

ภาคผนวก ค

---

ใบรับรองผลการตรวจวัดและวิเคราะห์

## คุณภาพอากาศในบรรยากาศ

---

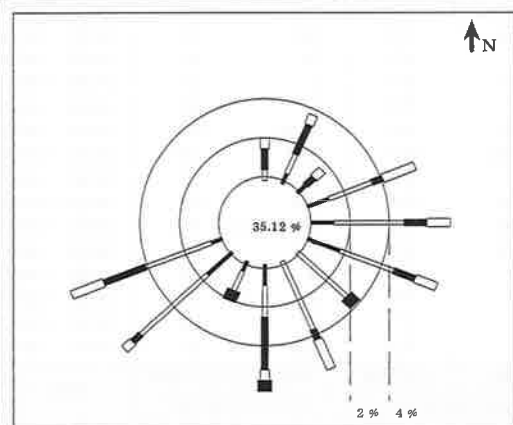


## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

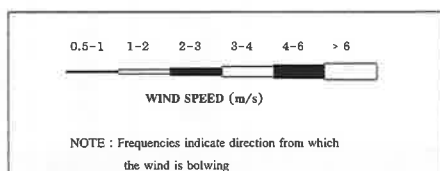
Location : North of Refinery Area  
Wind Speed Model : NRG Symphonie  
Wind Direction Model : NRG Symphonie

Monitor period : 04-11 Oct 2022  
Serial No : A4905  
Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0060	0.0119	0.0060	0.0000	0.0000	0.0238
NNE	0.0060	0.0119	0.0179	0.0060	0.0000	0.0000	0.0417
NE	0.0060	0.0000	0.0060	0.0060	0.0000	0.0000	0.0179
ENE	0.0119	0.0238	0.0060	0.0179	0.0000	0.0000	0.0595
E	0.0119	0.0357	0.0119	0.0119	0.0000	0.0000	0.0714
ESE	0.0179	0.0298	0.0119	0.0119	0.0000	0.0000	0.0714
SE	0.0000	0.0357	0.0000	0.0000	0.0060	0.0000	0.0417
SSE	0.0000	0.0417	0.0060	0.0179	0.0000	0.0000	0.0655
S	0.0119	0.0179	0.0298	0.0060	0.0000	0.0000	0.0714
SSW	0.0060	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
SW	0.0179	0.0476	0.0060	0.0060	0.0000	0.0000	0.0774
WSW	0.0060	0.0357	0.0238	0.0179	0.0000	0.0000	0.0833
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3512						



Application : WindPro Ver.1.0  
Control : 16 Direction Calculation With  
Calm Wind < 0.5 m/s  
Data Unit : Direction in Deg.  
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-222010-North of Refinery Area 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : North of Refinery Area  
Wind Speed Model : NRG Symphonie  
Wind Direction Model : NRG Symphonie

Monitor period : 04-11 Oct 2022  
Serial No : A4905  
Serial No : A4905

Time	04-05 Oct 2022		05-06 Oct 2022		06-07 Oct 2022		07-08 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	2.7	NNE	2.9	SW	1.0	WSW	2.9	NNE
11:00 - 12:00	3.8	WSW	1.2	ESE	2.3	S	2.4	WSW
12:00 - 13:00	3.4	NNE	1.1	WSW	1.6	SE	3.9	E
13:00 - 14:00	1.0	SW	1.1	E	1.9	WSW	2.1	ESE
14:00 - 15:00	1.7	ENE	3.0	NE	3.5	ENE	5.4	SE
15:00 - 16:00	2.5	NE	2.4	S	1.4	SE	5.2	S
16:00 - 17:00	0.0	NE	3.2	ENE	3.0	ENE	1.8	SW
17:00 - 18:00	0.0	NE	3.1	WSW	1.7	WSW	3.0	ESE
18:00 - 19:00	0.0	ENE	1.2	SSE	1.1	SSW	1.1	ESE
19:00 - 20:00	0.0	SSW	2.6	N	1.3	SSE	2.1	E
20:00 - 21:00	0.9	S	0.7	SW	1.2	ESE	1.9	SSE
21:00 - 22:00	0.0	NE	1.9	E	0.9	SW	1.1	ESE
22:00 - 23:00	0.0	WSW	2.5	S	0.0	SSE	0.0	S
23:00 - 24:00	0.0	NE	2.6	S	0.0	ENE	1.5	SSE
00:00 - 01:00	0.0	WSW	2.3	WSW	0.0	ENE	0.0	NE
01:00 - 02:00	0.0	WSW	2.2	ESE	1.6	SSW	1.6	ENE
02:00 - 03:00	0.0	SSE	0.0	S	0.8	NE	0.7	SW
03:00 - 04:00	0.0	NE	0.0	N	0.0	SW	1.5	SW
04:00 - 05:00	0.0	NNE	0.0	ESE	0.0	NNE	1.2	SE
05:00 - 06:00	0.0	SSE	0.0	NE	0.0	WSW	1.4	SSE
06:00 - 07:00	0.0	SSW	0.0	ENE	0.8	ENE	1.9	SE
07:00 - 08:00	0.0	E	1.7	E	1.1	SW	1.7	ENE
08:00 - 09:00	0.0	N	0.8	S	1.5	SW	1.9	SW
09:00 - 10:00	3.3	SSE	2.2	SSE	0.7	SSW	3.9	WSW

Wind Rose



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team

File Control : R:\Database\Windrose\FileControl\Win-222010-North of Refinery Area 04-11 Oct 2022



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : North of Refinery Area

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

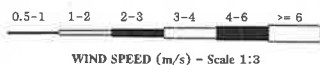
Serial No : A4905

Wind Direction Model : NRG Symphonie

Serial No : A4905

Time	08-09 Oct 2022		09-10 Oct 2022		10-11 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	1.8	SSE	3.5	SW	0.0	E
11:00 - 12:00	1.2	SE	1.7	E	0.0	SSW
12:00 - 13:00	3.7	E	1.5	SSE	2.2	S
13:00 - 14:00	3.0	N	3.4	SSE	0.5	NNE
14:00 - 15:00	3.1	S	5.2	SSW	2.8	E
15:00 - 16:00	1.6	WSW	2.0	NNE	0.8	WSW
16:00 - 17:00	3.8	SSE	0.0	ENE	1.9	SW
17:00 - 18:00	3.1	ESE	0.0	SE	1.0	S
18:00 - 19:00	2.7	ENE	0.0	WSW	0.8	E
19:00 - 20:00	2.0	WSW	0.0	ESE	0.8	ESE
20:00 - 21:00	1.6	E	0.0	SE	1.6	S
21:00 - 22:00	1.7	E	0.0	NNE	0.4	SW
22:00 - 23:00	1.8	SE	0.0	S	1.5	ENE
23:00 - 24:00	1.3	SW	0.0	ESE	2.2	N
00:00 - 01:00	0.9	E	0.0	WSW	0.0	SSE
01:00 - 02:00	0.0	E	0.0	S	0.0	NE
02:00 - 03:00	1.2	NNE	0.0	E	0.0	SW
03:00 - 04:00	1.1	S	0.0	SSE	0.0	ESE
04:00 - 05:00	0.8	ENE	0.0	SSE	0.0	SSE
05:00 - 06:00	1.2	N	0.0	SW	0.0	S
06:00 - 07:00	2.0	WSW	0.0	SE	0.0	E
07:00 - 08:00	0.9	ESE	0.0	SW	1.8	ESE
08:00 - 09:00	1.7	WSW	0.0	ESE	0.0	SW
09:00 - 10:00	1.0	NNE	0.0	SE	0.7	ESE

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-North of Refinery Area 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : North of VCU Area

Monitor period : 04-11 Oct 2022

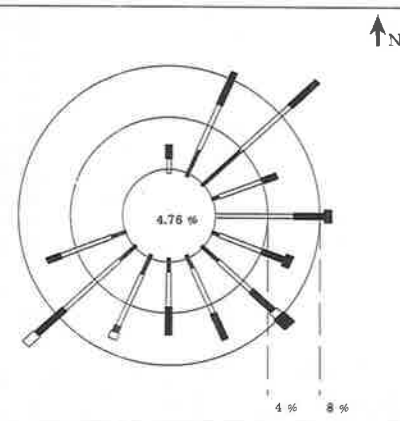
Wind Speed Model : NRG Symphonie

Serial No : A4904

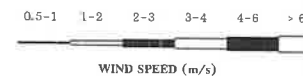
Wind Direction Model : NRG Symphonie

Serial No : A4904

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0119	0.0119	0.0000	0.0000	0.0000	0.0238
NNE	0.0238	0.0417	0.0298	0.0000	0.0000	0.0000	0.0952
NE	0.0417	0.0536	0.0298	0.0000	0.0000	0.0000	0.1250
ENE	0.0060	0.0357	0.0119	0.0000	0.0000	0.0000	0.0536
E	0.0000	0.0595	0.0238	0.0000	0.0060	0.0000	0.0893
ESE	0.0060	0.0357	0.0179	0.0000	0.0060	0.0000	0.0655
SE	0.0179	0.0357	0.0238	0.0060	0.0119	0.0000	0.0952
SSE	0.0119	0.0417	0.0238	0.0000	0.0000	0.0000	0.0774
S	0.0119	0.0298	0.0238	0.0000	0.0000	0.0000	0.0655
SSW	0.0179	0.0476	0.0060	0.0060	0.0000	0.0000	0.0774
SW	0.0179	0.0595	0.0298	0.0119	0.0000	0.0000	0.1190
WSW	0.0119	0.0417	0.0119	0.0000	0.0000	0.0000	0.0655
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0476						



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-222010-North of VCU Area 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team





## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : North of VCU Area

Monitor period : 04-11 Oct 2022

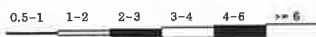
Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie

Serial No : A4904

Time	04-05 Oct 2022		05-06 Oct 2022		06-07 Oct 2022		07-08 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
17:00 - 18:00	2.6	SW	2.9	NNE	2.0	ENE	4.8	SE
18:00 - 19:00	1.9	S	1.0	SSW	1.8	E	1.8	ENE
19:00 - 20:00	0.7	ENE	1.6	S	1.1	SW	1.7	WSW
20:00 - 21:00	1.1	SE	2.1	NNE	2.0	SW	1.3	E
21:00 - 22:00	0.8	SE	0.8	NNE	1.1	ESE	1.7	S
22:00 - 23:00	1.5	NNE	1.6	NE	2.7	ENE	2.0	SE
23:00 - 24:00	1.1	SSE	0.7	NNE	0.4	SW	2.4	SSE
00:00 - 01:00	1.4	NE	2.2	NNE	1.4	NE	0.5	NNE
01:00 - 02:00	1.2	SE	2.0	ESE	1.2	SW	2.1	NE
02:00 - 03:00	1.4	NE	2.6	NE	1.6	SW	0.9	NE
03:00 - 04:00	1.1	SW	1.9	NNE	0.1	E	1.6	E
04:00 - 05:00	1.7	SSW	0.7	SSW	0.5	SE	1.5	NE
05:00 - 06:00	0.5	S	1.1	SSW	1.1	SSW	1.7	SE
06:00 - 07:00	1.0	SSE	0.8	NE	0.9	NE	2.2	ESE
07:00 - 08:00	1.5	SW	1.5	SW	1.4	WSW	3.9	SW
08:00 - 09:00	2.0	S	1.1	E	1.3	SSE	1.7	SSE
09:00 - 10:00	1.8	SW	1.4	E	2.3	N	2.1	NE
10:00 - 11:00	1.1	ENE	1.2	SSW	0.0	NE	4.5	SE
11:00 - 12:00	2.0	SSW	1.4	ESE	1.0	SW	2.3	SE
12:00 - 13:00	1.1	SSW	1.1	NNE	0.9	SSW	2.9	WSW
13:00 - 14:00	2.7	NNE	1.7	SSW	4.1	E	2.5	NE
14:00 - 15:00	0.4	ESE	0.5	SSW	2.3	SW	2.3	WSW
15:00 - 16:00	0.9	NNE	1.0	SE	1.3	NNE	2.4	SSE
16:00 - 17:00	1.7	NE	1.5	S	1.0	SSE	4.0	ESE
Wind Rose								



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

File Control : R:\Database\Windrose\FileControl\Win-222010-North of VCU Area 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team

SECOT CO.,LTD

239 Rimkongprapa Rd.  
Bangpae, Bangkok 10800

Tel:166(0)2959-3600 Fax:+66(0)2959-3535



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : North of VCU Area

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie

Serial No : A4904

Time	08-09 Oct 2022		09-10 Oct 2022		10-11 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
17:00 - 18:00	1.3	SSE	1.1	SSW	0.8	NE
18:00 - 19:00	2.4	E	2.7	N	1.6	SE
19:00 - 20:00	1.7	WSW	0.4	E	0.7	S
20:00 - 21:00	1.7	E	1.4	N	2.2	S
21:00 - 22:00	2.0	S	1.2	ESE	2.0	E
22:00 - 23:00	1.8	NNE	1.6	ENE	2.6	NE
23:00 - 24:00	3.6	SE	0.1	WSW	1.9	E
00:00 - 01:00	1.4	WSW	0.5	SW	0.7	SE
01:00 - 02:00	0.7	WSW	1.1	E	1.1	ENE
02:00 - 03:00	1.9	ENE	0.9	NE	0.8	SSE
03:00 - 04:00	2.1	SW	1.4	SSE	1.5	NNE
04:00 - 05:00	1.3	ENE	1.3	S	1.1	WSW
05:00 - 06:00	2.1	SE	2.3	SW	1.4	SW
06:00 - 07:00	2.1	SSE	0.0	S	1.2	NE
07:00 - 08:00	0.7	SW	1.0	ESE	1.4	WSW
08:00 - 09:00	0.4	SSE	0.9	SW	1.1	ESE
09:00 - 10:00	0.5	ESE	2.3	SE	1.7	WSW
10:00 - 11:00	2.5	E	1.4	SE	0.5	NE
11:00 - 12:00	1.5	E	1.9	E	1.0	NE
12:00 - 13:00	2.1	E	3.7	SW	1.5	ESE
13:00 - 14:00	0.8	NE	1.6	SW	2.0	ESE
14:00 - 15:00	0.7	WSW	2.3	S	1.8	NNE
15:00 - 16:00	0.6	SSE	1.0	NE	3.6	SSW
16:00 - 17:00	2.0	NNE	2.1	SSE	1.9	N
Wind Rose						



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

File Control : R:\Database\Windrose\FileControl\Win-222010-North of VCU Area 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team

SECOT CO.,LTD

239 Rimkongprapa Rd.  
Bangpae, Bangkok 10800

Tel:166(0)2959-3600 Fax:+66(0)2959-3535



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 1

Monitor period : 04-11 Oct 2022

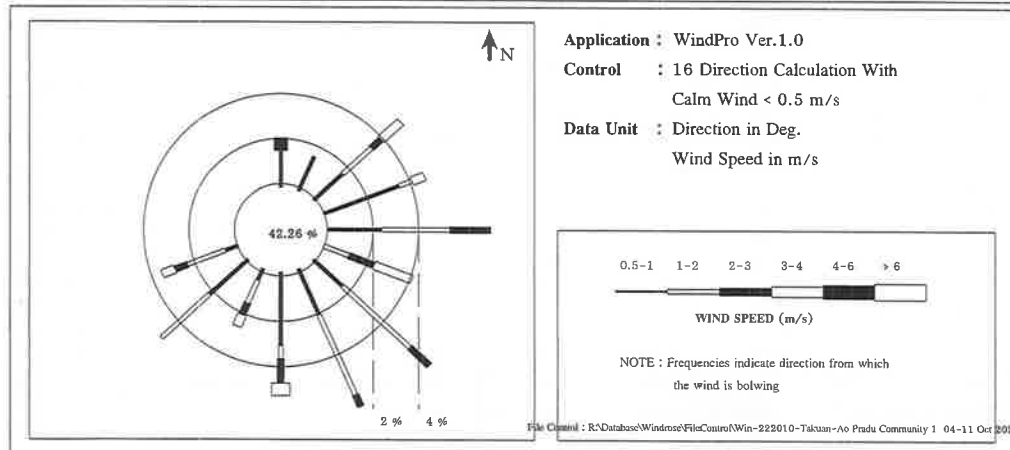
Wind Speed Model : NRG Symphonie

Serial No : 4901

Wind Direction Model : NRG Symphonie

Serial No : 4901

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0179	0.0000	0.0000	0.0000	0.0060	0.0000	0.0238
NNE	0.0179	0.0000	0.0000	0.0000	0.0000	0.0000	0.0179
NE	0.0179	0.0179	0.0060	0.0119	0.0000	0.0000	0.0536
ENE	0.0357	0.0060	0.0000	0.0060	0.0000	0.0000	0.0476
E	0.0238	0.0298	0.0179	0.0000	0.0000	0.0000	0.0714
ESE	0.0000	0.0119	0.0119	0.0179	0.0000	0.0000	0.0417
SE	0.0179	0.0417	0.0119	0.0000	0.0000	0.0000	0.0714
SSE	0.0238	0.0417	0.0060	0.0000	0.0000	0.0000	0.0714
S	0.0357	0.0060	0.0119	0.0000	0.0000	0.0060	0.0595
SSW	0.0060	0.0119	0.0060	0.0060	0.0000	0.0000	0.0298
SW	0.0238	0.0298	0.0000	0.0000	0.0000	0.0000	0.0536
WSW	0.0060	0.0179	0.0060	0.0060	0.0000	0.0000	0.0357
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.4226						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 1

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

Serial No : 4901

Wind Direction Model : NRG Symphonie

Serial No : 4901

Time	04-05 Oct 2022		05-06 Oct 2022		06-07 Oct 2022		07-08 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
14:00 - 15:00	1.1	SE	1.9	ESE	1.1	NE	3.3	WSW
15:00 - 16:00	1.6	ENE	0.9	NNE	0.6	S	2.1	ESE
16:00 - 17:00	0.6	ENE	0.5	ENE	0.8	N	1.7	SW
17:00 - 18:00	0.1	NE	0.0	NNE	0.0	E	0.0	SW
18:00 - 19:00	0.2	N	0.6	N	0.7	SSW	0.0	E
19:00 - 20:00	0.1	ENE	0.8	NE	0.0	ESE	0.8	ENE
20:00 - 21:00	0.5	ENE	0.0	SE	0.0	ESE	0.0	NNE
21:00 - 22:00	0.8	E	4.7	N	0.0	SE	0.0	ESE
22:00 - 23:00	0.9	ENE	0.4	SE	0.0	NE	0.0	SSW
23:00 - 24:00	0.7	NNE	2.1	SSW	0.0	SSW	0.0	ENE
00:00 - 01:00	0.0	E	0.0	E	0.0	S	1.1	E
01:00 - 02:00	0.6	E	0.3	ESE	0.0	E	0.0	SSW
02:00 - 03:00	0.9	SW	0.0	SW	0.0	S	0.0	ESE
03:00 - 04:00	2.4	E	0.4	WSW	1.4	E	0.0	SW
04:00 - 05:00	0.0	NNE	0.0	S	0.8	SW	0.5	SW
05:00 - 06:00	0.0	SSW	0.9	E	3.0	ESE	0.0	ESE
06:00 - 07:00	0.2	E	1.4	SE	1.6	WSW	0.0	SE
07:00 - 08:00	0.4	NE	1.2	SSE	1.1	SSE	0.0	SSE
08:00 - 09:00	0.3	N	1.5	NE	1.6	SE	1.8	E
09:00 - 10:00	1.3	SW	2.8	SE	1.9	SE	0.6	SE
10:00 - 11:00	1.2	SSE	1.8	WSW	1.2	SSE	0.9	NE
11:00 - 12:00	3.9	ENE	3.2	ESE	1.3	ESE	1.0	SW
12:00 - 13:00	3.0	NE	3.2	SSW	2.2	E	1.4	SE
13:00 - 14:00	3.4	NE	2.4	SSE	2.5	ESE	0.1	ESE

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao Pradu Community 1 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 1

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

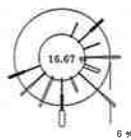
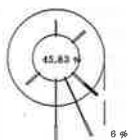
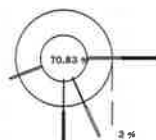
Serial No : 4901

Wind Direction Model : NRG Symphonie

Serial No : 4901

Time	08-09 Oct 2022		09-10 Oct 2022		10-11 Oct 2022		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
14:00 - 15:00	0.0	SSW	0.0	NNE	1.6	SE	
15:00 - 16:00	0.0	SE	0.2	NE	0.5	WSW	
16:00 - 17:00	0.0	WSW	0.2	S	0.8	SE	
17:00 - 18:00	0.0	NE	1.0	SSE	0.9	ENE	
18:00 - 19:00	0.0	SSE	1.4	S	0.8	SW	
19:00 - 20:00	0.0	SSW	0.9	N	1.8	SSE	
20:00 - 21:00	0.0	NNE	0.4	SE	0.5	S	
21:00 - 22:00	0.0	NNE	0.9	SSE	0.5	E	
22:00 - 23:00	0.8	SSE	0.1	SE	0.2	NNE	
23:00 - 24:00	0.0	SSW	0.8	S	0.7	NE	
00:00 - 01:00	0.0	SW	0.0	ESE	0.8	NNE	
01:00 - 02:00	0.0	ENE	0.0	S	0.0	NNE	
02:00 - 03:00	0.1	SW	0.0	E	1.4	E	
03:00 - 04:00	0.0	ESE	1.9	NE	0.4	SSW	
04:00 - 05:00	0.0	S	0.1	SSW	2.1	S	
05:00 - 06:00	0.0	SW	0.2	ENE	0.0	N	
06:00 - 07:00	0.1	S	0.5	S	1.1	SW	
07:00 - 08:00	0.0	SSE	0.6	SSE	1.7	SSW	
08:00 - 09:00	1.2	SSE	0.0	E	0.8	SE	
09:00 - 10:00	2.2	E	1.1	SW	2.2	WSW	
10:00 - 11:00	0.8	S	0.8	S	6.0	S	
11:00 - 12:00	2.9	S	2.6	SE	3.3	ESE	
12:00 - 13:00	1.5	WSW	0.8	SSE	2.3	NE	
13:00 - 14:00	1.3	E	1.9	SE	1.4	SSW	

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao Pradu Community 1 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 2

Monitor period : 04-11 Oct 2022

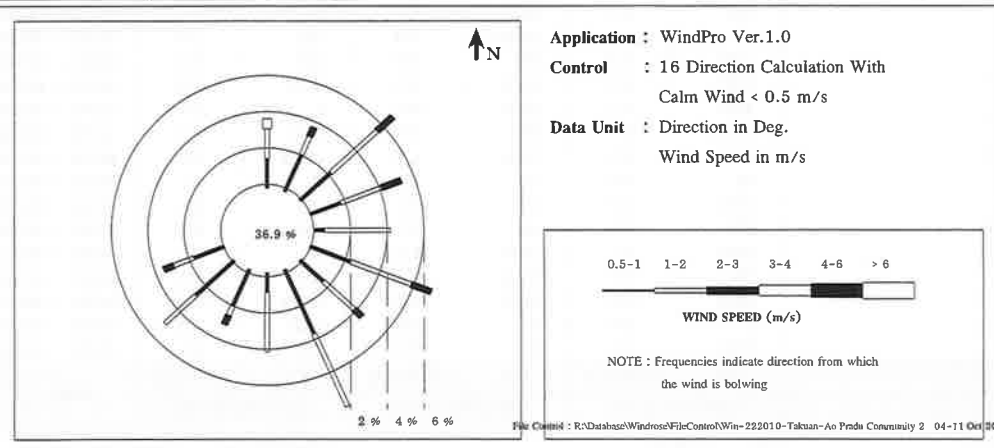
Wind Speed Model : NRG Symphonie

Serial No : 5084

Wind Direction Model : NRG Symphonie

Serial No : 5084

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0179	0.0179	0.0000	0.0060	0.0000	0.0000	0.0417
NNE	0.0238	0.0119	0.0060	0.0000	0.0000	0.0000	0.0417
NE	0.0238	0.0357	0.0119	0.0000	0.0000	0.0000	0.0714
ENE	0.0179	0.0238	0.0119	0.0000	0.0000	0.0000	0.0536
E	0.0060	0.0357	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0238	0.0357	0.0119	0.0000	0.0000	0.0000	0.0714
SE	0.0179	0.0238	0.0060	0.0000	0.0000	0.0000	0.0476
SSE	0.0417	0.0476	0.0000	0.0000	0.0000	0.0000	0.0893
S	0.0119	0.0357	0.0000	0.0000	0.0000	0.0000	0.0476
SSW	0.0238	0.0060	0.0060	0.0000	0.0000	0.0000	0.0357
SW	0.0298	0.0238	0.0000	0.0000	0.0000	0.0000	0.0536
WSW	0.0179	0.0119	0.0060	0.0000	0.0000	0.0000	0.0357
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3690						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 2

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

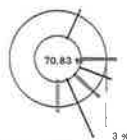
Serial No : 5084

Wind Direction Model : NRG Symphonie

Serial No : 5084

Time	04-05 Oct 2022		05-06 Oct 2022		06-07 Oct 2022		07-08 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
13:00 - 14:00	0.1	E	0.3	SSW	0.3	NE	0.1	SSE
14:00 - 15:00	0.0	ESE	0.4	ENE	0.0	S	1.8	E
15:00 - 16:00	0.6	ESE	1.8	S	0.6	SSE	1.4	S
16:00 - 17:00	0.2	N	0.1	WSW	1.9	SSE	1.0	E
17:00 - 18:00	0.3	WSW	0.0	NNE	1.0	SSW	2.8	SE
18:00 - 19:00	0.0	SW	0.8	WSW	1.0	N	1.4	ESE
19:00 - 20:00	0.0	S	0.7	N	1.5	SSE	1.0	ESE
20:00 - 21:00	1.2	E	0.0	WSW	0.5	NE	0.0	WSW
21:00 - 22:00	1.5	SE	0.9	SW	0.4	SE	0.0	SE
22:00 - 23:00	0.7	SSE	1.9	NE	1.0	NE	0.5	SE
23:00 - 24:00	1.2	S	1.1	SSE	0.3	E	0.0	N
00:00 - 01:00	0.1	NNE	1.6	NE	0.5	N	1.7	ESE
01:00 - 02:00	0.0	NE	1.1	NE	0.7	ESE	2.0	ESE
02:00 - 03:00	0.6	NNE	0.4	SSE	1.4	E	1.4	NNE
03:00 - 04:00	0.7	SSE	0.7	S	1.2	N	1.1	SE
04:00 - 05:00	0.0	NNE	0.9	ENE	2.0	ESE	3.1	N
05:00 - 06:00	0.2	ESE	0.3	ENE	0.5	SSE	1.9	ESE
06:00 - 07:00	0.0	N	0.0	SW	1.0	SE	2.8	WSW
07:00 - 08:00	0.0	E	0.6	SSW	0.3	N	0.2	ENE
08:00 - 09:00	0.0	SSW	0.0	SSW	0.7	NNE	1.9	SSE
09:00 - 10:00	0.2	SSE	0.0	SW	0.0	SSE	1.4	ENE
10:00 - 11:00	0.0	NE	0.6	ESE	0.0	SE	0.9	NE
11:00 - 12:00	0.0	SSW	1.8	ENE	0.9	SSE	1.9	SW
12:00 - 13:00	0.0	NNE	0.0	E	0.8	ESE	1.1	WSW

Wind Rose



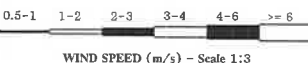
3 %



6 %



3 %



File Control :R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao Pradu Community 2 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 2

Monitor period : 04-11 Oct 2022

Wind Speed Model : NRG Symphonie

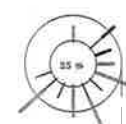
Serial No : 5084

Wind Direction Model : NRG Symphonie

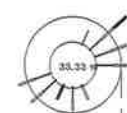
Serial No : 5084

Time	08-09 Oct 2022		09-10 Oct 2022		10-11 Oct 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
13:00 - 14:00	1.6	ESE	0.9	S	1.5	ENE
14:00 - 15:00	0.3	ENE	0.0	E	0.0	S
15:00 - 16:00	0.0	WSW	0.0	ENE	0.6	SSW
16:00 - 17:00	0.6	NE	0.4	NNE	1.8	NE
17:00 - 18:00	1.9	S	2.3	SSW	1.0	NNE
18:00 - 19:00	1.0	SSE	1.0	NE	0.8	SSE
19:00 - 20:00	1.0	SW	1.7	E	0.3	SSW
20:00 - 21:00	1.5	N	0.3	N	0.5	SE
21:00 - 22:00	0.5	WSW	0.7	NNE	0.0	SW
22:00 - 23:00	0.4	NNE	0.0	SSE	0.0	WSW
23:00 - 24:00	1.0	S	0.0	NNE	0.0	SSW
00:00 - 01:00	0.3	ENE	0.9	ENE	0.5	ENE
01:00 - 02:00	0.5	SSE	0.8	NE	0.9	SSW
02:00 - 03:00	0.7	SW	0.5	WSW	0.7	N
03:00 - 04:00	1.4	SW	0.0	SW	0.0	SSE
04:00 - 05:00	1.2	ESE	0.4	ESE	0.2	NE
05:00 - 06:00	2.0	ENE	0.8	SW	0.9	SW
06:00 - 07:00	0.5	SSW	1.0	S	0.8	SW
07:00 - 08:00	1.0	SSE	1.0	WSW	0.0	SSW
08:00 - 09:00	1.1	E	1.1	ENE	0.8	NNE
09:00 - 10:00	0.5	SE	2.0	NE	2.4	ENE
10:00 - 11:00	0.1	WSW	0.7	E	1.0	SSE
11:00 - 12:00	2.6	NE	1.4	SW	2.0	NNE
12:00 - 13:00	0.0	E	1.2	SSE	1.0	SE

Wind Rose



6 %



6 %



6 %



File Control :R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao Pradu Community 2 04-11 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



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

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

**AMBIENT AIR QUALITY ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical Public Co., Ltd **REFERENCE NO.** : PTTGC6 (Refinery)\_222010\_Cert-Amb/TSP (Oct)  
**Branch 6 (Refinery)** **SAMPLING DATE** : 04-11/10/2022  
**SAMPLING BY** : SECOT Co., Ltd. **ANALYTICAL DATE** : 14-17/10/2022  
**RECEIVED DATE** : 14/10/2022 **SAMPLE CONDITION** : Normal  
**REPORT DATE** : 20/10/2022 **SITE OPERATOR** : Mr. Supakit Tamoka  
**LOCATION DESCRIPTION** : 1. North of Refinery Area 3. Takuan-Ao Pradu Community 1  
2. North of VCU Area 4. Takuan-Ao Pradu Community 2

PARAMETER	SAMPLING DATE	UNITS	RESULTS				STANDARD*	REFERENCE METHOD
			1	2	3	4		
TSP (24 hr)	4-5/10/2022	mg/m <sup>3</sup>	0.044	0.040	0.047	0.026	0.330	High Volume Air
	5-6/10/2022	mg/m <sup>3</sup>	0.027	0.033	0.030	0.025		Sampler / Gravimetric
	6-7/10/2022	mg/m <sup>3</sup>	0.027	0.032	0.033	0.026		Method
	7-8/10/2022	mg/m <sup>3</sup>	0.042	0.041	0.037	0.034		
	8-9/10/2022	mg/m <sup>3</sup>	0.046	0.051	0.052	0.044		
	9-10/10/2022	mg/m <sup>3</sup>	0.044	0.028	0.041	0.039		
	10-11/10/2022	mg/m <sup>3</sup>	0.039	0.018	0.026	0.018		

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

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



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

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

**AMBIENT AIR QUALITY ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical Public Co., Ltd **REFERENCE NO.** : PTTGC6 (Refinery)\_222010\_Cert-Amb/PM-10 (Oct)  
**Branch 6 (Refinery)** **SAMPLING DATE** : 04-11/10/2022  
**SAMPLING BY** : SECOT Co., Ltd. **ANALYTICAL DATE** : 14-17/10/2022  
**RECEIVED DATE** : 14/10/2022 **SAMPLE CONDITION** : Normal  
**REPORT DATE** : 20/10/2022 **SITE OPERATOR** : Mr. Supakit Tamoka  
**LOCATION DESCRIPTION** : 1. North of Refinery Area 3. Takuan-Ao Pradu Community 1  
2. North of VCU Area 4. Takuan-Ao Pradu Community 2

PARAMETER	SAMPLING DATE	UNITS	RESULTS				STANDARD*	REFERENCE METHOD
			1	2	3	4		
PM-10 (24 hr)	4-5/10/2022	mg/m <sup>3</sup>	0.032	0.027	0.027	0.017	0.12	High Volume
	5-6/10/2022	mg/m <sup>3</sup>	0.018	0.022	0.018	0.016		Air Sampler
	6-7/10/2022	mg/m <sup>3</sup>	0.020	0.020	0.020	0.017		(Hi-Vol. PM-10 Size
	7-8/10/2022	mg/m <sup>3</sup>	0.031	0.028	0.023	0.019		Selective Inlet) /
	8-9/10/2022	mg/m <sup>3</sup>	0.032	0.034	0.034	0.030		Gravimetric Method
	9-10/10/2022	mg/m <sup>3</sup>	0.030	0.020	0.027	0.022		
	10-11/10/2022	mg/m <sup>3</sup>	0.030	0.011	0.017	0.012		

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

#### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-Amb/THC (Oct)  
Branch 6 (Refinery) SAMPLING DATE : 05-11/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 15/10/2022  
RECEIVED DATE : 14/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 22/10/2022 SITE OPERATOR : Mr. Supakit Tamoka  
LOCATION DESCRIPTION : 1. North of Refinery Area 3. Takuan-Ao Pradu Community 1  
2. North of VCU Area 4. Takuan-Ao Pradu Community 2

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	RESULTS				REFERENCE METHOD
				1	2	3	4	
Total Hydrocarbon	05/10/2022	ppm	<0.10	3.33	3.55	4.32	3.55	Flame Ionization
(THC)	06/10/2022	ppm	<0.10	3.15	5.61	3.65	3.43	Detection Method
	07/10/2022	ppm	<0.10	3.57	3.22	4.00	3.50	
	08/10/2022	ppm	<0.10	3.25	3.41	3.55	3.12	
	09/10/2022	ppm	<0.10	3.41	3.53	3.68	3.41	
	10/10/2022	ppm	<0.10	3.27	3.60	3.54	3.77	
	11/10/2022	ppm	<0.10	3.14	3.36	3.38	4.01	

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

Narisa Poowanapetch

(Miss Narisa Poowanapetch)

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.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

#### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-Amb/H<sub>2</sub>S (Oct)  
Branch 6 (Refinery) SAMPLING DATE : 05-11/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 18/10/2022  
RECEIVED DATE : 14/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 22/10/2022 SITE OPERATOR : Mr. Supakit Tamoka  
INSTRUMENT : Impingment Absorption  
LOCATION DESCRIPTION : 1. North of Refinery Area 3. Takuan-Ao Pradu Community 1  
2. North of VCU Area 4. Takuan-Ao Pradu Community 2

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	RESULTS				REFERENCE METHOD
				1	2	3	4	
Hydrogen Sulfide	05/10/2022	ppm	<0.001	ND	ND	ND	ND	Intersociety Committee
(H <sub>2</sub> S)	06/10/2022	ppm	<0.001	ND	ND	ND	ND	Method 701
	07/10/2022	ppm	<0.001	ND	ND	ND	ND	
	08/10/2022	ppm	<0.001	ND	ND	ND	ND	
	09/10/2022	ppm	<0.001	ND	ND	ND	ND	
	10/10/2022	ppm	<0.001	ND	ND	ND	ND	
	11/10/2022	ppm	<0.001	ND	ND	ND	ND	

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

Narisa Poowanapetch

(Miss Narisa Poowanapetch)

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.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-Amb/NMHC (Oct)  
Branch 6 (Refinery) SAMPLING DATE : 05-11/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 15/10/2022  
RECEIVED DATE : 14/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 22/10/2022 SITE OPERATOR : Mr. Supakit Tamoka  
LOCATION DESCRIPTION : 1. North of Refinery Area 3. Takuan-Ao Pradu Community 1  
2. North of VCU Area 4. Takuan-Ao Pradu Community 2

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	RESULTS				REFERENCE METHOD
				1	2	3	4	
Non-methane	05/10/2022	ppm	<0.05	0.65	0.62	0.76	0.43	Flame Ionization
Hydrocarbon	06/10/2022	ppm	<0.05	0.54	1.03	0.64	0.48	Detection Method
(NMHC)	07/10/2022	ppm	<0.05	0.52	0.49	0.71	0.54	
	08/10/2022	ppm	<0.05	0.71	0.55	0.58	0.62	
	09/10/2022	ppm	<0.05	0.45	0.47	0.54	0.48	
	10/10/2022	ppm	<0.05	0.58	0.42	0.62	0.30	
	11/10/2022	ppm	<0.05	0.47	0.62	0.59	0.75	

*Sudaporn Soonthorn*  
(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.

