readability of the range/interval in which the test was performed.
The results of this graph are based upon the absolute values of the differences from the mean value.

Eccentricity

Test Load: 100 g

Position	As Found	As Left
1	99,9997 g	100,00000 g
2	99,9997 g	99,99998 g
3	99,9999 g	100,00001 g
4	99,9998 g	100,00000 g
5	99,9996 g	99,99999 g

Maximum Deviation	0.0002 g	0.0002 g
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The "d" in the graph represents the readability of the range/interval in which the test was performed.

Test Equipment

All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

Weight Set 1: OIML E2

Weight Set No.:	WS32	Date of Issue:	14-Jan-2026
Certificate Number:	26-004835	Calibration Due Date:	13-Jul-2027

Weight Set 2: OIML E2

Weight Set No.:	WS32-5	Date of Issue:	10-Feb-2026
Certificate Number:	26-020922	Calibration Due Date:	09-Aug-2027

Thermo Hygrometer

Equipment No.:	JN324	Date of Issue:	13-Jan-2026
Certificate Number:	SG-H-00041/69	Calibration Due Date:	13-Jan-2027

Remarks

FACT adjustment functionality activated
Value of the built-in weight adjusted
Equipment condition: Good
Next calibration according to customer's procedure
Calibration data not decide calibration laboratory
Calibration Guideline: Based on EURAMET cg-18 v4.0 (11/2015)

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Error of Indication

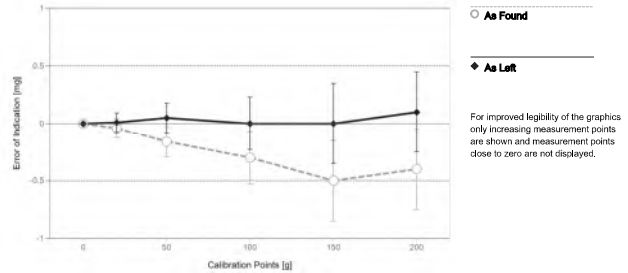
As Found

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0,00000 g	0,00000 g	0,00000 g	0,024 mg	2
2	0,01000 g	0,01000 g	0,00000 g	0,026 mg	2
3	0,10000 g	0,10000 g	0,00000 g	0,029 mg	2
4	0,99999 g	0,99999 g	0,00000 g	0,036 mg	2
5	5,00001 g	5,00001 g	0,00000 g	0,051 mg	2
6	10,00000 g	9,99996 g	-0,00004 g	0,064 mg	2
7	20,00002 g	19,99998 g	-0,00004 g	0,086 mg	2
8	50,00004 g	49,99988 g	-0,00016 g	0,13 mg	2
9	100,00000 g	99,9997 g	-0,0003 g	0,23 mg	2
10	150,00000 g	149,9995 g	-0,0005 g	0,35 mg	2
11	200,00000 g	199,9996 g	-0,0004 g	0,35 mg	2

As Left

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0,00000 g	0,00000 g	0,00000 g	0,017 mg	2
2	0,01000 g	0,01000 g	0,00000 g	0,020 mg	2
3	0,10000 g	0,10000 g	0,00000 g	0,023 mg	2
4	0,99999 g	0,99999 g	0,00000 g	0,032 mg	2
5	5,00001 g	5,00001 g	0,00000 g	0,046 mg	2
6	10,00000 g	10,00001 g	0,00001 g	0,062 mg	2
7	20,00002 g	20,00003 g	0,00001 g	0,084 mg	2
8	50,00004 g	50,00009 g	0,00005 g	0,13 mg	2
9	100,00000 g	100,00000 g	0,00000 g	0,23 mg	2
10	150,00000 g	150,00000 g	0,00000 g	0,35 mg	2
11	200,00000 g	200,00001 g	0,00001 g	0,35 mg	2

The calculated uncertainty was replaced by the CMC (Calibration and Measurement Capabilities) value because the calculated uncertainty was smaller than the CMC value.



