

ภาคผนวก ง

ใบรับรองผลการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม

ทิศทางและความเร็วลม



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : East Fence of Project Site

Monitor period : 15-22 Aug 2024

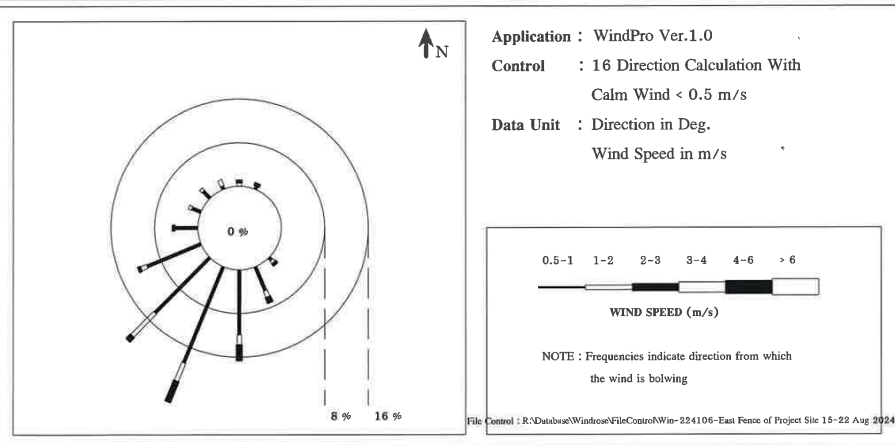
Wind Speed Model : Novalynx WS-25

Serial No : A4907

Wind Direction Model : Novalynx WS-25

Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0060	0.0060	0.0000	0.0000	0.0000	0.0119
NNE	0.0060	0.0000	0.0060	0.0000	0.0000	0.0000	0.0119
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0060	0.0060	0.0060	0.0000	0.0000	0.0000	0.0179
SSE	0.0476	0.0119	0.0119	0.0000	0.0000	0.0000	0.0714
S	0.1190	0.0179	0.0298	0.0000	0.0000	0.0000	0.1667
SSW	0.1905	0.0357	0.0417	0.0000	0.0000	0.0000	0.2679
SW	0.1429	0.0595	0.0119	0.0000	0.0000	0.0000	0.2143
WSW	0.1071	0.0119	0.0060	0.0000	0.0000	0.0000	0.1250
W	0.0417	0.0000	0.0060	0.0000	0.0000	0.0000	0.0476
WNW	0.0179	0.0060	0.0000	0.0000	0.0000	0.0000	0.0238
NW	0.0179	0.0060	0.0000	0.0000	0.0000	0.0000	0.0238
NNW	0.0060	0.0119	0.0000	0.0000	0.0000	0.0000	0.0179
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : East Fence of Project Site

Monitor period : 15-22 Aug 2024

Wind Speed Model : Novalynx WS-25

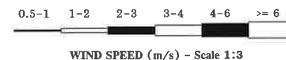
Serial No : A4907

Wind Direction Model : Novalynx WS-25

Serial No : A4907

Time	15-16 Aug 2024		16-17 Aug 2024		17-18 Aug 2024		18-19 Aug 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
13:00 - 14:00	2.3	SSE	0.7	SSW	0.6	S	1.4	SW
14:00 - 15:00	0.7	SW	0.6	SSW	0.7	SE	1.9	SW
15:00 - 16:00	1.1	SSW	0.6	SSW	2.5	SW	0.7	S
16:00 - 17:00	0.9	S	0.7	SSW	0.5	SSW	0.6	SSW
17:00 - 18:00	0.5	SSE	1.0	SSE	0.7	S	2.3	S
18:00 - 19:00	1.4	S	2.2	SSW	0.6	SSW	0.6	SSW
19:00 - 20:00	0.6	SSE	0.5	SSW	0.6	S	0.6	WSW
20:00 - 21:00	0.6	S	0.5	S	0.5	SSW	0.7	SSW
21:00 - 22:00	2.5	SSW	0.9	SSE	0.6	S	0.9	SW
22:00 - 23:00	0.7	SSE	0.8	SSW	0.9	SSE	2.1	S
23:00 - 24:00	0.6	S	0.5	SSW	0.9	S	0.7	SW
00:00 - 01:00	0.5	SSE	0.5	SW	0.6	SSW	1.0	SW
01:00 - 02:00	2.3	S	1.1	S	0.7	SSW	0.5	SW
02:00 - 03:00	0.5	S	0.7	SW	0.7	SSW	0.6	S
03:00 - 04:00	0.5	SSW	0.9	SSE	0.7	SSW	0.6	WSW
04:00 - 05:00	0.5	SSW	0.5	S	0.5	SSW	0.6	WSW
05:00 - 06:00	0.6	SSW	0.6	SSE	0.7	S	0.5	SW
06:00 - 07:00	0.5	SSW	0.6	S	2.4	SE	0.5	WSW
07:00 - 08:00	1.1	SSE	1.8	N	1.2	NNW	0.6	WSW
08:00 - 09:00	1.9	SW	2.3	SSE	0.5	NW	0.7	WSW
09:00 - 10:00	0.6	SW	2.1	S	0.7	W	0.7	SSW
10:00 - 11:00	2.1	SSW	0.6	S	0.8	SSW	1.1	SSW
11:00 - 12:00	0.6	SW	1.2	S	2.9	SSW	2.3	SSW
12:00 - 13:00	1.2	SSW	1.1	SE	1.2	SSW	0.6	SSW

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-224106-East Fence of Project Site 15-22 Aug 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : East Fence of Project Site

Monitor period : 15-22 Aug 2024

Wind Speed Model : Novalynx WS-25

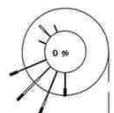
Serial No : A4907

Wind Direction Model : Novalynx WS-25

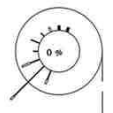
Serial No : A4907

Time	19-20 Aug 2024		20-21 Aug 2024		21-22 Aug 2024		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
13:00 - 14:00	2.5	WSW	0.7	W	1.5	SW	
14:00 - 15:00	0.9	SSW	0.9	SW	2.1	W	
15:00 - 16:00	1.5	SW	0.7	SW	0.6	W	
16:00 - 17:00	2.0	SW	0.6	SW	0.6	W	
17:00 - 18:00	1.1	SSW	1.4	SSW	0.6	WSW	
18:00 - 19:00	0.6	SW	0.5	SW	0.5	W	
19:00 - 20:00	0.7	S	0.7	SW	0.6	WSW	
20:00 - 21:00	0.7	SW	0.6	SW	0.6	WSW	
21:00 - 22:00	0.7	SSW	0.7	WSW	0.7	WSW	
22:00 - 23:00	0.6	SSW	0.6	SW	0.7	SW	
23:00 - 24:00	0.7	WSW	0.6	SW	0.5	SW	
00:00 - 01:00	0.6	SSW	2.4	NNE	0.5	WSW	
01:00 - 02:00	1.1	SW	1.0	NNW	0.5	SW	
02:00 - 03:00	0.6	WSW	0.7	NW	0.6	SW	
03:00 - 04:00	1.0	NW	0.6	WNW	0.7	SSW	
04:00 - 05:00	0.7	WNW	2.3	N	0.8	NNE	
05:00 - 06:00	0.6	NNW	0.7	WNW	1.1	WNW	
06:00 - 07:00	0.7	NW	1.1	WSW	1.0	SW	
07:00 - 08:00	2.1	SSW	0.6	WSW	2.8	SSW	
08:00 - 09:00	0.6	S	0.5	SSW	0.7	S	
09:00 - 10:00	0.6	WSW	1.2	SW	0.5	W	
10:00 - 11:00	0.7	WSW	0.5	SW	0.7	WSW	
11:00 - 12:00	2.1	S	1.9	WSW	0.5	S	
12:00 - 13:00	1.2	SW	0.7	SSW	0.7	W	

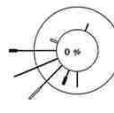
Wind Rose



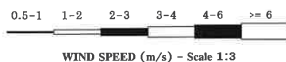
12 %



20 %



12 %



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

File Control : R:\Database\Windrose\FileControl\Win-224106-East Fence of Project Site 15-22 Aug 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : Wat Nong Feab