R:\Database\Ambient\FileControl\Amb-222010-North of Refinery Area -SO2 04-11 Oct 2022



Ambient Air Monitoring Results : Sulfur dioxide  
MTR-PTTGC6-Refinery

Location : North of Refinery Area Monitor Period : 04-11 Oct 2022  
Analyzer Model : Teledyne T100 Station No : Mobile 10  
Serial No : 2009 Site Operator : Mr. Supakit Tamooka

Calibrator Model : Teledyne 700E Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	SO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
10:00 - 11:00	3.9	3.8	2.0	3.6	2.1	3.0	3.8
11:00 - 12:00	2.9	5.3	1.8	6.5	1.8	2.1	5.3
12:00 - 13:00	2.3	2.1	4.2	3.8	1.3	1.8	2.1
13:00 - 14:00	1.1	7.3	3.5	2.2	2.4	1.3	7.3
14:00 - 15:00	1.9	7.5	1.8	2.7	5.1	2.9	7.5
15:00 - 16:00	1.7	5.7	1.3	4.6	6.6	3.2	5.7
16:00 - 17:00	2.5	4.2	1.4	2.6	5.2	2.3	4.2
17:00 - 18:00	5.4	6.3	2.9	4.6	3.1	2.7	6.3
18:00 - 19:00	7.0	6.8	3.2	6.4	5.0	3.9	6.8
19:00 - 20:00	1.3	7.8	2.3	5.9	5.2	3.9	7.8
20:00 - 21:00	5.0	1.3	2.7	6.3	5.2	0.8	2.0
21:00 - 22:00	1.3	3.6	3.9	3.0	4.8	7.0	1.8
22:00 - 23:00	3.6	3.0	3.9	1.4	7.1	2.5	4.2
23:00 - 00:00	3.0	4.8	3.5	3.5	4.8	1.6	3.5
00:00 - 01:00	3.5	5.7	1.8	2.4	5.4	0.3	1.8
01:00 - 02:00	1.8	1.9	1.3	2.8	3.2	2.8	1.3
02:00 - 03:00	1.3	6.2	0.5	2.2	1.4	6.0	0.5
03:00 - 04:00	0.5	4.8	1.2	1.7	2.4	2.9	1.2
04:00 - 05:00	1.2	6.4	0.8	2.0	3.9	2.3	0.8
05:00 - 06:00	0.8	5.9	0.1	1.8	2.6	1.1	0.1
06:00 - 07:00	0.1	6.3	1.4	2.0	4.6	1.9	1.4
07:00 - 08:00	1.4	3.0	2.9	3.3	6.4	1.7	2.9
08:00 - 09:00	2.9	2.1	3.2	1.6	5.9	2.5	3.2
09:00 - 10:00	3.2	1.7	1.3	3.0	6.3	5.4	4.6
Average-24Hr*	2.5	4.7	2.2	3.3	4.2	2.7	3.6
Max-1Hr	7.0	7.8	4.2	6.5	7.1	7.0	7.8
Min-1Hr	0.1	1.3	0.1	1.4	1.3	0.3	0.1
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

*Katesarin Vorradetwittaya*  
(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

*Preeda Somjai*  
(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC6-Refinery

Location : North of VCU Area  
Analyzer Model : API 100A  
Serial No : 377

Monitor Period : 04-11 Oct 2022  
Station No : Shelter 15  
Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022  
Expire Date : 12 Jan 2023

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

Time	SO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
17:00 - 18:00	2.5	0.3	1.7	4.3	1.8	2.3	3.1
18:00 - 19:00	2.6	0.9	1.7	2.0	2.2	2.2	2.6
19:00 - 20:00	2.3	0.4	1.8	1.8	1.6	2.1	2.2
20:00 - 21:00	4.6	0.3	1.8	1.1	1.7	2.1	3.5
21:00 - 22:00	0.1	0.6	2.2	1.1	1.8	1.0	4.0
22:00 - 23:00	0.4	0.6	2.2	1.0	1.3	1.4	3.3
23:00 - 00:00	2.8	0.4	2.1	0.9	3.3	0.8	3.2
00:00 - 01:00	2.9	1.5	1.9	0.5	3.3	1.0	2.2
01:00 - 02:00	2.2	2.4	2.3	0.6	3.6	1.5	1.7
02:00 - 03:00	3.5	1.8	2.5	0.8	3.5	1.0	1.7
03:00 - 04:00	2.7	2.2	2.6	0.9	2.2	1.1	1.8
04:00 - 05:00	2.2	1.6	2.6	1.0	1.7	1.4	1.8
05:00 - 06:00	2.1	1.7	3.3	1.1	1.7	0.9	3.8
06:00 - 07:00	1.6	1.8	3.0	1.3	1.8	0.2	3.7
07:00 - 08:00	2.7	1.3	2.6	1.4	1.8	3.3	3.4
08:00 - 09:00	3.3	3.3	2.6	1.2	3.8	2.2	3.2
09:00 - 10:00	2.9	3.3	2.8	1.3	3.7	2.0	3.7
10:00 - 11:00	3.1	3.6	3.3	4.4	3.4	3.5	0.2
11:00 - 12:00	3.1	1.7	3.1	2.4	3.2	2.8	0.1
12:00 - 13:00	2.7	2.1	2.8	1.6	2.3	3.2	0.0
13:00 - 14:00	3.6	1.3	3.2	3.5	1.7	3.9	1.6
14:00 - 15:00	1.6	0.1	3.3	4.7	3.7	4.0	2.3
15:00 - 16:00	0.3	1.3	3.1	2.1	2.8	3.6	2.9
16:00 - 17:00	0.7	2.2	3.1	4.3	2.0	3.2	2.0

Average-24Hr*	2.4	1.5	2.6	1.9	2.5	2.1	2.4
Max-1Hr	4.6	3.6	3.3	4.7	3.8	4.0	4.0
Min-1Hr	0.1	0.1	1.7	0.5	1.3	0.2	0.0

Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC6-Refinery

Location : Takua-Ao Pradu Community 1  
Analyzer Model : Thermo 43C  
Serial No : 60771-32812

Monitor Period : 04-11 Oct 2022  
Station No : Shelter 18  
Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022  
Expire Date : 12 Jan 2023

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

Time	SO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
14:00 - 15:00	7.2	1.5	6.6	7.5	1.9	2.9	1.1
15:00 - 16:00	6.5	1.0	3.5	7.6	3.1	2.8	2.1
16:00 - 17:00	6.5	1.1	5.1	7.9	3.1	1.3	4.2
17:00 - 18:00	6.4	1.4	6.0	7.9	4.0	2.3	3.8
18:00 - 19:00	6.4	0.9	5.6	8.3	4.7	2.4	4.9
19:00 - 20:00	6.1	0.2	6.3	1.9	4.9	2.3	4.6
20:00 - 21:00	5.9	0.8	4.1	1.6	4.5	1.9	5.2
21:00 - 22:00	6.9	0.7	6.7	1.6	4.2	2.1	5.0
22:00 - 23:00	6.6	0.8	5.7	1.8	4.9	3.6	6.1
23:00 - 00:00	7.6	1.0	5.7	2.0	5.1	2.9	6.6
00:00 - 01:00	7.5	1.0	6.4	2.1	3.4	3.8	5.2
01:00 - 02:00	2.3	1.0	6.6	0.7	6.4	1.2	5.4
02:00 - 03:00	1.7	0.9	3.5	0.8	5.8	0.3	6.0
03:00 - 04:00	3.7	1.1	5.1	0.9	3.4	3.7	0.1
04:00 - 05:00	2.8	1.2	6.0	0.9	2.9	1.2	1.4
05:00 - 06:00	2.0	1.3	5.6	1.2	4.4	0.9	0.9
06:00 - 07:00	2.3	1.3	6.3	0.9	2.4	2.5	2.6
07:00 - 08:00	2.2	1.3	2.9	0.8	3.5	1.2	6.5
08:00 - 09:00	2.1	1.2	6.7	0.8	4.2	3.0	1.7
09:00 - 10:00	2.1	1.1	7.4	1.3	5.1	1.5	1.1
10:00 - 11:00	1.0	6.7	3.5	1.2	3.5	2.9	0.8
11:00 - 12:00	1.4	5.7	7.1	1.5	2.8	2.3	1.9
12:00 - 13:00	0.8	5.7	5.9	1.7	4.3	1.6	0.9
13:00 - 14:00	1.0	6.4	6.8	1.8	3.2	1.3	5.9

Average-24Hr*	4.1	1.9	5.6	2.7	4.0	2.2	3.5
Max-1Hr	7.6	6.7	7.4	8.3	6.4	3.8	6.6
Min-1Hr	0.8	0.2	2.9	0.7	1.9	0.3	0.1

Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team





## Ambient Air Monitoring Results : Sulfur dioxide MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 2      Monitor Period : 04-11 Oct 2022  
Analyzer Model : Thermo 43C      Station No : Shelter 16  
Serial No : 60473-32812      Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E      Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022      Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	SO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	2.3	2.8	3.3	2.2	0.7	0.1	2.2
14:00 - 15:00	2.0	2.1	3.2	1.2	0.5	0.8	1.5
15:00 - 16:00	2.4	1.9	2.4	1.8	0.6	0.2	1.1
16:00 - 17:00	1.2	0.9	2.4	1.4	0.2	0.6	0.5
17:00 - 18:00	2.0	1.8	5.7	1.2	0.2	1.1	1.5
18:00 - 19:00	1.3	1.8	8.3	1.5	0.9	0.8	1.5
19:00 - 20:00	1.2	1.4	4.6	1.0	0.8	0.7	2.6
20:00 - 21:00	0.9	0.6	2.8	1.3	0.1	1.1	2.6
21:00 - 22:00	1.7	0.7	2.5	1.4	0.3	0.2	0.2
22:00 - 23:00	1.5	0.1	2.6	1.6	0.5	0.1	0.5
23:00 - 00:00	2.0	0.1	2.4	2.0	0.1	0.5	0.2
00:00 - 01:00	2.4	0.3	2.7	1.7	0.5	0.7	0.6
01:00 - 02:00	3.5	0.2	2.8	1.3	0.3	0.6	0.4
02:00 - 03:00	3.9	0.4	2.2	1.0	0.4	1.7	0.5
03:00 - 04:00	3.5	0.5	2.1	1.2	0.3	0.8	0.7
04:00 - 05:00	3.5	0.2	1.5	1.1	0.7	0.3	0.4
05:00 - 06:00	2.8	0.1	1.3	1.4	0.2	0.4	0.3
06:00 - 07:00	3.2	0.2	1.8	1.2	0.6	1.3	0.7
07:00 - 08:00	3.9	0.1	2.3	1.4	1.0	0.8	0.4
08:00 - 09:00	3.5	2.7	2.6	1.1	1.4	0.6	0.1
09:00 - 10:00	2.9	2.5	2.6	1.6	0.7	0.6	0.1
10:00 - 11:00	3.0	3.5	3.3	2.2	0.3	2.4	1.5
11:00 - 12:00	2.8	2.7	3.6	2.6	1.0	1.9	2.1
12:00 - 13:00	3.7	2.5	3.4	3.0	0.9	2.3	0.6
Average-24Hr*	2.5	1.3	3.0	1.6	0.6	0.9	1.0
Max-1Hr	3.9	3.5	8.3	3.0	1.4	2.4	2.6
Min-1Hr	0.9	0.1	1.3	1.0	0.1	0.1	0.1
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC6-Refinery

Location : North of Refinery Area      Monitor Period : 04-11 Oct 2022  
Analyzer Model : API 200A      Station No : Mobile 10  
Serial No : 1523      Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E      Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022      Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	NO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
10:00 - 11:00	18.0	8.4	16.8	7.5	10.8	2.8	4.9
11:00 - 12:00	9.5	7.2	18.7	10.3	7.3	2.5	5.2
12:00 - 13:00	6.2	10.9	20.6	11.2	8.9	2.6	11.8
13:00 - 14:00	7.9	12.6	18.3	15.9	6.3	3.2	9.8
14:00 - 15:00	19.6	12.5	16.4	13.4	8.4	6.9	5.7
15:00 - 16:00	11.4	5.3	12.6	14.9	7.2	5.0	7.4
16:00 - 17:00	10.6	10.2	9.0	13.9	10.9	2.7	8.2
17:00 - 18:00	14.3	17.4	5.8	11.6	11.3	2.2	6.4
18:00 - 19:00	12.9	4.3	6.5	8.8	9.7	1.9	6.0
19:00 - 20:00	8.5	4.8	9.1	2.9	13.7	6.5	9.0
20:00 - 21:00	13.3	7.0	9.1	4.0	12.5	7.4	5.8
21:00 - 22:00	13.0	6.3	8.1	4.5	8.6	7.0	8.9
22:00 - 23:00	12.0	4.7	6.9	7.3	9.4	6.8	7.5
23:00 - 00:00	7.0	10.2	5.0	11.6	11.3	6.1	10.3
00:00 - 01:00	6.5	17.4	6.3	10.4	10.8	6.0	11.2
01:00 - 02:00	4.7	8.0	7.3	8.2	12.9	4.3	5.2
02:00 - 03:00	3.2	10.6	4.1	9.0	11.3	8.6	3.2
03:00 - 04:00	14.9	11.4	3.5	9.1	6.3	6.8	1.2
04:00 - 05:00	9.4	9.4	3.7	7.0	7.3	5.7	4.9
05:00 - 06:00	8.6	8.4	5.4	13.7	10.5	6.0	7.3
06:00 - 07:00	9.2	8.5	7.8	10.3	7.4	2.8	11.9
07:00 - 08:00	7.3	10.4	7.5	3.7	6.2	1.6	10.8
08:00 - 09:00	8.9	12.5	6.1	7.3	6.9	3.8	7.3
09:00 - 10:00	6.3	16.0	8.9	11.9	5.2	4.9	8.9
Average-24Hr*	10.1	9.8	9.3	9.5	9.2	4.8	7.5
Max-1Hr	19.6	17.4	20.6	15.9	13.7	8.6	11.9
Min-1Hr	3.2	4.3	3.5	2.9	5.2	1.6	1.2
Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC6-Refinery

Location : North of VCU Area Monitor Period : 04-11 Oct 2022  
Analyzer Model : API 200A Station No : Shelter 15  
Serial No : 2387 Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	NO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
17:00 - 18:00	17.6	11.8	16.8	4.6	6.4	9.9	11.1
18:00 - 19:00	15.8	9.6	18.6	5.2	6.5	9.5	14.4
19:00 - 20:00	13.5	8.5	18.4	6.1	8.6	9.4	13.6
20:00 - 21:00	12.8	7.4	17.9	8.2	8.6	7.7	10.5
21:00 - 22:00	11.7	7.3	19.3	5.1	6.8	7.1	6.0
22:00 - 23:00	11.0	6.3	15.3	3.8	5.1	6.0	6.0
23:00 - 00:00	8.9	4.0	14.6	2.8	3.6	6.0	7.0
00:00 - 01:00	11.0	6.3	8.6	2.2	4.3	6.7	4.7
01:00 - 02:00	8.6	4.2	9.3	3.3	5.4	6.8	5.5
02:00 - 03:00	8.3	4.7	18.5	5.6	6.9	6.0	4.9
03:00 - 04:00	8.2	6.8	5.3	6.3	5.4	5.7	4.8
04:00 - 05:00	10.8	5.3	4.9	7.7	6.7	7.9	8.6
05:00 - 06:00	10.1	6.4	4.3	9.2	7.9	13.7	8.6
06:00 - 07:00	10.1	5.2	5.7	11.3	7.0	10.8	11.1
07:00 - 08:00	10.5	5.7	3.4	7.1	5.9	6.9	8.5
08:00 - 09:00	10.8	7.5	3.1	8.0	7.5	10.2	8.2
09:00 - 10:00	11.2	15.3	6.8	9.4	10.0	8.8	9.1
10:00 - 11:00	5.1	20.4	8.2	7.0	10.2	8.7	9.3
11:00 - 12:00	9.4	11.2	12.3	6.5	8.1	7.3	10.9
12:00 - 13:00	8.6	14.9	14.6	6.4	7.7	14.4	9.4
13:00 - 14:00	7.9	7.6	18.5	5.8	8.1	16.8	14.4
14:00 - 15:00	8.4	8.2	17.4	5.9	8.4	19.7	14.5
15:00 - 16:00	9.7	17.4	6.0	8.1	8.8	5.0	13.6
16:00 - 17:00	18.5	14.2	6.1	7.4	9.4	7.4	16.8

Average-24Hr*	10.8	9.0	11.4	6.4	7.2	9.1	9.6
Max-1Hr	18.5	20.4	19.3	11.3	10.2	19.7	16.8
Min-1Hr	5.1	4.0	3.1	2.2	3.6	5.0	4.7

Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 1 Monitor Period : 04-11 Oct 2022  
Analyzer Model : API 200A Station No : Shelter 18  
Serial No : 144 Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	NO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
14:00 - 15:00	8.3	11.3	11.4	13.1	13.1	8.5	9.9
15:00 - 16:00	8.2	10.0	10.9	13.6	15.0	12.5	9.0
16:00 - 17:00	8.9	9.7	10.3	12.8	14.1	12.2	9.4
17:00 - 18:00	9.7	9.9	10.9	12.2	14.3	11.8	8.2
18:00 - 19:00	10.2	11.2	11.3	11.5	11.8	10.9	8.5
19:00 - 20:00	9.1	10.8	10.0	10.9	9.6	10.0	8.8
20:00 - 21:00	9.4	11.1	10.7	11.3	8.5	9.5	8.4
21:00 - 22:00	9.3	12.5	10.9	11.6	8.3	9.8	8.0
22:00 - 23:00	10.3	10.1	10.6	11.7	8.2	9.1	8.3
23:00 - 00:00	10.7	10.8	12.1	11.1	6.8	9.9	8.5
00:00 - 01:00	12.8	14.4	11.8	12.5	4.9	10.2	11.2
01:00 - 02:00	10.1	12.2	9.4	7.5	4.3	10.1	10.0
02:00 - 03:00	9.6	11.9	9.9	10.6	6.1	12.4	10.9
03:00 - 04:00	8.8	12.1	10.9	11.6	5.6	9.5	10.6
04:00 - 05:00	9.7	11.4	10.6	12.0	8.9	9.9	10.0
05:00 - 06:00	9.8	13.7	10.4	8.8	10.1	9.0	8.6
06:00 - 07:00	9.4	9.4	10.4	5.2	8.5	9.1	8.2
07:00 - 08:00	9.4	9.7	10.4	4.9	6.9	8.1	10.5
08:00 - 09:00	9.0	10.3	8.7	13.8	8.2	13.6	10.2
09:00 - 10:00	9.0	10.3	8.4	14.3	8.5	9.5	9.1
10:00 - 11:00	10.4	10.7	8.2	15.2	8.8	8.9	9.3
11:00 - 12:00	8.9	11.0	8.5	15.3	8.4	9.5	8.2
12:00 - 13:00	9.6	10.7	8.8	14.0	8.0	9.9	8.6
13:00 - 14:00	10.1	12.0	13.5	12.9	8.3	8.8	10.7

Average-24Hr*	9.6	11.1	10.4	11.6	9.0	10.1	9.3
Max-1Hr	12.8	14.4	13.5	15.3	15.0	13.6	11.2
Min-1Hr	8.2	9.4	8.2	4.9	4.3	8.1	8.0

Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Ambient Air Monitoring Results : Nitrogen dioxide MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community 2      Monitor Period : 04-11 Oct 2022  
Analyzer Model : Teledyne T200      Station No : Shelter 16  
Serial No : 111      Site Operator : Mr.Supakit Tamooka

Calibrator Model : Teledyne 700E      Serial No : 587  
Calibration Gas Cylinder I.D.: EB0108319  
Certified Date : 13 Jan 2022      Cal Concentration (ppb) : 0,100,200,400  
Expire Date : 12 Jan 2023

Time	NO2 Concentration (ppb)						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	10.7	2.6	8.1	7.6	11.2	3.4	10.0
14:00 - 15:00	10.9	7.6	7.6	7.3	8.3	4.7	8.3
15:00 - 16:00	10.8	6.9	10.4	7.9	7.7	1.6	7.8
16:00 - 17:00	10.0	6.6	10.2	2.3	6.8	0.9	8.8
17:00 - 18:00	3.2	8.6	7.5	4.6	1.6	8.8	7.4
18:00 - 19:00	1.7	2.5	3.4	6.8	3.0	9.3	6.7
19:00 - 20:00	0.8	3.8	3.2	3.9	2.1	2.8	7.5
20:00 - 21:00	3.7	5.5	3.4	3.7	3.2	1.9	1.9
21:00 - 22:00	2.9	4.2	3.5	3.6	2.6	2.1	1.5
22:00 - 23:00	6.7	8.6	2.2	5.6	2.8	5.4	2.7
23:00 - 00:00	2.1	7.4	0.5	6.3	3.3	1.4	1.8
00:00 - 01:00	0.9	1.1	0.5	3.7	3.1	1.4	2.7
01:00 - 02:00	2.9	1.1	0.6	3.7	4.3	1.5	2.2
02:00 - 03:00	2.9	1.2	1.0	4.2	2.7	0.9	1.9
03:00 - 04:00	2.2	1.3	0.9	3.7	2.4	0.9	1.3
04:00 - 05:00	1.9	2.1	1.1	3.9	2.0	2.5	1.4
05:00 - 06:00	1.3	1.6	9.0	3.6	6.6	1.2	1.2
06:00 - 07:00	2.1	2.5	3.7	3.5	1.5	1.9	1.5
07:00 - 08:00	1.9	3.3	2.4	3.6	2.2	2.4	1.9
08:00 - 09:00	1.5	1.1	8.2	4.0	2.4	4.5	1.9
09:00 - 10:00	3.2	9.9	5.0	3.7	8.2	7.9	5.6
10:00 - 11:00	3.0	7.9	10.6	3.6	5.0	12.3	3.7
11:00 - 12:00	4.8	7.4	3.5	8.9	10.6	8.3	2.8
12:00 - 13:00	1.8	7.5	3.4	11.0	3.5	12.4	5.1
Average-24Hr*	3.9	4.7	4.6	5.0	4.5	4.2	4.1
Max-1Hr	10.9	9.9	10.6	11.0	11.2	12.4	10.0
Min-1Hr	0.8	1.1	0.5	2.3	1.5	0.9	1.2
Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. Branch 6      REQUEST SERVICE No. : 1547/65  
(Refinery GC6)      SAMPLING METHOD : Subatmospheric Pressure Sampling  
SAMPLING BY : SECOT Co., Ltd.      ANALYTICAL DATE : 29/07/2022  
SAMPLING DATE : 25-26/07/2022      SAMPLE CONDITION : Normal  
SAMPLING TIME : 09:40-09:25      FILE CODE : 222010\_TO-15\_July  
RECEIVED DATE : 27/07/2022  
REPORT DATE : 02/08/2022

Compound	SAMPLING LOCATION				STANDARD* (µg/m <sup>3</sup> )
	Non Detection		Takuan-Ao Pradu Community 1		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.49	1.57	7.6

Methods for the Determination of Toxic Organic Compounds in Ambient Air, 3<sup>rd</sup> - EPA Methods TO-15, 1999

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008).



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1

Monitor period : 25-26 Jul 2022

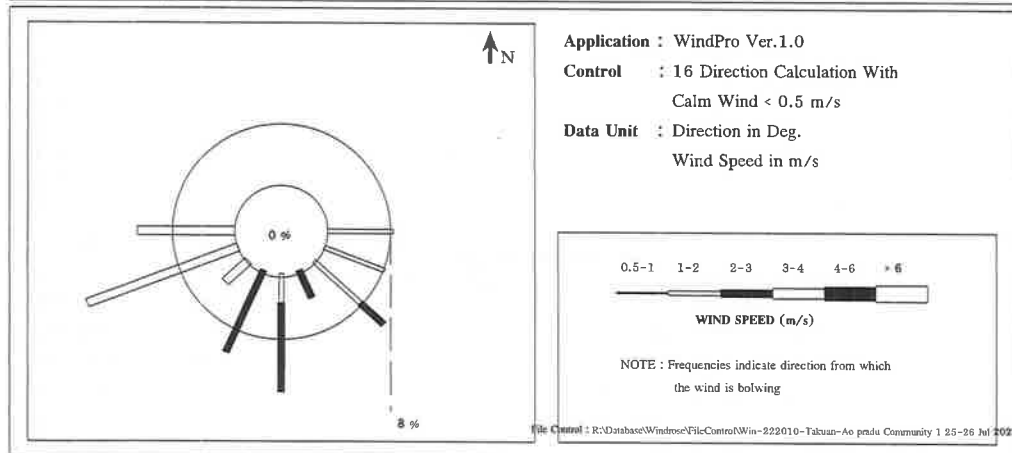
Wind Speed Model : NRG Symphonie

Serial No : A-5084

Wind Direction Model : NRG Symphonie

Serial No : A-5084

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
ESE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
SSE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0417	0.1250	0.0000	0.0000	0.0000	0.1667
SSW	0.0000	0.0000	0.1250	0.0000	0.0000	0.0000	0.1250
SW	0.0000	0.0000	0.0000	0.0417	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.2083	0.0000	0.0000	0.2083
W	0.0000	0.0000	0.0000	0.1250	0.0000	0.0000	0.1250
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1

Monitor period : 25-26 Jul 2022

Wind Speed Model : NRG Symphonie

Serial No : A-5084

Wind Direction Model : NRG Symphonie

Serial No : A-5084

Time	25-26 Jul 2022	
	WS(m/s)	WD
08:00 - 09:00	1.4	S
09:00 - 10:00	2.0	SE
10:00 - 11:00	1.7	SE
11:00 - 12:00	2.0	SE
12:00 - 13:00	2.5	S
13:00 - 14:00	1.2	E
14:00 - 15:00	2.3	SSE
15:00 - 16:00	1.6	ESE
16:00 - 17:00	1.5	ESE
17:00 - 18:00	2.4	S
18:00 - 19:00	1.3	E
19:00 - 20:00	2.7	SSW
20:00 - 21:00	3.6	WSW
21:00 - 22:00	3.2	SW
22:00 - 23:00	3.2	WSW
23:00 - 24:00	2.5	S
00:00 - 01:00	3.5	WSW
01:00 - 02:00	2.7	SSW
02:00 - 03:00	2.7	SSW
03:00 - 04:00	3.7	W
04:00 - 05:00	3.7	W
05:00 - 06:00	3.3	WSW
06:00 - 07:00	3.7	W
07:00 - 08:00	3.6	WSW

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 1 25-26 Jul 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



# บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

## AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd. Branch 6	REQUEST SERVICE No.	: 1547/65
	(Refinery GC6)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 29/07/2022
SAMPLING DATE	: 25-26/07/2022	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 09:20-09:15	FILE CODE	: 222010_TO-15_July
RECEIVED DATE	: 27/07/2022		
REPORT DATE	: 02/08/2022		

Compound	SAMPLING LOCATION				STANDARD*
	Non Detection		Takuan-Ao Pradu Community 2		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	(µg/m <sup>3</sup> )
Benzene	0.004	0.013	0.25	0.80	7.6

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

*Jutarat Jaemruen*

(Miss Jutarat Jaemruen)

Analyst

*Siriwan Chimsa-nga*

(Miss Siriwan Chimsa-nga)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008).

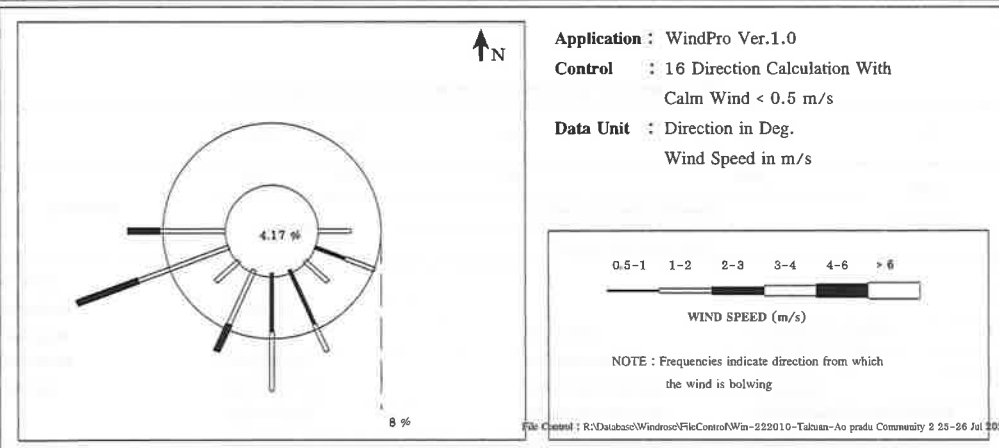
R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 25-26 Jul 2022



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location	: Takuan-Ao pradu Community 2	Monitor period	: 25-26 Jul 2022
Wind Speed Model	: NRG Symphonie	Serial No	: A-5088
Wind Direction Model	: NRG Symphonie	Serial No	: A-5088

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
S	0.0833	0.0833	0.0000	0.0000	0.0000	0.0000	0.1667
SSW	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.1250	0.0833	0.0000	0.0000	0.0000	0.2083
W	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0417						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC 6

Location : Takuan-Ao pradu Community 2

Monitor period : 25-26 Jul 2022

Wind Speed Model : NRG Symphonie

Serial No : A-5088

Wind Direction Model : NRG Symphonie

Serial No : A-5088

Time	25-26 Jul 2022	
	WS(m/s)	WD
08:00 - 09:00	0.7	SSE
09:00 - 10:00	0.8	S
10:00 - 11:00	0.5	SSE
11:00 - 12:00	0.5	SSE
12:00 - 13:00	1.0	S
13:00 - 14:00	1.0	ESE
14:00 - 15:00	1.3	SSE
15:00 - 16:00	1.2	SE
16:00 - 17:00	0.5	ESE
17:00 - 18:00	1.0	S
18:00 - 19:00	1.1	E
19:00 - 20:00	1.0	SSW
20:00 - 21:00	2.2	WSW
21:00 - 22:00	1.4	SW
22:00 - 23:00	1.2	WSW
23:00 - 24:00	1.5	SSW
00:00 - 01:00	1.8	W
01:00 - 02:00	1.4	S
02:00 - 03:00	2.3	SSW
03:00 - 04:00	1.5	WSW
04:00 - 05:00	1.2	W
05:00 - 06:00	2.2	WSW
06:00 - 07:00	2.1	W
07:00 - 08:00	1.5	WSW

Wind Rose



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

File Control :R:\Database\Windrose\FieControl\Win-222010-Takuan-Ao pradu Community 2 25-26 Jul 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด

### SECOT CO., LTD.

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

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	REQUEST SERVICE No.	: 1608/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 04-05/08/2022	ANALYTICAL DATE	: 08/08/2022
SAMPLING TIME	: 13:09-12:09	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 06/08/2022	FILE CODE	: 222010_TO-15_August
REPORT DATE	: 09/08/2022		

Compound	Non Detection		SAMPLING LOCATION		STANDARD*
	ppbv	µg/m <sup>3</sup>	Takuan-Ao Pradu Community 1	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.54	1.73	7.6

Methods for the Determination of Toxic Organic Compounds in Ambient Air, 3<sup>rd</sup> EPA Methods TO-15, 1999

Jutarat Jaemruen  
(Miss Jutarat Jaemruen)

Analyst

(Mrs. Araya Tipparuk)  
Technical Management Team

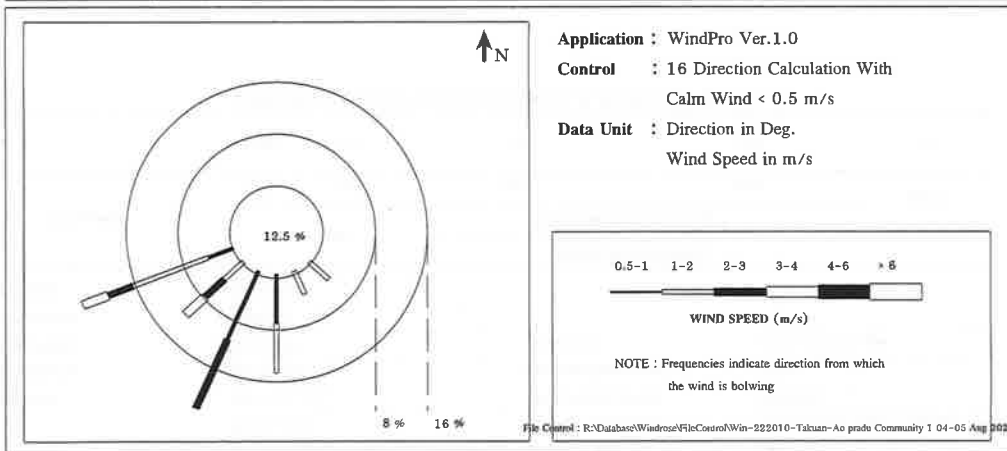
- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduce, except in full, without official approval.  
3. \* Notification of the Pollution Control Department, dated December 18, B.E.2551 (2008).