For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The expanded measurement uncertainty is reported as the standard measurement uncertainty multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.
The results of this calibration certificate relate only to the calibrated item.

Measurement Uncertainty of the Weighing Instrument in Use

Stated is the expanded uncertainty with k=2 in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Temperature coefficient for the evaluation of the measurement uncertainty in use:	$1,5 \cdot 10^{-6} / K$
Temperature range on site for the evaluation of the measurement uncertainty in use:	3 K

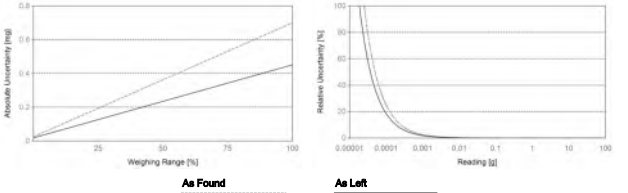
Linearization of Uncertainty Equation

	Range		As Found	As Left
1	0,00001 g	81 g	$U_1 = 0,025 \text{ mg} + 0,00835 \text{ mg/g} \cdot R$	$U_1 = 0,018 \text{ mg} + 0,00535 \text{ mg/g} \cdot R$
2	0,0001 g	220 g	$U_2 = 0,06 \text{ mg} + 0,00837 \text{ mg/g} \cdot R$	$U_2 = 0,06 \text{ mg} + 0,00530 \text{ mg/g} \cdot R$

To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Net Indication	As Found	As Left
0,00220 g	0,025 mg	0,018 mg
0,02200 g	0,025 mg	0,018 mg
0,22000 g	0,027 mg	0,019 mg
2,20000 g	0,043 mg	0,030 mg
220,0000 g	1,9 mg	1,2 mg



The weighing range shown in the absolute uncertainty graph refers to the first interval/range of the device.



GWP™ Certificate



Process Requirements	
Weighing Tolerance	1%
Smallest Net Weight	0,01000 g
Safety Factor	As found = 1; As left = 2

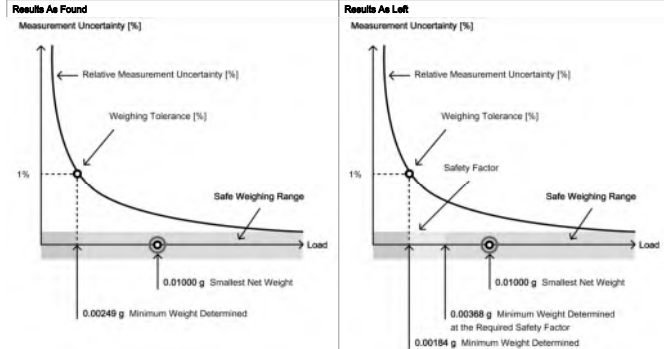
Results As Found	
Minimum Weight Determined	0,00249 g
Measurement Uncertainty at the Smallest Net Weight	0,25%

✓ The instrument meets the process requirements.

Results As Left	
Minimum Weight Determined at the Safety Factor	0,00368 g
Minimum Weight Determined	0,00184 g
Measurement Uncertainty at the Smallest Net Weight	0,18%

✓ The instrument meets the process requirements.

Safe Weighing Range



Are you looking for some clarifications on the terms and Safe Weighing Range graph? More information at: www.mt.com/GWP-Cert-Info

Minimum Weight

As Found Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors					
Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0,02507 g	0,05056 g	0,07649 g	0,12969 g	0,27119 g
0.2%	0,01248 g	0,02507 g	0,03776 g	0,06347 g	0,12969 g
0.5%	0,00498 g	0,00998 g	0,01499 g	0,02507 g	0,05056 g
1%	0,00249 g	0,00498 g	0,00748 g	0,01248 g	0,02507 g
2%	0,00125 g	0,00249 g	0,00374 g	0,00623 g	0,01248 g
5%	0,00050 g	0,00100 g	0,00150 g	0,00249 g	0,00498 g

Result: Pass
✓ The instrument meets the process requirements.