Monitor period : 15-22 Aug 2024

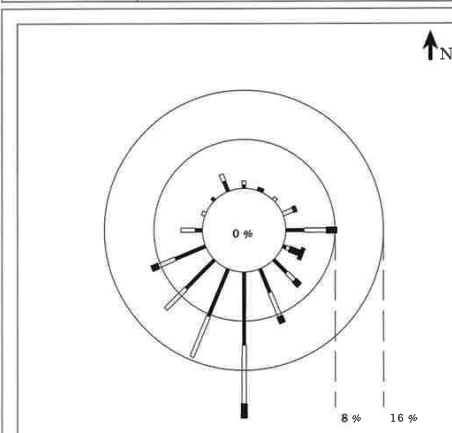
Wind Speed Model : Novalynx WS-25

Serial No : A5084

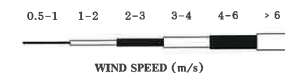
Wind Direction Model : Novalynx WS-25

Serial No : A5084

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
NNE	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
NE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
ENE	0.0000	0.0179	0.0060	0.0000	0.0000	0.0000	0.0238
E	0.0298	0.0357	0.0179	0.0000	0.0000	0.0000	0.0833
ESE	0.0060	0.0060	0.0179	0.0000	0.0060	0.0000	0.0357
SE	0.0298	0.0179	0.0119	0.0000	0.0000	0.0000	0.0595
SSE	0.0417	0.0417	0.0119	0.0000	0.0000	0.0000	0.0952
S	0.1190	0.0952	0.0238	0.0000	0.0000	0.0000	0.2381
SSW	0.0833	0.0714	0.0000	0.0000	0.0000	0.0000	0.1548
SW	0.0655	0.0476	0.0000	0.0000	0.0000	0.0000	0.1131
WSW	0.0536	0.0298	0.0119	0.0000	0.0000	0.0000	0.0952
W	0.0119	0.0238	0.0000	0.0000	0.0000	0.0000	0.0357
WNW	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NW	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
NNW	0.0179	0.0119	0.0000	0.0000	0.0000	0.0000	0.0298
CALM	0.0000						



Application : WindPro Ver.1.0

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

File Control : R:\Database\Windrose\FileControl\Win-224106-Wai Nong Feab 15-22 Aug 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : Wat Nong Feab

Monitor period : 15-22 Aug 2024

Wind Speed Model : Novalynx WS-25

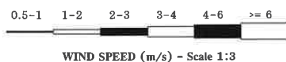
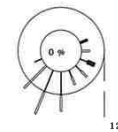
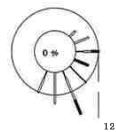
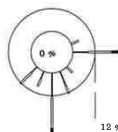
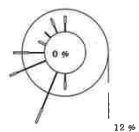
Serial No : A5084

Wind Direction Model : Novalynx WS-25

Serial No : A5084

Time	15-16 Aug 2024		16-17 Aug 2024		17-18 Aug 2024		18-19 Aug 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	1.8	SSW	1.1	S	1.9	NE	2.7	ENE
11:00 - 12:00	0.9	WSW	1.6	S	0.6	SSE	0.6	ESE
12:00 - 13:00	0.5	SSW	1.4	S	1.1	SSE	1.5	SE
13:00 - 14:00	1.0	WSW	0.7	S	0.5	E	5.0	ESE
14:00 - 15:00	0.6	WSW	2.3	S	2.3	SSE	1.6	E
15:00 - 16:00	0.9	WSW	1.1	SW	1.1	ENE	0.9	S
16:00 - 17:00	0.7	WSW	0.7	SSE	1.1	ENE	0.9	S
17:00 - 18:00	1.1	SSW	0.9	S	2.2	E	0.8	SE
18:00 - 19:00	0.8	SSW	1.2	E	0.6	SE	1.3	SSW
19:00 - 20:00	0.6	SSW	0.6	SSE	1.8	SSW	1.4	SSW
20:00 - 21:00	0.8	S	1.9	S	1.1	S	0.8	SSW
21:00 - 22:00	1.0	W	1.1	SSW	1.6	S	1.9	SW
22:00 - 23:00	0.5	SSW	1.0	SSE	1.0	S	0.6	SSW
23:00 - 24:00	0.5	SSW	1.0	SE	1.3	SSE	1.2	SSE
00:00 - 01:00	1.1	S	1.3	SW	1.3	SSE	1.9	S
01:00 - 02:00	0.9	NNW	0.6	S	1.7	SSW	1.1	SW
02:00 - 03:00	0.7	N	0.6	SSW	0.8	SSW	1.0	S
03:00 - 04:00	1.1	N	0.6	SW	2.3	SSE	0.7	SSE
04:00 - 05:00	0.5	NW	1.3	ENE	1.0	S	0.5	S
05:00 - 06:00	0.8	W	2.1	E	2.3	ESE	1.1	SW
06:00 - 07:00	1.1	NNW	0.8	E	0.6	SE	1.1	SW
07:00 - 08:00	0.7	W	0.6	E	2.9	ESE	0.5	SSW
08:00 - 09:00	1.7	W	1.8	E	1.8	E	1.0	SSW
09:00 - 10:00	1.4	WNW	1.1	E	0.6	SE	0.9	WSW

Wind Rose



File Control :R:\Database\Windrose\FileControl\Win-224106-Wat Nong Feab 15-22 Aug 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-PTTGC-LDPE Plant

Location : Wat Nong Feab

Monitor period : 15-22 Aug 2024

Wind Speed Model : Novalynx WS-25

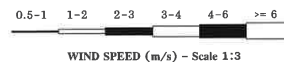
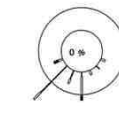
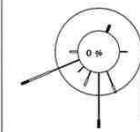
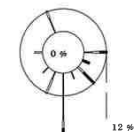
Serial No : A5084

Wind Direction Model : Novalynx WS-25

Serial No : A5084

Time	19-20 Aug 2024		20-21 Aug 2024		21-22 Aug 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	0.5	S	1.6	WSW	1.9	S
11:00 - 12:00	1.3	E	0.5	SSE	1.7	WSW
12:00 - 13:00	1.3	SSW	1.1	SSW	0.9	SE
13:00 - 14:00	2.2	ESE	0.8	E	1.5	S
14:00 - 15:00	1.1	S	0.7	SW	2.1	WSW
15:00 - 16:00	0.6	S	2.5	S	0.6	SW
16:00 - 17:00	0.9	S	1.6	SSE	0.7	SSW
17:00 - 18:00	0.7	SSE	0.7	S	0.7	SW
18:00 - 19:00	0.8	E	0.7	S	0.7	SW
19:00 - 20:00	2.3	E	1.1	W	0.7	SW
20:00 - 21:00	1.1	SSW	0.9	S	0.9	SW
21:00 - 22:00	2.0	SE	0.9	S	1.1	SW
22:00 - 23:00	2.5	SE	0.5	S	0.8	SW
23:00 - 24:00	0.6	S	0.7	SSE	2.5	S
00:00 - 01:00	0.6	S	2.4	WSW	1.5	S
01:00 - 02:00	2.4	S	0.9	WSW	1.2	SW
02:00 - 03:00	0.5	SSW	1.1	WSW	0.8	S
03:00 - 04:00	1.9	NNW	0.5	WSW	1.2	ESE
04:00 - 05:00	0.7	NNW	1.0	WSW	1.5	S
05:00 - 06:00	1.0	W	0.6	WSW	0.8	SW
06:00 - 07:00	0.7	NNW	0.7	WSW	0.7	SW
07:00 - 08:00	0.8	SW	2.0	NNE	0.9	SSW
08:00 - 09:00	1.4	SE	0.8	SSW	1.1	SSE
09:00 - 10:00	0.9	S	0.8	S	1.7	SSW

Wind Rose



File Control :R:\Database\Windrose\FileControl\Win-224106-Wat Nong Feab 15-22 Aug 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

คุณภาพอากาศในบรรยากาศ



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 224106_Ambient/Ethylene/Aug
(Branch 11 : LDPE)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 15-21/08/2024
RECEIVED DATE : 24/08/2024 ANALYTICAL DATE : 30/08/2024
REPORT DATE : 03/09/2024 SAMPLE CONDITION : Normal
INSTUMENT : Sampling Bag SITE OPERATOR : Mr. Siwanon Kulawong
LOCATION DESCRIPTION : 1. East Fence of Project Site

2. Wat Nong Feab

PARAMETER	SAMPLING DATE	UNIT	ND (Non-detectable)	RESULT		STANDARD	REFERENCE METHOD
				1	2		
Ethylene	15/08/2024	ppm	<0.01	ND	ND	-	Intersociety
	16/08/2024	ppm	<0.01	ND	ND		Committee Method 101
	17/08/2024	ppm	<0.01	ND	ND		
	18/08/2024	ppm	<0.01	ND	ND		
	19/08/2024	ppm	<0.01	ND	ND		
	20/08/2024	ppm	<0.01	ND	ND		
	21/08/2024	ppm	<0.01	ND	ND		

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

3. - No Standard.