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1      Monitor period : 04-05 Aug 2022  
Wind Speed Model : NRG Symphonie      Serial No : 17112001  
Wind Direction Model : NRG Symphonie      Serial No : 17112001

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0833	0.0833	0.0000	0.0000	0.0000	0.0000	0.1667
SSW	0.1250	0.0000	0.1250	0.0000	0.0000	0.0000	0.2500
SW	0.0000	0.0417	0.0417	0.0417	0.0000	0.0000	0.1250
WSW	0.0417	0.1250	0.0417	0.0417	0.0000	0.0000	0.2500
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.1250						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team

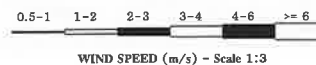


## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1      Monitor period : 04-05 Aug 2022  
Wind Speed Model : NRG Symphonie      Serial No : 17112001  
Wind Direction Model : NRG Symphonie      Serial No : 17112001

Time	04-05 Aug 2022	
	WS(m/s)	WD
12:00 - 13:00	3.1	SW
13:00 - 14:00	2.7	WSW
14:00 - 15:00	3.1	WSW
15:00 - 16:00	1.9	WSW
16:00 - 17:00	2.1	SW
17:00 - 18:00	1.7	SSE
18:00 - 19:00	1.3	SE
19:00 - 20:00	1.7	S
20:00 - 21:00	2.4	SSW
21:00 - 22:00	2.5	SSW
22:00 - 23:00	2.7	SSW
23:00 - 24:00	1.8	S
00:00 - 01:00	0.7	S
01:00 - 02:00	0.7	SSW
02:00 - 03:00	0.6	S
03:00 - 04:00	0.7	SSW
04:00 - 05:00	0.6	SSW
05:00 - 06:00	0.3	SSW
06:00 - 07:00	0.3	WSW
07:00 - 08:00	0.3	WSW
08:00 - 09:00	0.7	WSW
09:00 - 10:00	1.5	WSW
10:00 - 11:00	1.2	WSW
11:00 - 12:00	1.0	SW

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 1 04-05 Aug 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	REQUEST SERVICE No.	1608/65
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Subatmospheric Pressure Sampling
SAMPLING DATE	04-05/08/2022	ANALYTICAL DATE	08/08/2022
SAMPLING TIME	12:56-11:57	SAMPLE CONDITION	Normal
RECEIVED DATE	06/08/2022	FILE CODE	222010_TO-15_August
REPORT DATE	09/08/2022		

Compound	Non Detection		SAMPLING LOCATION		STANDARD*  (µg/m <sup>3</sup> ;
			Takuan-Ao Pradu Community 2		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.51	1.63	7.6

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

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

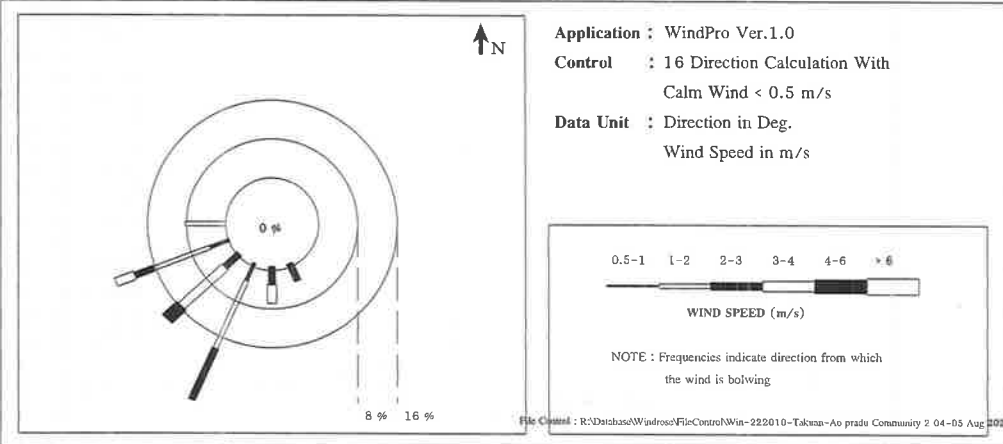
3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008).



Meteorological Monitoring Results : Wind Rose  
MTR-PTTGC 6

Location : Takuan-Ao pradu Community 2 Monitor period : 04-05 Aug 2022  
Wind Speed Model : NRG Symphonie Serial No : 17112002  
Wind Direction Model : NRG Symphonie Serial No : 17112002

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0000	0.0417	0.0417	0.0000	0.0000	0.0833
SSW	0.0417	0.1667	0.1250	0.0000	0.0000	0.0000	0.3333
SW	0.0000	0.0000	0.0417	0.1250	0.0417	0.0000	0.2083
WSW	0.0417	0.1250	0.0417	0.0417	0.0000	0.0000	0.2500
W	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



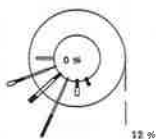


## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 2 Monitor period : 04-05 Aug 2022  
Wind Speed Model : NRG Symphonie Serial No : 17112002  
Wind Direction Model : NRG Symphonie Serial No : 17112002

Time	04-05 Aug 2022	
	WS(m/s)	WD
12:00 - 13:00	2.4	SW
13:00 - 14:00	3.0	WSW
14:00 - 15:00	1.8	WSW
15:00 - 16:00	2.5	WSW
16:00 - 17:00	3.3	SW
17:00 - 18:00	2.2	S
18:00 - 19:00	2.5	SSE
19:00 - 20:00	3.1	S
20:00 - 21:00	2.9	SSW
21:00 - 22:00	4.0	SW
22:00 - 23:00	3.8	SW
23:00 - 24:00	3.7	SW
00:00 - 01:00	1.9	SSW
01:00 - 02:00	2.1	SSW
02:00 - 03:00	2.1	SSW
03:00 - 04:00	1.5	SSW
04:00 - 05:00	1.4	SSW
05:00 - 06:00	1.3	WSW
06:00 - 07:00	0.6	WSW
07:00 - 08:00	1.2	W
08:00 - 09:00	1.1	SSW
09:00 - 10:00	0.7	SSW
10:00 - 11:00	1.0	W
11:00 - 12:00	1.1	WSW

Wind Rose



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

File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 04-05 Aug 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd, Branch 6 REQUEST SERVICE No. : 1785/65  
(Refinery GC6) SAMPLING METHOD : Subatmospheric Pressure Sampling  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 06/09/2022  
SAMPLING DATE : 01-02/09/2022 SAMPLE CONDITION : Normal  
RECEIVED DATE : 03/09/2022 FILE CODE : 222010\_TO-15\_September  
REPORT DATE : 08/09/2022

Compound	SAMPLING LOCATION				STANDARD* (µg/m <sup>3</sup> )
	Non Detection		Takuan-Ao Pradu Community 1		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0,004	0,013	0,57	1,82	7,6

Methods for the Determination of Toxic Organic Compounds in Ambient Air, 3<sup>rd</sup> EPA Methods TO-15, 1999

Sirinwan Chimsa-nga  
(Miss Sirinwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduce, except in full, without official approval.  
3. \* Notification of the Pollution Control Department, dated December 18, B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1

Monitor period : 01-02 Sep 2022

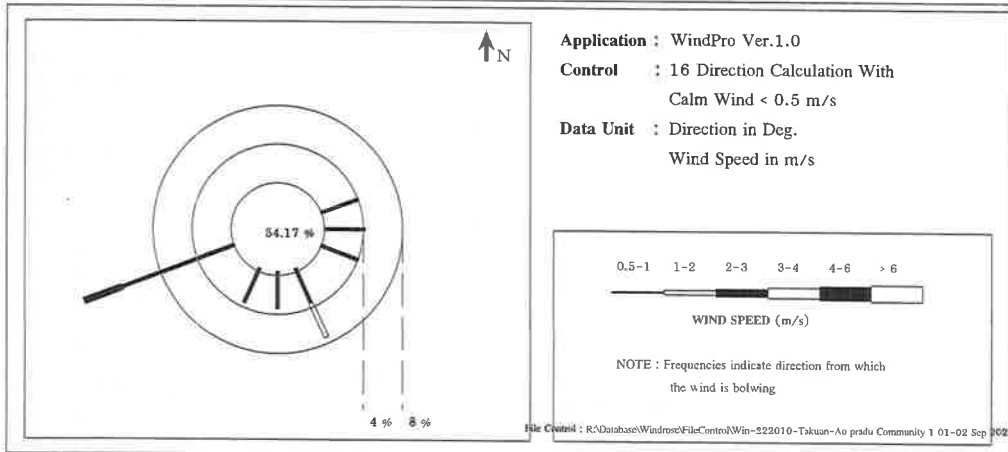
Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie

Serial No : A4904

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
S	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.1250	0.0000	0.0417	0.0000	0.0000	0.0000	0.1667
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.5417						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 1

Monitor period : 01-02 Sep 2022

Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie

Serial No : A4904

Time	01-02 Sep 2022	
	WS(m/s)	WD
11:00 - 12:00	0.7	WSW
12:00 - 13:00	2.2	WSW
13:00 - 14:00	1.6	SSE
14:00 - 15:00	0.8	WSW
15:00 - 16:00	0.8	WSW
16:00 - 17:00	0.7	SSW
17:00 - 18:00	0.9	S
18:00 - 19:00	0.2	SE
19:00 - 20:00	0.2	SW
20:00 - 21:00	0.8	SSE
21:00 - 22:00	0.2	S
22:00 - 23:00	0.4	SSW
23:00 - 24:00	0.3	ENE
00:00 - 01:00	0.9	ESE
01:00 - 02:00	0.9	ENE
02:00 - 03:00	0.2	ENE
03:00 - 04:00	0.4	E
04:00 - 05:00	0.2	ENE
05:00 - 06:00	0.2	E
06:00 - 07:00	0.5	E
07:00 - 08:00	0.3	NW
08:00 - 09:00	0.2	SSE
09:00 - 10:00	0.3	SE
10:00 - 11:00	0.3	SSE

Wind Rose



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd, Branch 6	REQUEST SERVICE No.	: 1785/65
	(Refinery GC6)	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 06/09/2022
SAMPLING DATE	: 01-02/09/2022	SAMPLE CONDITION	: Normal
SAMPLING TIME	: 11:30-11:00	FILE CODE	: 222010_TO-15_September
RECEIVED DATE	: 03/09/2022		
REPORT DATE	: 08/09/2022		

Compound	Non Detection		SAMPLING LOCATION		STANDARD* (µg/m <sup>3</sup> )
			Takuan-Ao Pradu Community 2		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.23	0.73	7.6

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

Siriwan Chimsa-nga  
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18, B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).

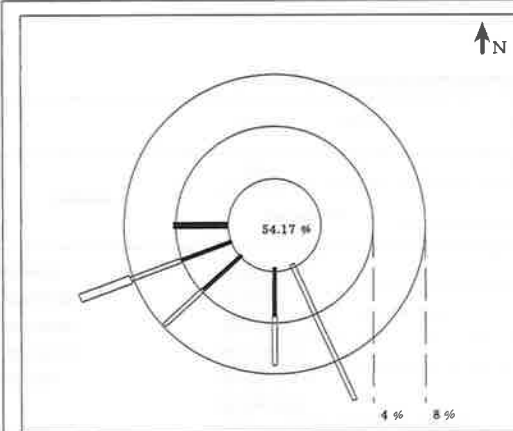
R:\Database\Windrose\FileContent\Win-222010-Takuan-Ao pradu Community 2 01-02 Sep 2022



Meteorological Monitoring Results : Wind Rose  
MTR-PTTGC 6

Location : Takuan-Ao pradu Community 2 Monitor period : 01-02 Sep 2022  
Wind Speed Model : NRG Symphonie Serial No : A4905  
Wind Direction Model : NRG Symphonie Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.1250	0.0000	0.0000	0.0000	0.0000	0.1250
S	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
WSW	0.0417	0.0417	0.0000	0.0417	0.0000	0.0000	0.1250
W	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.5417						



Application : WindPro Ver.1.0  
Control : 16 Direction Calculation With  
Calm Wind < 0.5 m/s  
Data Unit : Direction in Deg.  
Wind Speed in m/s

NOTE : Frequencies indicate direction from which the wind is blowing

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team

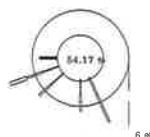


## Meteorological Monitoring Results : Wind Rose MTR-PTTGC 6

Location : Takuan-Ao pradu Community 2 Monitor period : 01-02 Sep 2022  
Wind Speed Model : NRG Symphonie Serial No : A4905  
Wind Direction Model : NRG Symphonie Serial No : A4905

Time	01-02 Sep 2022	
	WS(m/s)	WD
11:00 - 12:00	0.9	WSW
12:00 - 13:00	3.9	WSW
13:00 - 14:00	2.7	W
14:00 - 15:00	1.1	WSW
15:00 - 16:00	1.1	SW
16:00 - 17:00	0.9	SW
17:00 - 18:00	1.4	S
18:00 - 19:00	0.0	S
19:00 - 20:00	0.0	SSE
20:00 - 21:00	1.2	SSE
21:00 - 22:00	0.0	SSE
22:00 - 23:00	0.3	SSE
23:00 - 24:00	0.2	SSE
00:00 - 01:00	1.4	SSE
01:00 - 02:00	1.3	SSE
02:00 - 03:00	0.0	SSE
03:00 - 04:00	0.4	SSE
04:00 - 05:00	0.0	SSE
05:00 - 06:00	0.0	SSE
06:00 - 07:00	0.6	S
07:00 - 08:00	0.2	S
08:00 - 09:00	0.0	SSW
09:00 - 10:00	0.2	S
10:00 - 11:00	0.2	S

Wind Rose



6 %



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

File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 01-02 Sep 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd, Branch 6 REQUEST SERVICE No. : 2035/65  
(Refinery GC6) SAMPLING METHOD : Subatmospheric Pressure Sampling  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 14/10/2022  
SAMPLING DATE : 06-07/10/2022 SAMPLE CONDITION : Normal  
SAMPLING TIME : 12:00-11:30 FILE CODE : 222010\_TO-15\_October  
RECEIVED DATE : 08/10/2022  
REPORT DATE : 15/10/2022

Compound	Non Detection		SAMPLING LOCATION		STANDARD*
	ppbv	µg/m <sup>3</sup>	Takuan-Ao Pradu Community 1	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.45	1.44	7.6

Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2<sup>nd</sup> : EPA Methods TO-15, 1999

Siriwan Chimsa-nga  
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparuk)  
Technical Management Team

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

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

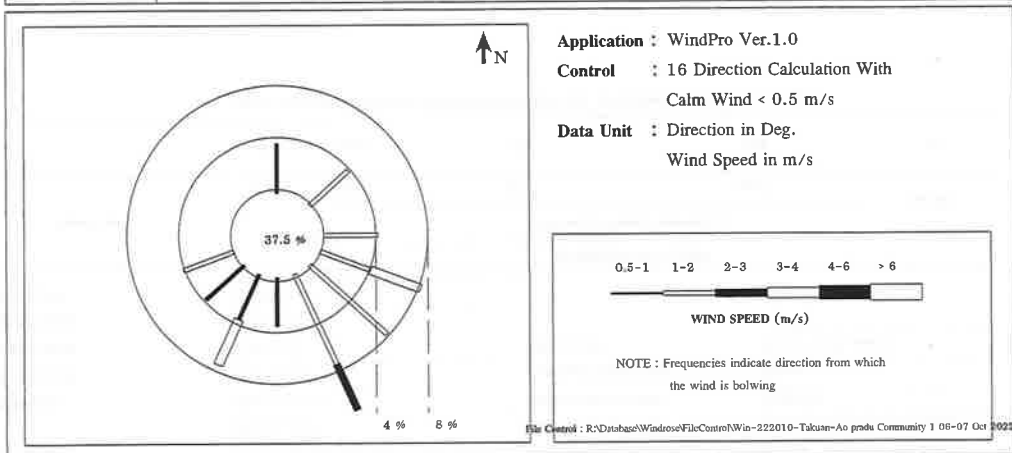
3. \* Notification of the Pollution Control Department, dated December 18.B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1      Monitor period : 06-07 Oct 2022  
Wind Speed Model : NRG Symphonie      Serial No : 4901  
Wind Direction Model : NRG Symphonie      Serial No : 4901

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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0417	0.0000	0.0417	0.0000	0.0000	0.0833
SE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
SSE	0.0000	0.0833	0.0417	0.0000	0.0000	0.0000	0.1250
S	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0417	0.0000	0.0000	0.0417	0.0000	0.0000	0.0833
SW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3750						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team

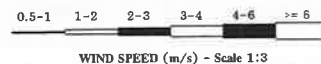


## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1      Monitor period : 06-07 Oct 2022  
Wind Speed Model : NRG Symphonie      Serial No : 4901  
Wind Direction Model : NRG Symphonie      Serial No : 4901

Time	06-07 Oct 2022	
	WS(m/s)	WD
12:00 - 13:00	3.2	SSW
13:00 - 14:00	2.4	SSE
14:00 - 15:00	1.1	NE
15:00 - 16:00	0.6	S
16:00 - 17:00	0.8	N
17:00 - 18:00	0.0	E
18:00 - 19:00	0.7	SSW
19:00 - 20:00	0.0	ESE
20:00 - 21:00	0.0	ESE
21:00 - 22:00	0.0	SE
22:00 - 23:00	0.0	NE
23:00 - 24:00	0.0	SSW
00:00 - 01:00	0.0	S
01:00 - 02:00	0.0	E
02:00 - 03:00	0.0	S
03:00 - 04:00	1.4	E
04:00 - 05:00	0.8	SW
05:00 - 06:00	3.0	ESE
06:00 - 07:00	1.6	WSW
07:00 - 08:00	1.1	SSE
08:00 - 09:00	1.6	SE
09:00 - 10:00	1.9	SE
10:00 - 11:00	1.2	SSE
11:00 - 12:00	1.3	ESE

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 1 06-07 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	REQUEST SERVICE No.	: 2035/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 06-07/10/2022	ANALYTICAL DATE	: 14/10/2022
SAMPLING TIME	: 11:46-11:15	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 08/10/2022	FILE CODE	: 222010_TO-15_October
REPORT DATE	: 15/10/2022		

Compound	SAMPLING LOCATION				STANDARD*
	Non Detection		Takuan-Ao Pradu Community 2		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	(µg/m <sup>3</sup> )
Benzene	0.004	0.013	0.45	1.44	7.6

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

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Analyst

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18, B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).

R:\Database\Windrose\FireControlWin-222010-Takuan-Ao pradu Community 2 06-07 Oct 2022



Meteorological Monitoring Results : Wind Rose  
MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 2 Monitor period : 06-07 Oct 2022

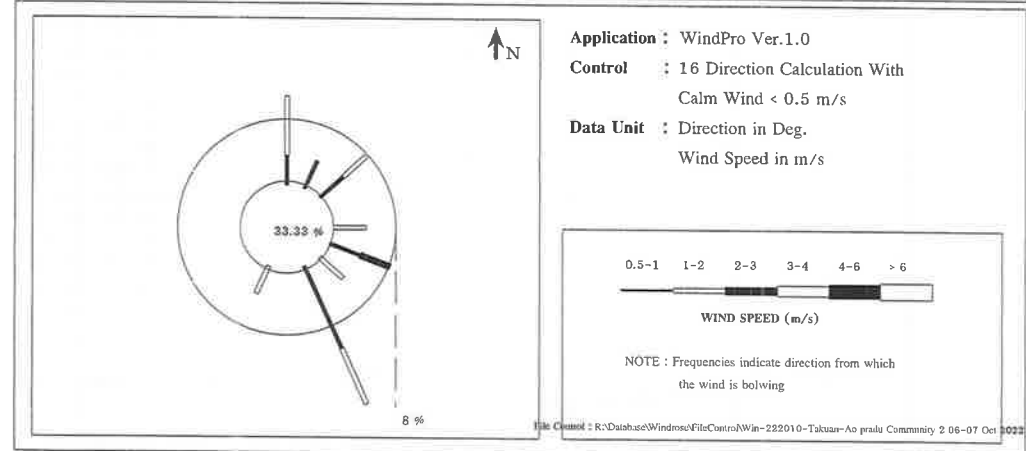
Wind Speed Model : NRG Symphonie

Serial No : 5084

Wind Direction Model : NRG Symphonie

Serial No : 5084

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	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
NNE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0417	0.0000	0.0417	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.1250	0.0833	0.0000	0.0000	0.0000	0.0000	0.2083
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3333						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 2      Monitor period : 06-07 Oct 2022  
Wind Speed Model : NRG Symphonie      Serial No : 5084  
Wind Direction Model : NRG Symphonie      Serial No : 5084

Time	06-07 Oct 2022	
	WS(m/s)	WD
12:00 - 13:00	0.0	E
13:00 - 14:00	0.3	NE
14:00 - 15:00	0.0	S
15:00 - 16:00	0.6	SSE
16:00 - 17:00	1.9	SSE
17:00 - 18:00	1.0	SSW
18:00 - 19:00	1.0	N
19:00 - 20:00	1.5	SSE
20:00 - 21:00	0.5	NE
21:00 - 22:00	0.4	SE
22:00 - 23:00	1.0	NE
23:00 - 24:00	0.3	E
00:00 - 01:00	0.5	N
01:00 - 02:00	0.7	ESE
02:00 - 03:00	1.4	E
03:00 - 04:00	1.2	N
04:00 - 05:00	2.0	ESE
05:00 - 06:00	0.5	SSE
06:00 - 07:00	1.0	SE
07:00 - 08:00	0.3	N
08:00 - 09:00	0.7	NNE
09:00 - 10:00	0.0	SSE
10:00 - 11:00	0.0	SE
11:00 - 12:00	0.9	SSE

Wind Rose



0.5-1   1-2   2-3   3-4   4-6   >= 6  
WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 06-07 Oct 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด SECOT CO., LTD.

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

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd, Branch 6      REQUEST SERVICE No. : 2236/65  
(Refinery GC6)      SAMPLING METHOD : Subatmospheric Pressure Sampling  
SAMPLING BY : SECOT Co., Ltd.      ANALYTICAL DATE : 11/11/2022  
SAMPLING DATE : 05-06/11/2022      SAMPLE CONDITION : Normal  
RECEIVED DATE : 07/11/2022      FILE CODE : 222010\_TO-15\_November  
REPORT DATE : 19/11/2022

Compound	SAMPLING LOCATION				STANDARD* (µg/m <sup>3</sup> )
	Non Detection		Takuan-Ao Pradu Community 1		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.98	3.13	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 3<sup>rd</sup> EPA Methods TO-15, 1999

Jutarat Jaemruen  
(Miss Jutarat Jaemruen)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1

Monitor period : 05-06 Nov 2022

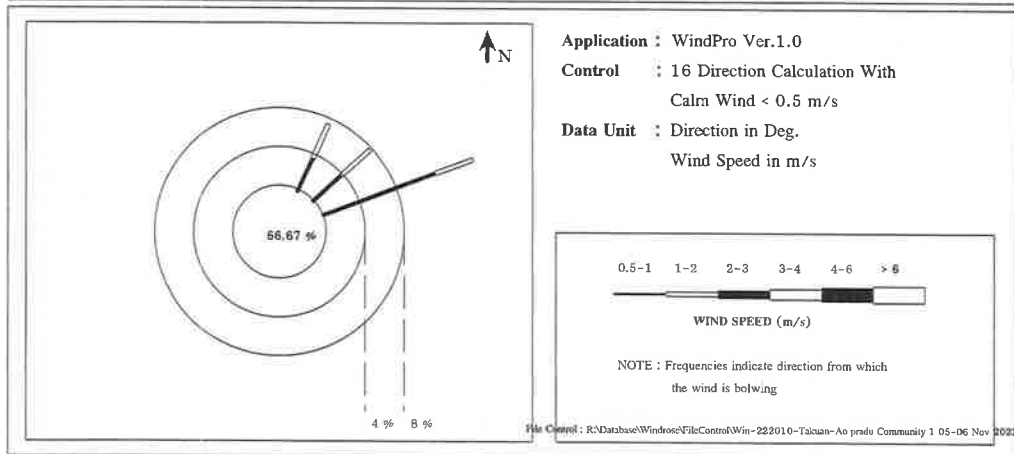
Wind Speed Model : NRG Symphonie

Serial No : 309013914

Wind Direction Model : NRG Symphonie

Serial No : 309013914

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
NE	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
ENE	0.1250	0.0417	0.0000	0.0000	0.0000	0.0000	0.1667
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.6667						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1

Monitor period : 05-06 Nov 2022

Wind Speed Model : NRG Symphonie

Serial No : 309013914

Wind Direction Model : NRG Symphonie

Serial No : 309013914

Time	05-06 Nov 2022	
	WS(m/s)	WD
10:00 - 11:00	1.0	NNE
11:00 - 12:00	1.7	NE
12:00 - 13:00	0.7	ENE
13:00 - 14:00	0.8	NE
14:00 - 15:00	0.4	NE
15:00 - 16:00	0.6	ENE
16:00 - 17:00	0.4	ENE
17:00 - 18:00	0.4	ENE
18:00 - 19:00	0.4	ENE
19:00 - 20:00	0.4	ENE
20:00 - 21:00	0.4	ENE
21:00 - 22:00	0.4	ENE
22:00 - 23:00	0.4	ENE
23:00 - 24:00	0.4	ENE
00:00 - 01:00	0.4	ENE
01:00 - 02:00	0.4	ENE
02:00 - 03:00	0.4	ENE
03:00 - 04:00	0.4	ENE
04:00 - 05:00	0.4	ENE
05:00 - 06:00	0.4	ENE
06:00 - 07:00	0.4	ENE
07:00 - 08:00	0.7	NNE
08:00 - 09:00	1.0	ENE
09:00 - 10:00	0.9	ENE

Wind Rose



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	REQUEST SERVICE No.	: 2236/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 05-06/11/2022	ANALYTICAL DATE	: 11/11/2022
SAMPLING TIME	: 10:29-10:50	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 07/11/2022	FILE CODE	: 222010_TO-15_November
REPORT DATE	: 19/11/2022		

Compound	Non Detection		SAMPLING LOCATION		STANDARD*  (µg/m <sup>3</sup> ) <sup>a</sup>
			Takuan-Ao Pradu Community 2		
	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.67	2.14	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 4<sup>th</sup> : EPA Methods TO-15,1999

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).

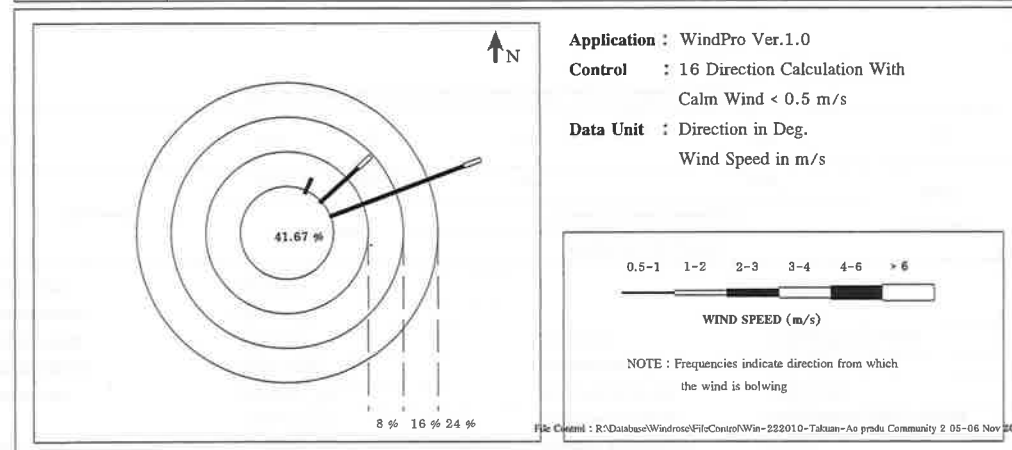
R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 05-06 Nov 2022



Meteorological Monitoring Results : Wind Rose  
MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 2 Monitor period : 05-06 Nov 2022  
Wind Speed Model : NRG Symphonie Serial No : 30909366  
Wind Direction Model : NRG Symphonie Serial No : 30909366

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.1250	0.0417	0.0000	0.0000	0.0000	0.0000	0.1667
ENE	0.3333	0.0417	0.0000	0.0000	0.0000	0.0000	0.3750
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.4167						



(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



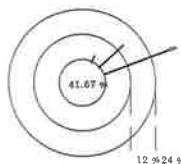
## Meteorological Monitoring Results : Wind Rose

### MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 2 Monitor period : 05-06 Nov 2022  
 Wind Speed Model : NRG Symphonie Serial No : 30909366  
 Wind Direction Model : NRG Symphonie Serial No : 30909366

Time	05-06 Nov 2022	
	WS(m/s)	WD
10:00 - 11:00	0.9	NE
11:00 - 12:00	1.5	ENE
12:00 - 13:00	0.8	ENE
13:00 - 14:00	0.6	ENE
14:00 - 15:00	0.5	ENE
15:00 - 16:00	0.5	ENE
16:00 - 17:00	0.4	ENE
17:00 - 18:00	0.4	ENE
18:00 - 19:00	0.4	ENE
19:00 - 20:00	0.4	ENE
20:00 - 21:00	0.4	ENE
21:00 - 22:00	0.4	ENE
22:00 - 23:00	0.4	ENE
23:00 - 24:00	0.4	ENE
00:00 - 01:00	0.4	ENE
01:00 - 02:00	0.5	ENE
02:00 - 03:00	0.6	NE
03:00 - 04:00	0.5	ENE
04:00 - 05:00	0.5	ENE
05:00 - 06:00	0.4	ENE
06:00 - 07:00	0.5	ENE
07:00 - 08:00	0.6	NE
08:00 - 09:00	1.1	NE
09:00 - 10:00	0.7	NNE

Wind Rose



12.94 46



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

File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 05-06 Nov 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## บริษัท ซีคอต จำกัด

### SECOT CO., LTD.

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

### AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd, Branch 6 REQUEST SERVICE No. : 2417/65  
 (Refinery GC 6) SAMPLING METHOD : Subatmospheric Pressure Sampling  
 SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 06-07/12/2022  
 SAMPLING DATE : 02-03/12/2022 SAMPLE CONDITION : Normal  
 SAMPLING TIME : 12:45-11:45 FILE CODE : 222010\_TO-15\_December  
 RECEIVED DATE : 04/12/2022  
 REPORT DATE : 08/12/2022

Compound	Non Detection		SAMPLING LOCATION		STANDARD*
	ppbv	µg/m <sup>3</sup>	Takuan-Ao Pradu Community 1		
			ppbv	µg/m <sup>3</sup>	(µg/m <sup>3</sup> )
Benzene	0.004	0.013	0.49	1.57	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2<sup>nd</sup> : EPA Methods TO-15.1999

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

Mrs. Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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

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

3. \* Notification of the Pollution Control Department, dated December 18, B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1

Monitor period : 02-03 Dec 2022

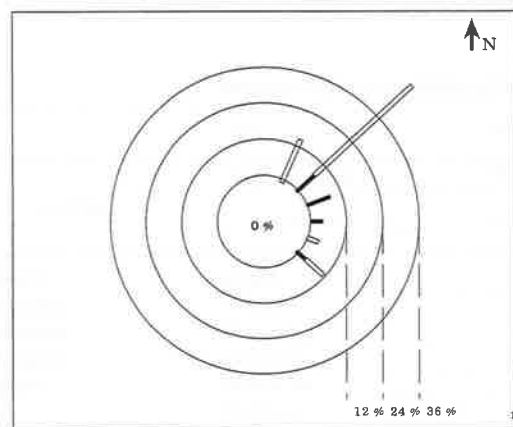
Wind Speed Model : NRG Symphonie

Serial No : 309019737

Wind Direction Model : NRG Symphonie

Serial No : 309019737

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.1667	0.0000	0.0000	0.0000	0.0000	0.1667
NE	0.0833	0.4583	0.0000	0.0000	0.0000	0.0000	0.5417
ENE	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
E	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM				0.0000			



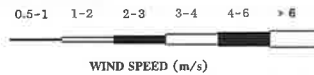
Application : WindPro Ver.1.0

Control : 16 Direction Calculation With

Calm Wind &lt; 0.5 m/s

Data Unit : Direction in Deg.

Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 1 02-03 Dec 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team

SECOT CO.,LTD

239 Rimklongprapa Rd.  
Bangnae, Bangkok 10600

Tel:166(0)2959-3600 Fax:166(0)2959-3535



## Meteorological Monitoring Results : Wind Rose MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 1

Monitor period : 02-03 Dec 2022

Wind Speed Model : NRG Symphonie

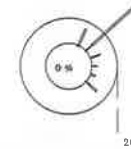
Serial No : 309019737

Wind Direction Model : NRG Symphonie

Serial No : 309019737

Time	02-03 Dec 2022	
	WS(m/s)	WD
09:00 - 10:00	0.9	NE
10:00 - 11:00	1.5	NE
11:00 - 12:00	1.4	NE
12:00 - 13:00	1.9	ESE
13:00 - 14:00	1.6	SE
14:00 - 15:00	1.4	SE
15:00 - 16:00	0.9	SE
16:00 - 17:00	0.5	E
17:00 - 18:00	0.6	ENE
18:00 - 19:00	0.7	ENE
19:00 - 20:00	1.2	NNE
20:00 - 21:00	1.4	NNE
21:00 - 22:00	1.0	NE
22:00 - 23:00	1.3	NNE
23:00 - 24:00	1.1	NE
00:00 - 01:00	1.0	NE
01:00 - 02:00	1.0	NE
02:00 - 03:00	1.1	NE
03:00 - 04:00	1.3	NE
04:00 - 05:00	1.2	NE
05:00 - 06:00	1.2	NE
06:00 - 07:00	1.4	NE
07:00 - 08:00	1.5	NNE
08:00 - 09:00	0.9	NE

Wind Rose



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

File Control : R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 1 02-03 Dec 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda S.  
(Miss Preeda Somjai)  
Technical Management Team

SECOT CO.,LTD

239 Rimklongprapa Rd.  
Bangnae, Bangkok 10600

Tel:166(0)2959-3600 Fax:166(0)2959-3535



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

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

**AMBIENT AIR QUALITY ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC 6)	REQUEST SERVICE No.	: 2417/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 02-03/12/2022	ANALYTICAL DATE	: 06-07/12/2022
SAMPLING TIME	: 12:05-11:05	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 04/12/2022	FILE CODE	: 222010_TO-15_December
REPORT DATE	: 08/12/2022		

Compound	Non Detection		SAMPLING LOCATION		STANDARD*
	ppbv	µg/m <sup>3</sup>	Takuan-Ao Pradu Community 2	µg/m <sup>3</sup>	
Benzene	0.004	0.013	0.42	1.34	7.6

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2<sup>nd</sup> - EPA Methods TO-15 (1999)

*Jutarat Jaemruen*  
(Miss Jutarat Jaemruen)

Analyst

*(Mrs. Araya Tipparuk)*

Technical Management Team

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

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

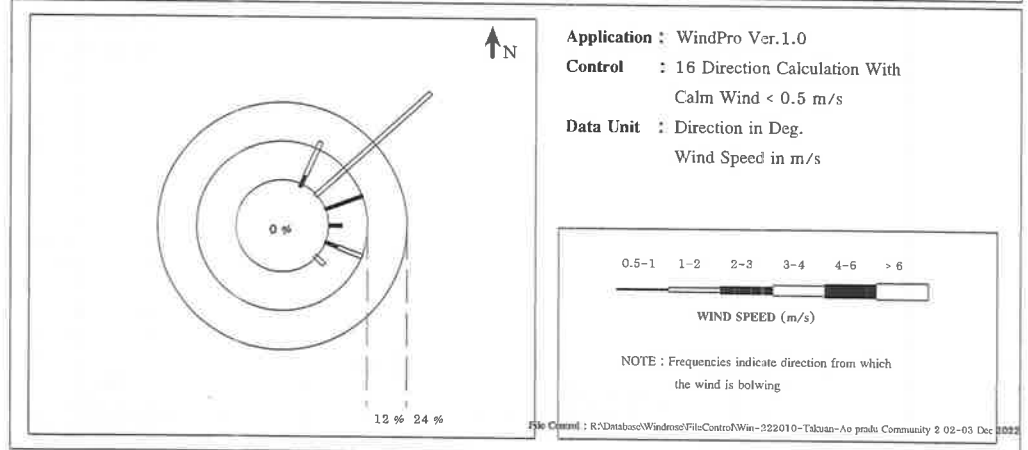
3. \* Notification of the Pollution Control Department, dated December 18,B.E.2551(2008), which was published in the Royal Government Gazette Vol. 126. Special Part 13D dated January 27, B.E. 2552 (2009).