As Left Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors					
Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0,01848 g	0,03716 g	0,05604 g	0,09442 g	0,19417 g
0.2%	0,00922 g	0,01848 g	0,02780 g	0,04657 g	0,09442 g
0.5%	0,00368 g	0,00737 g	0,01107 g	0,01848 g	0,03716 g
1%	0,00184 g	0,00368 g	0,00553 g	0,00922 g	0,01848 g
2%	0,00092 g	0,00184 g	0,00278 g	0,00461 g	0,00922 g
5%	0,00037 g	0,00074 g	0,00111 g	0,00184 g	0,00368 g

Result: Pass
✓ The instrument meets the process requirements.

The minimum weight values are calculated from the measurement uncertainty in use equation for various weighing tolerances and safety factors. At the minimum weight, the relative uncertainty in use equals the weighing tolerance divided by the safety factor. If "N/A" is shown in the minimum weight table, no appropriate value could be calculated.

The information and the pass-fail assessment presented in this certificate apply to the fine range.

METTLER TOLEDO is not responsible for the definition of the process requirements. The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.

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CALIBRATION CERTIFICATE

Page 1 of 2

Certificate No. : S2026040499-0001
Date Issued : 06-May-26

Customer : SGS (Thailand) Limited
1/209, 1/211 Moo 1, T.Ban Chang, A.Ban Chang, Rayong 21130
Thailand

Equipment : Oven
Manufacturer : Memmert
Model : UF110
Serial No. : B415.2321
ID No./Tag No. : O2016001
Date Received : 28-Apr-26
Date Calibrated : 28-Apr-26
Calibrated by : [Redacted]

Calibration Method or Calibration Procedure Used

Standard method : CP-05 TLAS G-20.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

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

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited.

Approved by:



Certificate No. : S2026040499-0001
Environment : Ambient Temperature : Start record 25.7 °C, Stop record 25.5 °C
Relative Humidity : Start record 55.2 %RH, Stop record 55.4 %RH

Calibration Temperature (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Stability ¹ (°C)	Measured Uniformity ² (°C)	Overall Variation ³ (°C)
85	85.0	85.0	0.27	0.13	0.65
104	104.0	104.0	0.10	0.05	0.25
150	150.0	150.0	0.49	0.61	1.03
180	180.0	180.0	0.42	0.40	0.89

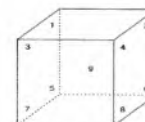
Without adjustment

Calibration Temperature (°C)	STD No. 1 (°C)	STD No. 2 (°C)	STD No. 3 (°C)	STD No. 4 (°C)	STD No. 5 (°C)	STD No. 6 (°C)	STD No. 7 (°C)	STD No. 8 (°C)	STD No. 9 (°C)	Uncertainty ⁴ (±°C)
85	84.88	84.80	84.89	84.87	84.79	84.77	84.81	84.82	84.88	0.38
104	103.60	103.67	103.64	103.67	103.65	103.61	103.62	103.61	103.63	0.27
150	150.08	150.09	150.07	150.02	150.06	150.06	150.03	150.08	150.05	0.63
180	180.03	180.08	180.10	180.06	180.07	180.04	180.09	180.12	180.05	0.58

STD = Standard

Note : Probe No. 9 is Reference Probe

Setting Air Fresh No. -



Condition As-Received / Used Item

The measurement results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceability :

The International System of Units (SI) through

MIT Certificate No. L202602016-0005 for Temperature Indicator with Sensor Serial No. US37020317, Due 08-Oct-26

Notes : 1. The temperature stability is the one-half of greatest maximum difference of measured temperatures at any one probe.

2. The temperature uniformity is the maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time.

3. Overall variation is the difference of maximum and minimum measured temperatures throughout observation time.

4. The uncertainty of measurement is included temperature stability.

5. The temperature uniformity, stability, overall variation and indicating temperature is applicable to all air or gas filled temperature controlled enclosures at atmospheric pressure.

End of Certificate