4. The natural condition was normal during sampling period.



Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC-LDPE Plant

Location : East Fence of Project Site

Monitor Period : 15-22 Aug 2024

Analyzer Model : API 200A

Station No : Mobile 18

Serial No : 1528

Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E

Serial No : 587

Calibration Gas Cylinder I.D.: EB0102326

Certified Date : 05 Jan 2024

Cal Concentration (ppb) : 0,100,200,400

Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppb)						
	15-16 Aug 2024	16-17 Aug 2024	17-18 Aug 2024	18-19 Aug 2024	19-20 Aug 2024	20-21 Aug 2024	21-22 Aug 2024
13:00 - 14:00	8.6	7.9	11.8	8.5	8.9	10.4	10.1
14:00 - 15:00	9.6	7.5	10.6	2.9	8.6	8.3	5.4
15:00 - 16:00	10.9	8.7	10.2	11.1	11.3	3.6	10.9
16:00 - 17:00	7.5	11.9	21.4	7.7	5.3	7.8	7.8
17:00 - 18:00	9.0	14.5	20.0	3.9	21.8	11.4	12.4
18:00 - 19:00	19.1	20.4	3.3	10.6	13.5	21.3	18.9
19:00 - 20:00	8.1	6.1	16.0	18.9	15.9	19.1	16.4
20:00 - 21:00	4.5	11.3	21.5	11.6	19.5	16.9	7.9
21:00 - 22:00	7.1	10.5	10.9	9.3	19.9	10.2	9.2
22:00 - 23:00	8.1	8.2	7.1	10.0	9.8	11.8	8.1
23:00 - 00:00	10.4	6.3	10.8	4.8	3.8	10.9	9.2
00:00 - 01:00	9.4	9.0	10.0	6.7	5.8	12.6	17.6
01:00 - 02:00	4.7	3.2	6.8	3.8	3.7	3.2	5.0
02:00 - 03:00	3.3	7.4	8.4	2.8	8.4	10.7	11.7
03:00 - 04:00	8.9	9.9	9.0	2.9	9.4	9.0	8.4
04:00 - 05:00	12.0	7.9	8.4	7.7	10.9	9.5	6.7
05:00 - 06:00	11.6	9.4	7.5	8.7	8.8	11.1	7.6
06:00 - 07:00	11.9	7.7	7.0	8.0	11.5	7.4	6.9
07:00 - 08:00	9.6	7.8	8.4	16.2	6.9	15.8	7.8
08:00 - 09:00	11.3	20.0	6.0	10.9	9.9	12.5	11.5
09:00 - 10:00	7.9	17.6	3.9	10.8	7.1	7.7	7.1
10:00 - 11:00	8.5	13.9	6.4	8.5	8.5	7.4	10.3
11:00 - 12:00	8.0	17.6	4.8	10.1	8.3	10.5	8.2
12:00 - 13:00	7.7	11.5	9.0	10.1	10.3	8.5	7.9
Average-24Hr*	9.1	10.7	10.0	8.6	10.3	10.7	9.7
Max-1Hr	19.1	20.4	21.5	18.9	21.8	21.3	18.9
Min-1Hr	3.3	3.2	3.3	2.8	3.7	3.2	5.0
Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team




Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC-LDPE Plant

Location : Wat Nong Feab				Monitor Period : 15-22 Aug 2024			
Analyzer Model : Thermo 42C				Station No : SS2-09			
Serial No : 0426708263				Site Operator : Mr. Siwanon Kulawong			
Calibrator Model : Teledyne 700E				Serial No : 587			
Calibration Gas Cylinder I.D.: EB0102326							
Certified Date : 05 Jan 2024				Cal Concentration (ppb) : 0,100,200,400			
Expire Date : 04 Jan 2025							
Time	NO2 Concentration (ppb)						
	15-16 Aug 2024	16-17 Aug 2024	17-18 Aug 2024	18-19 Aug 2024	19-20 Aug 2024	20-21 Aug 2024	21-22 Aug 2024
10:00 - 11:00	6.8	5.9	19.0	3.2	4.9	7.7	5.3
11:00 - 12:00	8.9	9.4	12.1	2.8	7.7	6.1	7.4
12:00 - 13:00	11.7	5.9	7.7	6.2	5.6	4.4	6.5
13:00 - 14:00	8.5	7.6	5.1	7.6	9.5	5.9	9.2
14:00 - 15:00	7.1	5.1	6.4	2.6	6.9	7.8	0.4
15:00 - 16:00	9.6	4.9	6.9	5.3	7.7	3.0	6.2
16:00 - 17:00	7.6	7.4	16.5	8.8	4.0	4.6	4.3
17:00 - 18:00	9.8	12.1	13.7	3.6	16.1	7.6	16.3
18:00 - 19:00	12.6	16.9	2.7	6.0	13.9	12.4	15.0
19:00 - 20:00	5.3	4.0	17.3	19.2	16.8	16.5	10.6
20:00 - 21:00	3.5	7.8	12.4	6.2	14.6	13.6	5.7
21:00 - 22:00	7.2	9.0	8.3	9.6	11.9	7.8	8.0
22:00 - 23:00	6.3	8.9	9.7	7.4	8.5	8.1	8.8
23:00 - 00:00	6.1	3.0	5.3	4.6	0.4	7.4	8.8
00:00 - 01:00	5.0	7.3	9.3	0.9	2.5	14.8	12.4
01:00 - 02:00	4.1	1.9	2.8	1.0	0.8	1.5	1.4
02:00 - 03:00	1.3	9.6	7.1	2.7	7.9	7.0	7.1
03:00 - 04:00	6.3	5.2	5.5	0.7	7.6	7.9	6.0
04:00 - 05:00	4.9	8.4	7.7	7.0	6.8	8.4	4.5
05:00 - 06:00	5.7	5.5	8.8	7.4	6.7	4.8	6.1
06:00 - 07:00	5.9	6.9	5.0	7.7	6.4	6.6	8.3
07:00 - 08:00	9.3	7.9	5.6	11.5	4.7	13.8	7.1
08:00 - 09:00	7.8	18.4	3.3	8.2	6.7	12.3	6.3
09:00 - 10:00	5.8	17.1	0.8	6.7	8.0	5.1	5.8
Average-24Hr*	7.0	8.2	8.3	6.1	7.8	8.1	7.4
Max-1Hr	12.6	18.4	19.0	19.2	16.8	16.5	16.3
Min-1Hr	1.3	1.9	0.8	0.7	0.4	1.5	0.4
Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr	-						

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

คุณภาพอากาศจากแหล่งกำเนิด



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 224106_Stack_RTO_Ethylene_Aug
(Branch 11 : LDPE)

SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 16/08/2024

RECEIVED DATE : 17/08/2024 ANALYTICAL DATE : 24/08/2024

REPORT DATE : 26/08/2024 SAMPLE CONDITION : Good

STACK LOCATION : RTO SITE OPERATOR : Mr. Pisanu Seenampeng

SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas

STACK DESCRIPTION

Height : 35.0 m Gas Velocity : 15.0 m/s

Diameter : 1.10 m Flow rate* : 588 Ncu.m/min

Temperature : 115.0 °C Excess Oxygen : 20.2 %

Moisture : 9.8 %

PARAMETER	UNIT	ND	RESULT		STANDARD ^{1/}		REFERENCE
		(Non-detectable)	20.2%O ₂	g/s	20.2%O ₂	g/s	
Ethylene	ppm	<0.01	ND	<0.0001	25	0.28	US. EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Miss Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

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

4. ^{1/}The value was assigned in EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 224106_Stack_RTO_NOx_Aug
(Branch 11 : LDPE)

SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 16/08/2024

RECEIVED DATE : 17/08/2024 ANALYTICAL DATE : 20-29/08/2024

REPORT DATE : 30/08/2024 SAMPLE CONDITION : Good

STACK LOCATION : RTO SITE OPERATOR : Mr. Pisanu Seenampeng

SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas

STACK DESCRIPTION

Height : 35.0 m Gas Velocity : 15.0 m/s

Diameter : 1.10 m Flow rate * : 588 Ncu.m/min

Temperature : 115.0 °C Excess Oxygen : 20.2 %

Moisture : 9.8 %

PARAMETER	UNIT	RESULT		STANDARD ^{1/}		REFERENCE
		20.2%O ₂	g/s	20.2%O ₂	g/s	
Oxides of Nitrogen	ppm	0.43	0.008	200 ^{2/} 20 ^{3/}	0.37 ^{3/}	US.EPA. Method 7E

Miss Katesarin Vorradetwittaya

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Preeda S.

(Miss Preeda Somjai)

Technical Management Team

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

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

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

4. ^{1/} Air emission with fuel combustion is open system, reported as concentrations at the reference condition of 1 atm
(or 760 mmHg), 25°C, dry basis and actual percent oxygen.

5. ^{2/} Notification of Ministry of Industry B.E.2549(2006) and Notification of Ministry of Natural Resources
and Environment B.E.2549(2006).

6. ^{3/} The value was assigned in EIA report.