**Meteorological Monitoring Results : Wind Rose**  
**MTR-PTTGC6-Refinery**

Location	: Takuan-Ao pradu Community 2	Monitor period	: 02-03 Dec 2022
Wind Speed Model	: NRG Symphonie	Serial No	: 309016789
Wind Direction Model	: NRG Symphonie	Serial No	: 309016789

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0417	0.1250	0.0000	0.0000	0.0000	0.0000	0.1667
NE	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.5000
ENE	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
E	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
SE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



*(Miss Katesarin Vorradetwittaya)*  
Environmental Scientist

*Preeda S.*  
(Miss Preeda Somjai)  
Technical Management Team



## Meteorological Monitoring Results : Wind Rose

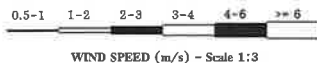
### MTR-PTTGC6-Refinery

Location : Takuan-Ao pradu Community 2      Monitor period : 02-03 Dec 2022  
 Wind Speed Model : NRG Symphonie      Serial No : 309016789  
 Wind Direction Model : NRG Symphonie      Serial No : 309016789

Time	02-03 Dec 2022	
	WS(m/s)	WD
10:00 - 11:00	0.8	NNE
11:00 - 12:00	1.4	NE
12:00 - 13:00	1.4	NE
13:00 - 14:00	1.5	ESE
14:00 - 15:00	1.3	SE
15:00 - 16:00	1.1	ESE
16:00 - 17:00	0.8	ESE
17:00 - 18:00	0.5	E
18:00 - 19:00	0.8	ENE
19:00 - 20:00	0.8	ENE
20:00 - 21:00	1.5	NE
21:00 - 22:00	1.8	NNE
22:00 - 23:00	1.2	NNE
23:00 - 24:00	1.5	NNE
00:00 - 01:00	1.4	NE
01:00 - 02:00	1.1	NE
02:00 - 03:00	1.2	NE
03:00 - 04:00	1.3	NE
04:00 - 05:00	1.6	NE
05:00 - 06:00	1.4	NE
06:00 - 07:00	1.4	NE
07:00 - 08:00	1.6	NE
08:00 - 09:00	1.7	NE
09:00 - 10:00	0.9	ENE

Wind Rose	
-----------	--



File Control :R:\Database\Windrose\FileControl\Win-222010-Takuan-Ao pradu Community 2 02-03 Dec 2022

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

Preeda J.  
(Miss Preeda Somjai)  
Technical Management Team

## คุณภาพอากาศจากปล่องระบายอากาศ

---



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/Main  
Branch 6 (Refinery) SAMPLING DATE : 04/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 10-11/10/2022  
RECEIVED DATE : 07/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 12/10/2022 OPERATOR : Mr. Song Hangchhankun  
STACK LOCATION : Main Stack SOURCE DESCRIPTION : Combustion  
FUEL TYPE : Fuel gas and Fuel Oil

STACK DESCRIPTION

Height : 140.0 m Gas Velocity : 10.4 m/s  
Diameter : 4.5 m Flow rate<sup>1/</sup> : 5,403 Ncu.m/min  
Temperature : 200.3 °C Excess Oxygen : 5.4 %

PARAMETER	UNIT	RESULTS		ASSIGN VALUE <sup>2/</sup>	STANDARD <sup>3/</sup>	REFERENCE METHODS
		5.4%O <sub>2</sub>	7%O <sub>2</sub>			
Particulate Matter	mg/Ncu.m	4.13	3.71	240	240	US EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-ก-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> The assign value in EIA report.

5. <sup>3/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/Main  
Branch 6 (Refinery) SAMPLING DATE : 04/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 07-14/10/2022  
RECEIVED DATE : 07/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 27/10/2022 OPERATOR : Mr. Song Hangchhankun  
STACK LOCATION : Main Stack SOURCE DESCRIPTION : Combustion  
FUEL TYPE : Fuel gas and Fuel Oil

STACK DESCRIPTION

Height : 140.0 m Gas Velocity : 10.4 m/s  
Diameter : 4.5 m Flow rate<sup>1/</sup> : 5,403 Ncu.m/min  
Temperature : 200.3 °C Excess Oxygen : 5.4 %

PARAMETER	UNIT	ND Non-detectable	RESULTS		ASSIGN VALUE <sup>2/</sup>	STANDARD <sup>3/</sup>	REFERENCE METHODS
			5.4%O <sub>2</sub>	7%O <sub>2</sub>			
Lead	mg/m <sup>3</sup>	<0.02	0.06	0.05	5.0	5.0	US EPA Method 29
Mercury	mg/m <sup>3</sup>	<0.0003	ND	ND	2.4	2.4	US EPA Method 29

K. Ch

(Miss Krisana Chanthoom)

Analyst

REG.NO.7-239-ก-7802

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> The assign value in EIA report.

5. <sup>3/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.



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) 2559-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: PTTGC6 (Refinery)_222010_Cert-Stk/Main
	Branch 6 (Refinery)	SAMPLING DATE	: 04/10/2022
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 06/10/2022
RECEIVED DATE	: 05/10/2022	SAMPLE CONDITION	: Normal
REPORT DATE	: 15/10/2022	OPERATOR	: Mr. Song Hangachwankun
STACK LOCATION	: Main Stack	SOURCE DESCRIPTION	: Combustion
FUEL TYPE	: Fuel gas and Fuel Oil		

STACK DESCRIPTION

Height	: 140.0	m	Gas Velocity	: 10.4	m/s
Diameter	: 4.5	m	Flow rate <sup>1/</sup>	: 5,403	Ncu.m/min
Temperature	: 200.3	°C	Excess Oxygen	: 5.4	%

PARAMETER	UNIT	ND	RESULTS		ASSIGN	STANDARD <sup>3/</sup>	REFERENCE
		Non-detectable	5.4%O <sub>2</sub>	7%O <sub>2</sub>	VALUE <sup>2/</sup>		
TVOC	ppm	-	1.08	0.97	-	-	US EPA Method 25A
Hydrogen Sulfide	ppm	<0.25	-	ND	60	-	US EPA Method 16
(H <sub>2</sub> S)	ppm	<0.30	ND	-			

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

Miss Narisa 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. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> The assign value in EIA report.

5. <sup>3/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.

The Monitoring Result of Emission Concentration

Main Stack

PTT Global Chemical Public Company Limited

October 4, 2022

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.43	5.43	34.11	33.84	30.41
2	5.47	5.47	35.06	34.82	31.37
3	5.39	5.39	35.18	34.97	31.34
Average	5.43	5.43	34.78	34.54	31.04

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.43	5.43	14.02	14.00	12.58
2	5.47	5.47	12.83	12.81	11.54
3	5.39	5.39	13.39	13.36	11.97
Average	5.43	5.43	13.41	13.39	12.03

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.43	5.43	72.64	72.50	65.14
2	5.47	5.47	69.81	69.67	62.76
3	5.39	5.39	74.13	74.00	66.32
Average	5.43	5.43	72.19	72.06	64.74



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

**Date:** October 4, 2022  
**Start time:** 12:00 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas and Fuel Oil

**Run # : 1**  
**Location :** Main Stack  
**Finish time :** 12:20 PM  
**Serial No.:** 121121-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:00 PM	5.45	34.99	15.02	75.78
12:01 PM	5.37	34.71	14.88	75.71
12:02 PM	5.35	34.65	14.76	75.23
12:03 PM	5.40	34.77	14.65	74.43
12:04 PM	5.39	34.72	14.52	72.94
12:05 PM	5.38	34.52	14.43	72.47
12:06 PM	5.40	34.57	14.34	73.62
12:07 PM	5.47	33.67	14.45	69.85
12:08 PM	5.49	33.67	14.47	67.21
12:09 PM	5.49	33.70	14.38	65.49
12:10 PM	5.47	33.67	14.23	65.39
12:11 PM	5.41	33.50	13.99	66.81
12:12 PM	5.41	33.31	13.68	69.32
12:13 PM	5.42	33.25	13.57	72.24
12:14 PM	5.46	33.48	13.48	74.17
12:15 PM	5.45	33.66	13.43	75.22
12:16 PM	5.47	33.76	13.43	76.38
12:17 PM	5.47	34.09	13.27	77.01
12:18 PM	5.41	34.50	13.15	75.98
12:19 PM	5.40	34.49	13.12	75.02
12:20 PM	5.39	34.57	13.13	75.18
Average	5.43	34.11	14.02	72.64

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Date:** October 4, 2022  
**Start time:** 12:21 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas and Fuel Oil

**Run # : 2**  
**Location :** Main Stack  
**Finish time :** 12:41 PM  
**Serial No.:** 121121-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:21 PM	5.38	34.71	13.09	74.00
12:22 PM	5.40	34.88	13.13	71.88
12:23 PM	5.48	35.17	13.22	71.20
12:24 PM	5.43	35.34	13.31	70.77
12:25 PM	5.39	35.23	13.32	69.74
12:26 PM	5.37	35.20	13.29	69.78
12:27 PM	5.44	35.45	13.21	72.04
12:28 PM	5.44	35.48	12.93	74.73
12:29 PM	5.44	35.41	12.75	76.91
12:30 PM	5.42	35.33	12.64	78.52
12:31 PM	5.36	35.07	12.54	77.96
12:32 PM	5.35	34.92	12.52	74.66
12:33 PM	5.43	35.15	12.45	69.58
12:34 PM	5.48	35.47	12.45	64.66
12:35 PM	5.47	35.46	12.53	61.02
12:36 PM	6.10	32.78	12.46	58.67
12:37 PM	5.88	34.65	12.51	59.27
12:38 PM	5.42	35.11	12.63	62.61
12:39 PM	5.38	35.18	12.72	66.21
12:40 PM	5.40	35.12	12.79	69.23
12:41 PM	5.36	35.07	12.87	72.47
Average	5.47	35.06	12.83	69.81

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 4, 2022  
**Start time:** 12:42 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas and Fuel Oil

**Run # :** 3  
**Location :** Main Stack  
**Finish time :** 1:02 PM  
**Serial No.:** 121121-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:42 PM	5.35	34.98	12.92	73.55
12:43 PM	5.38	35.00	12.92	73.55
12:44 PM	5.41	35.13	12.94	73.58
12:45 PM	5.41	35.27	13.00	73.88
12:46 PM	5.40	35.37	13.08	73.92
12:47 PM	5.45	35.45	13.12	74.43
12:48 PM	5.46	35.44	13.15	75.46
12:49 PM	5.44	35.35	13.20	75.68
12:50 PM	5.39	35.26	13.24	74.18
12:51 PM	5.37	35.21	13.34	72.44
12:52 PM	5.37	35.21	13.44	70.92
12:53 PM	5.44	35.32	13.45	69.15
12:54 PM	5.46	35.45	13.61	69.13
12:55 PM	5.42	35.42	13.63	70.91
12:56 PM	5.36	35.15	13.66	73.30
12:57 PM	5.37	35.06	13.66	75.52
12:58 PM	5.37	35.12	13.70	77.21
12:59 PM	5.38	35.12	13.68	77.85
1:00 PM	5.36	34.99	13.77	77.74
1:01 PM	5.33	34.79	13.85	77.31
1:02 PM	5.36	34.72	13.87	77.08
<b>Average</b>	5.39	35.18	13.39	74.13

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

**CLIENT NAME :** PTT Global Chemical Public Co., Ltd. **REF. NO. :** PTTGC6 (Refinery)\_222010\_Cert-Stk/CRS  
**Branch 6 (Refinery)** **SAMPLING DATE :** 05/10/2022  
**SAMPLING BY :** SECOT Co., Ltd. **ANALYTICAL DATE :** 11/10/2022  
**RECEIVED DATE :** 10/10/2022 **SAMPLE CONDITION :** Normal  
**REPORT DATE :** 19/10/2022 **OPERATOR :** Mr. Song Hanghchwankun  
**STACK LOCATION :** CRS Stack **SOURCE DESCRIPTION :** Combustion  
**FUEL TYPE :** Fuel gas

#### STACK DESCRIPTION

**Height :** 100 m **Gas Velocity :** 8.5 m/s  
**Diameter :** 1.66 m **Flow rate <sup>1/</sup> :** 684 Ncu.m/min  
**Temperature :** 151.0 °C **Excess Oxygen :** 4.2 %

PARAMETER	UNIT	ND	RESULTS		STANDARD	REFERENCE METHODS
		Non-detectable	4.2%O <sub>2</sub>	7%O <sub>2</sub>		
TVOC	ppm	-	4.20	3.51	-	US EPA Method 25A

(Miss Sudaporn Soonthorn)

Analyst

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

**The Monitoring Result of Emission Concentration  
CRS Stack  
PTT Global Chemical Public Company Limited  
October 5, 2022**

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.12	4.09	38.06	38.06	31.47
2	4.33	4.30	38.29	38.29	32.06
3	4.39	4.35	37.37	37.37	31.39
<b>Average</b>	<b>4.28</b>	<b>4.25</b>	<b>37.91</b>	<b>37.91</b>	<b>31.64</b>

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.12	4.09	0.56	0.53	0.44
2	4.33	4.30	0.56	0.53	0.44
3	4.39	4.35	0.52	0.49	0.41
<b>Average</b>	<b>4.28</b>	<b>4.25</b>	<b>0.55</b>	<b>0.52</b>	<b>0.43</b>

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.12	4.09	1.59	1.53	1.27
2	4.33	4.30	2.54	2.49	2.09
3	4.39	4.35	3.26	3.22	2.70
<b>Average</b>	<b>4.28</b>	<b>4.25</b>	<b>2.46</b>	<b>2.41</b>	<b>2.01</b>

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

Date: October 5, 2022

Start time: 11:50 AM

O<sub>2</sub> instrument Model: AMI 70NO<sub>x</sub> instrument Model: API 200 AHSO<sub>2</sub> instrument Model: API 100 AH

CO instrument Model: THERMO 48 C

Fuel Type : Fuel Gas

Run # : 1

Location : CRS Stack

Finish time : 12:10 PM

Serial No.: 071023-47

Serial No.: 342

Serial No.: 060

Serial No.: 365

Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:50 AM	4.49	36.84	0.51	1.92
11:51 AM	4.53	37.89	0.53	0.19
11:52 AM	4.38	37.92	0.63	2.31
11:53 AM	4.14	37.81	0.60	2.12
11:54 AM	4.03	37.87	0.56	2.66
11:55 AM	4.07	38.14	0.51	2.14
11:56 AM	4.17	38.36	0.51	2.31
11:57 AM	4.10	38.19	0.53	0.94
11:58 AM	4.01	38.29	0.54	3.33
11:59 AM	3.96	38.17	0.53	2.31
12:00 PM	3.89	38.08	0.54	2.11
12:01 PM	4.04	38.46	0.56	1.83
12:02 PM	4.23	38.50	0.55	0.35
12:03 PM	4.11	38.18	0.56	2.87
12:04 PM	3.91	37.86	0.60	1.08
12:05 PM	3.92	37.95	0.58	0.71
12:06 PM	4.05	38.06	0.58	0.07
12:07 PM	4.04	38.11	0.58	1.27
12:08 PM	4.12	38.39	0.57	0.89
12:09 PM	4.11	38.03	0.56	1.54
12:10 PM	4.15	38.14	0.57	0.50
<b>Average</b>	<b>4.12</b>	<b>38.06</b>	<b>0.56</b>	<b>1.59</b>

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 5, 2022  
**Start time:** 12:11 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # :** 2  
**Location :** CRS Stack  
**Finish time :** 12:31 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:11 PM	4.08	37.93	0.58	1.36
12:12 PM	4.08	38.21	0.57	3.05
12:13 PM	4.28	38.51	0.57	1.12
12:14 PM	4.43	38.98	0.55	4.03
12:15 PM	4.48	39.14	0.54	1.38
12:16 PM	4.38	38.67	0.54	1.33
12:17 PM	4.32	38.52	0.56	1.71
12:18 PM	4.29	38.33	0.54	1.93
12:19 PM	4.44	38.57	0.55	1.77
12:20 PM	4.42	38.68	0.57	2.53
12:21 PM	4.34	38.61	0.56	4.18
12:22 PM	4.30	38.30	0.57	3.91
12:23 PM	4.33	38.28	0.56	1.92
12:24 PM	4.43	38.30	0.54	2.35
12:25 PM	4.36	37.91	0.56	0.77
12:26 PM	4.33	37.78	0.56	3.76
12:27 PM	4.39	37.98	0.57	4.11
12:28 PM	4.32	37.86	0.58	4.06
12:29 PM	4.39	37.95	0.57	4.16
12:30 PM	4.29	37.84	0.57	2.57
12:31 PM	4.26	37.72	0.52	1.25
<b>Average</b>	4.33	38.29	0.56	2.54

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 5, 2022  
**Start time:** 12:32 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # :** 3  
**Location :** CRS Stack  
**Finish time :** 12:52 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:32 PM	4.37	37.95	0.54	3.04
12:33 PM	4.46	37.84	0.56	0.44
12:34 PM	4.32	37.64	0.53	4.02
12:35 PM	4.34	37.66	0.55	4.15
12:36 PM	4.25	37.46	0.53	4.06
12:37 PM	4.37	37.70	0.52	3.79
12:38 PM	4.45	37.81	0.52	3.95
12:39 PM	4.52	37.86	0.53	3.80
12:40 PM	4.37	37.49	0.53	4.01
12:41 PM	4.34	37.33	0.53	4.06
12:42 PM	4.41	37.41	0.53	4.21
12:43 PM	4.37	37.33	0.52	4.16
12:44 PM	4.44	37.35	0.51	4.09
12:45 PM	4.47	37.28	0.51	4.09
12:46 PM	4.45	37.21	0.51	4.04
12:47 PM	4.43	37.20	0.52	3.61
12:48 PM	4.38	36.94	0.53	3.03
12:49 PM	4.32	36.74	0.50	0.30
12:50 PM	4.29	36.79	0.53	3.99
12:51 PM	4.40	36.83	0.50	0.78
12:52 PM	4.35	36.98	0.50	0.86
<b>Average</b>	4.39	37.37	0.52	3.26

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/HCU  
Branch 6 (Refinery) SAMPLING DATE : 07/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 11/10/2022  
RECEIVED DATE : 10/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 19/10/2022 OPERATOR : Mr. Song Hangchwanun  
STACK LOCATION : HCU Stack SOURCE DESCRIPTION : Combustion  
FUEL TYPE : Fuel gas

#### STACK DESCRIPTION

Height : 61.0 m Gas Velocity : 8.6 m/s  
Diameter : 1.7 m Flow rate <sup>u</sup> : 584 Ncu.m/min  
Temperature : 261.0 °C Excess Oxygen : 1.8 %

PARAMETER	UNIT	ND	RESULTS		STANDARD	REFERENCE METHODS
		Non-detectable	1.8%O <sub>2</sub>	7%O <sub>2</sub>		
TVOC	ppm	-	2.13	1.55	-	US EPA Method 25A

*Sudaporn Soonthorn*

(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. <sup>u</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

### The Monitoring Result of Emission Concentration HCU Stack PTT Global Chemical Public Company Limited October 7, 2022

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	1.90	1.87	35.23	35.22	25.73
2	1.78	1.75	34.74	34.73	25.21
3	1.86	1.83	33.26	33.25	24.24
Average	1.85	1.82	34.41	34.40	25.06

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	1.90	1.87	0.14	0.10	0.07
2	1.78	1.75	0.14	0.09	0.07
3	1.86	1.83	0.14	0.08	0.06
Average	1.85	1.82	0.14	0.09	0.07

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	1.90	1.87	2.12	2.08	1.52
2	1.78	1.75	0.71	0.68	0.49
3	1.86	1.83	1.20	1.17	0.85
Average	1.85	1.82	1.35	1.31	0.95

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

**Date:** October 7, 2022  
**Start time:** 11:10 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # : 1**  
**Location :** HCU Stack  
**Finish time :** 11:30 AM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:10 AM	2.07	35.04	0.14	3.27
11:11 AM	2.05	35.74	0.14	2.89
11:12 AM	2.08	35.39	0.14	3.11
11:13 AM	1.94	34.59	0.14	2.99
11:14 AM	2.05	34.54	0.14	2.87
11:15 AM	2.03	34.22	0.14	2.76
11:16 AM	1.87	33.67	0.14	2.79
11:17 AM	1.79	33.52	0.14	2.51
11:18 AM	1.78	32.43	0.14	2.42
11:19 AM	1.87	34.65	0.15	2.22
11:20 AM	1.92	35.11	0.14	2.04
11:21 AM	1.89	34.82	0.14	2.04
11:22 AM	1.97	35.19	0.14	2.02
11:23 AM	1.94	36.53	0.14	1.86
11:24 AM	1.99	36.26	0.14	1.52
11:25 AM	1.86	36.01	0.14	1.71
11:26 AM	1.83	37.02	0.14	1.57
11:27 AM	1.71	36.30	0.14	1.44
11:28 AM	1.72	35.94	0.14	1.47
11:29 AM	1.76	36.14	0.14	0.71
11:30 AM	1.84	36.63	0.14	0.38
<b>Average</b>	1.90	35.23	0.14	2.12

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Date:** October 7, 2022  
**Start time:** 11:31 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # : 2**  
**Location :** HCU Stack  
**Finish time :** 11:51 AM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:31 AM	1.86	37.02	0.14	0.97
11:32 AM	1.77	37.08	0.14	1.12
11:33 AM	1.89	36.85	0.14	1.14
11:34 AM	1.89	37.04	0.14	1.15
11:35 AM	1.83	36.47	0.14	1.14
11:36 AM	1.66	35.35	0.14	1.22
11:37 AM	1.48	34.28	0.14	0.69
11:38 AM	1.64	33.37	0.14	0.47
11:39 AM	1.65	34.75	0.14	0.70
11:40 AM	1.78	34.74	0.15	0.29
11:41 AM	1.96	35.22	0.16	0.71
11:42 AM	1.90	35.43	0.14	0.43
11:43 AM	1.82	34.46	0.14	0.52
11:44 AM	1.92	34.47	0.14	0.34
11:45 AM	1.78	34.30	0.14	0.13
11:46 AM	1.87	33.58	0.14	0.72
11:47 AM	1.69	33.55	0.14	0.77
11:48 AM	1.63	32.70	0.14	0.54
11:49 AM	1.70	32.72	0.14	0.45
11:50 AM	1.73	32.71	0.14	0.67
11:51 AM	1.92	33.50	0.14	0.84
<b>Average</b>	1.78	34.74	0.14	0.71

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 7, 2022  
**Start time:** 11:52 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # :** 3  
**Location :** HCU Stack  
**Finish time :** 12:12 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:52 AM	1.80	33.58	0.14	0.80
11:53 AM	1.84	33.35	0.14	0.35
11:54 AM	1.86	33.02	0.14	1.42
11:55 AM	1.84	33.12	0.14	0.40
11:56 AM	1.80	33.17	0.14	0.55
11:57 AM	1.78	32.72	0.14	0.65
11:58 AM	1.74	32.53	0.15	0.67
11:59 AM	1.74	32.49	0.14	0.70
12:00 PM	1.73	32.77	0.14	0.65
12:01 PM	1.81	33.54	0.14	1.55
12:02 PM	1.92	32.75	0.14	1.56
12:03 PM	1.96	33.79	0.13	1.57
12:04 PM	1.76	33.81	0.14	1.58
12:05 PM	1.91	33.96	0.14	1.56
12:06 PM	2.00	33.64	0.14	1.57
12:07 PM	1.88	33.34	0.14	1.56
12:08 PM	1.99	33.18	0.14	1.59
12:09 PM	1.97	33.53	0.14	1.60
12:10 PM	1.89	33.51	0.14	1.61
12:11 PM	1.97	33.23	0.14	1.63
12:12 PM	1.85	33.42	0.14	1.64
<b>Average</b>	1.86	33.26	0.14	1.20

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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


### STACK EMISSION ANALYSIS REPORT

**CLIENT NAME :** PTT Global Chemical Public Co., Ltd. **REF. NO. :** PTTGC6 (Refinery)\_222010\_Cert-Stk/HMU  
**Branch 6 (Refinery)** **SAMPLING DATE :** 07/10/2022  
**SAMPLING BY :** SECOT Co., Ltd. **ANALYTICAL DATE :** 11/10/2022  
**RECEIVED DATE :** 10/10/2022 **SAMPLE CONDITION :** Normal  
**REPORT DATE :** 19/10/2022 **OPERATOR :** Mr. Song Hangchhwanun  
**STACK LOCATION :** HMU Stack **SOURCE DESCRIPTION :** Combustion  
**FUEL TYPE :** Fuel gas

#### STACK DESCRIPTION

**Height :** 60.0 m **Gas Velocity :** 11.2 m/s  
**Diameter :** 2.4 m **Flow rate<sup>1/</sup> :** 1,792 Ncu.m/min  
**Temperature :** 174.0 °C **Excess Oxygen :** 4.9 %

PARAMETER	UNIT	ND	RESULTS		STANDARD	REFERENCE METHODS
		Non-detectable	4.9%O <sub>2</sub>	7%O <sub>2</sub>		
TVOC	ppm	-	0.87	0.75	-	US EPA Method 25A



(Miss Sudaporn Soonthorn)

Analyst



(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

**The Monitoring Result of Emission Concentration  
HMU Stack  
PTT Global Chemical Public Company Limited  
October 7, 2022**

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

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.10	5.10	31.19	30.90	27.18
2	4.73	4.72	30.83	30.53	26.23
3	4.77	4.76	30.80	30.50	26.27
<b>Average</b>	<b>4.86</b>	<b>4.86</b>	<b>30.94</b>	<b>30.64</b>	<b>26.56</b>

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.10	5.10	0.12	0.10	0.09
2	4.73	4.72	0.19	0.17	0.15
3	4.77	4.76	0.28	0.26	0.22
<b>Average</b>	<b>4.86</b>	<b>4.86</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.10	5.10	0.52	0.49	0.43
2	4.73	4.72	0.56	0.53	0.46
3	4.77	4.76	0.72	0.69	0.59
<b>Average</b>	<b>4.86</b>	<b>4.86</b>	<b>0.60</b>	<b>0.57</b>	<b>0.49</b>

Date: October 7, 2022  
 Start time: 11:00 AM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: TELEDYNE 200 EM  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Fuel Gas

Run # : 1  
 Location : HMU Stack  
 Finish time : 11:20 AM  
 Serial No.: 121212-10  
 Serial No.: 433  
 Serial No.: 132  
 Serial No.: 388  
 Test Operator : Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:00 AM	5.48	30.69	0.14	0.45
11:01 AM	5.31	31.37	0.15	0.52
11:02 AM	5.53	31.83	0.19	0.52
11:03 AM	5.17	31.87	0.15	0.52
11:04 AM	5.10	31.65	0.15	0.52
11:05 AM	5.34	31.58	0.18	0.52
11:06 AM	5.04	31.16	0.15	0.52
11:07 AM	5.21	31.24	0.20	0.52
11:08 AM	5.01	31.25	0.16	0.52
11:09 AM	4.94	31.22	0.12	0.52
11:10 AM	5.07	31.35	0.09	0.52
11:11 AM	5.01	31.17	0.09	0.52
11:12 AM	5.14	31.13	0.09	0.52
11:13 AM	5.01	31.00	0.09	0.52
11:14 AM	4.85	30.77	0.09	0.52
11:15 AM	5.12	30.87	0.09	0.52
11:16 AM	4.96	31.07	0.08	0.52
11:17 AM	5.13	31.31	0.09	0.52
11:18 AM	4.84	31.02	0.09	0.52
11:19 AM	4.85	30.96	0.09	0.52
11:20 AM	4.89	30.56	0.09	0.52
<b>Average</b>	<b>5.10</b>	<b>31.19</b>	<b>0.12</b>	<b>0.52</b>

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist



# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 7, 2022  
**Start time:** 11:21 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # :** 2  
**Location :** HMU Stack  
**Finish time :** 11:41 AM  
**Serial No.:** 121212-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:21 AM	4.65	30.60	0.09	0.52
11:22 AM	4.81	30.60	0.13	0.52
11:23 AM	4.67	30.54	0.16	0.52
11:24 AM	4.64	31.03	0.17	0.62
11:25 AM	4.81	30.89	0.17	0.58
11:26 AM	4.70	31.11	0.18	0.52
11:27 AM	4.75	31.05	0.20	0.52
11:28 AM	4.86	30.77	0.19	0.52
11:29 AM	4.63	30.51	0.20	0.52
11:30 AM	4.96	30.53	0.20	0.52
11:31 AM	4.80	30.66	0.20	0.52
11:32 AM	4.92	30.99	0.20	0.52
11:33 AM	4.62	31.07	0.20	0.52
11:34 AM	4.56	30.86	0.20	0.52
11:35 AM	4.69	30.81	0.20	0.52
11:36 AM	4.73	30.59	0.20	0.52
11:37 AM	4.58	30.75	0.20	0.53
11:38 AM	4.55	30.91	0.23	0.59
11:39 AM	4.58	30.54	0.21	0.72
11:40 AM	4.91	31.54	0.25	0.72
11:41 AM	4.81	31.11	0.20	0.72
<b>Average</b>	4.73	30.83	0.19	0.56

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 7, 2022  
**Start time:** 11:42 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Fuel Gas

**Run # :** 3  
**Location :** HMU Stack  
**Finish time :** 12:02 PM  
**Serial No.:** 121212-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:42 AM	4.69	30.59	0.26	0.72
11:43 AM	4.90	30.65	0.26	0.72
11:44 AM	4.74	30.66	0.22	0.72
11:45 AM	4.86	30.85	0.25	0.72
11:46 AM	4.95	31.26	0.25	0.59
11:47 AM	4.80	30.91	0.25	0.72
11:48 AM	4.75	31.46	0.23	0.72
11:49 AM	4.68	30.62	0.26	0.72
11:50 AM	4.74	30.50	0.26	0.73
11:51 AM	5.00	30.50	0.26	0.73
11:52 AM	4.58	30.53	0.28	0.73
11:53 AM	4.65	30.67	0.29	0.73
11:54 AM	4.64	30.68	0.26	0.73
11:55 AM	4.70	30.81	0.31	0.73
11:56 AM	4.82	30.82	0.31	0.73
11:57 AM	4.65	30.66	0.31	0.73
11:58 AM	4.71	30.49	0.31	0.75
11:59 AM	5.00	30.89	0.31	0.73
12:00 PM	4.73	31.12	0.30	0.73
12:01 PM	4.98	31.11	0.30	0.73
12:02 PM	4.69	30.98	0.31	0.73
<b>Average</b>	4.77	30.80	0.28	0.72

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: PTTGC6 (Refinery)_222010_Cert-Stk/DHDS
	Branch 6 (Refinery)	SAMPLING DATE	: 06/10/2022
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 11/10/2022
RECEIVED DATE	: 10/10/2022	SAMPLE CONDITION	: Normal
REPORT DATE	: 19/10/2022	OPERATOR	: Mr. Song Hangchwankun
STACK LOCATION	: DHDS Stack	SOURCE DESCRIPTION	: Combustion
FUEL TYPE	: Fuel gas		

STACK DESCRIPTION

Height	: 80.0	m	Gas Velocity	: 6.3	m/s
Diameter	: 1.2	m	Flow rate <sup>1/</sup>	: 250	Ncu.m/min
Temperature	: 174.8	°C	Excess Oxygen	: 5.1	%

PARAMETER	UNIT	ND	RESULTS		STANDARD	REFERENCE METHODS
		Non-detectable	5.1%O <sub>2</sub>	7%O <sub>2</sub>		
TVOC	ppm	-	7.23	6.35	-	US EPA Method 25A

*Sudaporn Soonthorn*

(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. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: PTTGC6 (Refinery)_222010_Cert-Stk/DHDS
	Branch 6 (Refinery)	SAMPLING DATE	: 07/10/2022
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 07-14/10/2022
RECEIVED DATE	: 07/10/2022	SAMPLE CONDITION	: Normal
REPORT DATE	: 27/10/2022	OPERATOR	: Mr. Song Hangchwankun
STACK LOCATION	: DHDS Stack	SOURCE DESCRIPTION	: Combustion
FUEL TYPE	: Fuel gas		

STACK DESCRIPTION

Height	: 80.0	m	Gas Velocity	: 6.3	m/s
Diameter	: 1.2	m	Flow rate <sup>1/</sup>	: 250	Ncu.m/min
Temperature	: 174.8	°C	Excess Oxygen	: 5.1	%

PARAMETER	UNIT	ND	RESULTS		STANDARD	REFERENCE METHODS
		Non-detectable	5.1%O <sub>2</sub>	7%O <sub>2</sub>		
Lead	mg/m <sup>3</sup>	<0.02	ND	ND	-	US EPA Method 29
Mercury	mg/m <sup>3</sup>	<0.0003	ND	ND	-	US EPA Method 29

*Krisana Chanthoom*

(Miss Krisana Chanthoom)

Analyst

REG.NO. 7-239-ก-7802

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 7-239-ก-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

**The Monitoring Result of Emission Concentration  
DHDS Stack  
PTT Global Chemical Public Company Limited  
October 6, 2022**

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.31	5.31	49.36	49.07	43.75
2	5.05	5.05	49.00	48.71	42.72
3	4.86	4.86	49.16	48.86	42.34
<b>Average</b>	<b>5.07</b>	<b>5.07</b>	<b>49.17</b>	<b>48.88</b>	<b>42.93</b>

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.31	5.31	0.06	0.02	0.02
2	5.05	5.05	0.15	0.11	0.10
3	4.86	4.86	0.23	0.19	0.16
<b>Average</b>	<b>5.07</b>	<b>5.07</b>	<b>0.14</b>	<b>0.11</b>	<b>0.09</b>

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.31	5.31	0.53	0.49	0.44
2	5.05	5.05	0.63	0.58	0.51
3	4.86	4.86	0.74	0.69	0.60
<b>Average</b>	<b>5.07</b>	<b>5.07</b>	<b>0.64</b>	<b>0.59</b>	<b>0.52</b>

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

Date: October 6, 2022

Start time: 10:40 AM

O<sub>2</sub> instrument Model: AMI 70NO<sub>x</sub> instrument Model: TELEDYNE 200 EMSO<sub>2</sub> instrument Model: API 100 AH

CO instrument Model: THERMO 48 C

Fuel Type : Fuel Gas

Run # : 1

Location : DHDS Stack

Finish time : 11:00 AM

Serial No.: 121121-10

Serial No.: 433

Serial No.: 132

Serial No.: 388

Test Operator : Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
10:40 AM	5.37	49.42	0.06	0.54
10:41 AM	5.34	49.22	0.06	0.54
10:42 AM	5.36	49.05	0.08	0.54
10:43 AM	5.39	49.09	0.08	0.54
10:44 AM	5.37	49.29	0.05	0.54
10:45 AM	5.34	49.37	0.04	0.54
10:46 AM	5.27	49.32	0.00	0.53
10:47 AM	5.29	49.40	0.00	0.53
10:48 AM	5.35	49.59	0.03	0.53
10:49 AM	5.38	49.73	0.02	0.53
10:50 AM	5.36	49.77	0.06	0.53
10:51 AM	5.35	49.57	0.06	0.53
10:52 AM	5.34	49.50	0.06	0.53
10:53 AM	5.30	49.53	0.06	0.53
10:54 AM	5.31	49.59	0.06	0.53
10:55 AM	5.30	49.66	0.08	0.53
10:56 AM	5.23	49.50	0.06	0.53
10:57 AM	5.24	49.12	0.06	0.53
10:58 AM	5.22	48.95	0.08	0.53
10:59 AM	5.20	48.95	0.12	0.53
11:00 AM	5.15	48.90	0.12	0.53
<b>Average</b>	<b>5.31</b>	<b>49.36</b>	<b>0.06</b>	<b>0.53</b>

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

Date: October 6, 2022  
 Start time: 11:01 AM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: TELEDYNE 200 EM  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Fuel Gas

Run # : 2  
 Location : DHDS Stack  
 Finish time : 11:21 AM  
 Serial No.: 121121-10  
 Serial No.: 433  
 Serial No.: 132  
 Serial No.: 388  
 Test Operator : Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:01 AM	5.17	48.79	0.12	0.53
11:02 AM	5.17	48.79	0.12	0.53
11:03 AM	5.09	48.81	0.12	0.53
11:04 AM	5.06	48.56	0.12	0.53
11:05 AM	5.07	48.40	0.10	0.53
11:06 AM	5.13	48.47	0.09	0.53
11:07 AM	5.19	48.67	0.12	0.53
11:08 AM	5.16	48.74	0.08	0.53
11:09 AM	5.09	48.63	0.13	0.53
11:10 AM	5.08	48.47	0.15	0.57
11:11 AM	5.07	48.51	0.14	0.70
11:12 AM	5.09	48.77	0.17	0.70
11:13 AM	5.05	49.13	0.14	0.73
11:14 AM	5.01	49.29	0.17	0.73
11:15 AM	4.98	49.29	0.17	0.73
11:16 AM	4.96	49.27	0.18	0.73
11:17 AM	5.02	49.57	0.18	0.73
11:18 AM	5.02	50.03	0.20	0.73
11:19 AM	4.95	49.95	0.18	0.73
11:20 AM	4.88	49.60	0.18	0.73
11:21 AM	4.87	49.34	0.23	0.74
Average	5.05	49.00	0.15	0.63

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

Date: October 6, 2022  
 Start time: 11:22 AM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: TELEDYNE 200 EM  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Fuel Gas

Run # : 3  
 Location : DHDS Stack  
 Finish time : 11:42 AM  
 Serial No.: 121121-10  
 Serial No.: 433  
 Serial No.: 132  
 Serial No.: 388  
 Test Operator : Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:22 AM	4.94	49.16	0.20	0.74
11:23 AM	4.99	49.24	0.20	0.74
11:24 AM	4.97	49.37	0.20	0.74
11:25 AM	4.89	49.30	0.19	0.74
11:26 AM	4.83	48.98	0.22	0.71
11:27 AM	4.84	48.83	0.18	0.74
11:28 AM	4.90	49.00	0.24	0.74
11:29 AM	4.89	49.09	0.24	0.74
11:30 AM	4.86	49.01	0.24	0.74
11:31 AM	4.83	48.92	0.24	0.74
11:32 AM	4.84	48.89	0.24	0.74
11:33 AM	4.86	49.11	0.27	0.74
11:34 AM	4.82	49.22	0.24	0.74
11:35 AM	4.85	49.16	0.24	0.74
11:36 AM	4.83	49.21	0.23	0.74
11:37 AM	4.80	49.25	0.23	0.74
11:38 AM	4.85	49.35	0.23	0.74
11:39 AM	4.88	49.43	0.21	0.74
11:40 AM	4.85	49.34	0.23	0.74
11:41 AM	4.76	49.15	0.24	0.74
11:42 AM	4.83	49.29	0.24	0.74
Average	4.86	49.16	0.23	0.74

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/GT:  
Branch 6 (Refinery) SAMPLING DATE : 27/12/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 04-05/12/2022  
RECEIVED DATE : 04/01/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 09/01/2022 OPERATOR : Mr. Song Hangchhankun  
STACK LOCATION : Gas Turbine 1 SOURCE DESCRIPTION : Combustion  
FUEL TYPE : Natural Gas

#### STACK DESCRIPTION

Height : 60.0 m Gas Velocity : 15.2 m/s  
Diameter : 2.5 m Flow rate<sup>1/</sup> : 2,549 Ncu.m/min  
Temperature : 196 °C Excess Oxygen : 13.2 %

PARAMETER	UNIT	RESULTS		STANDARD <sup>2/</sup>	REFERENCE METHODS
		13.2%O <sub>2</sub>	7%O <sub>2</sub>		
Particulate Matter	mg/Ncu.m	0.98	1.79	60.0	US EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 3-239-ท-8183

Naris Poowanpetch

(Miss Narisa Poowanpetch)

Technical Management Team

REG.NO. 3-239-ท-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.