The Monitoring Result of Emission Concentration
RTO
PTT Global Chemical Public Co., Ltd. (LDPE)
August 16, 2024

Run Number	Oxygen content (%by Vol)		Oxide of Nitrogen (ppmvd)	
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2
1	20.21	20.06	0.39	0.37
2	20.40	20.20	0.51	0.48
3	20.49	20.25	0.46	0.43
Average	20.36	20.17	0.45	0.43

MTR RTO(NOx)/Run1/29-08-24

PTT Global Chemical Public Co., Ltd. (LDPE)
EMISSION TEST RESULT

Date: August 16, 2024

Start time: 2:00 PM

O₂ instrument Model: AMI 70

NO_x instrument Model: Teledyne 200 EM

Fuel Type : Natural Gas

Run # : 1

Location : RTO

Finish time : 2:20 PM

Serial No.: 161212-14

Serial No.: 435

Test Operator : Pisanu S.

Time, min	O ₂ (%by Vol)	NO _x (ppmvd@ActualO ₂)
2:00 PM	20.47	0.23
2:01 PM	20.31	0.30
2:02 PM	20.28	0.45
2:03 PM	20.31	0.49
2:04 PM	20.31	0.24
2:05 PM	20.28	0.27
2:06 PM	20.28	0.36
2:07 PM	20.25	0.39
2:08 PM	20.22	0.34
2:09 PM	20.23	0.35
2:10 PM	20.20	0.35
2:11 PM	20.16	0.32
2:12 PM	20.17	0.34
2:13 PM	20.15	0.38
2:14 PM	20.11	0.44
2:15 PM	20.14	0.45
2:16 PM	20.11	0.46
2:17 PM	20.09	0.50
2:18 PM	20.11	0.51
2:19 PM	20.13	0.54
2:20 PM	20.14	0.49
Average	20.21	0.39

Signature 

(Miss Katesarin Vorradetwittaya)

Environmental Scientist


PTT Global Chemical Public Co., Ltd. (LDPE)
EMISSION TEST RESULT

Date: August 16, 2024
Start time: 2:21 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EM
Fuel Type : Natural Gas

Run # : 2
Location : RTO
Finish time : 2:41 PM
Serial No.: 161212-14
Serial No.: 435
Test Operator : Pisanu S.

Time, min	O ₂ (%by Vol)	NOx (ppmvd@ActualO ₂)
2:21 PM	20.21	0.46
2:22 PM	20.26	0.52
2:23 PM	20.30	0.47
2:24 PM	20.37	0.50
2:25 PM	20.38	0.55
2:26 PM	20.38	0.58
2:27 PM	20.41	0.58
2:28 PM	20.41	0.54
2:29 PM	20.40	0.50
2:30 PM	20.43	0.50
2:31 PM	20.43	0.48
2:32 PM	20.41	0.48
2:33 PM	20.43	0.47
2:34 PM	20.43	0.49
2:35 PM	20.42	0.47
2:36 PM	20.45	0.48
2:37 PM	20.43	0.48
2:38 PM	20.43	0.49
2:39 PM	20.46	0.50
2:40 PM	20.44	0.57
2:41 PM	20.43	0.58
Average	20.40	0.51

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (LDPE)
EMISSION TEST RESULT

Date: August 16, 2024
Start time: 2:42 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: Teledyne 200 EM
Fuel Type : Natural Gas

Run # : 3
Location : RTO
Finish time : 3:02 PM
Serial No.: 161212-14
Serial No.: 435
Test Operator : Pisanu S.

Time, min	O ₂ (%by Vol)	NOx (ppmvd@ActualO ₂)
2:42 PM	20.46	0.58
2:43 PM	20.46	0.52
2:44 PM	20.45	0.44
2:45 PM	20.48	0.44
2:46 PM	20.46	0.42
2:47 PM	20.43	0.44
2:48 PM	20.46	0.45
2:49 PM	20.45	0.46
2:50 PM	20.47	0.46
2:51 PM	20.40	0.47
2:52 PM	20.59	0.47
2:53 PM	20.63	0.50
2:54 PM	20.68	0.45
2:55 PM	20.53	0.46
2:56 PM	20.57	0.46
2:57 PM	20.41	0.45
2:58 PM	20.44	0.45
2:59 PM	20.44	0.46
3:00 PM	20.46	0.44
3:01 PM	20.46	0.44
3:02 PM	20.47	0.45
Average	20.49	0.46

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

คุณภาพน้ำทิ้ง



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 1361/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/07/2024	SAMPLING TIME	: 14:35
RECEIVED DATE	: 05/07/2024	ANALYTICAL DATE	: 05-12/07/2024
REPORT DATE	: 12/07/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_July

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	32.5	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.17	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	298	≤ 35,280 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	1.9	≤ 20
COD	mg/l	5220 C	< 15.00	33.16	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of Ministry of Industry, B.E.2560 (2017).
 - 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water (TDS value in the last month add 5,000 mg/l from klongbangburd = 30,280 mg/l).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 1517/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 01/08/2024	SAMPLING TIME	: 14:40
RECEIVED DATE	: 02/08/2024	ANALYTICAL DATE	: 02-08/08/2024
REPORT DATE	: 09/08/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	37.9	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.42	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	154	≤ 36,960 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	2.6	≤ 20
COD	mg/l	5220 C	< 15.00	32.20	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 3-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 3-239-ก-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of Ministry of Industry, B.E.2560 (2017).
 - 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water (TDS value in the last month add 5,000 mg/l from klongbangburd = 31,960 mg/l).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 1852/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 05/09/2024	SAMPLING TIME	: 13:42
RECEIVED DATE	: 06/09/2024	ANALYTICAL DATE	: 06-12/09/2024
REPORT DATE	: 16/09/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	35.7	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.53	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	252	≤ 35,560 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	7	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	3.9	≤ 20
COD	mg/l	5220 C	< 15.00	17.58	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of Ministry of Industry, B.E.2560 (2017).
 - 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water (TDS value in the last month add 5,000 mg/l from klongbangburd = 30,560 mg/l).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 2199/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 31/10/2024	SAMPLING TIME	: 11:18
RECEIVED DATE	: 01/11/2024	ANALYTICAL DATE	: 01-07/11/2024
REPORT DATE	: 07/11/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	35.0	≤ 40
pH	-	4500-H ⁺ B	< 0.10	6.75	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	267	≤ 37,180 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	6	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	5.8	≤ 20
COD	mg/l	5220 C	< 15.00	31.40	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

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 3. ^{1/} Notification of Ministry of Natural Resources and Environment, B.E.2559 (2016) and Notification of Ministry of Industry, B.E.2560 (2017).
 - 2/ The standard value is not more than 5,000 mg/l exceed TDS of receiving water (TDS value in the last month add 5,000 mg/l from klongbangburd = 32,180 mg/l).
 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 2270/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/11/2024	SAMPLING TIME	: 16:25
RECEIVED DATE	: 08/11/2024	ANALYTICAL DATE	: 08-16/11/2024
REPORT DATE	: 15/11/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_November

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	36.5	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.50	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	332	≤ 37,060 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	3.3	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-0004

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3. ^{1/} Notification of Ministry of Natural Resources and Environment, B.E.2559 (2016) and
Notification of Ministry of Industry, B.E.2560 (2017).

^{2/} The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(TDS value in the last month add 5,000 mg/l from klongbangburd = 32,060 mg/l).

4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd (LDPE)	REQUEST SERVICE No.	: 2530/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/12/2024	SAMPLING TIME	: 15:10
RECEIVED DATE	: 05/12/2024	ANALYTICAL DATE	: 05-12/12/2024
REPORT DATE	: 12/12/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_WW_December

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณบ่อกักน้ำเสียของโรงงาน	STANDARD ^{1/}
Temperature	°C	2550 B	< 0.5	34.0	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.77	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	108	≤ 35,440 ^{2/}
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
BOD ₅	mg/l	5210 B	< 1.0	3.9	≤ 20
COD	mg/l	5220 C	< 15.00	19.91	≤ 120

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

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^{2/} The standard value is not more than 5,000 mg/l exceed TDS of receiving water
(TDS value in the last month add 5,000 mg/l from klongbangburd = 30,440 mg/l).

4. - Not available.

คุณภาพดิน



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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 0560/67
	(Branch 11 : LDPE)	SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:10-10:30
SAMPLING DATE	: 21/03/2024	ANALYTICAL DATE	: 27-31/03/2024-03/04/2024
RECEIVED DATE	: 23/03/2024	SITE OPERATOR	: Mr. Watcharakon Pramakhate
REPORT DATE	: 04/04/2024	FILE CODE	: 224106_Soil_March
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-03	STANDARD ^{1/}
<u>Total Petroleum Hydrocarbons</u>					
- TPH (C ₅ - C ₆)	mg/kg	5035 A / 8260 D	< 0.003	ND	≤ 25
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₈ - C ₁₆)	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ - C ₃₅)	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- Pentatriacontane					

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

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

REG. NO. 7-239-ก-0001

Araya T.

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Technical Management Team

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4. - Not available.



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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1273/67
	(Branch 11 : LDPE)	SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:08-10:23
SAMPLING DATE	: 21/06/2024	ANALYTICAL DATE	: 24/06/2024-03/07/2024
RECEIVED DATE	: 22/06/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 05/07/2024	FILE CODE	: 224106_Soil_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-08 (1)	STANDARD ^{1/}
<u>Total Petroleum Hydrocarbons</u>					
- TPH (C ₅ - C ₆)	mg/kg	5035 A / 8260 D	< 0.003	ND	≤ 25
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₈ - C ₁₆)	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ - C ₃₅)	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- Pentatriacontane					

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

Sudaporn S.

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Analyst

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Araya T.

(Mrs. Araya Tipparuk)

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4. - Not available.



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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No.	: 1273/67
	(Branch 11 : LDPE)	SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:30-11:35
SAMPLING DATE	: 21/06/2024	ANALYTICAL DATE	: 24/06/2024-03/07/2024
RECEIVED DATE	: 22/06/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 05/07/2024	FILE CODE	: 224106_Soil_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09 (3)	STANDARD ^{1/}
Total Petroleum Hydrocarbons					
- TPH (C ₅ - C ₉)	mg/kg	5035 A / 8260 D	< 0.003	ND	≤ 25
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₈ - C ₁₆)	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ - C ₃₅)	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- Pentatriacontane					

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

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(Miss Sudaporn Soonthorn)

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 4. - Not available.

คุณภาพน้ำใต้ดิน



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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE)	REQUEST SERVICE No	: 2151/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/10/2024	SAMPLING TIME	: 09:44-09:54
RECEIVED DATE	: 23/10/2024	ANALYTICAL DATE	: 24-25/10/2024
REPORT DATE	: 29/10/2024	SITE OPERATOR	: Mr. Jeerawat Khotamhan
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_GW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-03	STANDARD ^{1/}
Total Petroleum Hydrocarbons					
- TPH (C ₅ -C ₉)	mg/l	5030 C / 8260 D	< 0.003	ND	≤ 1.4
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₉ -C ₁₆)	mg/l	3510 C / 8015 D	< 0.025	ND	≤ 1.7
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ -C ₃₅)	mg/l	3510 C / 8015 D	< 0.050	ND	≤ 0.1
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- Pentatriacontane					

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

Sudaporn S.

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE)	REQUEST SERVICE No.	: 2151/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/10/2024	SAMPLING TIME	: 11:45-11:59
RECEIVED DATE	: 23/10/2024	ANALYTICAL DATE	: 24-25/10/2024
REPORT DATE	: 29/10/2024	SITE OPERATOR	: Mr. Jeerawat Khotamhan
SAMPLE CONDITION	: Normal	FILE CODE	: 224106_GW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-08	STANDARD ^{1/}
Total Petroleum Hydrocarbons					
- TPH (C ₅ -C ₉)	mg/l	5030 C / 8260 D	< 0.003	ND	≤ 1.4
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₉ -C ₁₆)	mg/l	3510 C / 8015 D	< 0.025	ND	≤ 1.7
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ -C ₃₅)	mg/l	3510 C / 8015 D	< 0.050	ND	≤ 0.1
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- Pentatriacontane					

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

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REQUEST SERVICE No	: 2151/67
	(Branch 11 : LDPE)	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11:07-11:16
SAMPLING DATE	: 22/10/2024	ANALYTICAL DATE	: 24-25/10/2024
RECEIVED DATE	: 23/10/2024	SITE OPERATOR	: Mr. Jeerawat Khothamhan
REPORT DATE	: 29/10/2024	FILE CODE	: 224106_GW_October
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09	STANDARD ^{1/}
Total Petroleum Hydrocarbons					
- TPH (C ₅ - C ₉)	mg/l	5030 C / 8260 D	< 0.003	ND	≤ 1.4
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C ₈ - C ₁₆)	mg/l	3510 C / 8015 D	< 0.025	ND	≤ 1.7
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C ₁₆ - C ₃₅)	mg/l	3510 C / 8015 D	< 0.050	ND	≤ 0.1
- n-Octadecane					
- n-Eicosane					
- n-Docosane					
- n-Tetracosane					
- n-Hexacosane					
- n-Octacosane					
- n-Triacontane					
- n-Dotriacontane					
- n-Tetracontane					
- n-Pentatriacontane					

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

Sudaporn S.

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ระดับเสียง



Noise Monitoring Result : Community Noise MTR-PTTGC-LDPE Plant

Location : South Fence of Project Site
SLM Model : Cirrus CR162B
Site Operator : Mr. Siwanon Kulawong

Monitor Period : 15-22 Aug 2024
Serial No : G300769

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.9/-0.2
Cal Sheet No.: CR-515-2024-233

Serial No : 94296
Certified Date : 14 Feb 2024
Expire Date : 13 Feb 2025

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Aug 2024	16-17 Aug 2024	17-18 Aug 2024	18-19 Aug 2024	19-20 Aug 2024	20-21 Aug 2024	21-22 Aug 2024
11:00 - 12:00	64.5	65.5	66.1	63.5	65.1	64.7	65.8
12:00 - 13:00	63.7	64.4	64.2	63.5	64.2	63.6	64.2
13:00 - 14:00	63.7	65.0	66.6	62.9	65.0	64.3	64.0
14:00 - 15:00	64.4	64.3	64.2	63.9	63.7	63.4	63.7
15:00 - 16:00	63.7	65.1	64.1	63.0	64.0	63.5	64.2
16:00 - 17:00	66.0	66.8	65.6	63.8	65.8	65.8	66.1
17:00 - 18:00	66.1	67.1	66.5	64.9	65.9	66.7	66.7
18:00 - 19:00	65.7	65.6	65.3	63.6	65.6	65.9	65.5
19:00 - 20:00	64.9	64.7	64.2	63.5	65.3	65.2	64.2
20:00 - 21:00	64.7	63.5	62.2	62.3	63.0	63.3	63.5
21:00 - 22:00	60.5	61.8	60.7	60.8	61.6	62.0	61.6
22:00 - 23:00	61.4	61.9	60.4	60.7	59.9	60.7	61.4
23:00 - 00:00	60.9	61.4	60.4	60.8	60.4	60.2	61.7
00:00 - 01:00	60.7	61.1	61.1	59.9	60.8	60.5	60.9
01:00 - 02:00	60.4	60.6	59.9	62.5	59.5	60.7	59.5
02:00 - 03:00	59.7	60.3	59.8	61.0	59.1	61.3	59.6
03:00 - 04:00	59.9	60.8	59.9	60.5	61.7	61.3	59.5
04:00 - 05:00	60.6	61.0	60.7	60.6	61.1	61.7	59.8
05:00 - 06:00	62.0	62.3	60.8	61.8	62.3	62.2	61.1
06:00 - 07:00	66.3	66.4	64.9	66.9	66.8	66.3	66.4
07:00 - 08:00	67.3	68.7	67.3	67.5	67.9	68.0	68.0
08:00 - 09:00	66.1	66.6	64.5	65.8	66.1	66.6	66.2
09:00 - 10:00	65.2	65.8	63.3	64.7	64.1	64.0	64.2
10:00 - 11:00	65.3	64.7	63.4	64.9	64.5	65.1	64.4
Leq(24)*	64.1	64.6	63.8	63.5	64.1	64.2	64.1
L _{dn}	68.9	69.3	68.4	69.0	69.0	69.1	68.8
L _{max} **	91.0	93.3	93.5	93.3	91.9	90.1	89.5
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-PTTGC-LDPE Plant

Location : South Fence of Project Site
SLM Model : Cirrus CR162B
Site Operator : Mr. Siwanon Kulawong

Monitor Period : 15-22 Aug 2024
Serial No : G300769

Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.9/-0.2
Cal Sheet No.: CR-515-2024-233