## The Monitoring Result of Emission Concentration GAS Turbine 1

PTT Global Chemical Public Company Limited

December 27, 2022

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.29	13.29	14.65	14.41	26.32
2	13.21	13.21	14.75	14.49	26.19
3	13.22	13.21	14.22	13.95	25.22
Average	13.24	13.24	14.54	14.28	25.91

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.29	13.29	0.09	0.07	0.13
2	13.21	13.21	0.10	0.07	0.13
3	13.22	13.21	0.13	0.09	0.16
Average	13.24	13.24	0.11	0.08	0.14

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.29	13.29	160.02	160.09	292.41
2	13.21	13.21	155.13	155.20	280.53
3	13.22	13.21	158.75	158.83	287.09
Average	13.24	13.24	157.97	158.04	286.66

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

**Date:** December 27, 2022  
**Start time:** 12:45 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # : 1**  
**Location :** GAS Turbine 1  
**Finish time :** 1:05 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 49  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:45 PM	13.34	13.55	0.09	156.65
12:46 PM	13.36	13.71	0.09	157.77
12:47 PM	13.38	13.84	0.09	163.94
12:48 PM	13.35	13.97	0.09	165.06
12:49 PM	13.27	14.31	0.09	159.81
12:50 PM	13.27	14.59	0.09	156.40
12:51 PM	13.29	14.72	0.10	154.94
12:52 PM	13.30	14.94	0.09	156.06
12:53 PM	13.26	15.01	0.10	157.06
12:54 PM	13.23	15.19	0.11	155.65
12:55 PM	13.24	15.26	0.10	154.10
12:56 PM	13.29	15.21	0.09	157.98
12:57 PM	13.29	14.94	0.11	162.18
12:58 PM	13.27	14.86	0.09	163.98
12:59 PM	13.27	14.95	0.09	162.39
1:00 PM	13.29	14.86	0.09	162.68
1:01 PM	13.25	14.81	0.09	160.69
1:02 PM	13.25	14.90	0.09	158.43
1:03 PM	13.29	14.80	0.09	162.98
1:04 PM	13.31	14.55	0.09	167.01
1:05 PM	13.30	14.65	0.11	164.69
<b>Average</b>	<b>13.29</b>	<b>14.65</b>	<b>0.09</b>	<b>160.02</b>

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Date:** December 27, 2022  
**Start time:** 1:06 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # : 2**  
**Location :** GAS Turbine 1  
**Finish time :** 1:26 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 49  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
1:06 PM	13.25	14.63	0.09	160.98
1:07 PM	13.22	14.75	0.09	157.90
1:08 PM	13.27	14.77	0.09	158.03
1:09 PM	13.31	14.67	0.09	163.78
1:10 PM	13.29	14.60	0.09	163.57
1:11 PM	13.24	14.59	0.09	159.12
1:12 PM	13.23	14.77	0.10	153.78
1:13 PM	13.24	14.62	0.10	156.32
1:14 PM	13.26	14.46	0.12	158.16
1:15 PM	13.25	14.43	0.10	159.20
1:16 PM	13.22	14.60	0.10	158.70
1:17 PM	13.23	14.73	0.14	153.95
1:18 PM	13.19	14.81	0.10	151.50
1:19 PM	13.15	14.92	0.10	147.29
1:20 PM	13.13	15.01	0.11	149.99
1:21 PM	13.14	14.96	0.13	150.91
1:22 PM	13.18	14.89	0.11	152.74
1:23 PM	13.12	14.92	0.10	149.41
1:24 PM	13.11	15.05	0.09	146.20
1:25 PM	13.17	14.96	0.09	149.28
1:26 PM	13.19	14.66	0.11	156.99
<b>Average</b>	<b>13.21</b>	<b>14.75</b>	<b>0.10</b>	<b>155.13</b>

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** December 27, 2022  
**Start time:** 1:27 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # :** 3  
**Location :** GAS Turbine 1  
**Finish time :** 1:47 PM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 49  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
1:27 PM	13.10	14.67	0.13	151.03
1:28 PM	13.12	14.76	0.11	145.49
1:29 PM	13.19	14.70	0.11	152.41
1:30 PM	13.19	14.40	0.14	156.41
1:31 PM	13.16	14.42	0.11	154.28
1:32 PM	13.23	14.50	0.09	156.28
1:33 PM	13.28	14.22	0.09	164.16
1:34 PM	13.23	14.09	0.12	163.24
1:35 PM	13.20	14.30	0.14	156.45
1:36 PM	13.23	14.23	0.15	156.99
1:37 PM	13.31	14.04	0.14	165.95
1:38 PM	13.30	13.86	0.13	171.44
1:39 PM	13.24	13.87	0.14	162.20
1:40 PM	13.25	13.96	0.12	159.82
1:41 PM	13.30	13.90	0.15	164.82
1:42 PM	13.24	13.83	0.15	167.23
1:43 PM	13.21	14.00	0.15	159.36
1:44 PM	13.21	14.24	0.15	155.11
1:45 PM	13.22	14.24	0.15	153.86
1:46 PM	13.23	14.17	0.14	158.61
1:47 PM	13.17	14.23	0.11	158.61
<b>Average</b>	13.22	14.22	0.13	158.75

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

**CLIENT NAME :** PTT Global Chemical Public Co., Ltd. **REF. NO. :** PTTGC6 (Refinery)\_222010\_Cert-Stk/GT2  
**Branch 6 (Refinery)** **SAMPLING DATE :** 05/10/2022  
**SAMPLING BY :** SECOT Co., Ltd. **ANALYTICAL DATE :** 10-11/10/2022  
**RECEIVED DATE :** 10/10/2022 **SAMPLE CONDITION :** Normal  
**REPORT DATE :** 17/10/2022 **OPERATOR :** Mr. Song Hanghchwankun  
**STACK LOCATION :** Gas Turbine 2 **SOURCE DESCRIPTION :** Combustion  
**FUEL TYPE :** Natural Gas

### STACK DESCRIPTION

**Height :** 60.0 m **Gas Velocity :** 16.4 m/s  
**Diameter :** 2.5 m **Flow rate <sup>1/</sup> :** 2,811 Ncu.m/min  
**Temperature :** 178.0 °C **Excess Oxygen :** 10.2 %

PARAMETER	UNIT	RESULTS		STANDARD <sup>2/</sup>	REFERENCE METHODS
		10.2%O <sub>2</sub>	7%O <sub>2</sub>		
Particulate Matter	mg/Ncu.m	2.14	2.78	60.0	US EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-8-8183



(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-8-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.

**The Monitoring Result of Emission Concentration  
GAS Turbine 2  
PTT Global Chemical Public Company Limited  
October 5, 2022**

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

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	10.30	10.30	43.43	43.44	56.96
2	10.13	10.13	45.47	45.49	58.71
3	10.12	10.12	46.27	46.29	59.69
Average	10.19	10.18	45.06	45.07	58.46

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	10.30	10.30	0.13	0.09	0.12
2	10.13	10.13	0.13	0.09	0.12
3	10.12	10.12	0.20	0.16	0.21
Average	10.19	10.18	0.15	0.11	0.15

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	10.30	10.30	1.40	1.35	1.77
2	10.13	10.13	1.02	0.97	1.25
3	10.12	10.12	0.84	0.8	1.03
Average	10.19	10.18	1.09	1.04	1.35

Date: October 5, 2022  
 Start time: 12:30 PM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: TELEDYNE 200 EM  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Natural Gas

Run # : 1  
 Location : GAS Turbine 2  
 Finish time : 12:50 PM  
 Serial No.: 121121-10  
 Serial No.: 433  
 Serial No.: 132  
 Serial No.: 388  
 Test Operator : Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:30 PM	10.58	42.91	0.14	1.50
12:31 PM	10.59	42.86	0.13	1.68
12:32 PM	10.61	43.03	0.11	1.68
12:33 PM	10.56	43.06	0.12	1.68
12:34 PM	10.43	42.86	0.12	1.68
12:35 PM	10.34	42.55	0.13	1.68
12:36 PM	10.28	42.58	0.13	1.60
12:37 PM	10.25	42.96	0.14	1.48
12:38 PM	10.24	43.09	0.13	1.36
12:39 PM	10.23	43.28	0.13	1.28
12:40 PM	10.23	43.38	0.13	1.28
12:41 PM	10.20	43.49	0.13	1.28
12:42 PM	10.18	43.48	0.13	1.28
12:43 PM	10.18	43.41	0.14	1.28
12:44 PM	10.19	43.48	0.13	1.23
12:45 PM	10.17	43.77	0.13	1.17
12:46 PM	10.19	44.11	0.15	1.18
12:47 PM	10.22	44.25	0.14	1.28
12:48 PM	10.17	44.41	0.15	1.28
12:49 PM	10.27	44.46	0.15	1.28
12:50 PM	10.28	44.60	0.14	1.28
Average	10.30	43.43	0.13	1.40

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist



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

**Date:** October 5, 2022  
**Start time:** 12:51 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # : 2**  
**Location :** GAS Turbine 2  
**Finish time :** 1:11 PM  
**Serial No.:** 121121-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
12:51 PM	10.34	44.85	0.15	1.28
12:52 PM	10.30	44.80	0.15	1.28
12:53 PM	10.30	44.70	0.08	1.28
12:54 PM	10.30	44.78	0.09	1.28
12:55 PM	10.23	44.81	0.09	1.28
12:56 PM	10.20	44.78	0.09	1.28
12:57 PM	10.16	44.75	0.09	1.27
12:58 PM	10.13	45.04	0.09	1.08
12:59 PM	10.10	45.17	0.14	1.08
1:00 PM	10.16	45.54	0.15	1.08
1:01 PM	10.16	45.73	0.15	1.08
1:02 PM	10.15	45.85	0.15	0.97
1:03 PM	10.09	45.84	0.15	0.88
1:04 PM	10.07	45.96	0.14	0.88
1:05 PM	10.01	45.78	0.15	0.88
1:06 PM	9.98	45.39	0.15	0.88
1:07 PM	9.92	45.62	0.15	0.86
1:08 PM	9.94	46.03	0.15	0.68
1:09 PM	9.98	46.50	0.15	0.68
1:10 PM	10.08	46.53	0.17	0.68
1:11 PM	10.09	46.51	0.16	0.68
<b>Average</b>	10.13	45.47	0.13	1.02

Signature 

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Date:** October 5, 2022  
**Start time:** 1:12 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** TELEDYNE 200 EM  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # : 3**  
**Location :** GAS Turbine 2  
**Finish time :** 1:32 PM  
**Serial No.:** 121121-10  
**Serial No.:** 433  
**Serial No.:** 132  
**Serial No.:** 388  
**Test Operator :** Kittipong T.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
1:12 PM	10.09	46.30	0.15	0.83
1:13 PM	10.11	46.20	0.18	0.88
1:14 PM	10.10	46.00	0.16	0.88
1:15 PM	10.09	45.46	0.21	0.88
1:16 PM	10.13	45.56	0.20	0.88
1:17 PM	10.16	46.11	0.20	0.88
1:18 PM	10.16	46.51	0.21	0.88
1:19 PM	10.16	46.37	0.18	0.88
1:20 PM	10.16	46.45	0.20	0.88
1:21 PM	10.18	46.43	0.21	0.88
1:22 PM	10.13	46.44	0.20	0.88
1:23 PM	10.15	46.40	0.20	0.87
1:24 PM	10.16	46.33	0.20	0.87
1:25 PM	10.16	46.36	0.20	0.87
1:26 PM	10.11	46.24	0.20	0.87
1:27 PM	10.05	46.26	0.22	0.87
1:28 PM	10.05	45.97	0.20	0.87
1:29 PM	10.07	46.10	0.20	0.79
1:30 PM	10.06	46.47	0.20	0.67
1:31 PM	10.11	46.86	0.20	0.67
1:32 PM	10.23	46.85	0.20	0.72
<b>Average</b>	10.12	46.27	0.20	0.84

Signature 

( Miss Katesarin Vorradetwittaya )

Environmental Scientist



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

### STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/GT3  
Branch 6 (Refinery) SAMPLING DATE : 06/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 10-11/10/2022  
RECEIVED DATE : 10/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 17/10/2022 OPERATOR : Mr. Song Hangchawankun  
STACK LOCATION : Gas Turbine 3 SOURCE DESCRIPTION : Combustion  
FUEL TYPE : Natural Gas

#### STACK DESCRIPTION

Height : 60.0 m Gas Velocity : 17.1 m/s  
Diameter : 2.5 m Flow rate <sup>1/</sup> : 3,037 Nm<sup>3</sup>/min  
Temperature : 163.5 °C Excess Oxygen : 10.2 %

PARAMETER	UNIT	RESULTS		STANDARD <sup>2/</sup>	REFERENCE METHODS
		10.2%O <sub>2</sub>	7%O <sub>2</sub>		
Particulate Matter	mg/Ncu.m	1.48	1.93	60.0	US EPA Method 5

Phatchara Samanchan  
(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-9-8183

Narisa Poowasanpetch  
(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-9-6419

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

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

3. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.

### The Monitoring Result of Emission Concentration GAS Turbine 3 PTT Global Chemical Public Company Limited October 6, 2022

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O <sub>2</sub>	Corrected Gas Conc @7% O <sub>2</sub>
1	10.18	10.22	29.69	29.68	38.63
2	10.18	10.21	29.09	29.08	37.81
3	10.15	10.17	28.51	28.50	36.92
Average	10.17	10.20	29.09	29.09	37.79

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O <sub>2</sub>	Corrected Gas Conc @7% O <sub>2</sub>
1	10.18	10.22	0.14	0.09	0.12
2	10.18	10.21	0.14	0.10	0.13
3	10.15	10.17	0.14	0.10	0.13
Average	10.17	10.20	0.14	0.10	0.13

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O <sub>2</sub>	Corrected Gas Conc @7% O <sub>2</sub>
1	10.18	10.22	34.30	34.29	44.63
2	10.18	10.21	33.26	33.25	43.23
3	10.15	10.17	32.66	32.65	42.30
Average	10.17	10.20	33.40	33.40	43.38

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

**Run # : 1**

Date: October 6, 2022  
 Start time: 10:50 AM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: API 200 AH  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Natural Gas

Location : GAS Turbine 3  
 Finish time : 11:10 AM  
 Serial No.: 071023-47  
 Serial No.: 342  
 Serial No.: 060  
 Serial No.: 365  
 Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
10:50 AM	10.27	29.52	0.13	36.02
10:51 AM	10.35	29.58	0.14	35.92
10:52 AM	10.39	29.49	0.12	36.02
10:53 AM	10.33	29.66	0.14	35.49
10:54 AM	10.27	29.67	0.14	35.12
10:55 AM	10.24	29.98	0.13	34.79
10:56 AM	10.16	29.96	0.14	34.87
10:57 AM	10.15	29.79	0.14	34.66
10:58 AM	10.13	29.54	0.14	34.32
10:59 AM	10.04	29.77	0.14	33.49
11:00 AM	10.09	30.00	0.14	33.15
11:01 AM	10.10	29.93	0.14	33.14
11:02 AM	10.07	29.98	0.14	33.12
11:03 AM	10.05	30.21	0.14	33.02
11:04 AM	10.09	29.89	0.14	33.52
11:05 AM	10.18	29.79	0.14	33.96
11:06 AM	10.16	29.31	0.13	34.24
11:07 AM	10.21	29.46	0.14	34.74
11:08 AM	10.18	29.22	0.14	35.14
11:09 AM	10.14	29.36	0.14	34.47
11:10 AM	10.23	29.32	0.14	31.00
Average	10.18	29.69	0.14	34.30

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Run # : 2**

Date: October 6, 2022  
 Start time: 11:11 AM  
 O<sub>2</sub> instrument Model: AMI 70  
 NO<sub>x</sub> instrument Model: API 200 AH  
 SO<sub>2</sub> instrument Model: API 100 AH  
 CO instrument Model: THERMO 48 C  
 Fuel Type : Natural Gas

Location : GAS Turbine 3  
 Finish time : 11:31 AM  
 Serial No.: 071023-47  
 Serial No.: 342  
 Serial No.: 060  
 Serial No.: 365  
 Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:11 AM	10.30	29.06	0.13	31.62
11:12 AM	10.33	29.20	0.12	35.04
11:13 AM	10.33	29.02	0.14	35.38
11:14 AM	10.31	29.07	0.13	34.53
11:15 AM	10.31	29.12	0.12	34.84
11:16 AM	10.37	28.90	0.14	31.83
11:17 AM	10.31	28.98	0.14	26.49
11:18 AM	10.27	29.29	0.14	35.11
11:19 AM	10.22	29.27	0.14	35.32
11:20 AM	10.15	29.09	0.14	32.14
11:21 AM	10.17	28.93	0.14	33.56
11:22 AM	10.16	28.88	0.14	34.41
11:23 AM	10.07	28.85	0.14	34.15
11:24 AM	10.01	29.19	0.14	33.11
11:25 AM	9.96	29.47	0.14	32.56
11:26 AM	10.06	29.57	0.13	32.57
11:27 AM	10.08	28.93	0.14	33.65
11:28 AM	10.02	28.52	0.14	34.21
11:29 AM	10.02	29.04	0.14	33.54
11:30 AM	10.08	29.31	0.14	33.23
11:31 AM	10.16	29.13	0.14	33.13
Average	10.18	29.09	0.14	33.26

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 6, 2022  
**Start time:** 11:32 AM  
**O<sub>2</sub> instrument Model:** AMI 70  
**NO<sub>x</sub> instrument Model:** API 200 AH  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**CO instrument Model:** THERMO 48 C  
**Fuel Type :** Natural Gas

**Run # :** 3  
**Location :** GAS Turbine 3  
**Finish time :** 11:52 AM  
**Serial No.:** 071023-47  
**Serial No.:** 342  
**Serial No.:** 060  
**Serial No.:** 365  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)
11:32 AM	10.19	28.90	0.14	33.61
11:33 AM	10.22	28.93	0.12	33.59
11:34 AM	10.33	28.54	0.14	34.91
11:35 AM	10.36	28.22	0.13	35.01
11:36 AM	10.35	28.42	0.14	33.93
11:37 AM	10.51	28.33	0.13	33.63
11:38 AM	10.48	28.11	0.13	34.73
11:39 AM	10.41	28.66	0.13	29.54
11:40 AM	10.37	28.92	0.14	30.40
11:41 AM	10.34	28.88	0.14	32.89
11:42 AM	10.35	28.80	0.14	32.82
11:43 AM	10.33	28.60	0.14	33.11
11:44 AM	10.29	28.73	0.14	32.79
11:45 AM	10.21	28.66	0.13	33.11
11:46 AM	9.62	28.34	0.15	32.65
11:47 AM	9.48	28.47	0.15	32.41
11:48 AM	9.81	28.25	0.14	32.69
11:49 AM	9.91	28.15	0.14	32.83
11:50 AM	9.87	28.25	0.14	31.31
11:51 AM	9.90	28.14	0.13	27.05
11:52 AM	9.89	28.38	0.12	32.77
<b>Average</b>	10.15	28.51	0.14	32.66

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

**CLIENT NAME :** PTT Global Chemical Public Co., Ltd. **REF. NO. :** PTTGC6 (Refinery)\_222010\_Cert-Stk/Scrubber  
**Branch 6 (Refinery)** **SAMPLING DATE :** 10/10/2022  
**SAMPLING BY :** SECOT Co., Ltd. **ANALYTICAL DATE :** 11/10/2022  
**RECEIVED DATE :** 11/10/2022 **SAMPLE CONDITION :** Normal  
**REPORT DATE :** 22/10/2022 **OPERATOR :** Mr. Song Hangchhankun  
**STACK LOCATION :** Inlet Sulfur Scrubber **SOURCE DESCRIPTION :** Process

### STACK DESCRIPTION

**Height :** 5.0 m **Gas Velocity :** 2.4 m/s  
**Diameter :** 0.5 m **Flow rate <sup>1/</sup> :** 35.4 Ncu.m/min  
**Temperature :** 60.0 °C **Excess Oxygen :** 20.1 %

PARAMETER	UNIT	ND	RESULTS	STANDARD	REFERENCE METHOD
		Non-detectable	Inlet		
Hydrogen Sulfide (H <sub>2</sub> S)	ppm	<0.30	ND	-	US EPA Method 16

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

Narisara 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. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

**The Monitoring Result of Emission Concentration**  
**Sulfur scrubber (Inlet)**  
**PTT Global Chemical Public Company Limited**  
**October 10, 2022**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)	
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2
1	20.03	20.01	1.31	1.27
2	20.13	20.14	1.30	1.26
3	20.14	20.19	1.26	1.21
<b>Average</b>	<b>20.10</b>	<b>20.11</b>	<b>1.29</b>	<b>1.25</b>

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

Date: October 10, 2022

Start time: 3:10 PM

O<sub>2</sub> instrument Model: AMI 70

SO<sub>2</sub> instrument Model: API 100 AH

Fuel Type : -

Run # : 1

Location : Sulfur scrubber (Inlet)

Finish time : 3:30 PM

Serial No.: 111117-2

Serial No.: 058

Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:10 PM	19.88	1.47
3:11 PM	19.88	1.41
3:12 PM	19.90	1.33
3:13 PM	19.95	1.25
3:14 PM	19.96	1.26
3:15 PM	19.98	1.17
3:16 PM	19.99	1.22
3:17 PM	20.01	1.32
3:18 PM	20.01	1.37
3:19 PM	20.03	1.43
3:20 PM	20.04	1.33
3:21 PM	20.06	1.34
3:22 PM	20.06	1.17
3:23 PM	20.08	1.15
3:24 PM	20.09	1.20
3:25 PM	20.10	1.25
3:26 PM	20.11	1.42
3:27 PM	20.11	1.36
3:28 PM	20.11	1.39
3:29 PM	20.11	1.36
3:30 PM	20.11	1.33
<b>Average</b>	<b>20.03</b>	<b>1.31</b>

Signature

( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

Date: October 10, 2022  
 Start time: 3:31 PM  
 O<sub>2</sub> instrument Model: AMI 70  
 SO<sub>2</sub> instrument Model: API 100 AH  
 Fuel Type : -

Run # : 2  
 Location : Sulfur scrubber (Inlet)  
 Finish time : 3:51 PM  
 Serial No.: 111117-2  
 Serial No.: 058  
 Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:31 PM	20.12	1.32
3:32 PM	20.13	1.21
3:33 PM	20.13	1.21
3:34 PM	20.13	1.20
3:35 PM	20.13	1.17
3:36 PM	20.13	1.32
3:37 PM	20.13	1.37
3:38 PM	20.13	1.26
3:39 PM	20.13	1.35
3:40 PM	20.13	1.32
3:41 PM	20.13	1.27
3:42 PM	20.13	1.22
3:43 PM	20.14	1.28
3:44 PM	20.13	1.37
3:45 PM	20.14	1.45
3:46 PM	20.13	1.45
3:47 PM	20.13	1.34
3:48 PM	20.14	1.25
3:49 PM	20.14	1.24
3:50 PM	20.14	1.27
3:51 PM	20.14	1.33
Average	20.13	1.30

Signature   
 ( Miss Katesarin Vorradetwittaya )  
 Environmental Scientist

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

Date: October 10, 2022  
 Start time: 3:52 PM  
 O<sub>2</sub> instrument Model: AMI 70  
 SO<sub>2</sub> instrument Model: API 100 AH  
 Fuel Type : -

Run # : 3  
 Location : Sulfur scrubber (Inlet)  
 Finish time : 4:12 PM  
 Serial No.: 111117-2  
 Serial No.: 058  
 Test Operator : Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:52 PM	20.14	1.40
3:53 PM	20.14	1.27
3:54 PM	20.14	1.25
3:55 PM	20.14	1.19
3:56 PM	20.14	1.20
3:57 PM	20.14	1.23
3:58 PM	20.14	1.20
3:59 PM	20.14	1.35
4:00 PM	20.14	1.37
4:01 PM	20.14	1.27
4:02 PM	20.14	1.24
4:03 PM	20.14	1.10
4:04 PM	20.14	1.26
4:05 PM	20.14	1.22
4:06 PM	20.14	1.23
4:07 PM	20.14	1.30
4:08 PM	20.14	1.39
4:09 PM	20.14	1.36
4:10 PM	20.14	1.28
4:11 PM	20.15	1.24
4:12 PM	20.14	1.19
Average	20.14	1.26

Signature   
 ( Miss Katesarin Vorradetwittaya )  
 Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

#### STACK EMISSION ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REF. NO. : PTTGC6 (Refinery)\_222010\_Cert-Stk/Scrubber  
Branch 6 (Refinery) SAMPLING DATE : 10/10/2022  
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 11/10/2022  
RECEIVED DATE : 11/10/2022 SAMPLE CONDITION : Normal  
REPORT DATE : 22/10/2022 OPERATOR : Mr. Song Hangchhwankun  
STACK LOCATION : Out Sulfur Scrubber SOURCE DESCRIPTION : Process

#### STACK DESCRIPTION

Height : 5.0 m Gas Velocity : 2.5 m/s  
Diameter : 0.5 m Flow rate<sup>1/</sup> : 38.5 Ncu.m/min  
Temperature : 40.0 °C Excess Oxygen : 20.5 %

PARAMETER	UNIT	ND	RESULTS	STANDARD <sup>2/</sup>	REFERENCE METHOD
		Non-detectable	Outlet		
Hydrogen Sulfide (H <sub>2</sub> S)	ppm	<0.30	ND	60	US EPA Method 16

*Sudaporn Soonthorn*

(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. <sup>1/</sup> At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. <sup>2/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2554.

### The Monitoring Result of Emission Concentration Sulfur scrubber (Outlet) PTT Global Chemical Public Company Limited October 10, 2022

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)	
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O <sub>2</sub>
1	20.46	20.46	0.59	0.55
2	20.48	20.48	0.57	0.54
3	20.50	20.50	0.53	0.51
Average	20.48	20.48	0.56	0.53

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

**Date:** October 10, 2022  
**Start time:** 3:10 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**Fuel Type :** -

**Run # : 1**  
**Location :** Sulfur scrubber (Outlet)  
**Finish time :** 3:30 PM  
**Serial No.:** 071023-47  
**Serial No.:** 060  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:10 PM	20.48	0.56
3:11 PM	20.48	0.51
3:12 PM	20.48	0.49
3:13 PM	20.48	0.52
3:14 PM	20.47	0.55
3:15 PM	20.47	0.48
3:16 PM	20.47	0.61
3:17 PM	20.46	0.44
3:18 PM	20.45	0.48
3:19 PM	20.45	0.64
3:20 PM	20.45	0.67
3:21 PM	20.45	0.63
3:22 PM	20.45	0.67
3:23 PM	20.45	0.63
3:24 PM	20.45	0.63
3:25 PM	20.46	0.66
3:26 PM	20.45	0.64
3:27 PM	20.45	0.68
3:28 PM	20.45	0.60
3:29 PM	20.45	0.64
3:30 PM	20.45	0.64
<b>Average</b>	20.46	0.59

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist

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

**Date:** October 10, 2022  
**Start time:** 3:31 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**Fuel Type :** -

**Run # : 2**  
**Location :** Sulfur scrubber (Outlet)  
**Finish time :** 3:51 PM  
**Serial No.:** 071023-47  
**Serial No.:** 060  
**Test Operator :** Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:31 PM	20.45	0.68
3:32 PM	20.45	0.62
3:33 PM	20.45	0.57
3:34 PM	20.45	0.58
3:35 PM	20.45	0.59
3:36 PM	20.45	0.59
3:37 PM	20.46	0.54
3:38 PM	20.47	0.58
3:39 PM	20.47	0.58
3:40 PM	20.47	0.61
3:41 PM	20.47	0.58
3:42 PM	20.49	0.58
3:43 PM	20.49	0.56
3:44 PM	20.49	0.50
3:45 PM	20.50	0.53
3:46 PM	20.52	0.48
3:47 PM	20.53	0.59
3:48 PM	20.53	0.52
3:49 PM	20.53	0.59
3:50 PM	20.53	0.55
3:51 PM	20.53	0.56
<b>Average</b>	20.48	0.57

Signature



( Miss Katesarin Vorradetwittaya )

Environmental Scientist



# PTT Global Chemical Public Company Limited

## EMISSION TEST RESULT

**Date:** October 10, 2022  
**Start time:** 3:52 PM  
**O<sub>2</sub> instrument Model:** AMI 70  
**SO<sub>2</sub> instrument Model:** API 100 AH  
**Fuel Type:** -

**Run #:** 3  
**Location:** Sulfur scrubber (Outlet)  
**Finish time:** 4:12 PM  
**Serial No.:** 071023-47  
**Serial No.:** 060  
**Test Operator:** Song H.

Time, min	O <sub>2</sub> (%)	SO <sub>2</sub> (ppm)
3:52 PM	20.54	0.54
3:53 PM	20.53	0.54
3:54 PM	20.52	0.46
3:55 PM	20.53	0.52
3:56 PM	20.53	0.57
3:57 PM	20.53	0.51
3:58 PM	20.53	0.56
3:59 PM	20.53	0.54
4:00 PM	20.53	0.56
4:01 PM	20.53	0.52
4:02 PM	20.53	0.58
4:03 PM	20.53	0.51
4:04 PM	20.44	0.49
4:05 PM	20.45	0.56
4:06 PM	20.46	0.51
4:07 PM	20.46	0.58
4:08 PM	20.47	0.53
4:09 PM	20.47	0.58
4:10 PM	20.48	0.52
4:11 PM	20.47	0.49
4:12 PM	20.48	0.53
<b>Average</b>	20.50	0.53

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

### STACK EMISSION ANALYSIS REPORT

**CLIENT NAME** : PTT Global Chemical Public Co., Ltd. **REF. NO.** : PTTGC6 (Refinery)\_222010\_Cert-Stk/VRU RTF  
**Branch 6 (Refinery)** **SAMPLING DATE** : 10/10/2022  
**SAMPLING BY** : SECOT Co., Ltd. **ANALYTICAL DATE** : 11, 17-18/10/2022  
**RECEIVED DATE** : 11/10/2022 **SAMPLE CONDITION** : Normal  
**REPORT DATE** : 22/10/2022 **OPERATOR** : Mr. Song Hangchhankun  
**STACK LOCATION** : VRU Stack of Tank Farm **SOURCE DESCRIPTION** : Process

PARAMETER	UNIT	ND	RESULT*			STANDARD	REFERENCE METHOD
		Non-detectable	Inlet (V5202)	Outlet (V5204)	Outlet (V5205)		
TVOC as propane	ppm	-	129,975	20,125	26,600	-	US EPA Method
	mg/l	-	234	36.30	47.98	-	25A
Benzene	ppm	-	4,108	0.11	0.41	-	US EPA Method 18
	mg/l	-	13.12	0.0004	0.001	-	

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

Narisa Poowasanpet

(Miss Narisa Poowasanpet)

Technical Management Team

- Remark:**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. \* At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-5355 E-mail : envserv@secot.co.th

# STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REF. NO.	: PTTGC6 (Refinery)_222010_Cert-Stk/VRU RTL
	Branch 6 (Refinery)	SAMPLING DATE	: 10/10/2022
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 11, 17-18/10/2022
RECEIVED DATE	: 11/10/2022	SAMPLE CONDITION	: Normal
REPORT DATE	: 22/10/2022	OPERATOR	: Mr. Song Hangchhwankun
STACK LOCATION	: VRU Stack of Truck Loading	SOURCE DESCRIPTION	: Process

PARAMETER	UNIT	ND	RESULT*		ASSIGN	STANDARD <sup>2/</sup>	REFERENCE
		Non-detectable	Inlet	Outlet	VALUE <sup>1/</sup>		METHOD
TVOC as propane	ppm	-	43,275	535	-	-	US EPA Method
	mg/l	-	78.05	0.96	15.0	17.0	25A
Benzene	ppm	-	308	1.79	-	-	US EPA Method
	mg/l	-	0.98	0.01	0.21	-	18

*Sudaporn Soonthorn*

(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. \* At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
  4. <sup>1/</sup> The assign value in EIA report.
  5. <sup>2/</sup> Notification of the Ministry of Natural Resources and Environment B.E.2553.