Serial No : 94296
Certified Date : 14 Feb 2024
Expire Date : 13 Feb 2025

Time	L90 (dB(A))						
	15-16 Aug 2024	16-17 Aug 2024	17-18 Aug 2024	18-19 Aug 2024	19-20 Aug 2024	20-21 Aug 2024	21-22 Aug 2024
11:00 - 12:00	59.7	60.5	60.8	59.0	60.1	59.8	59.9
12:00 - 13:00	59.2	60.1	60.4	58.5	59.3	59.1	59.3
13:00 - 14:00	59.2	60.1	60.5	58.5	59.4	59.4	59.2
14:00 - 15:00	58.9	60.3	60.1	58.4	59.2	59.2	59.2
15:00 - 16:00	58.8	60.5	60.1	58.3	58.7	59.0	59.6
16:00 - 17:00	59.7	61.2	60.4	58.7	59.8	60.4	61.2
17:00 - 18:00	60.0	61.7	60.5	58.4	61.0	61.7	62.1
18:00 - 19:00	60.5	60.4	60.8	59.2	60.7	60.8	61.0
19:00 - 20:00	59.0	60.4	58.8	58.9	59.4	59.7	60.2
20:00 - 21:00	59.4	60.3	57.9	59.2	59.2	59.2	60.2
21:00 - 22:00	57.1	59.6	58.1	59.2	58.2	58.8	59.7
22:00 - 23:00	57.3	58.3	58.8	59.2	57.8	58.9	59.6
23:00 - 00:00	59.2	58.7	59.3	59.3	58.1	58.6	59.2
00:00 - 01:00	59.3	59.9	59.4	58.9	58.3	58.7	59.1
01:00 - 02:00	59.4	59.7	59.3	58.7	58.3	59.1	58.9
02:00 - 03:00	59.3	59.7	59.3	58.8	58.4	60.8	59.0
03:00 - 04:00	59.3	59.8	59.1	59.6	58.4	60.8	58.8
04:00 - 05:00	59.5	60.0	59.1	59.4	60.2	60.9	58.9
05:00 - 06:00	59.6	60.0	58.4	58.9	60.3	60.7	58.4
06:00 - 07:00	62.1	61.6	60.2	61.4	61.4	61.5	61.4
07:00 - 08:00	63.2	63.2	61.1	63.5	63.9	63.6	63.8
08:00 - 09:00	60.5	61.7	59.6	60.7	61.1	61.1	60.8
09:00 - 10:00	59.3	59.9	59.3	59.9	59.9	59.8	59.7
10:00 - 11:00	60.0	60.2	59.0	60.1	59.8	59.8	60.4
L90(avg)*	59.7	60.4	59.7	59.5	59.9	60.2	60.2

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

คุณภาพอากาศในพื้นที่ปฏิบัติงาน



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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1662/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 14/08/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 15/08/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 17/08/2024
		Report Date	: 24/08/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
Compressor area	14/08/2024	Ethylene	Modif. Intersociety Committee 101/GC FID	< 0.01	ND	200
	11:25-11:40					
Extruder and pellet dryer	14/08/2024	Ethylene	Modif. Intersociety Committee 101/GC FID	< 0.01	ND	200
	10:45-11:00					
Bagging area (Silo)	14/08/2024	Ethylene	Modif. Intersociety Committee 101/GC FID	< 0.01	ND	200
	10:28-10:43					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1662/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 14/08/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 15/08/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 22/08/2024
		Report Date	: 24/08/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
บริเวณถังกักเก็บ	14/08/2024 10:10-14:10	Propionic aldehyde	NIOSH 2539/GC FID	< 0.03	ND	20
บริเวณส่วนการผลิต	14/08/2024 10:50-14:50	Propionic aldehyde	NIOSH 2539/GC FID	< 0.03	ND	20

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1662/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 14/08/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 15/08/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 20/08/2024
		Report Date	: 24/08/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณถังเก็บ	14/08/2024 10:10-14:10	Isododecane	NIOSH 1500/GC FID	< 0.01	ND	-
บริเวณส่วนการผลิต	14/08/2024 10:50-14:50	Isododecane	NIOSH 1500/GC FID	< 0.01	ND	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1662/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 14/08/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 15/08/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 23/08/2024
		Report Date	: 24/08/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณถังเก็บ	14/08/2024 10:10-14:10	Organic peroxide as Hydrogen peroxide	HPLC	< 0.007	ND	-
บริเวณส่วนการผลิต	14/08/2024 10:50-14:50	Organic peroxide as Hydrogen peroxide	HPLC	< 0.007	ND	-

Analyst By : Jutarat Jaemruen
(Miss Jutarat Jaemruen)

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

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ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 1662/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 14/08/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 15/08/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 16/08/2024
		Report Date	: 24/08/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
บริเวณถังเก็บ	14/08/2024	Total Hydrocarbon	THC Analyzer / FID	< 0.10	10.36	-
	10:10-10:25	NMHC	THC Analyzer / FID	< 0.05	2.41	-
บริเวณส่วนการผลิต	14/08/2024	Total Hydrocarbon	THC Analyzer / FID	< 0.10	8.13	-
	11:05-11:20	NMHC	THC Analyzer / FID	< 0.05	3.80	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2424/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 21/11/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 22/11/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 23/11/2024
		Report Date	: 28/11/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
Compressor area	21/11/2024	Ethylene	Modif. Intersociety	< 0.01	ND	200
	11:10-11:25		Committee 101/GC FID			
Extruder and pellet dryer	21/11/2024	Ethylene	Modif. Intersociety	< 0.01	ND	200
	11:40-11:45		Committee 101/GC FID			
Bagging area (Silo)	21/11/2024	Ethylene	Modif. Intersociety	< 0.01	ND	200
	10:20-10:35		Committee 101/GC FID			

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2424/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 21/11/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 22/11/2024
		Test Date	: 26/11/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Report Date	: 28/11/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณถังเก็บ	21/11/2024 10:00-14:00	Propionic aldehyde	NIOSH 2539/GC FID	< 0.03	ND	20
บริเวณส่วนการผลิต	21/11/2024 10:50-14:50	Propionic aldehyde	NIOSH 2539/GC FID	< 0.03	ND	20

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2424/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 21/11/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 22/11/2024
		Test Date	: 27/11/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Report Date	: 28/11/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
บริเวณถังเก็บ	21/11/2024 10:00-14:00	Isododecane	NIOSH 1500/GC FID	< 0.01	ND	-
บริเวณส่วนการผลิต	21/11/2024 10:50-14:50	Isododecane	NIOSH 1500/GC FID	< 0.01	ND	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2424/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 21/11/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 22/11/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 26/11/2024
		Report Date	: 28/11/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
บริเวณถังเก็บ	21/11/2024	Organic peroxide as Hydrogen peroxide	HPLC	< 0.007	ND	-
	10:00-14:00					
บริเวณส่วนการผลิต	21/11/2024	Organic peroxide as Hydrogen peroxide	HPLC	< 0.007	ND	-
	10:50-14:50					

Analyst By : Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Approved By : Maina Poowasanetch
(Miss Narisa Poowasanetch)
Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: RND/SECOT Co., Ltd.	Request Service No.	: 2424/67
For	: PTT Global Chemical Public Co., Ltd. (Branch 11 : LDPE Plant)	Sampling Date	: 21/11/2024
Address	: 8 Padang Road , Padang Industrial Estate , Tambon Mab Ta Phut , Amphoe Muang, Rayong 21150	Received Date	: 22/11/2024
Tel/Fax	: 0-3868-7123 ext. 6666 / 0-3868-7128	Test Date	: 26/11/2024
		Report Date	: 28/11/2024

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND	RESULT	STANDARD
				ppm	ppm	ppm
บริเวณถังเก็บ	21/11/2024	Total Hydrocarbon	THC Analyzer / FID	< 0.10	7.89	-
	10:00-10:15	NMHC	THC Analyzer / FID	< 0.05	1.83	-
บริเวณส่วนการผลิต	21/11/2024	Total Hydrocarbon	THC Analyzer / FID	< 0.10	11.40	-
	10:50-11:05	NMHC	THC Analyzer / FID	< 0.05	3.28	-

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maina Poowasanetch
(Miss Narisa Poowasanetch)
Technical Management Team

- Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. ND = non-detectable.
4. - No Standard.

ระดับเสียงเฉลี่ยตลอดระยะเวลาการทำงาน



Noise Monitoring Result : Working Noise

MTR-LDPE


LOCATION	: Control room	MEASUREMENT DATE : 14-08-2024
SLM MODEL	: SCARLET TECH ST-21D	SERIAL No. : 820728
SITE OPERATOR	: Miss Wiraya Patchimboon	

CALIBRATOR MODEL	: Cirrus CR:515	SERIAL No. : 97097
CALIBRATION REF/EFF dB(A)	: 94.0/93.8	CERTIFIED DATE : 04-09-2023
SLM READING/ADJUST dB(A)	: 93.8/0.0	EXPIRE DATE : 03-09-2024
CAL SHEET No.	: CAL-2408-0020-01	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dB(A))	
	14-08-2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00	54.3	
08:00 - 09:00	54.9	
09:00 - 10:00	56.0	
10:00 - 11:00	55.9	
11:00 - 12:00	56.2	
12:00 - 13:00	56.1	
13:00 - 14:00	55.3	
14:00 - 15:00	55.0	
15:00 - 16:00	54.7	
16:00 - 17:00	54.9	
17:00 - 18:00	55.2	
18:00 - 19:00	55.0	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 00:00		
Leq(12)	55.3	
Lmax	80.4	
Standard*	85 *, 87 ** dB(A)	
Standard-Max	140 dB(A)	

Remark : * The value was assigned in EIA report.
 ** Notification of Ministry of Industry, B.E.2546


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team



Noise Monitoring Result : Working Noise

MTR-LDPE

LOCATION	: Compressor area	MEASUREMENT DATE : 14-08-2024
SLM MODEL	: SCARLET TECH ST-21D	SERIAL No. : 820731
SITE OPERATOR	: Miss Wiraya Patchimboon	

CALIBRATOR MODEL	: Cirrus CR:515	SERIAL No. : 97097
CALIBRATION REF/EFF dB(A)	: 94.0/93.8	CERTIFIED DATE : 04-09-2023
SLM READING/ADJUST dB(A)	: 93.7/0.1	EXPIRE DATE : 03-09-2024
CAL SHEET No.	: CAL-2408-0020-01	

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dB(A))	
	14-08-2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		
08:00 - 09:00		
09:00 - 10:00		
10:00 - 11:00	83.5	
11:00 - 12:00	83.4	
12:00 - 13:00	83.2	
13:00 - 14:00	83.1	
14:00 - 15:00	83.1	
15:00 - 16:00	83.1	
16:00 - 17:00	83.2	
17:00 - 18:00	83.2	
18:00 - 19:00	83.2	
19:00 - 20:00	83.3	
20:00 - 21:00	82.9	
21:00 - 22:00	83.2	
22:00 - 23:00		
23:00 - 00:00		
Leq(12)	83.2	
Lmax	92.9	
Standard*	85 *, 87 ** dB(A)	
Standard-Max	140 dB(A)	

Remark : * The value was assigned in EIA report.
 ** Notification of Ministry of Industry, B.E.2546


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team



Noise Monitoring Result : Working Noise

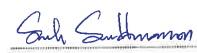
MTR-LDPE

LOCATION	: Extruder and pellet dryer	MEASUREMENT DATE	: 14-08-2024
SLM MODEL	: SCARLET TECH ST-21D	SERIAL No.	: 820729
SITE OPERATOR	: Miss Wiraya Patchimboon		
CALIBRATOR MODEL	: Cirrus CR:515	SERIAL No.	: 97097
CALIBRATION REF/EFF dB(A)	: 94.0/93.8	CERTIFIED DATE	: 04-09-2023
SLM READING/ADJUST dB(A)	: 93.8/0.0	EXPIRE DATE	: 03-09-2024
CAL SHEET No.	: CAL-2408-0020-01		

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dB(A))	
	14-08-2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		
08:00 - 09:00		
09:00 - 10:00		
10:00 - 11:00	82.2	
11:00 - 12:00	82.3	
12:00 - 13:00	82.3	
13:00 - 14:00	81.8	
14:00 - 15:00	82.0	
15:00 - 16:00	82.1	
16:00 - 17:00	82.1	
17:00 - 18:00	82.1	
18:00 - 19:00	82.2	
19:00 - 20:00	81.8	
20:00 - 21:00	81.5	
21:00 - 22:00	81.9	
22:00 - 23:00		
23:00 - 00:00		
Leq(12)	82.0	
Lmax	101.5	
Standard*	85 *, 87 ** dB(A)	
Standard-Max	140 dB(A)	

Remark : * The value was assigned in EIA report.
 ** Notification of Ministry of Industry, B.E.2546


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team



Noise Monitoring Result : Working Noise


MTR-LDPE

LOCATION	: Admin Buliding	MEASUREMENT DATE	: 14-08-2024
SLM MODEL	: SCARLET TECH ST-21D	SERIAL No.	: 820727
SITE OPERATOR	: Miss Wiraya Patchimboon		
CALIBRATOR MODEL	: Cirrus CR:515	SERIAL No.	: 97097
CALIBRATION REF/EFF dB(A)	: 94.0/93.8	CERTIFIED DATE	: 04-09-2023
SLM READING/ADJUST dB(A)	: 93.7/0.1	EXPIRE DATE	: 03-09-2024
CAL SHEET No.	: CAL-2408-0020-01		

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dB(A))	
	14-08-2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		54.6
08:00 - 09:00		54.1
09:00 - 10:00		53.8
10:00 - 11:00		62.1
11:00 - 12:00		52.4
12:00 - 13:00		53.3
13:00 - 14:00		52.6
14:00 - 15:00		52.6
15:00 - 16:00		
16:00 - 17:00		
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 00:00		
Leq(8)	56.0	
Lmax	86.2	
Standard*	85 *, 90 ** dB(A)	
Standard-Max	140 dB(A)	

Remark : * The value was assigned in EIA report.
 ** Notification of Ministry of Industry, B.E.2546


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team

ระดับเสียงสะสมที่ถูกจ้างได้รับเฉลี่ยตลอดระยะเวลา
การทำงานในแต่ละวัน (TWA)



บริษัท ซีคอต จำกัด

SECOT CO.,LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2595-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 224106_Noise Dose_Aug
	(Branch 11 : LDPE)	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR TYPE	: Cirrus RC:110A
MEASUREMENT DATE	: 14-08-2024	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: LDPE Plant	CALIBRATOR REF.	: 114 dB @ 1kHz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER NAME	AREA/PLANT	SOUND PRESSURE LEVEL (dB(A))		
		TWA (12 hr)	%Dose	STANDARD*
ID : 26004600	Compressor / 7:50-19:00	82.7	87.3	83.0
ID : 26004601	Extruder and Pellet Dryer / 7:51-19:00	82.1	77.1	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. * Notification of the Department of Labour Protection and Welfare B.E.2561 (2018).
 4. TWA means Time Weighted Average.

ความร้อนภายในสถานที่ทำงาน



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : 224106_Heat/Apr
(Branch 11 : LDPE)
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Area Heat Stress Monitor
MEASUREMENT DATE : 04-04-2024 MODEL NO. : JT2011-E2A
MEASUREMENT LOCATION : Pellet Dryer SERIAL NO. : 3522210177
SITE OPERATOR : Miss Mareeyanee Hawae

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	WBGT _{in}	WBGT _{Avg}	WBGT
Pellet Dryer	10:50-11:20	29.7	35.1	35.8	31.5	31.5	34.0
	11:20-11:50	29.8	35.5	35.8	31.6		
	11:50-12:20	29.7	34.9	35.8	31.5		
	12:20-12:50	29.5	34.1	35.3	31.2		

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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

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

3. *WBGT Standard was notified by the Ministerial of Labor B.E.2559 (2016).

NWB = Natural Wet Bulb Temperature

DB = Dry Bulb Temperature

GT = Globe Temperature

WBGT = Wet Bulb Globe Temperature

Work Load : Light work load = 34.0 °C, Moderate work load = 32.0 °C and Heavy work load = 30.0 °C

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

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

Expiration Date: Feb 05, 2027

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

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

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

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

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

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

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) 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. The certificate and its contents 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.



TESTING CERT No. 3082.05

[Signature]
Approved for Release



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 6 Jan 24

	Initial	Final	Average	
Barometric press, Pb	759	759	759	mmHg

Dry Gas Meter Data

Console No. M50-09

Serial No. 358794

Metering System ID

Model S110

DGM Number 333249

Correction factor (Yr) 1.0068

DGM Model ES-110

Last Calibration Date 26 Oct 23

Calibrated by : Montri P.

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time ⊙ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.3	99.0	25	25	24	24.5	8.53	1.0165	41.1799
25.0	100.0	99.5	25	25	24	24.5	6.08	1.0073	42.0742
50.0	100.1	99.8	25	25	24	24.5	4.47	1.0041	45.2483
76.0	100.4	99.1	25	25	24	24.5	3.55	1.0114	43.2112
100.0	100.1	99.4	25	25	24	24.5	3.55	1.0024	44.6038
150.0	100.1	98.9	25	25	24	24.5	2.57	1.0022	44.8941

Average 1.0073 43.5352

Approved by : *[Signature]*



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 09-01-2024

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-02

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.00	20.50	0.8468	-0.0035
2	15.00	20.50	0.8468	-0.0035
3	15.00	20.00	0.8574	0.0070

 $C_{P(A),avg}$ 0.8504

B Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

 $C_{P(B),avg}$ 0.8468 $|C_{P(A)} - C_{P(B)}| = 0.0035$ $C_{P(Avg)} = 0.8486$ Approved by : 

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

THE LINDE GROUP

Linde

Certificate Of Analysis
Special Gases Mixture

Customer Details

Name:
Secot Co., Ltd.Address:
239 Rimklongprapa Rd. Bangsue Khet Bangsue
Bangkok 10800

Customer Tag No.:

Certificate Details

Number:	0499/23	Date of Issue:	23-Feb-2023	Expiry date:	22-Feb-2027
Material Details					
Production Order:	90176404	Material Code:	429900-J-62	Cylinder No.:	44157
Gas content:	6.560 M ³ (nominal)	Filling pressure:	145 bar (g)	Valve:	CGA 590 BRASS
Cylinder Owner:	LINDE	Cylinder Material:	STEEL	Cylinder Size:	47 L

Laboratory Report

Component	Norminal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³
Oxygen	15.0%	15.1%	$\pm 2\%$ relative	(2) I-PB-354
In Nitrogen				

Recommend usage condition

Minimum utilization: 5% of actual content or before expire date whichever comes first.