## ระดับเสียง

---



## Noise Monitoring Result : Community Noise

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community-1	Monitor Period : 04-11 Oct 2022
SLM Model : Cirrus CR152B	Serial No : G301024
Site Operator : Mr.Supakit Tamooka	

Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 24 Dec 2021
SLM Reading / Adjust dB(A) : 93.7/0.1	Expire Date : 23 Dec 2022
Cal Sheet No.: CR-515-2022-120	


Time	Equivalent Sound Pressure Level (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	56.3	50.8	50.6	50.4	50.9	54.9	48.4
14:00 - 15:00	50.3	50.6	51.3	52.2	51.8	52.3	49.0
15:00 - 16:00	50.7	49.4	52.5	53.1	53.9	52.9	49.8
16:00 - 17:00	50.6	52.1	53.3	55.5	50.9	57.7	51.1
17:00 - 18:00	52.0	54.3	53.2	52.7	52.3	52.5	51.6
18:00 - 19:00	53.1	53.3	52.8	52.7	52.4	56.4	54.9
19:00 - 20:00	50.7	51.9	50.7	49.6	55.1	56.8	55.3
20:00 - 21:00	50.1	51.0	50.4	50.1	50.4	55.5	58.1
21:00 - 22:00	50.6	49.6	52.1	48.7	48.2	50.6	57.8
22:00 - 23:00	48.5	51.2	48.4	48.5	47.2	49.9	54.9
23:00 - 00:00	49.8	49.0	50.2	47.9	47.6	52.4	53.9
00:00 - 01:00	50.2	47.2	50.2	50.4	47.0	50.2	57.9
01:00 - 02:00	50.6	49.0	47.5	47.4	45.8	49.7	53.9
02:00 - 03:00	50.2	45.0	47.3	47.8	51.0	59.3	53.8
03:00 - 04:00	47.8	45.1	47.2	46.8	48.3	54.5	63.8
04:00 - 05:00	49.8	47.5	48.2	49.7	45.4	53.4	64.0
05:00 - 06:00	52.7	50.7	52.7	50.8	50.0	52.4	60.2
06:00 - 07:00	53.7	52.9	52.6	53.3	51.6	53.0	57.9
07:00 - 08:00	55.6	55.2	54.1	55.4	52.4	53.9	57.4
08:00 - 09:00	53.9	51.9	52.0	50.7	50.1	59.1	56.1
09:00 - 10:00	51.7	51.5	49.7	49.2	48.0	56.9	54.5
10:00 - 11:00	49.9	48.0	49.1	50.0	48.1	57.3	51.2
11:00 - 12:00	50.6	52.6	49.1	47.5	48.9	56.0	50.4
12:00 - 13:00	49.6	53.7	48.7	50.2	49.6	50.0	49.8


Leq(24)*	51.7	51.3	51.0	51.1	50.6	55.0	57.1
Ldn	57.4	56.3	56.6	56.5	55.6	60.6	65.6
Lmax **	78.4	82.0	77.1	78.8	78.7	83.9	87.3

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

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

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

  
 (Miss Katesarin Vorradetwittaya)  
 Environmental Scientist

  
 (Miss Preeda Somjai)  
 Technical Management Team



## Noise Monitoring Result : Background Noise

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community-1	Monitor Period : 04-11 Oct 2022
SLM Model : Cirrus CR152B	Serial No : G301024
Site Operator : Mr.Supakit Tamooka	


Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 24 Dec 2021
SLM Reading / Adjust dB(A) : 93.7/0.1	Expire Date : 23 Dec 2022
Cal Sheet No.: CR-515-2022-120	

Time	L90 (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	51.9	47.1	47.6	46.8	48.8	48.5	44.6
14:00 - 15:00	46.8	46.9	48.7	50.6	50.2	50.8	46.4
15:00 - 16:00	46.9	46.5	50.4	51.2	50.6	50.9	46.6
16:00 - 17:00	47.1	48.2	51.3	50.8	48.0	48.5	47.4
17:00 - 18:00	48.8	50.2	49.8	49.6	50.8	50.2	48.1
18:00 - 19:00	49.7	50.5	45.7	49.1	50.6	51.5	49.6
19:00 - 20:00	47.1	50.2	46.8	45.6	50.8	55.6	53.1
20:00 - 21:00	48.6	49.7	47.0	43.6	46.5	48.1	52.7
21:00 - 22:00	49.0	48.1	47.5	44.6	45.9	49.0	54.6
22:00 - 23:00	47.1	47.7	46.0	44.9	44.4	48.4	53.3
23:00 - 00:00	48.5	46.4	47.5	46.0	44.9	47.6	52.4
00:00 - 01:00	48.1	45.7	46.9	45.9	45.1	47.6	53.4
01:00 - 02:00	48.8	45.5	46.7	44.5	43.8	46.5	52.0
02:00 - 03:00	48.6	43.2	45.2	45.4	43.5	55.1	51.3
03:00 - 04:00	46.3	43.5	46.1	45.7	42.6	52.5	52.6
04:00 - 05:00	46.0	44.2	46.5	46.7	43.0	49.8	60.0
05:00 - 06:00	47.6	46.9	47.6	47.5	44.5	48.5	56.6
06:00 - 07:00	50.9	48.7	48.2	49.7	46.3	49.4	51.9
07:00 - 08:00	51.5	49.9	48.6	49.5	46.6	49.6	51.9
08:00 - 09:00	48.6	47.6	46.6	46.4	45.9	51.2	50.3
09:00 - 10:00	48.1	45.6	45.1	45.3	44.7	52.5	49.0
10:00 - 11:00	46.4	45.1	45.8	45.7	44.5	50.3	47.4
11:00 - 12:00	45.7	46.0	46.5	45.0	46.9	47.0	47.2
12:00 - 13:00	47.2	49.7	46.2	46.3	47.7	45.2	46.8

L90(avg)*	48.5	47.7	47.6	47.5	47.3	50.5	52.4
-----------	------	------	------	------	------	------	------

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

  
 (Miss Katesarin Vorradetwittaya)  
 Environmental Scientist

  
 (Miss Preeda Somjai)  
 Technical Management Team



## Noise Monitoring Result : Community Noise

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community-2

Monitor Period : 04-11 Oct 2022

SLM Model : Cirrus CR162B

Serial No : G302740

Site Operator : Mr.Supakit Tamooka

Calibrator Model : Cirrus CR:515

Serial No : 94296

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 93.7/0.2

Expire Date : 23 Dec 2022

Cal Sheet No.: CR-515-2022-120

Time	Equivalent Sound Pressure Level (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	49.9	50.3	49.6	47.6	47.9	46.4	48.0
14:00 - 15:00	51.5	50.4	51.1	46.4	47.7	49.5	48.3
15:00 - 16:00	56.1	51.0	49.1	55.8	48.6	49.4	48.8
16:00 - 17:00	50.0	52.6	49.7	59.8	49.3	68.0	50.7
17:00 - 18:00	61.2	61.8	61.8	64.1	49.8	61.0	60.4
18:00 - 19:00	52.5	48.4	49.2	48.5	48.4	52.6	62.0
19:00 - 20:00	50.5	47.4	55.2	47.4	48.8	63.6	62.9
20:00 - 21:00	50.5	46.9	54.8	49.4	47.3	63.1	60.7
21:00 - 22:00	50.2	47.5	56.7	49.5	46.0	62.6	60.0
22:00 - 23:00	49.0	52.7	47.2	45.6	46.0	60.8	58.2
23:00 - 00:00	48.3	48.7	45.4	45.6	45.3	63.1	56.6
00:00 - 01:00	47.3	47.1	45.8	45.7	45.6	61.0	61.3
01:00 - 02:00	47.0	49.2	46.1	46.0	44.4	61.9	53.4
02:00 - 03:00	48.3	48.5	45.6	45.1	46.8	68.8	48.0
03:00 - 04:00	50.6	47.7	45.3	45.8	56.3	61.1	47.5
04:00 - 05:00	52.1	47.6	45.8	45.5	60.1	62.3	46.9
05:00 - 06:00	53.9	52.3	50.5	50.9	51.6	55.3	47.8
06:00 - 07:00	50.5	49.1	49.8	47.6	47.7	53.7	52.8
07:00 - 08:00	54.4	50.3	50.5	48.1	47.0	56.5	48.4
08:00 - 09:00	50.6	52.0	48.2	48.0	46.7	67.3	47.7
09:00 - 10:00	52.0	55.0	47.3	48.1	47.7	59.1	47.1
10:00 - 11:00	53.0	49.6	48.3	50.8	48.1	53.7	46.7
11:00 - 12:00	53.2	51.4	48.8	49.5	49.2	49.6	47.8
12:00 - 13:00	55.0	53.5	46.7	47.7	48.1	53.2	48.4

Leq (24)*	53.0	52.4	52.2	53.4	50.7	62.1	56.4
Ldn	57.5	56.9	55.4	55.8	59.1	69.1	62.1
Lmax **	89.6	83.0	81.6	81.9	78.5	87.1	81.8

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

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Noise Monitoring Result : Background Noise

### MTR-PTTGC6-Refinery

Location : Takuan-Ao Pradu Community-2

Monitor Period : 04-11 Oct 2022

SLM Model : Cirrus CR162B

Serial No : G302740

Site Operator : Mr.Supakit Tamooka

Calibrator Model : Cirrus CR:515

Serial No : 94296

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 93.7/0.2

Expire Date : 23 Dec 2022

Cal Sheet No.: CR-515-2022-120

Time	L90 (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
13:00 - 14:00	45.9	48.2	47.3	45.8	46.4	44.4	46.6
14:00 - 15:00	47.5	47.5	46.8	44.7	45.6	45.3	46.4
15:00 - 16:00	46.8	48.2	45.7	47.4	45.4	44.8	46.1
16:00 - 17:00	46.5	46.6	46.6	48.4	48.0	48.9	46.8
17:00 - 18:00	45.4	45.9	45.5	46.1	44.6	48.0	47.8
18:00 - 19:00	48.5	44.3	44.1	44.3	43.9	46.2	57.4
19:00 - 20:00	48.2	46.1	49.7	44.9	45.7	60.9	61.8
20:00 - 21:00	48.7	46.0	51.1	45.2	45.1	58.4	58.1
21:00 - 22:00	48.2	45.5	48.7	44.7	44.5	58.7	58.4
22:00 - 23:00	47.1	46.4	45.4	44.6	44.4	58.3	56.9
23:00 - 00:00	46.0	46.2	44.7	44.3	44.0	58.4	54.7
00:00 - 01:00	45.4	45.7	44.7	43.8	44.1	57.7	55.5
01:00 - 02:00	44.3	45.4	45.3	45.2	43.2	58.0	49.5
02:00 - 03:00	44.3	45.5	44.8	43.6	43.2	62.3	44.7
03:00 - 04:00	44.3	45.0	44.7	44.1	43.3	59.3	46.4
04:00 - 05:00	45.6	44.9	44.6	43.7	43.4	57.2	45.4
05:00 - 06:00	46.3	45.3	45.2	44.5	43.8	50.5	46.4
06:00 - 07:00	47.7	46.6	46.9	45.7	44.4	47.7	46.2
07:00 - 08:00	48.6	47.6	46.8	46.4	44.5	48.7	46.1
08:00 - 09:00	47.9	47.6	45.4	45.7	43.8	58.3	44.4
09:00 - 10:00	48.5	47.5	44.7	45.7	44.9	54.9	44.5
10:00 - 11:00	48.8	44.9	44.4	47.5	45.5	46.5	43.8
11:00 - 12:00	47.0	46.4	44.7	45.7	45.0	44.6	44.8
12:00 - 13:00	50.1	48.2	44.7	45.7	45.2	47.4	45.0
L90(avg)*	47.3	46.5	46.4	45.5	44.8	56.2	53.4

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Noise Monitoring Result : Community Noise

### MTR-PTTGC6-Refinery

Location : North of Refinery      Monitor Period : 04-11 Oct 2022  
SLM Model : Cirrus CR162B      Serial No : G302742  
Site Operator : Mr.Supakit Tamooka

Calibrator Model : Cirrus CR:515      Serial No : 94296  
Calibration Ref dB(A) : 94.0      Certified Date : 24 Dec 2021  
SLM Reading / Adjust dB(A) : 93.7/0.1      Expire Date : 23 Dec 2022  
Cal Sheet No.: CR-515-2022-120

Time	Equivalent Sound Pressure Level (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
10:00 - 11:00	66.2	65.5	65.2	65.4	65.4	65.0	65.8
11:00 - 12:00	65.9	66.1	65.5	65.2	65.2	66.1	65.5
12:00 - 13:00	65.3	65.2	65.9	65.1	65.1	65.4	65.0
13:00 - 14:00	65.6	65.6	66.0	65.9	65.9	65.3	65.4
14:00 - 15:00	65.3	65.7	65.9	65.9	65.9	65.5	65.6
15:00 - 16:00	65.3	65.6	66.2	65.4	65.4	66.0	65.6
16:00 - 17:00	65.9	65.5	66.3	65.7	65.7	65.8	65.6
17:00 - 18:00	65.8	65.7	65.9	65.8	65.8	65.9	65.9
18:00 - 19:00	65.8	65.6	65.5	66.0	66.0	65.9	65.6
19:00 - 20:00	65.6	65.6	65.3	65.4	65.4	65.4	65.8
20:00 - 21:00	65.5	65.6	65.4	65.3	65.2	65.4	66.3
21:00 - 22:00	65.5	65.7	65.7	65.2	65.2	65.5	66.1
22:00 - 23:00	65.5	65.6	65.5	65.2	65.2	65.4	65.9
23:00 - 00:00	65.5	65.8	65.6	65.1	65.1	65.7	65.2
00:00 - 01:00	65.5	65.9	65.6	65.2	65.2	65.8	65.3
01:00 - 02:00	65.5	65.7	65.5	65.3	65.3	65.5	65.4
02:00 - 03:00	65.6	65.4	65.4	65.3	65.3	66.4	65.8
03:00 - 04:00	65.6	65.3	65.4	65.3	65.3	66.0	65.5
04:00 - 05:00	65.2	65.3	65.3	65.4	65.4	65.7	65.6
05:00 - 06:00	65.5	65.3	65.2	65.2	65.2	65.4	65.5
06:00 - 07:00	65.9	65.5	65.2	65.4	65.4	65.5	65.5
07:00 - 08:00	65.8	65.3	65.1	65.4	65.4	65.4	65.4
08:00 - 09:00	65.6	65.1	64.9	64.9	64.9	66.5	65.3
09:00 - 10:00	67.2	65.3	65.1	65.1	65.0	66.1	65.3

Leq(24)*	65.7	65.5	65.5	65.4	65.4	65.7	65.6
Ldn	72.0	71.9	71.9	71.7	71.7	72.1	72.0
Lmax **	80.3	80.3	75.1	77.3	77.3	79.4	78.0

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

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team



## Noise Monitoring Result : Background Noise

### MTR-PTTGC6-Refinery

Location : North of Refinery      Monitor Period : 04-11 Oct 2022  
SLM Model : Cirrus CR162B      Serial No : G302742  
Site Operator : Mr.Supakit Tamooka

Calibrator Model : Cirrus CR:515      Serial No : 94296  
Calibration Ref dB(A) : 94.0      Certified Date : 24 Dec 2021  
SLM Reading / Adjust dB(A) : 93.7/0.1      Expire Date : 23 Dec 2022  
Cal Sheet No.: CR-515-2022-120

Time	L90 (dB(A))						
	04-05 Oct 2022	05-06 Oct 2022	06-07 Oct 2022	07-08 Oct 2022	08-09 Oct 2022	09-10 Oct 2022	10-11 Oct 2022
10:00 - 11:00	65.5	64.5	64.6	64.8	64.9	64.4	65.3
11:00 - 12:00	65.1	64.6	64.7	64.6	64.6	64.9	64.9
12:00 - 13:00	64.6	64.6	65.1	64.5	64.5	64.9	64.5
13:00 - 14:00	64.9	65.0	65.3	65.0	65.1	64.8	64.6
14:00 - 15:00	64.5	65.0	65.2	65.0	65.0	65.0	65.0
15:00 - 16:00	64.6	65.0	65.6	64.7	64.7	65.5	64.9
16:00 - 17:00	65.1	65.0	65.7	65.0	65.0	65.1	65.1
17:00 - 18:00	65.2	65.0	65.5	65.3	65.3	65.4	65.3
18:00 - 19:00	65.3	65.1	64.9	65.6	65.6	65.5	65.1
19:00 - 20:00	65.2	65.2	64.9	65.0	65.0	65.0	65.3
20:00 - 21:00	65.1	65.2	65.0	64.8	64.8	65.0	65.6
21:00 - 22:00	65.2	65.3	65.3	64.8	64.8	65.1	65.6
22:00 - 23:00	65.2	65.1	65.2	64.9	64.9	65.1	65.4
23:00 - 00:00	65.1	65.5	65.2	64.8	64.8	65.1	64.9
00:00 - 01:00	65.2	65.5	65.2	64.9	64.9	65.4	65.0
01:00 - 02:00	65.2	65.3	65.2	65.0	65.0	65.1	65.0
02:00 - 03:00	65.2	65.0	65.1	64.9	64.9	65.7	65.4
03:00 - 04:00	65.3	65.0	65.0	65.0	65.0	65.6	65.2
04:00 - 05:00	64.7	64.9	64.9	65.1	65.1	65.3	65.3
05:00 - 06:00	65.2	65.0	64.9	64.9	64.9	65.0	65.2
06:00 - 07:00	65.5	65.1	64.8	65.0	65.0	65.0	65.1
07:00 - 08:00	65.4	64.9	64.7	64.8	64.8	65.0	65.1
08:00 - 09:00	65.0	64.5	64.4	64.5	64.4	65.5	64.9
09:00 - 10:00	65.2	64.4	64.4	64.3	64.3	65.6	65.0
L90(avg)*	65.1	65.0	65.0	64.9	64.9	65.2	65.1

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Preeda Somjai)  
Technical Management Team

## คุณภาพน้ำทิ้ง

---



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1451/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/07/2022	SAMPLING TIME	: 9.35
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 08-16/07/2022
REPORT DATE	: 19/07/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_July

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				น้ำเสียก่อนผ่านเข้า	STANDARD
				Neutralization Basin	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr			78	-
Temperature	°C	2550 B	< 0.5	41.1	-
pH		4500-H <sup>+</sup> B	< 0.10	6.99	-
Total Dissolved Solids	mg/l	2540 C	< 50	702	-
Total Suspended Solids	mg/l	2540 D	< 5	60	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	36.9	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	0.88	-
Phenols	mg/l	5530 B,D	< 0.10	1.2	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	322	-
COD	mg/l	5220 C	< 15.00	426	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	25.7	-
Arsenic (As)	mg/l	3114 C	< 0.0001	1.79	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0408	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (AWWA/PHA WEB)

*Khernchuda Insorn*

(Miss Khernchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1586/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/08/2022	SAMPLING TIME	: 10.30
RECEIVED DATE	: 05/08/2022	ANALYTICAL DATE	: 05-15/08/2022
REPORT DATE	: 17/08/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				น้ำเสียก่อนผ่านเข้า	STANDARD
				Neutralization Basin	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr			2	-
Temperature	°C	2550 B	< 0.5	38.9	-
pH		4500-H <sup>+</sup> B	< 0.10	6.81	-
Total Dissolved Solids	mg/l	2540 C	< 50	503	-
Total Suspended Solids	mg/l	2540 D	< 5	38	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	16.7	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	1.8	-
Phenols	mg/l	5530 B,D	< 0.10	3.6	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	398	-
COD	mg/l	5220 C	< 15.00	479	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	26.7	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.08	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0067	-

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (AWWA/PHA WEB)

*Khernchuda Insorn*

(Miss Khernchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1768/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 01/09/2022	SAMPLING TIME	: 14.40
RECEIVED DATE	: 02/09/2022	ANALYTICAL DATE	: 02-08/09/2022
REPORT DATE	: 09/09/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				น้ำเสียก่อนผ่านเข้า Neutralization Basin	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	5.2	-
Temperature	°C	2550 B	< 0.5	38.6	-
pH	-	4500-H <sup>+</sup> B	< 0.10	7.37	-
Total Dissolved Solids	mg/l	2540 C	< 50	1,184	-
Total Suspended Solids	mg/l	2540 D	< 5	62	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	32.6	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	5.2	-
Phenols	mg/l	5530 B,D	< 0.10	1.5	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	208	-
COD	mg/l	5220 C	< 15.00	415	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	47.6	-
Arsenic (As)	mg/l	3114 C	< 0.0001	4.96	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0098	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2012 (AWWA APHA, WEF)

*Khemchuda Insorn*

(Miss Kheruchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	2013/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 06/10/2022	SAMPLING TIME	: 10.23
RECEIVED DATE	: 07/10/2022	ANALYTICAL DATE	: 07-14/10/2022
REPORT DATE	: 15/10/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				น้ำเสียก่อนผ่านเข้า Neutralization Basin	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	-	-
Temperature	°C	2550 B	< 0.5	37.9	-
pH	-	4500-H <sup>+</sup> B	< 0.10	6.71	-
Total Dissolved Solids	mg/l	2540 C	< 50	1,006	-
Total Suspended Solids	mg/l	2540 D	< 5	80	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	7.4	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	6.8	-
Phenols	mg/l	5530 B,D	< 0.10	3.9	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	307	-
COD	mg/l	5220 C	< 15.00	454	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	39.8	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.33	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0142	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2012 (AWWA APHA, WEF)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	2452/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 08/12/2022	SAMPLING TIME	: 10.05
RECEIVED DATE	: 09/12/2022	ANALYTICAL DATE	: 09-17/12/2022
REPORT DATE	: 17/12/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_December

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				น้ำเสียก่อนผ่านเข้า Neutralization Basin	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	4.3	-
Temperature	°C	2550 B	< 0.5	36.3	-
pH	-	4500-H <sup>+</sup> B	< 0.10	7.80	-
Total Dissolved Solids	mg/l	2540 C	< 50	628	-
Total Suspended Solids	mg/l	2540 D	< 5	52	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	25.1	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	0.54	-
Phenols	mg/l	5530 B,D	< 0.10	1.1	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	261	-
COD	mg/l	5220 C	< 15.00	371	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	41.6	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.64	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0279	-

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited , Branch 6 (Refinery)
  4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1451/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/07/2022	SAMPLING TIME	: 9.45
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 08-16/07/2022
REPORT DATE	: 19/07/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_July

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD
				น้ำเสียก่อนผ่านเข้า CPI	
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	70	-
Temperature	°C	2550 B	< 0.5	44.4	-
pH	-	4500-H <sup>+</sup> B	< 0.10	7.24	-
Total Dissolved Solids	mg/l	2540 C	< 50	471	-
Total Suspended Solids	mg/l	2540 D	< 5	13	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	106	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	1.7	-
Phenols	mg/l	5530 B,D	< 0.10	2.7	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	433	-
COD	mg/l	5220 C	< 15.00	518	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	22.8	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.54	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0235	-

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited , Branch 6 (Refinery)
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1586/65		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/08/2022	SAMPLING TIME	: 10.43
RECEIVED DATE	: 05/08/2022	ANALYTICAL DATE	: 05-15/08/2022
REPORT DATE	: 17/08/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION น้ำเสียก่อนผ่านเข้า CPI	STANDARD
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr			50	
Temperature	°C	2550 B	< 0.5	49.5	
pH		4500-H <sup>+</sup> B	< 0.10	7.05	
Total Dissolved Solids	mg/l	2540 C	< 50	248	
Total Suspended Solids	mg/l	2540 D	< 5	< 5	
Fat Oil & Grease	mg/l	5520 B	< 0.50	36.3	
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	2.5	
Phenols	mg/l	5530 B,D	< 0.10	4.2	
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	478	
COD	mg/l	5220 C	< 15.00	532	
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	24.2	
Arsenic (As)	mg/l	3114 C	< 0.0001	3.79	
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	
Lead (Pb)	mg/l	3120 B	< 0.008	ND	
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0045	

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1768/65		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 01/09/2022	SAMPLING TIME	: 14.22
RECEIVED DATE	: 02/09/2022	ANALYTICAL DATE	: 02-08/09/2022
REPORT DATE	: 09/09/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION น้ำเสียก่อนผ่านเข้า CPI	STANDARD
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr			53.5	
Temperature	°C	2550 B	< 0.5	39.6	
pH		4500-H <sup>+</sup> B	< 0.10	7.65	
Total Dissolved Solids	mg/l	2540 C	< 50	976	
Total Suspended Solids	mg/l	2540 D	< 5	14	
Fat Oil & Grease	mg/l	5520 B	< 0.50	12.0	
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	6.9	
Phenols	mg/l	5530 B,D	< 0.10	2.2	
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	348	
COD	mg/l	5220 C	< 15.00	492	
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	48.2	
Arsenic (As)	mg/l	3114 C	< 0.0001	2.39	
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	
Lead (Pb)	mg/l	3120 B	< 0.008	ND	
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0101	

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	2013/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 06/10/2022	SAMPLING TIME	: 10.43
RECEIVED DATE	: 07/10/2022	ANALYTICAL DATE	: 07-14/10/2022
REPORT DATE	: 15/10/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION น้ำเสียก่อนผ่านเข้า CPI	STANDARD
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	-	-
Temperature	°C	2550 B	< 0.5	38.3	-
pH	-	4500-H <sup>+</sup> B	< 0.10	6.99	-
Total Dissolved Solids	mg/l	2540 C	< 50	588	-
Total Suspended Solids	mg/l	2540 D	< 5	24	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	14.9	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	3.5	-
Phenols	mg/l	5530 B,D	< 0.10	4.9	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	316	-
COD	mg/l	5220 C	< 15.00	490	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	42.4	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.78	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0051	-

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	2452/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 08/12/2022	SAMPLING TIME	: 10.15
RECEIVED DATE	: 09/12/2022	ANALYTICAL DATE	: 09-17/12/2022
REPORT DATE	: 17/12/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_December

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION น้ำเสียก่อนผ่านเข้า CPI	STANDARD
Flow Rate <sup>1/</sup>	m <sup>3</sup> /hr	-	-	50.7	-
Temperature	°C	2550 B	< 0.5	39.5	-
pH	-	4500-H <sup>+</sup> B	< 0.10	6.55	-
Total Dissolved Solids	mg/l	2540 C	< 50	588	-
Total Suspended Solids	mg/l	2540 D	< 5	8	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	30.5	-
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	1.1	-
Phenols	mg/l	5530 B,D	< 0.10	1.3	-
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	268	-
COD	mg/l	5220 C	< 15.00	314	-
Ammonia Nitrogen	mg/l	4500-NH <sub>3</sub> B,C	< 0.02	25.1	-
Arsenic (As)	mg/l	3114 C	< 0.0001	3.57	-
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	-
Lead (Pb)	mg/l	3120 B	< 0.008	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0346	-

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1451/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/07/2022	SAMPLING TIME	: 10.05
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 08-16/07/2022
REPORT DATE	: 19/07/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_July

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD <sup>u</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>u</sup>	m <sup>3</sup> /hr	-	-	70	-
Temperature	°C	2550 B	< 0.5	33.5	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	8.04	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	2,070	< 36,560 <sup>v</sup>
Total Suspended Solids	mg/l	2540 D	< 5	8	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	ND	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0758	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0005	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

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

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-R-5976

*(Mrs Araya Tipparuk)*

(Mrs Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

- 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 Ministry of Industry, B.E.2560 (2017).
  4. Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  5. In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on July 7, 2022 found to be 31,560 mg/l therefore the Standard of TDS found to be 36,560 mg/l).
  6. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1586/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/08/2022	SAMPLING TIME	: 10.21
RECEIVED DATE	: 05/08/2022	ANALYTICAL DATE	: 05-15/08/2022
REPORT DATE	: 17/08/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD <sup>u</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>2/</sup>	m <sup>3</sup> /hr	-	-	60	-
Temperature	°C	2550 B	< 0.5	33.2	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.76	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,522	≤ 40,760 <sup>v</sup>
Total Suspended Solids	mg/l	2540 D	< 5	6	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.7	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	0.05	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0889	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

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

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-R-5976

*(Mrs Araya Tipparuk)*

(Mrs Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

- 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 Ministry of Industry, B.E.2560 (2017).
  4. Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)
  5. In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on August 04, 2022 found to be 35,760 mg/l therefore the Standard of TDS found to be 40,760 mg/l).
  6. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1768/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 01/09/2022	SAMPLING TIME	: 14.34
RECEIVED DATE	: 02/09/2022	ANALYTICAL DATE	: 02-08/09/2022
REPORT DATE	: 09/09/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD <sup>1/</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>2/</sup>	m <sup>3</sup> /hr	-	-	70.0	-
Temperature	°C	2550 B	< 0.5	34.7	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	8.09	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,986	≤ 18,880 <sup>3/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	28.13	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	0.10	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0663	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (AWWA ALPHA WEF)

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*M. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

5. <sup>3/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on September 01, 2022 found to be 13,880 mg/l therefore the Standard of TDS found to be 18,880 mg/l).

6. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 2013/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 06/10/2022	SAMPLING TIME	: 10.30
RECEIVED DATE	: 07/10/2022	ANALYTICAL DATE	: 07-14/10/2022
REPORT DATE	: 15/10/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	STANDARD <sup>1/</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>2/</sup>	m <sup>3</sup> /hr	-	-	-	-
Temperature	°C	2550 B	< 0.5	33.0	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.65	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	2,100	≤ 21,460 <sup>3/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	25.42	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	0.07	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0644	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (AWWA ALPHA WEF)

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*M. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

5. <sup>3/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on October 06, 2022 found to be 16,460 mg/l therefore the Standard of TDS found to be 21,460 mg/l).

6. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 2199/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 03/11/2022	SAMPLING TIME	: 14.08
RECEIVED DATE	: 04/11/2022	ANALYTICAL DATE	: 04-11/11/2022
REPORT DATE	: 11/11/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_November

PARAMETER	UNIT	ANALYSIS METHODS	ND (non- detectable)	STATION	STANDARD <sup>1/</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>2/</sup>	m <sup>3</sup> /hr	-	-	100	-
Temperature	°C	2550 B	< 0.5	31.9	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.68	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,184	< 31,400 <sup>3/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.9	≤ 20
COD	mg/l	5220 C	< 15.00	37.17	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	0.03	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0406	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2012 (AWWA APHA WEF)

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*M. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3.<sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4.<sup>2/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

5.<sup>3/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on November 03, 2022

found to be 26,400 mg/l therefore the Standard of TDS found to be 31,400 mg/l).

6. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 2452/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 08/12/2022	SAMPLING TIME	: 09.55
RECEIVED DATE	: 09/12/2022	ANALYTICAL DATE	: 09-17/12/2022
REPORT DATE	: 17/12/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_December

PARAMETER	UNIT	ANALYSIS METHODS	ND (non- detectable)	STATION	STANDARD <sup>1/</sup>
				น้ำทิ้งหลังผ่านการบำบัดที่ Observation Basin	
Flow Rate <sup>2/</sup>	m <sup>3</sup> /hr	-	-	183	-
Temperature	°C	2550 B	< 0.5	32.8	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.84	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	788	≤ 26,820 <sup>3/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
Sulfide as H <sub>2</sub> S	mg/l	4500-S <sup>2-</sup> F	< 0.20	ND	≤ 1
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	< 1.0	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120
Ammonia Nitrogen	mg/l	Method 350.2	< 0.02	0.03	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0364	≤ 0.25
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 0.03
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 0.2
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005
Benzene	μg/l	5030 C / 8260 D	< 0.20	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2012 (AWWA APHA WEF)

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*M. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3.<sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4.<sup>2/</sup> Data from PTT Global Chemical Public Company Limited, Branch 6 (Refinery)

5.<sup>3/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on December 08, 2022

found to be 21,820 mg/l therefore the Standard of TDS found to be 26,820 mg/l).

6. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1451/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/07/2022	SAMPLING TIME	: 10.20
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 08-16/07/2022
REPORT DATE	: 19/07/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_July

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อ LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	32.2	≤ 40
pH		4500-H <sup>+</sup> B	< 0.10	7.75	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,162	≤ 36,560 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	25	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	11.2	≤ 20
COD	mg/l	5220 C	< 15.00	25.98	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 11<sup>th</sup> ED 2017 (AWWA APHA WEF)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on July 7, 2022 found to be 31,560 mg/l therefore the Standard of TDS found to be 36,560 mg/l).

4. - Not available.



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

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

**WATER AND WASTEWATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1586/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/08/2022	SAMPLING TIME	: 10.06
RECEIVED DATE	: 05/08/2022	ANALYTICAL DATE	: 05-15/08/2022
REPORT DATE	: 17/08/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อ LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	31.9	≤ 40
pH		4500-H <sup>+</sup> B	< 0.10	7.62	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	537	≤ 40,760 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	4.5	≤ 20
COD	mg/l	5220 C	< 15.00	19.51	≤ 120

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 11<sup>th</sup> ED 2017 (AWWA APHA WEF)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on August 04, 2022 found to be 35,760 mg/l therefore the Standard of TDS found to be 40,760 mg/l).

4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1768/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 01/09/2022	SAMPLING TIME	: 14.11
RECEIVED DATE	: 02/09/2022	ANALYTICAL DATE	: 02-08/09/2022
REPORT DATE	: 09/09/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บึง LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	33.4	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.90	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	698	≤ 18,880 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.8	≤ 20
COD	mg/l	5220 C	< 15.00	21.10	≤ 120

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on September 01, 2022 found to be 13,880 mg/l therefore the Standard of TDS found to be 18,880 mg/l).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	2013/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 06/10/2022	SAMPLING TIME	: 10.10
RECEIVED DATE	: 07/10/2022	ANALYTICAL DATE	: 07-14/10/2022
REPORT DATE	: 15/10/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บึง LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	31.2	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.40	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	866	≤ 21,460 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.0	≤ 20
COD	mg/l	5220 C	< 15.00	21.79	≤ 120

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on October 06, 2022 found to be 16,460 mg/l therefore the Standard of TDS found to be 21,460 mg/l).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 2199/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 03/11/2022	SAMPLING TIME	: 14.17
RECEIVED DATE	: 04/11/2022	ANALYTICAL DATE	: 04-11/11/2022
REPORT DATE	: 11/11/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_November

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อบ LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	30.6	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.16	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	340	≤ 31,400 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	30	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	13.6	≤ 20
COD	mg/l	5220 C	< 15.00	89.64	≤ 120

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

(Miss Khemchuda Insorn)

Analyst  
REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team  
REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on November 03, 2022 found to be 26,400 mg/l therefore the Standard of TDS found to be 31,400 mg/l).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 2452/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 08/12/2022	SAMPLING TIME	: 09.45
RECEIVED DATE	: 09/12/2022	ANALYTICAL DATE	: 09-17/12/2022
REPORT DATE	: 17/12/2022	SITE OPERATOR	: Mr. Chitpon Somprasong
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_WW_December

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อบ LLOD-S	STANDARD <sup>1/</sup>
Temperature	°C	2550 B	< 0.5	29.3	≤ 40
pH	-	4500-H <sup>+</sup> B	< 0.10	7.53	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	202	≤ 26,820 <sup>2/</sup>
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	3.4	≤ 20
COD	mg/l	5220 C	< 15.00	< 15.00	≤ 120

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

(Miss Khemchuda Insorn)

Analyst  
REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team  
REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2560 (2017).

4. <sup>2/</sup> In case of discharging effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on December 08, 2022 found to be 21,820 mg/l therefore the Standard of TDS found to be 26,820 mg/l).

4. - Not available.

## คุณภาพน้ำทะเล

---



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1450/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11.10
SAMPLING DATE	: 07/07/2022	ANALYTICAL DATE	: 08-14/07/2022
RECEIVED DATE	: 08/07/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 15/07/2022	FILE CODE	: 222010_CW_July
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางคานทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	32.0
pH		4500-H <sup>+</sup> B	< 0.10	8.11
Total Dissolved Solids	mg/l	2540 C	< 50	31,560
Total Suspended Solids	mg/l	2540 D	< 5	37
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing		NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	6.3
COD	mg/l	5220 C	< 15.00	24.50

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

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1587/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11.58
SAMPLING DATE	: 04/08/2022	ANALYTICAL DATE	: 05-10/08/2022
RECEIVED DATE	: 05/08/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 15/08/2022	FILE CODE	: 222010_CW_August
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางคานทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	33.7
pH		4500-H <sup>+</sup> B	< 0.10	8.03
Total Dissolved Solids	mg/l	2540 C	< 50	35,760
Total Suspended Solids	mg/l	2540 D	< 5	45
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing		NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	4.2
COD	mg/l	5220 C	< 15.00	< 15.00

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

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 1765/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11.00
SAMPLING DATE	: 01/09/2022	ANALYTICAL DATE	: 02-08/09/2022
RECEIVED DATE	: 02/09/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 09/09/2022	FILE CODE	: 222010_CW_September
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางด้านทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	32.9
pH	-	4500-H <sup>+</sup> B	< 0.10	8.08
Total Dissolved Solids	mg/l	2540 C	< 50	13,880
Total Suspended Solids	mg/l	2540 D	< 5	18
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing	-	NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.0
COD	mg/l	5220 C	< 15.00	24.61

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

*Khemchuda Insorn*

( Miss Khemchuda Insorn )

Analyst

*Araya Tipparuk*

( Mrs. Araya Tipparuk )

Technical Management Team

Remark :

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	REQUEST SERVICE No.	: 2014/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 12.13
SAMPLING DATE	: 06/10/2022	ANALYTICAL DATE	: 07-14/10/2022
RECEIVED DATE	: 07/10/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 14/10/2022	FILE CODE	: 222010_CW_October
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางด้านทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	28.4
pH	-	4500-H <sup>+</sup> B	< 0.10	8.21
Total Dissolved Solids	mg/l	2540 C	< 50	16,460
Total Suspended Solids	mg/l	2540 D	< 5	20
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing	-	NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	2.2
COD	mg/l	5220 C	< 15.00	< 15.00

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

*Khemchuda Insorn*

( Miss Khemchuda Insorn )

Analyst

*Araya Tipparuk*

( Mrs. Araya Tipparuk )

Technical Management Team

Remark :

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	: 2200/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11.50
SAMPLING DATE	: 03/11/2022	ANALYTICAL DATE	: 04-09/11/2022
RECEIVED DATE	: 04/11/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 09/11/2022	FILE CODE	: 222010_CW_November
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION
				จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางด้านทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	39.9
pH		4500-H <sup>+</sup> B	< 0.10	7.91
Total Dissolved Solids	mg/l	2540 C	< 50	26,400
Total Suspended Solids	mg/l	2540 D	< 5	15
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing		NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.5
COD	mg/l	5220 C	< 15.00	32.80

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

*Khemchuda Insorn*

( Miss Khemchuda Insorn )

Analyst

*Araya Tipparuk*

( Mrs. Araya Tipparuk )

Technical Management Team

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



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited	REQUEST SERVICE No.	: 2455/65
	Branch 6 (Refinery)	SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 11.26
SAMPLING DATE	: 08/12/2022	ANALYTICAL DATE	: 09-18/12/2022
RECEIVED DATE	: 09/12/2022	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 18/12/2022	FILE CODE	: 222010_CW_December
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non detectable)	STATION
				จุดปล่อยน้ำทิ้งที่ผ่านการบำบัด ทางด้านทิศใต้ของโรงกลั่นน้ำมัน
Temperature	°C	2550 B	< 0.5	31.2
pH		4500-H <sup>+</sup> B	< 0.10	7.92
Total Dissolved Solids	mg/l	2540 C	< 50	21,820
Total Suspended Solids	mg/l	2540 D	< 5	20
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND
Fat Oil & Grease	-	Visual Testing		NV
BOD <sub>5</sub>	mg/l	5210 B	< 1.0	1.9
COD	mg/l	5220 C	< 15.00	< 15.00

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

*Khemchuda Insorn*

( Miss Khemchuda Insorn )

Analyst

*Araya Tipparuk*

( Mrs. Araya Tipparuk )

Technical Management Team

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

## คุณภาพน้ำใต้ดิน

---



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 15.06-15.13, 14.23-14.38
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 16.20-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-1	MW-2	
pH	*	4500-H <sup>+</sup> B	< 0.10	7.02	6.69	1/
Conductivity*	μS/cm	2510 B	< 1.0	348	647	-
Salinity*	ppt	2520 B	< 0.01	0.06	0.19	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0746	0.0703	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	< 0.01	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	< 0.01	≤ 5.0

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

( Miss Khemchuda Insom )

Analyst

REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No. :	1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 15.06-15.13, 14.23-14.38
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-1	MW-2	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

( Miss Natsiri Lertterapipat )

Analyst

REG. NO. 7-239-ก-0001

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 15.06-15.13, 14.23-14.38
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>U</sup>
		METHODS	(non-detectable)	MW-1	MW-2	
Total Petroleum Hydrocarbons						
- TPH (C <sub>7</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>21</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tettriacontane						
- Pentatriacontane						

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE. 3<sup>rd</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 15.06-15.13, 14.23-14.38
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-1	MW-2	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. \* - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16-17/08/2022	SAMPLING TIME	: 09.53-10.10, 09.33-09.47
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 16-17, 20-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-3	MW-4	
pH	-	4500-H <sup>+</sup> B	< 0.10	6.61	6.94	1/
Conductivity*	μS/cm	2510 B	< 1.0	909	744	-
Salinity*	ppt	2520 B	< 0.01	0.30	0.22	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0731	0.0659	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	< 0.01	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>ST</sup> ED. 2017 (AWWA APHA, WEF)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16-17/08/2022	SAMPLING TIME	: 09.53-10.10, 09.33-09.47
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-3	MW-4	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>ST</sup> ED. 2017 (AWWA APHA, WEF)

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-ก-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16-17/08/2022	SAMPLING TIME	: 09.53-10.10.09.33-09.47
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-3	MW-4	
Total Petroleum Hydrocarbons						
- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene					*	
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>&gt;8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane					*	
- n-Hexadecane						
- TPH (C <sub>&gt;16</sub> - C <sub>25</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0,1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane					*	
- n-Dotriacontane						
- n-Tetratriacontane						
- Pentatriacontane						

REFERENCE: US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1<sup>st</sup> ED., 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark:**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16-17/08/2022	SAMPLING TIME	: 09.53-10.10.09.33-09.47
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-3	MW-4	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>nd</sup> ED. (WWW.APHA.WFO)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark:**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

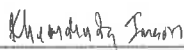
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 10.09-10.22, 10.50-11.06
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 16, 20-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-5	MW-6	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.49	6.52	✓
Conductivity*	μS/cm	2510 B	< 1.0	955	2,530	✓
Salinity*	ppt	2520 B	< 0.01	0.31	1.3	✓
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0907	0.0397	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	< 0.01	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	0.0002	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

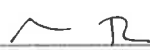
REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 11<sup>th</sup> ED. 2017 (AWWA, APHA, WEF)



(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976



(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

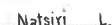
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 16/08/2022	SAMPLING TIME	: 10.09-10.22, 10.50-11.06
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-5	MW-6	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24


REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 11<sup>th</sup> ED. 2017 (AWWA, APHA, WEF)



(Miss Natsiri Lertterapit)

Analyst

REG. NO. 7-239-ก-0001



(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	1679/95
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump
SAMPLING DATE	16/08/2022	SAMPLING TIME	10.09-10.22, 10.50-11.06
RECEIVED DATE	20/08/2022	ANALYTICAL DATE	22/08/2022-04/09/2022
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakon Pramakhate
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-5	MW-6	
<b>Total Petroleum Hydrocarbons</b>						
- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>10</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0,025	0,057	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>17</sub> - C <sub>25</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	ND	≤ 0,1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetracontane						
- n-Pentacontane						

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE s<sup>1/</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	1679/95
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump
SAMPLING DATE	16/08/2022	SAMPLING TIME	10.09-10.22, 10.50-11.06
RECEIVED DATE	20/08/2022	ANALYTICAL DATE	22-27/08/2022, 05-07/09/2022
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakon Pramakhate
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-5	MW-6	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 17-18/08/2022 SAMPLING TIME : 10.41-11.00, 15.22-15.43  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 17-18, 20-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakon Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-7	MW-8	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.01	7.32	1/
Conductivity*	µS/cm	2510 B	< 1.0	2,079	834	-
Salinity*	ppt	2520 B	< 0.01	0.90	0.26	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0643	0.0245	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED. 2011 (APHA, AWWA, WEF)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 17-18/08/2022 SAMPLING TIME : 10.41-11.00, 15.22-15.43  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 22-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakon Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-7	MW-8	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED. 2011 (APHA, AWWA, WEF)

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-ก-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17-18/08/2022	SAMPLING TIME	: 10.41-11.00, 15.22-15.43
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-7	MW-8	
Total Petroleum Hydrocarbons						
- TPH (C <sub>7</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>10</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	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, 1<sup>st</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17-18/08/2022	SAMPLING TIME	: 10.41-11.00, 15.22-15.43
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-7	MW-8	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER, 21<sup>st</sup> ED. 2011 (AWWA, APHA, WEF)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 17, 19/08/2022 SAMPLING TIME : 14.06-14.23,09.44-09.58  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 17,19-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakon Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-9	MW-10	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.43	7.69	1/
Conductivity*	µS/cm	2510 B	< 1.0	2.071	2.108	-
Salinity*	ppt	2520 B	< 0.01	0.80	0.82	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0030	0.0020	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED. 2017 (AWWA-APHA-WED)

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 1-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 1-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 17, 19/08/2022 SAMPLING TIME : 14.06-14.23,09.44-09.58  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 22-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakon Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-9	MW-10	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED. 2017 (AWWA-APHA-WED)

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 1-239-ก-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 1-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.06-14.23,09.44-09.58
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>U</sup>
		METHODS	(non-detectable)	MW-9	MW-10	
Total Petroleum Hydrocarbons						
- TPH (C <sub>3</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>10</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>33</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	ND	≤ 0,1
- n-Octadecane						
- n-Eicosane						
- n-Doocosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetratriacontane						
- Pentatriacontane						

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.06-14.23,09.44-09.58
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-9	MW-10	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2011 (AWWA/APHA/WEF)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.51-15.07, 10.19-10.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 17, 19-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-11	MW-12	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.87	7.75	U
Conductivity*	µS/cm	2510 B	< 1.0	664	1,535	-
Salinity*	ppt	2520 B	< 0.01	0.19	0.70	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0027	0.0057	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23<sup>RD</sup> ED. 2017 (AWWA APHA WEF)

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.51-15.07, 10.19-10.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-11	MW-12	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23<sup>RD</sup> ED. 2017 (AWWA APHA WEF)

*Natsiri L.*

(Miss Natsiri Lerterapipat)

Analyst

REG. NO. 7-239-ก-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.51-15.07,10.19-10.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-11	MW-12	

**Total Petroleum Hydrocarbons**

- TPH (C <sub>5</sub> - C <sub>6</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>7</sub> - C <sub>10</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>15</sub> - C <sub>19</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetraatriacontane						
- Pentatriacontane						

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

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 14.51-15.07,10.19-10.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-11	MW-12	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>nd</sup> ED. 2017 (A) WWW.APHA.WEBSITE

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 15.38-15.49, 10.56-11.13
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 17, 19-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-13	MW-14	
pH	*	4500-H <sup>+</sup> B	< 0.10	7.85	8.06	U
Conductivity*	µS/cm	2510 B	< 1.0	677	2,170	+
Salinity*	ppt	2520 B	< 0.01	0.24	1.1	+
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0024	0.0038	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 17, 19/08/2022	SAMPLING TIME	: 15.38-15.49, 10.56-11.13
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-13	MW-14	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-ก-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No	1679/95
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	17, 19/08/2022	SAMPLING TIME	15.38-15.49, 10.56-11.13	
RECEIVED DATE	20/08/2022	ANALYTICAL DATE	22/08/2022-04/09/2022	
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-13	MW-14	

Total Petroleum Hydrocarbons

- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>32</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetraatriacontane						
- Pentatriacontane						

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No	1679/95
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	17, 19/08/2022	SAMPLING TIME	15.38-15.49, 10.56-11.13	
RECEIVED DATE	20/08/2022	ANALYTICAL DATE	22-27/08/2022, 05-07/09/2022	
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-13	MW-14	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (WWW.APHA.WE)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 09.48-10.03, 15.07-15.26
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 18-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-15	MW-16	
pH	*	4500-H <sup>+</sup> B	< 0.10	7.67	7.95	U
Conductivity*	µS/cm	2510 B	< 1.0	1,382	394	*
Salinity*	ppt	2520 B	< 0.01	0.49	0.10	*
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	0.0029	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 09.48-10.03, 15.07-15.26
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-15	MW-16	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 2-239-ก-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 09.48-10.03, 15.07-15.25
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>U</sup>
		METHODS	(non-detectable)	MW-15	MW-16	
<u>Total Petroleum Hydrocarbons</u>						
- TPH (C <sub>5</sub> - C <sub>8</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>18</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>19</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	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 3<sup>rd</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-ก-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 09.48-10.03, 15.07-15.26
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-15	MW-16	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (a) WWW.APHA.WEB

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-ก-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 10.25-10.38, 14.24-14.40
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 18-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-17	MW-18	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.62	7.80	U
Conductivity*	μS/cm	2510 B	< 1.0	950	751	-
Salinity*	ppt	2520 B	< 0.01	0.30	0.22	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0051	0.0045	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 17<sup>th</sup> ED. 2017 (AWWA, APHA, WEF)

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

REG. NO. 2-239-R-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 10.25-10.38, 14.24-14.40
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-17	MW-18	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 17<sup>th</sup> ED. 2017 (AWWA, APHA, WEF)

*Natsiri L.*

(Miss Natsiri Lertrapiwat)

Analyst

REG. NO. 2-239-R-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.





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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 10.25-10.38, 14.24-14.40
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-17	MW-18	
Total Petroleum Hydrocarbons						
- TPH (C <sub>6</sub> - C <sub>8</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>33</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	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. 3<sup>rd</sup> ED. 2010.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18-19/08/2022	SAMPLING TIME	: 10.25-10.38, 14.24-14.40
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-17	MW-18	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18/08/2022	SAMPLING TIME	: 10.59-11.14, 14.25-14.42
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 18.20-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-19	MW-21	
pH		4500-H <sup>B</sup>	< 0.10	7.81	7.63	✓
Conductivity*	µS/cm	2510 B	< 1.0	438	390	+
Salinity*	ppt	2520 B	< 0.01	0.15	0.10	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	< 0.0005	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>ST</sup> ED. 2017 (AWWA APHA, WEF)

*Khanchuda Insorn*

(Miss Khanchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18/08/2022	SAMPLING TIME	: 10.59-11.14, 14.25-14.42
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-19	MW-21	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>ST</sup> ED. 2017 (AWWA APHA, WEF)

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 2-239-ก-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18/08/2022	SAMPLING TIME	: 10.59-11.14, 14.25-14.42
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Premakhat
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_Augus

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-19	MW-21	
Total Petroleum Hydrocarbons						
- TPH (C <sub>2</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	0.003	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	0.270	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetra triacontane						
- Pentatriacontane						

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED, 2021

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 18/08/2022	SAMPLING TIME	: 10.59-11.14, 14.25-14.42
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Premakhat
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_Augus

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-19	MW-21	
alpha-BHC	ng/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	ng/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	ng/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.03
Heptachlor epoxide	ng/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	ng/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	ng/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	ng/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	ng/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	ng/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	ng/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	ng/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED, 2017 (APHA, APTA, WFT)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

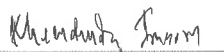
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800  
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND  
TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th


GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 11.01-11.16, 11.42-11.59
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 22,26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-20	MW-22	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.66	7.82	-
Conductivity*	μS/cm	2510 B	< 1.0	602	608	-
Salinity*	ppt	2520 B	< 0.01	0.30	0.30	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0020	0.0045	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

  
(Miss Khemchuda Insom)  
Analyst  
REG. NO. 7-239-ก-5976

  
(Mrs. Araya Tipparuk)  
Technical Management Team  
REG. NO. 7-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. \* Not Registered Department of Industrial Works.  
5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.


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


GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 11.01-11.16, 11.42-11.59
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-20	MW-22	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

  
(Miss Natsiri Lertterapipat)  
Analyst  
REG. NO. 7-239-ก-0001

  
(Mrs. Araya Tipparuk)  
Technical Management Team  
REG. NO. 7-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 11.01-11.16, 11.42-11.59
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-20	MW-22	
Total Petroleum Hydrocarbons						
- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>10</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	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 3<sup>rd</sup> ED. 2020.

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-N-6419

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

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

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

<sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 11.01-11.16, 11.42-11.59
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-20	MW-22	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-N-6419

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

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

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

<sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 10.25-10.45, 11.18-11.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 15, 20-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-23	MW-27	
pH	*	4500-H <sup>+</sup> B	< 0.10	7.64	8.06	U
Conductivity*	µS/cm	2510 B	< 1.0	717	331	*
Salinity*	ppt	2520 B	< 0.01	0.26	0.05	*
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0063	0.0032	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	< 0.03	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

REG. NO. 7-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 10.25-10.45, 11.18-11.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-23/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-23	MW-27	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lerterapipat)

Analyst

REG. NO. 7-239-ก-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 10.25-10.45, 11.18-11.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-23	MW-27	

**Total Petroleum Hydrocarbons**

- TPH (C <sub>7</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>33</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetratriacontane						
- Pentatriacontane						

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 10.25-10.45, 11.18-11.35
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-23	MW-27	

alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-n-6419

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 14.26-14.42, 15.11-15.33
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 22,26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-24	MW-25	
pH	-	4500-H* B	< 0.10	7.84	7.62	U
Conductivity*	μS/cm	2510 B	< 1.0	9.513	411	-
Salinity*	ppt	2520 B	< 0.01	4.70	0.10	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0155	0.0339	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

(Miss Khemchuda Inorn)  
Analyst  
REG. NO. 2-239-n-5976

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

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22/08/2022	SAMPLING TIME	: 14.26-14.42, 15.11-15.33
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-24	MW-25	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

(Miss Natsiri Lerterapipat)  
Analyst  
REG. NO. 2-239-n-0001

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

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No	1704/65	
SAMPLING BY	SECOT Co., Ltd.		SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	22/08/2022		SAMPLING TIME	14.26-14.42, 15.11-15.33	
RECEIVED DATE	26/08/2022		ANALYTICAL DATE	29/08/2022-04/09/2022	
REPORT DATE	08/09/2022		SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal		FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-24	MW-25	
Total Petroleum Hydrocarbons						
- TPH (C <sub>7</sub> - C <sub>8</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>&gt;6</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>&gt;16</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	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, 3<sup>rd</sup> ED., 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-N-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No	1704/65	
SAMPLING BY	SECOT Co., Ltd.		SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	22/08/2022		SAMPLING TIME	14.26-14.42, 15.11-15.33	
RECEIVED DATE	26/08/2022		ANALYTICAL DATE	29-30/08/2022, 05-07/09/2022	
REPORT DATE	08/09/2022		SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal		FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-24	MW-25	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	-
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	-
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	-
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2012 (APHA, APLA, WEF)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-N-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22-23/08/2022	SAMPLING TIME	: 15.58-16.13,09.01-09.14
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 22-23,26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-26	MW-28	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.07	8.10	U
Conductivity*	μS/cm	2510 B	< 1.0	623	257	*
Salinity*	ppt	2520 B	< 0.01	0.30	0.10	*
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0186	0.0062	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE - STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23<sup>rd</sup> ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insom)

Analyst

REG. NO. 2-239-ก-5976

(Mrs. Araya Tippanuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22-23/08/2022	SAMPLING TIME	: 15.58-16.13,09.01-09.14
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-26	MW-28	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE - STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23<sup>rd</sup> ED. 2017 (AWWA APHA WEF)

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 2-239-ก-0001

(Mrs. Araya Tippanuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22-23/08/2022	SAMPLING TIME	: 15.58-16.13.09.01-09.14
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-26	MW-28	
<b>Total Petroleum Hydrocarbons</b>						
- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>&gt;8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>&gt;16</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	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 1<sup>st</sup> ED. 2020.

*Miss Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 22-23/08/2022	SAMPLING TIME	: 15.58-16.13.09.01-09.14
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-26	MW-28	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19<sup>th</sup> ED. 2011 (APHA, APTA, WFTD)

*Miss Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

*Mrs. Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5363

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No.	1679/95	
SAMPLING BY	SECOT Co., Ltd.		SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	15/08/2022		SAMPLING TIME	14.15-14.33, 14.54-15.10	
RECEIVED DATE	20/08/2022		ANALYTICAL DATE	15, 20-23/08/2022	
REPORT DATE	08/09/2022		SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal		FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-29	MW-31	
pH	*	4500-H <sup>+</sup> B	< 0.10	7.40	7.07	1)
Conductivity*	µS/cm	2510 B	< 1.0	1,520	1,080	-
Salinity*	ppt	2520 B	< 0.01	0.56	0.49	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	0.0017	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>nd</sup> ED. 2017 (APHA, APCA, WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery)		REQUEST SERVICE No.	1679/95	
SAMPLING BY	SECOT Co., Ltd.		SAMPLING METHOD	Pneumatic Bladder Pump	
SAMPLING DATE	15/08/2022		SAMPLING TIME	14.15-14.33, 14.54-15.10	
RECEIVED DATE	20/08/2022		ANALYTICAL DATE	22-23/08/2022	
REPORT DATE	08/09/2022		SITE OPERATOR	Mr. Watcharakon Pramakhate	
SAMPLE CONDITION	Normal		FILE CODE	222010_GW_August	

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-29	MW-31	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	0.0149	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	0.0016	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	0.0165	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>nd</sup> ED. 2017 (APHA, APCA, WEF)

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 2-239-ก-0001

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 14.15-14.33, 14.54-15.10
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-29	MW-31	
Total Petroleum Hydrocarbons						
- TPH (C <sub>5</sub> - C <sub>6</sub> )	mg/l	5030 C / 8260 D	< 0,003	0,046	0,025	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	0,090	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane <sup>2/</sup>						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>32</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	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 3<sup>rd</sup> ED., 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 14.15-14.33, 14.54-15.10
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-29	MW-31	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-P-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 09.35-09.54, 10.12-10.27
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 23,26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-30	MW-32	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.81	7.96	u
Conductivity*	µS/cm	2510 B	< 1.0	614	928	-
Salinity*	ppt	2520 B	< 0.01	0.24	0.41	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0097	0.0053	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. \* Not Registered Department of Industrial Works.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 09.35-09.54, 10.12-10.27
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-30	MW-32	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-ก-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 09.35-09.54, 10.12-10.27
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-30	MW-32	
Total Petroleum Hydrocarbons						
- TPH (C <sub>7</sub> - C <sub>6</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>9</sub> - C <sub>10</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>14</sub> - C <sub>32</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	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 1<sup>st</sup> ED. 2020.

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 09.35-09.54, 10.12-10.27
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-30	MW-32	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.1
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1

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

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 14.46-15.02, 15.21-15.36
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 24,26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-33	MW-34	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.84	7.42	1)
Conductivity*	µS/cm	2510 B	< 1.0	517	617	-
Salinity*	ppt	2520 B	< 0.01	0.19	0.25	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0027	0.0034	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

(Miss Khemchuda Insorn)  
Analyst  
REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparuk)  
Technical Management Team  
REG. NO. 7-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. \* Not Registered Department of Industrial Works.  
5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 14.46-15.02, 15.21-15.36
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1)</sup>
				MW-33	MW-34	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

(Miss Natsiri Lertterapipat)  
Analyst  
REG. NO. 7-239-ก-0001

(Mrs. Araya Tipparuk)  
Technical Management Team  
REG. NO. 7-239-ก-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 14.46-15.02, 15.21-15.36
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-33	MW-34	
Total Petroleum Hydrocarbons						
- TPH (C <sub>7</sub> - C <sub>6</sub> )	mg/l	5030 C / 8260 D	< 0,003	ND	ND	≤ 1,4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>8</sub> - C <sub>10</sub> )	mg/l	3510 C / 8015 D	< 0,025	ND	ND	≤ 1,7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>32</sub> )	mg/l	3510 C / 8015 D	< 0,050	ND	ND	≤ 0,1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetracontane						
- Pentatriacontane						

REFERENCE : USEPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1<sup>st</sup> ED., 2016

*Miss Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-N-6419

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-N-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 23/08/2022	SAMPLING TIME	: 14.46-15.02, 15.21-15.36
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-33	MW-34	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

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

*Miss Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-N-6419

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-N-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 15/08/2022 SAMPLING TIME : 15.38-15.50  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 15, 20-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakan Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>U</sup>
pH		4500-H <sup>+</sup> B	< 0.10	7.73	
Conductivity*	µS/cm	2510 B	< 1.0	311	
Salinity*	ppt	2520 B	< 0.01	0.06	
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0066	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	≤ 5.0

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

( Miss Khemchuda Insorn )

Analyst

REG. NO. 7-239-n-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1679/95  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump  
SAMPLING DATE : 15/08/2022 SAMPLING TIME : 15.38-15.50  
RECEIVED DATE : 20/08/2022 ANALYTICAL DATE : 22-23/08/2022  
REPORT DATE : 08/09/2022 SITE OPERATOR : Mr. Watcharakan Pramakhate  
SAMPLE CONDITION : Normal FILE CODE : 222010\_GW\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>U</sup>
Naphthalene	mg/l	6440 C	< 0.00005	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

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

( Miss Natsiri Lertterapipat )

Analyst

REG. NO. 7-239-n-0001

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 15.38-15.50
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>u</sup>
-----------	------	------------------	---------------------	---------------	-----------------------

**Total Petroleum Hydrocarbons**

- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	≤ 1.4
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C <sub>9</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	≤ 1.7
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C <sub>16</sub> - C <sub>35</sub> )	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					
- Pentacontane					

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

*Miss Narisa Poowasanpetch*  
(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-ก-6419

*Mrs. Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1679/95
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 15/08/2022	SAMPLING TIME	: 15.38-15.50
RECEIVED DATE	: 20/08/2022	ANALYTICAL DATE	: 22-27/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>u</sup>
alpha-BHC	mg/l	6630 B	< 0.000001	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	
Endrin ketone	mg/l	6630 B	< 0.000003	ND	

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

*Miss Narisa Poowasanpetch*  
(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 2-239-ก-6419

*Mrs. Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 10.17-10.31, 10.56-11.09
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 24.26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-36	MW-37	
pH	-	4500-H <sup>+</sup> B	< 0.10	6.86	7.38	-
Conductivity*	µS/cm	2510 B	< 1.0	2,479	2,662	-
Salinity*	ppt	2520 B	< 0.01	1.10	1.20	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0415	0.0499	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	< 0.01	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 10.17-10.31, 10.56-11.09
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-36	MW-37	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 24<sup>th</sup> ED. 2017 (AWWA APHA WEF)

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-ก-0001

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 10.17-10.31, 10.56-11.09
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>11</sup>
		METHODS	(non-detectable)	MW-36	MW-37	
Total Petroleum Hydrocarbons						
* TPH (C <sub>7</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
* TPH (C <sub>10</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
* TPH (C <sub>18</sub> - C <sub>35</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
* n-Eicosane						
* n-Docosane						
* n-Tetracosane						
* n-Hexacosane						
* n-Octacosane						
* n-Triacontane						
* n-Dotriacontane						
* n-Tetatriacontane						
* Pentatriacontane						

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

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**GROUND WATER ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 10.17-10.31, 10.56-11.09
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>u</sup>
				MW-36	MW-37	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.03
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.1
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>nd</sup> ED. (APHA, AWWA, WEF)

*Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5363

**Remark :** 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 09.31-09.47, 14.08-14.25
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 24/26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-38	MW-39	
pH	-	4500-H <sup>+</sup> B	< 0.10	6.53	6.91	
Conductivity*	µS/cm	2510 B	< 1.0	2,600	3,744	
Salinity*	ppt	2520 B	< 0.01	1.20	1.80	
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0989	0.0255	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	< 0.01	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	< 0.01	ND	≤ 5.0

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

*Khemsuda Insom*

(Miss Khemsuda Insom)

Analyst

REG. NO. 2-239-P-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 09.31-09.47, 14.08-14.25
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-38	MW-39	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lerterapipat)

Analyst

REG. NO. 2-239-P-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 09.31-09.47, 14.08-14.25
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-38	MW-39	

**Total Petroleum Hydrocarbons**

- TPH (C <sub>2</sub> - C <sub>8</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>8</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>33</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetraltriacontane						
- Pentatriacontane						

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE<sup>1/</sup> ED. 2020

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24/08/2022	SAMPLING TIME	: 09.31-09.47, 14.08-14.25
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-38	MW-39	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22<sup>1/</sup> ED. 2017 (AWWA APHA WEF)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24-25/08/2022	SAMPLING TIME	: 14.50-15.05, 14.48-15.02
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 24-26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-40	MW-41	
pH	-	4500-H <sup>+</sup> B	< 0.10	7.07	7.19	U
Conductivity*	µS/cm	2510 B	< 1.0	1,396	13,710	-
Salinity*	ppt	2520 B	< 0.01	0.60	6.70	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0300	0.0214	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	ND	≤ 5.0

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

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24-25/08/2022	SAMPLING TIME	: 14.50-15.05, 14.48-15.02
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakan Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>U</sup>
				MW-40	MW-41	
Naphthalene	mg/l	6440 C	< 0.00005	ND	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lerttarpipat)

Analyst

REG. NO. 7-239-ก-0001

*(Mrs. Araya Tipparuk)*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.





บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24-25/08/2022	SAMPLING TIME	: 14.50-15.05, 14.48-15.02
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022-04/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION		STANDARD <sup>1/</sup>
		METHODS	(non-detectable)	MW-40	MW-41	
Total Petroleum Hydrocarbons						
- TPH (C <sub>5</sub> - C <sub>9</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	ND	≤ 1.4
- Pentane						
- Benzene						
- Toluene						
- m,p-Xylene						
- o-Xylene						
- Ethylbenzene						
- TPH (C <sub>10</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	ND	≤ 1.7
- n-Nonane						
- n-Decane						
- n-Dodecane						
- n-Tetradecane						
- n-Hexadecane						
- TPH (C <sub>16</sub> - C <sub>33</sub> )	mg/l	3510 C / 8015 D	< 0.050	ND	ND	≤ 0.1
- n-Octadecane						
- n-Eicosane						
- n-Docosane						
- n-Tetracosane						
- n-Hexacosane						
- n-Octacosane						
- n-Triacontane						
- n-Dotriacontane						
- n-Tetratriacontane						
- Pentatriacontane						

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 24-25/08/2022	SAMPLING TIME	: 14.50-15.05, 14.48-15.02
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29-30/08/2022, 05-07/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION		STANDARD <sup>1/</sup>
				MW-40	MW-41	
alpha-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	ND	*
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	ND	*
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	ND	*
Endrin ketone	mg/l	6630 B	< 0.000003	ND	ND	*

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21<sup>st</sup> ED. 2017 (WWW.APHA.WEF)

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-ก-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 25/08/2022	SAMPLING TIME	: 13.59-14.17
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 25-26/08/2022-01/09/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-42	STANDARD <sup>1/</sup>
pH	-	4500-H <sup>+</sup> B	< 0.10	7.34	u
Conductivity*	µS/cm	2510 B	< 1.0	29,090	-
Salinity*	ppt	2520 B	< 0.01	15.30	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0059	≤ 0.1
Cadmium (Cd)	mg/l	3120 B	< 0.001	ND	≤ 2.0
Lead (Pb)	mg/l	3120 B	< 0.008	ND	≤ 4.0
Mercury (Hg)	mg/l	3112 B	< 0.0001	ND	≤ 0.7
Nickel (Ni)	mg/l	3120 B	< 0.002	ND	≤ 5.0

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

*Khemchuda Insom*

(Miss Khemchuda Insom)

Analyst

REG. NO. 7-239-P-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. \* Not Registered Department of Industrial Works.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1704/65
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 25/08/2022	SAMPLING TIME	: 13.59-14.17
RECEIVED DATE	: 26/08/2022	ANALYTICAL DATE	: 29/08/2022
REPORT DATE	: 08/09/2022	SITE OPERATOR	: Mr. Watcharakon Pramakhate
SAMPLE CONDITION	: Normal	FILE CODE	: 222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-42	STANDARD <sup>1/</sup>
Naphthalene	mg/l	6440 C	< 0.00005	ND	≤ 48
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
Ethylbenzene	mg/l	6200 B	< 0.0002	ND	≤ 2.0
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0
m-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
o-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
p-Xylene	mg/l	6200 B	< 0.0002	ND	≤ 24
Total Xylenes	mg/l	6200 B	< 0.0006	ND	≤ 24

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

*Natsiri L.*

(Miss Natsiri Lerterapipat)

Analyst

REG. NO. 7-239-P-0001

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1704/65		
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump
SAMPLING DATE	25/08/2022	SAMPLING TIME	13.59-14.17
RECEIVED DATE	26/08/2022	ANALYTICAL DATE	29/08/2022-04/09/2022
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakan Pramakhate
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-42	STANDARD <sup>1/</sup>
-----------	------	------------------	---------------------	---------------	------------------------

Total Petroleum Hydrocarbons

- TPH (C <sub>5</sub> - C <sub>6</sub> )	mg/l	5030 C / 8260 D	< 0.003	ND	≤ 1.4
- Pentane					
- Benzene					
- Toluene					
- m,p-Xylene					
- o-Xylene					
- Ethylbenzene					
- TPH (C <sub>9</sub> - C <sub>16</sub> )	mg/l	3510 C / 8015 D	< 0.025	ND	≤ 1.7
- n-Nonane					
- n-Decane					
- n-Dodecane					
- n-Tetradecane					
- n-Hexadecane					
- TPH (C <sub>16</sub> - C <sub>21</sub> )	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-Tetraatriacontane					
- Pentaatriacontane					

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3<sup>rd</sup> ED. 2020.