Storage condition: Keep in well ventilation and secure area.

Comments

Note:

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

Sukanya Parinyasontorn

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

Page 1 of 1

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PB-002/F004

Iss: K/2, 15 Oct 2021

บริษัท สันติ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบอนุญาตประกอบกิจการ : 0107537000785

ชั้น 15 อาคารชาเลนเจอร์ 2/3 หมู่ 14 ถนนพหลโยธิน แขวง 6.5 คลองเตย

กรุงเทพมหานคร 10540 โทรศัพท์ (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิต : 105 หมู่ 5 ตำบลนิคมอุตสาหกรรมบางนา กรุงเทพมหานคร 24180

โทรศัพท์ (66) 38.570-479-93

โทรสาร (66) 38.570-323

Linde (Thailand) Public Company Limited

P.L.C. Registration no. 0107537000785

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

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

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

Thailand, Tel (66) 38.570-479-93

Fax (66) 38.570-323

Certificate Of Analysis
Special Gases Mixture

Customer Details

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

Certificate Details

Number: 0527/23 Date of Issue: 8-Mar-2023 Expiry date: 8-Mar-2026
Material Details
Production Order: 90176406 Material Code: 511600-SK-34 Cylinder No.: A00878SK
Gas content: 5.20 M³ Filling pressure: 137.0 bar Valve: CGA 660 SS
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

Laboratory Report

Analytical Result

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³	Assay Date
Nitric Oxide	40.0 ppm	39.8 ppm	± 1% relative	(6) I-PB-352	1-Mar & 8-Mar-23
Other NOx impurity		Less than 1.9 ppm			
Carbon Monoxide	40.0 ppm	42.0 ppm	± 1% relative	(6) I-PB-352	1-Mar-2023
In Nitrogen					

Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Nitric Oxide	1332615G	25.61 ± 0.13 ppm	6-May-2023
Carbon Monoxide	ND52320	25.03 ± 0.13 ppm	7-Oct-2023
In Nitrogen			

Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-NO	28-Feb-2023
FTIR Spectrometers Nicolet iS50	FTIR-CO	25-Feb-2023

Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.

Storage condition: Keep in well ventilation and secure area.

Comments

When reordering, please quote the material number

Note:

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

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

Linde (Thailand) Public Company Limited Iss:K/2, 15 Oct 2021

P.L.E. Registration no. 0107537000785

15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew
Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333
Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180
Thailand, Tel (66) 38.570-479-93 Fax (66) 38.570-323

Certificate Of Analysis
Special Gases Mixture

Customer Details

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

Certificate Details

Number: 0529/23 Date of Issue: 7-Mar-2023 Expiry date: 7-Mar-2026
Material Details
Production Order: 90176407 Material Code: 436700-SK-34 Cylinder No.: A00818SK
Gas content: 5.23 M³ Filling pressure: 137.0 bar Valve: CGA 660 SS
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

Laboratory Report

Analytical Result

Component	Normal Concentration	Analysis Result ¹	Uncertainty ²	Method of Analysis ³	Assay Date
Nitric Oxide	80.0 ppm	79.5 ppm	± 1% relative	(6) I-PB-352	27-Feb & 7-Mar-23
Other NOx impurity		Less than 3.9 ppm			
Carbon Monoxide	80.0 ppm	81.1 ppm	± 1% relative	(6) I-PB-352	27-Feb-2023
In Nitrogen					

Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Nitric Oxide	2560035G	50.89 ± 0.41 ppm	13-Dec-2024
Carbon Monoxide	ND46423	50.20 ± 0.26 ppm	4-May-2024
In Nitrogen			

Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-NO	27-Jan & 1-Mar-23
FTIR Spectrometers Nicolet iS50	FTIR-CO	22-Feb-2023

Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.

Storage condition: Keep in well ventilation and secure area.

Comments

When reordering, please quote the material number

Note:

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

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

Linde (Thailand) Public Company Limited Iss:K/2, 15 Oct 2021

P.L.E. Registration no. 0107537000785

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



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Aug 15, 24

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	94296	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
15	Cirrus	CR162B	G300769	93.9	-0.2

Calibrated by :  Approved by : 



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-67/0303

MTC.No.23-67/0303-02

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 160100

Model : Defender 520-L

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

Subdivision : (0.001, 0.01) ml/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2024 Condition of measured item : Normal

Calibration date : 6 March 2024

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 117982	MW-0034-23	11-Jun-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by : 

(Ms.Kirana Luanghirun)

Mechanical Engineering Standards Laboratory

Ref. 2013267021300639002

Issued Date 11 March 2024

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-67/0303

2/2

MTC.No.23-67/0303-02

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

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

Atmospheric pressure (1010 ± 13) hPa

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

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

Measurement data :

UUC Value (ml/min)	Standard Value (ml/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
19.854*	19.920	25.169	1006.69	-0.33	1.1
49.990	50.384	25.058	1006.80	-0.78	1.1
99.770	99.036	25.047	1006.89	+0.74	0.99
199.87	192.51	24.984	1007.03	+3.82	1.0
401.92	384.44	24.959	1007.30	+4.55	0.99

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

* : The calibration point is not the scope of accreditation.

The end of calibration certificate.

TB.

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FM.BLMTC.002 Rev.4

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-67/0383

MTC.No.23-67/0383

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

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

Subdivision : (0.0001, 0.001) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 2 April 2024

Condition of measured item : Normal

Calibration date : 7 May 2024

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 643/65	1-Jun-24	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 119216	MW-0035-23	31-May-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by : Kirana Luanghirun

(Ms.Kirana Luanghirun)

Director

Mechanical Engineering Standards Laboratory

Ref. 20132670420197001

Issued Date 13 May 2024

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-67/0383

2/2

MTC.No.23-67/0383

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

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

Atmospheric pressure (1010 ± 13) hPa

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

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

Measurement data :

UUC Value (L/min)	Standard Value (L/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
1.5116	1.4904	25.492	1007.32	+1.42	0.93
5.0284	4.9847	25.446	1007.65	+0.88	0.92
10.072	10.027	25.442	1008.43	+0.45	0.92
15.109	15.087	25.457	1009.62	+0.15	0.91
25.206	25.160	25.520	1013.18	+0.18	0.91

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

The end of calibration certificate.

T.B.

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Sheet No. : CAL-2408-0020-01



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: 14-08-2024

ACOUSTIC CALIBRATOR

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

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET TECH	ST-21D	820728	93.8	0.0
2	SCARLET TECH	ST-21D	820731	93.7	0.1
3	SCARLET TECH	ST-21D	820729	93.8	0.0
4	SCARLET TECH	ST-21D	820727	93.7	0.1

Calibrated by :

Approved by :

CER_LDPE_2408-0020_Leq/CALSHEET01

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

CERTIFICATE OF CALIBRATION

ISSUED BY **Noisemeters**

DATE OF ISSUE **26 March 2024**

CERTIFICATE NUMBER **211258**

NoiseMeters

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

Page 1 of 2

Approved signatory
N.Smith
Electronically signed:



doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Cirrus Research plc

Notes:

Model: RC:110A

Serial number: 95168

Class: 2

Test summary

Date of calibration: 25 March 2024

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

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

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

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

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

Notes:

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

CERTIFICATE OF CALIBRATION

Certificate Number:

211258

Page 2 of 2

Environmental conditions

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

Before Pressure: 99.27 kPa Temperature: 22.3 °C Humidity: 32.9 %

After Pressure: 99.27 kPa Temperature: 22.3 °C Humidity: 33.4 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	0839263
Acoustic Calibrator	Bruel and Kjaer	4231	2610257
Environmental Monitor	Comet	T7510	21962628

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	114.06	114.05	114.02	114.04	0.04	±0.75	0.11 dB
Distortion (%)	< 4.00	0.53	0.53	0.53	0.53	0.53	+4.00	0.13 %
Frequency (Hz)	1000.0	999.4	999.4	999.4	999.4	-0.6	±20.0	0.1 Hz

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

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.99	114.01	114.01	114.00	0.00	±0.75	0.11 dB
Distortion (%)	< 4.00	0.52	0.52	0.52	0.52	0.52	+4.00	0.13 %
Frequency (Hz)	1000.0	999.4	999.4	999.4	999.4	-0.6	±20.0	0.1 Hz

Functionality Results

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

End of results

Instrument information



Name	WET BULB GLOBE TEMPERATURE (WBGT)METER
Series No	3522210177
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	44.9	0.1	0.2
DRY	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	44.8	0.2	0.2
GLOBE	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	40.2	-0.2	0.2
	45.0	45.1	-0.1	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,

Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000073

Calibration Engineer : Date : January 16, 2024 