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1704/65		
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Pneumatic Bladder Pump
SAMPLING DATE	25/08/2022	SAMPLING TIME	13.59-14.17
RECEIVED DATE	26/08/2022	ANALYTICAL DATE	29-30/08/2022, 05-07/09/2022
REPORT DATE	08/09/2022	SITE OPERATOR	Mr. Watcharakan Pramakhate
SAMPLE CONDITION	Normal	FILE CODE	222010_GW_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-42	STANDARD <sup>1/</sup>
alpha-BHC	mg/l	6630 B	< 0.000001	ND	≤ 0.01
gamma-BHC	mg/l	6630 B	< 0.000003	ND	≤ 0.04
Heptachlor	mg/l	6630 B	< 0.000003	ND	≤ 0.01
Aldrin	mg/l	6630 B	< 0.000001	ND	≤ 0.003
beta-BHC	mg/l	6630 B	< 0.000001	ND	≤ 0.03
delta-BHC	mg/l	6630 B	< 0.000003	ND	
Heptachlor epoxide	mg/l	6630 B	< 0.000001	ND	≤ 0.01
o,p'-DDE	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Endosulfan I	mg/l	6630 B	< 0.000003	ND	≤ 14
gamma-Chlordane	mg/l	6630 B	< 0.000003	ND	≤ 0.04
alpha-Chlordane	mg/l	6630 B	< 0.000003	ND	≤ 0.04
p,p'-DDE	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Dieldrin	mg/l	6630 B	< 0.000003	ND	≤ 0.003
o,p'-DDD	mg/l	6630 B	< 0.000003	ND	≤ 0.2
Endrin	mg/l	6630 B	< 0.000003	ND	≤ 1.0
o,p'-DDT	mg/l	6630 B	< 0.000003	ND	≤ 0.1
p,p'-DDD	mg/l	6630 B	< 0.000003	ND	≤ 0.2
Endosulfan II	mg/l	6630 B	< 0.000003	ND	≤ 14
p,p'-DDT	mg/l	6630 B	< 0.000003	ND	≤ 0.1
Endrin aldehyde	mg/l	6630 B	< 0.000001	ND	
Endosulfan Sulfate	mg/l	6630 B	< 0.000003	ND	
Endrin ketone	mg/l	6630 B	< 0.000003	ND	

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

(Miss Narisa Poowasanpetch)

Analyst

REG. NO. 7-239-R-6419

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.

## คุณภาพดิน

---



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1367/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 20/08/2020	SAMPLING TIME	: 10.45-10.55
RECEIVED DATE	: 21/08/2020	ANALYTICAL DATE	: 21-31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-1	STANDARD <sup>1)</sup>
pH	-	9045 D	-	9.00	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.111	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	14.16	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	21.14	≤ 750
Mercury (Hg)	mg/kg	7471B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	24.95	≤ 41,000

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1367/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 20/08/2020	SAMPLING TIME	: 10.45-10.55
RECEIVED DATE	: 21/08/2020	ANALYTICAL DATE	: 21-23, 31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-1	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lerttarpipat)

Analyst

REG. NO. 7-239-ก-6423

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1367/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 20/08/2020 SAMPLING TIME : 10.45-10.55  
RECEIVED DATE : 21/08/2020 ANALYTICAL DATE : 21-23.27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-1	STANDARD <sup>1)</sup>
Total Petroleum Hydrocarbon					
- C <sub>9</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
- C <sub>9</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	17,19	≤ 25
- C <sub>16</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.35	ND	≤ 8

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1<sup>st</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-9-6424

*A. P.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-9-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1367/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 20/08/2020 SAMPLING TIME : 10.45-10.55  
RECEIVED DATE : 21/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-1	STANDARD <sup>1)</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1<sup>st</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-9-6424

*A. P.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-9-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical PCL, Branch 6 (Refinery) **REQUEST SERVICE No.** : 1367/63  
**SAMPLING BY** : SECOT Co., Ltd. **SAMPLING METHOD** : Hand Auger  
**SAMPLING DATE** : 20/08/2020 **SAMPLING TIME** : 10.10-10.20  
**RECEIVED DATE** : 21/08/2020 **ANALYTICAL DATE** : 21-31/08/2020  
**REPORT DATE** : 01/09/2020 **SITE OPERATOR** : Mr. Jirakon Limsila  
**SAMPLE CONDITION** : Normal **FILE CODE** : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-3	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.76	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.054	-
Salinity	ppl	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	3.16	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	9.50	≤ 750
Mercury (Hg)	mg/kg	7471B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	3.83	≤ 41,000

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 8<sup>th</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*A R*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical PCL, Branch 6 (Refinery) **REQUEST SERVICE No.** : 1367/63  
**SAMPLING BY** : SECOT Co., Ltd. **SAMPLING METHOD** : Hand Auger  
**SAMPLING DATE** : 20/08/2020 **SAMPLING TIME** : 10.10-10.20  
**RECEIVED DATE** : 21/08/2020 **ANALYTICAL DATE** : 21-23, 31/08/2020  
**REPORT DATE** : 01/09/2020 **SITE OPERATOR** : Mr. Jirakon Limsila  
**SAMPLE CONDITION** : Normal **FILE CODE** : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-3	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 8<sup>th</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lerttongpipat)

Analyst

REG. NO. 7-239-ก-6423

*A R*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1367/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 20/08/2020 SAMPLING TIME : 10.10-10.20  
RECEIVED DATE : 21/08/2020 ANALYTICAL DATE : 21-23,27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakorn Limsilpa  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-3	STANDARD <sup>1)</sup>
Total Petroleum Hydrocarbon					
-C <sub>7</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>9</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>16</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE : USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 1-239-0-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 1-239-n-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1367/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 20/08/2020 SAMPLING TIME : 10.10-10.20  
RECEIVED DATE : 21/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakorn Limsilpa  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-3	STANDARD <sup>1)</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE : USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 1-239-0-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 1-239-n-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.





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

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 09.10-09.20
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 19-22/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.02	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.020	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	9.87	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	8.33	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	4.30	≤ 41,000

REFERENCE : US EPA 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 8<sup>th</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



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

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 09.10-09.20
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 20-22.31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : US EPA 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 8<sup>th</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lortterapipai)

Analyst

REG. NO. 7-239-ก-6423

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 09.10-09.20  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 21-22,27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09	STANDARD <sup>1)</sup>
Total Petroleum Hydrocarbon					
-C <sub>7</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>9</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>16</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> Ed., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 2-239-B-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-B-5863

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 Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 09.10-09.20  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-09	STANDARD <sup>1)</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	*
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	*
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	*
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	*

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> Ed., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 2-239-B-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-B-5863

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 Ministry of Industry, B.E.2559 (2016).

4. Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 13.20-13.30
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 18-22/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-14	STANDARD <sup>u</sup>
pH	-	9045 D	-	9.04	-
Conductivity	dSm	EC25 (1:5) / Electrical Conductivity	-	0.061	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	10.14	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	5.91	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	4.72	≤ 41,000

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Khemhuda Insorn*

(Miss Khemhuda Insorn)

Analyst

REG. NO. 3-239-9-6423

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 3-239-9-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 13.20-13.30
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 20-22, 31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-14	STANDARD <sup>u</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Naisiri L.*

(Miss Naisiri Lertrapiat)

Analyst

REG. NO. 3-239-9-6423

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 3-239-9-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1339/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 17/08/2020 SAMPLING TIME : 13.20-13.30  
RECEIVED DATE : 18/08/2020 ANALYTICAL DATE : 21-22,27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-14	STANDARD <sup>1/</sup>
Total Petroleum Hydrocarbon					
- C <sub>5</sub> -C <sub>9</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
- C <sub>10</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	12.81	≤ 25
- C <sub>16</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)  
Analyst

REG. NO. 7-239-0-6424

*Araya Tippasuk*  
(Mrs. Araya Tippasuk)  
Technical Management Team

REG. NO. 7-239-0-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1339/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 17/08/2020 SAMPLING TIME : 13.20-13.30  
RECEIVED DATE : 18/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-14	STANDARD <sup>1/</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	*
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	*
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	*
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	*

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)  
Analyst

REG. NO. 7-239-0-6424

*Araya Tippasuk*  
(Mrs. Araya Tippasuk)  
Technical Management Team

REG. NO. 7-239-0-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 11:50-12:00  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 19-22/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-23	STANDARD <sup>1/</sup>
pH	-	9045 D	-	8.20	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.042	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	13.74	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	5.38	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	2.85	≤ 41,000

REFERENCE: US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Khemchuda Inorn*

(Miss Khemchuda Inorn)

Analyst

REG. NO. 1-239-n-5976

*A. T.*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 1-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.
  5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 11:50-12:00  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 20-22,31/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-23	STANDARD <sup>1/</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE: US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lertrapiwat)

Analyst

REG. NO. 1-239-n-6423

*A. T.*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 1-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63				
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger		
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 11.50-12.00		
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 21-22,27-28/08/2020		
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila		
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-23	STANDARD <sup>1/</sup>
Total Petroleum Hydrocarbon					
-C <sub>8</sub> -C <sub>15</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>8</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>16</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE: U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 4<sup>th</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-8-6424

*Araya Tippanuk*  
(Mrs. Araya Tippanuk)

Technical Management Team

REG. NO. 7-239-8-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63				
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger		
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 11.50-12.00		
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 22-24/08/2020		
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila		
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-23	STANDARD <sup>1/</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
hexa-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	*
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	*
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	*
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	*

REFERENCE: U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 4<sup>th</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-8-6424

*Araya Tippanuk*  
(Mrs. Araya Tippanuk)

Technical Management Team

REG. NO. 7-239-8-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 11.30-11.40
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 18-22/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-24	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.81	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.048	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	4.72	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	6.22	≤ 750
Mercury (Hg)	mg/kg	7471B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	3.20	≤ 41,000

REFERENCE : USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>RD</sup> ED., 2014

*Khennchuda Insorn*

(Miss Khennchuda Insorn)

Analyst

REG. NO. 7-239-n-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.
  5. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 11.30-11.40
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 20-22, 31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-24	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>RD</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lerttapiwat)

Analyst

REG. NO. 7-239-n-6423

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.:	1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 11.30-11.40
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 21-22.27-28/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-24	STANDARD <sup>1/</sup>
Total Petroleum Hydrocarbon					
C <sub>9</sub> -C <sub>9</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
C <sub>10</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
C <sub>17</sub> -C <sub>35</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE: USE EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED, 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 1-239-B-6424

*A. R.*  
(Mrs. Araya Tippanik)

Technical Management Team

REG. NO. 1-239-B-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.:	1339/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 17/08/2020	SAMPLING TIME	: 11.30-11.40
RECEIVED DATE	: 18/08/2020	ANALYTICAL DATE	: 22-24/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-24	STANDARD <sup>2/</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	*
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	*
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	*
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	*

REFERENCE: USE EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED, 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 1-239-B-6424

*A. R.*  
(Mrs. Araya Tippanik)

Technical Management Team

REG. NO. 1-239-B-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.





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

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

**SOIL SAMPLES ANALYSIS REPORT**

<b>CLIENT NAME</b>	: PTT Global Chemical PCL, Branch 6 (Refinery)	<b>REQUEST SERVICE No.</b>	: 1341/63
<b>SAMPLING BY</b>	: SECOT Co., Ltd.	<b>SAMPLING METHOD</b>	: Hand Auger
<b>SAMPLING DATE</b>	: 18/08/2020	<b>SAMPLING TIME</b>	: 10.10-10.20
<b>RECEIVED DATE</b>	: 19/08/2020	<b>ANALYTICAL DATE</b>	: 19-22/08/2020
<b>REPORT DATE</b>	: 01/09/2020	<b>SITE OPERATOR</b>	: Mr. Jirakon Limvila
<b>SAMPLE CONDITION</b>	: Normal	<b>FILE CODE</b>	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-32	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.74	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.051	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	11.14	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	5.01	≤ 750
Mercury (Hg)	mg/kg	2471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	6.34	≤ 41,000

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-P-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-P-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

<b>CLIENT NAME</b>	: PTT Global Chemical PCL, Branch 6 (Refinery)	<b>REQUEST SERVICE No.</b>	: 1341/63
<b>SAMPLING BY</b>	: SECOT Co., Ltd.	<b>SAMPLING METHOD</b>	: Hand Auger
<b>SAMPLING DATE</b>	: 18/08/2020	<b>SAMPLING TIME</b>	: 10.10-10.20
<b>RECEIVED DATE</b>	: 19/08/2020	<b>ANALYTICAL DATE</b>	: 20-22/08/2020
<b>REPORT DATE</b>	: 01/09/2020	<b>SITE OPERATOR</b>	: Mr. Jirakon Limvila
<b>SAMPLE CONDITION</b>	: Normal	<b>FILE CODE</b>	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-32	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Naisiri L.*

(Miss Naisiri Lertterapipat)

Analyst

REG. NO. 2-239-P-6423

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-P-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 10.10-10.20  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 21-22,27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-32	STANDARD <sup>1)</sup>
Total Petroleum Hydrocarbon					
-C <sub>1</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>9</sub> *C <sub>10</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>11</sub> *C <sub>15</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE:USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)  
Analyst

REG. NO. 3-239-n-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)  
Technical Management Team

REG. NO. 3-239-n-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 10.10-10.20  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-32	STANDARD <sup>1)</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE:USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)  
Analyst

REG. NO. 3-239-n-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)  
Technical Management Team

REG. NO. 3-239-n-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนวิมลสองประการ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL., Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 10.40-10.50
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 19-22/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_Augus

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-34	STANDARD <sup>1/</sup>
pH	-	9045 D	-	8.55	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.031	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	20.55	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	6.86	≤ 750
Mercury (Hg)	mg/kg	7471B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	3.81	≤ 41.000

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 7<sup>th</sup> ED., 2013

*Khemchuda Jansorn*

(Miss Khemchuda Jansorn)

Analyst

REG. NO. 7-239-R-5976

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. \* Not available.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

239 ถนนวิมลสองประการ แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL., Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 10.40-10.50
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 20-22.31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_Augus

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-34	STANDARD <sup>1/</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : U.S. EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 7<sup>th</sup> ED., 2013

*Naisiri L.*

(Miss Naisiri Lerttarpipat)

Analyst

REG. NO. 7-239-R-6423

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-R-5863

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

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

3. <sup>1/</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 10.40-10.50  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 21/22/27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-34	STANDARD <sup>U</sup>
Total Petroleum Hydrocarbon					
-C <sub>5</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>9</sub> -C <sub>10</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>11</sub> -C <sub>25</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-9-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-9-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No : 1341/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 18/08/2020 SAMPLING TIME : 10.40-10.50  
RECEIVED DATE : 19/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-34	STANDARD <sup>U</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delt-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	*
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	*
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	*
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	*
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	*

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-9-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-9-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 11.10-11.20
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 19-22/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.96	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.046	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	2.66	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	4.14	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	1.74	≤ 41,000

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 3<sup>rd</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*(Mrs. Araya Tipparak)*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.	: 1341/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 18/08/2020	SAMPLING TIME	: 11.10-11.20
RECEIVED DATE	: 19/08/2020	ANALYTICAL DATE	: 20-22.31/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 3<sup>rd</sup> ED., 2014

*Natsiri Lertrapijai*

(Miss Natsiri Lertrapijai)

Analyst

REG. NO. 7-239-ก-6423

*(Mrs. Araya Tipparak)*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63		
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Hand Auger
SAMPLING DATE	18/08/2020	SAMPLING TIME	11.10-11.20
RECEIVED DATE	19/08/2020	ANALYTICAL DATE	21-22,27-28/08/2020
REPORT DATE	01/09/2020	SITE OPERATOR	Mr. Jirakon Limsila
SAMPLE CONDITION	Normal	FILE CODE	220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>V</sup>
Total Petroleum Hydrocarbon					
-C <sub>2</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
-C <sub>9</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
-C <sub>17</sub> -C <sub>25</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE : USEPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 1<sup>st</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 7-239-B-6424

*A. P.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-B-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>V</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME	PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1341/63		
SAMPLING BY	SECOT Co., Ltd.	SAMPLING METHOD	Hand Auger
SAMPLING DATE	18/08/2020	SAMPLING TIME	11.10-11.20
RECEIVED DATE	19/08/2020	ANALYTICAL DATE	22-24/08/2020
REPORT DATE	01/09/2020	SITE OPERATOR	Mr. Jirakon Limsila
SAMPLE CONDITION	Normal	FILE CODE	220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-35	STANDARD <sup>V</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE : USEPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOIL WASTE, 1<sup>st</sup> ED., 2014

*Kesvarin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 7-239-B-6424

*A. P.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-B-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. <sup>V</sup> Notification of the Ministry of Industry, B.E.2559 (2016).
  4. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical PCL, Branch 6 (Refinery) **REQUEST SERVICE No.** : 1347/63  
**SAMPLING BY** : SECOT Co., Ltd. **SAMPLING METHOD** : Hand Auger  
**SAMPLING DATE** : 19/08/2020 **SAMPLING TIME** : 10.20-10.30  
**RECEIVED DATE** : 20/08/2020 **ANALYTICAL DATE** : 20-26/08/2020  
**REPORT DATE** : 01/09/2020 **SITE OPERATOR** : Mr. Jirakon Limsila  
**SAMPLE CONDITION** : Normal **FILE CODE** : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-36	STANDARD <sup>1)</sup>
pH	-	9045 D	-	8.15	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.154	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	55.74	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	1.19	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	12.48	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	19.88	≤ 41,000

REFERENCE : USEPA 816.0-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Khemchuda Inorn*

(Miss Khemchuda Inorn)

Analyst

REG. NO. 7-239-N-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.

5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

**CLIENT NAME** : PTT Global Chemical PCL, Branch 6 (Refinery) **REQUEST SERVICE No.** : 1347/63  
**SAMPLING BY** : SECOT Co., Ltd. **SAMPLING METHOD** : Hand Auger  
**SAMPLING DATE** : 19/08/2020 **SAMPLING TIME** : 10.20-10.30  
**RECEIVED DATE** : 20/08/2020 **ANALYTICAL DATE** : 20-22,31/08/2020  
**REPORT DATE** : 01/09/2020 **SITE OPERATOR** : Mr. Jirakon Limsila  
**SAMPLE CONDITION** : Normal **FILE CODE** : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION	
				MW-36	STANDARD <sup>1)</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : USEPA 816.0-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>st</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lertterapipat)

Analyst

REG. NO. 7-239-N-6423

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-N-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 10.20-10.30  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 21-23/27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-36	STANDARD <sup>u</sup>
Total Petroleum Hydrocarbon					
- C <sub>9</sub> -C <sub>10</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
- C <sub>11</sub> -C <sub>16</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- C <sub>16</sub> -C <sub>19</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kemarin Sinsueg*  
(Miss Kosvarin Sinsueg)

Analyst

REG. NO. 2-239-9-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-9-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 10.20-10.30  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-36	STANDARD <sup>u</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT <sup>u</sup>	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Kemarin Sinsueg*  
(Miss Kosvarin Sinsueg)

Analyst

REG. NO. 2-239-9-6424

*Araya Tipparuk*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-9-5863

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

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

3. <sup>u</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.





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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 14.30-14.40  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 20-26/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-41)	STANDARD <sup>U</sup>
pH	-	9045 D	-	8.33	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.081	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	4.40	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	4.43	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	5.37	≤ 41,000

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-P-5976

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. Reference method : Operation Manual Chemical Analysis in Soil Land Development Department.

S<sub>r</sub> - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 14.30-14.40  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 20-23/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-41)	STANDARD <sup>U</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Naisiri L.*

(Miss Naisiri Lertnarpipat)

Analyst

REG. NO. 7-239-P-6423

*Araya Tipparak*

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-P-5863

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

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

3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 14:30-14:40  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 21-23.27-28/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soi\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-41)	STANDARD <sup>U</sup>
Total Petroleum Hydrocarbon					
- C <sub>9</sub> -C <sub>9</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
- C <sub>10</sub> -C <sub>10</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- C <sub>11</sub> -C <sub>11</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE: USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>ST</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-B-6424

*A. R.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-B-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 14:30-14:40  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 22-24/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soi\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-41)	STANDARD <sup>U</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE: USEPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1<sup>ST</sup> ED., 2014

*Kesarin Sinsueg*  
(Miss Kesarin Sinsueg)

Analyst

REG. NO. 7-239-B-6424

*A. R.*  
(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-B-5863

- Remark : 1. Reported analysis refers to submitted sample only.  
2. This report shall not be reproduced, except in full, without official approval.  
3. <sup>U</sup> Notification of the Ministry of Industry, B.E.2559 (2016).  
4. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 13.40-13.50  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 20-22/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-42)	STANDARD <sup>1/</sup>
pH	-	9045 D	-	8.49	-
Conductivity	dS/m	EC25 (1:5) / Electrical Conductivity	-	0.039	-
Salinity	ppt	EC25 (1:5) / Electrical Conductivity	-	0.0	-
Arsenic (As)	mg/kg	3050 B/6010 D	< 2.00	ND	≤ 27
Cadmium (Cd)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 810
Lead (Pb)	mg/kg	3050 B/6010 D	< 3.00	3.43	≤ 750
Mercury (Hg)	mg/kg	7471 B	< 0.05	ND	≤ 610
Nickel (Ni)	mg/kg	3050 B/6010 D	< 1.00	ND	≤ 41,000

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Khemchuda Insorn*

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. Notification of the Ministry of Industry, B.E.2559 (2016).
  4. Reference method : Operation Manual Chemical Analysis in Soil, Land Development Department.
  5. - Not available.



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

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

**SOIL SAMPLES ANALYSIS REPORT**

CLIENT NAME : PTT Global Chemical PCL, Branch 6 (Refinery) REQUEST SERVICE No. : 1347/63  
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Hand Auger  
SAMPLING DATE : 19/08/2020 SAMPLING TIME : 13.40-13.50  
RECEIVED DATE : 20/08/2020 ANALYTICAL DATE : 20-22/08/2020  
REPORT DATE : 01/09/2020 SITE OPERATOR : Mr. Jirakon Limsila  
SAMPLE CONDITION : Normal FILE CODE : 220010\_Soil\_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-42)	STANDARD <sup>1/</sup>
Naphthalene	mg/kg	3540 C / 8270 D	< 0.005	ND	≤ 1,000
Benzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 15
Ethylbenzene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 230
Toluene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 520
m-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
o-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
p-Xylene	mg/kg	5035 A / 8260 C	< 0.00025	ND	≤ 210
Total Xylenes	mg/kg	5035 A / 8260 C	< 0.00075	ND	≤ 210

REFERENCE : US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3<sup>rd</sup> ED., 2014

*Natsiri L.*

(Miss Natsiri Lerlterapipat)

Analyst

REG. NO. 7-239-ก-6423

*Araya Tipparuk*

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
  2. This report shall not be reproduced, except in full, without official approval.
  3. Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.:	1347/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 19/08/2020	SAMPLING TIME	: 13.40-13.50
RECEIVED DATE	: 20/08/2020	ANALYTICAL DATE	: 21-23,27-28/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-42)	STANDARD <sup>1)</sup>
Total Petroleum Hydrocarbon					
- C <sub>7</sub> -C <sub>8</sub>	mg/kg	5035 A / 8260 C	< 0.003	ND	≤ 25
- C <sub>9</sub> -C <sub>10</sub>	mg/kg	3540 C / 8015 D	< 0.25	ND	≤ 25
- C <sub>11</sub> -C <sub>15</sub>	mg/kg	3540 C / 8015 D	< 1.85	ND	≤ 8

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 7<sup>th</sup> ED., 2014

*Kensin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 7-239-ก-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical PCL, Branch 6 (Refinery)	REQUEST SERVICE No.:	1347/63
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Hand Auger
SAMPLING DATE	: 19/08/2020	SAMPLING TIME	: 13.40-13.50
RECEIVED DATE	: 20/08/2020	ANALYTICAL DATE	: 22-24/08/2020
REPORT DATE	: 01/09/2020	SITE OPERATOR	: Mr. Jirakon Limsila
SAMPLE CONDITION	: Normal	FILE CODE	: 220010_Soil_August

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION VCU (MW-42)	STANDARD <sup>1)</sup>
alpha-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.3
gamma-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 29
Heptachlor	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 5.5
Aldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.1
beta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.9
delta-BHC	mg/kg	3550C / 8081B	< 0.0002	ND	-
Heptachlor epoxide	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 2.7
o,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Endosulfan I	mg/kg	3550C / 8081B	< 0.0002	ND	-
gamma-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
alpha-Chlordane	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 110
p,p'-DDE	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 0.001
Dieldrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 1.5
o,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endrin	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 25
o,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
p,p'-DDD	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 7
Endosulfan II	mg/kg	3550C / 8081B	< 0.0002	ND	-
p,p'-DDT	mg/kg	3550C / 8081B	< 0.0002	ND	≤ 120
Endrin aldehyde	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endosulfan sulfate	mg/kg	3550C / 8081B	< 0.0002	ND	-
Endrin ketone	mg/kg	3550C / 8081B	< 0.0002	ND	-

REFERENCE: US EPA SW-846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 7<sup>th</sup> ED., 2014

*Kensin Sinsueg*  
(Miss Kesvarin Sinsueg)

Analyst

REG. NO. 7-239-ก-6424

*Araya Tipparak*  
(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-ก-5863

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

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

3. <sup>1)</sup> Notification of the Ministry of Industry, B.E.2559 (2016).

4. - Not available.

## ระดับเสียงในพื้นที่ทำงาน

---



## Noise Monitoring Result : Working Noise MTR-PTTGC6-Refinery

Location : Air Compressor (K-1701 A,B and Spare) (Panel 3) Monitor Period : Oct 12, 2022  
SLM Model : Cirrus CR162B Serial No : G300709  
Site Operator : Mr. Baworn Deechaiya

Calibrator Model : Cirrus CR:515 Serial No : 94296  
Calibration Ref dB(A) : 94.0 Certified Date : Dec 24, 2021  
SLM Reading / Adjust dB(A) : 93.7/-0.2 Expire Date : Dec 23, 2022  
Cal Sheet No.: CR-515-2022-118

Time	Equivalent Sound Pressure Level (dB(A))	
	Oct 12, 2022	
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	84.0	
10:00 - 11:00	83.5	
11:00 - 12:00	84.2	
12:00 - 13:00	83.8	
13:00 - 14:00	84.8	
14:00 - 15:00	84.6	
15:00 - 16:00	84.8	
16:00 - 17:00	85.3	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	84.4	
Lmax **	100.9	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Sununta Sirawuttinanon)  
Technical Management Team



## Noise Monitoring Result : Working Noise MTR-PTTGC6 - Refinery

Location : Air Blower (K-1001 of K-1003) (Panel 1) Monitor Period : Sep 15, 2022  
SLM Model : Cirrus CR162B Serial No : G302741  
Site Operator : Mr.Chanapon Oakkharaplon

Calibrator Model : Cirrus CR:515 Serial No : 94296  
Calibration Ref dB(A) : 94.0 Certified Date : Dec 24, 2021  
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : Dec 23, 2022  
Cal Sheet No.: CR-515-2022-093

Time	Equivalent Sound Pressure Level (dB(A))	
	Sep 15, 2022	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		
08:00 - 09:00		
09:00 - 10:00	83.3	
10:00 - 11:00	83.1	
11:00 - 12:00	83.0	
12:00 - 13:00	83.0	
13:00 - 14:00	83.1	
14:00 - 15:00	83.2	
15:00 - 16:00	83.2	
16:00 - 17:00	83.3	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	83.2	
Lmax **	84.8	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Sununta Sirawuttinanon)  
Technical Management Team



## Noise Monitoring Result : Working Noise MTR-PTTGC6 - Refinery

Location : Fan (Below E-1791) (Panel 3) Monitor Period : Sep 15, 2022  
SLM Model : Cirrus CR162B Serial No : G302740  
Site Operator : Mr.Chanapon Oakkharaplon

Calibrator Model : Cirrus CR:515 Serial No : 94296  
Calibration Ref dB(A) : 94.0 Certified Date : Dec 24, 2021  
SLM Reading / Adjust dB(A) : 93.7/0.2 Expire Date : Dec 23, 2022  
Cal Sheet No.: CR-515-2022-093

Time	Equivalent Sound Pressure Level (dB(A))	
	Sep 15, 2022	
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	82.8	
10:00 - 11:00	82.1	
11:00 - 12:00	82.1	
12:00 - 13:00	82.2	
13:00 - 14:00	82.7	
14:00 - 15:00	82.9	
15:00 - 16:00	82.5	
16:00 - 17:00	82.5	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	82.5	
Lmax **	89.4	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Sununta Sirawuttinanon)  
Technical Management Team



## Noise Monitoring Result : Working Noise MTR-PTTGC6 - Refinery

Location : Generator (Gas Turbine) (Panel 4) Monitor Period : Sep 15, 2022  
SLM Model : Cirrus CR162B Serial No : G302737  
Site Operator : Mr.Chanapon Oakkharaplon

Calibrator Model : Cirrus CR:515 Serial No : 94296  
Calibration Ref dB(A) : 94.0 Certified Date : Dec 24, 2021  
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : Dec 23, 2022  
Cal Sheet No.: CR-515-2022-093

Time	Equivalent Sound Pressure Level (dB(A))	
	Sep 15, 2022	
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	80.1	
10:00 - 11:00	79.8	
11:00 - 12:00	79.6	
12:00 - 13:00	79.7	
13:00 - 14:00	79.8	
14:00 - 15:00	79.9	
15:00 - 16:00	80.0	
16:00 - 17:00	79.9	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	79.9	
Lmax **	82.3	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Sununta Sirawuttinanon)  
Technical Management Team



## Noise Monitoring Result : Working Noise

### MTR-PTTGC6 - Refinery

Location : Steam Turbine (Steam Generators) (Panel 4)		Monitor Period : Sep 15, 2022	
SLM Model : Cirrus CR162B		Serial No : G302738	
Site Operator : Mr.Chanapon Oakkharaplon			

Calibrator Model : Cirrus CR:515		Serial No : 94296	
Calibration Ref dB(A) : 94.0		Certified Date : Dec 24, 2021	
SLM Reading / Adjust dB(A) : 93.7/0.5		Expire Date : Dec 23, 2022	
Cal Sheet No.: CR-515-2022-093			

Time	Equivalent Sound Pressure Level (dB(A))
	Sep 15, 2022
00:00 - 01:00	
01:00 - 02:00	
02:00 - 03:00	
03:00 - 04:00	
04:00 - 05:00	
05:00 - 06:00	
06:00 - 07:00	
07:00 - 08:00	
08:00 - 09:00	
09:00 - 10:00	83.8
10:00 - 11:00	83.5
11:00 - 12:00	83.3
12:00 - 13:00	83.6
13:00 - 14:00	83.6
14:00 - 15:00	83.7
15:00 - 16:00	83.8
16:00 - 17:00	83.5
17:00 - 18:00	
18:00 - 19:00	
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	

Leq(8)*	83.6
Lmax **	87.7

Standard-8Hr	90 dB(A)
Standard-Max	140 dB(A)

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

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

(Miss Katesarin Vorradetwittaya)  
Environmental Scientist

(Miss Sununta Sirawuttinanon)  
Technical Management Team



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

## NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: PTTGC6 (Refinery)_222010_Cert-NsD/Sep22
	Branch 6 (Refinery)	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR TYPE	: RC 110A
MEASUREMENT DATE	: 15/09/2022	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Process area	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Mr. Chanaphon Oakkharaphon		

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
ID 26009116	Operator Panel 1	07,44-19,35	58.1	80.9	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.





บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

#### NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-NsD/Sep22  
Branch 6 (Refinery) INSTRUMENT : Noise Dosimeter  
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR TYPE : RC 110A  
MEASUREMENT DATE : 15/09/2022 SERIAL NO. : 95168  
MEASUREMENT LOCATION : Process area CALIBRATOR REF. : 114 dB @1,000 Hz  
SITE OPERATOR : Mr. Chanaphon Oakkharaphon

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (12 hr) (dBA)	
ID 26006350	Operator Panel 2	07.30-19.22	65.1	81.4	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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

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

3. \*Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

#### NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-NsD/Sep22  
Branch 6 (Refinery) INSTRUMENT : Noise Dosimeter  
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR TYPE : RC 110A  
MEASUREMENT DATE : 15/09/2022 SERIAL NO. : 95168  
MEASUREMENT LOCATION : Process area CALIBRATOR REF. : 114 dB @1,000 Hz  
SITE OPERATOR : Mr. Chanaphon Oakkharaphon

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (12 hr) (dBA)	
ID 26006556	Operator Panel 3	07.30-19.19	35.5	78.8	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.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-NsD/Sep22  
Branch 6 (Refinery) INSTRUMENT : Noise Dosimeter  
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR TYPE : RC 110A  
MEASUREMENT DATE : 15/09/2022 SERIAL NO. : 95168  
MEASUREMENT LOCATION : Process area CALIBRATOR REF. : 114 dB @1,000 Hz  
SITE OPERATOR : Mr. Chanaphon Oakkharaphon

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (12 hr) (dBA)	
ID 26006557	Operator Panel 4	07.30-19.20	53.3	80.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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

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

3. \*Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME : PTT Global Chemical Public Co., Ltd. REFERENCE NO. : PTTGC6 (Refinery)\_222010\_Cert-NsD/Sep22  
Branch 6 (Refinery) INSTRUMENT : Noise Dosimeter  
MEASUREMENT BY : SECOT Co., Ltd. CALIBRATOR TYPE : RC 110A  
MEASUREMENT DATE : 15/09/2022 SERIAL NO. : 95168  
MEASUREMENT LOCATION : Process area CALIBRATOR REF. : 114 dB @1,000 Hz  
SITE OPERATOR : Mr. Chanaphon Oakkharaphon

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (12 hr) (dBA)	
ID 26006894	Operator Panel 5	07.35-19.20	26.8	77.5	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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

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

3. \*Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลทองประไพ แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

# NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: PTTC6 (Refinery)_222010_Cert-NsD/Sep22
	Branch 6 (Refinery)	INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	CALIBRATOR TYPE	: RC 110A
MEASUREMENT DATE	: 15/09/2022	SERIAL NO.	: 95168
MEASUREMENT LOCATION	: Process area	CALIBRATOR REF.	: 114 dB @1,000 Hz
SITE OPERATOR	: Mr. Chanaphon Oakkharaphon		

OPERATOR ID	RESPONSIBILITY/AREA	TIME	RESULTS		STANDARD*
			% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
ID 00GI02311	Operator Maintenance	08.40-16.40	25.4	79.1	85.0

(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.

## สารเคมีในพื้นที่ทำงาน

---



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1683/65.1872/65
For	: PTT Global Chemical Public Co., Ltd. Branch 6 (Refinery GC6)	Sampling Date	: 05, 08, 11/08/2022, 08/09/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/08/2022, 13/09/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 04-07/09/2022, 23/09/2022
		Report Date	: 27/09/2022

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
Panel 1	08/09/2022 11:23-15:33	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 2	05/08/2022 14:37-18:45	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 3	08/08/2022 10:43-14:50	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 5	11/08/2022 14:55-19:01	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20

Analyst By: Phatchara Samanchan  
(Miss Phatchara Samanchan)

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

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

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

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

The maximum concentration limit during any working time.

4. ND = non-detectable.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1624/65,1643/65, 1669/65.1872/65
For	: PTT Global Chemical Public Co., Ltd. Branch 6 (Refinery GC6)	Sampling Date	: 05, 06, 09, 11/08/2022, 08/09/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 09, 11, 17/08/2022, 13/09/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 10, 11, 17/08/2022, 13/09/2022
		Report Date	: 27/09/2022

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 ppm	RESULT ppm	STANDARD ppm
Panel 1	08/09/2022 13:04-13:19	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.83	-
Panel 2	05/08/2022 14:01-14:16	Total Hydrocarbon	THC Analyzer / FID	< 0.10	47.00	-
Panel 4	06/08/2022 13:11-13:26	Total Hydrocarbon	THC Analyzer / FID	< 0.10	5.04	-
Panel 5	11/08/2022 15:01-15:16	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.63	-
Panel 6	09/08/2022 08:04-08:19	Total Hydrocarbon	THC Analyzer / FID	< 0.10	5.58	-

Analyst By: Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

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

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

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

3. ND = non-detectable.

4. - No Standard.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1683/65,1872/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 05, 08-09, 11/08/2022, 08/09/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 22/08/2022, 13/09/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 24/08/2022, 17/09/2022
		Report Date	: 27/09/2022

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
Panel 1	08/09/2022 11:09-15:20	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 2	05/08/2022 14:01-14:16	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 3	08/08/2022 10:43-14:50	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 5	11/08/2022 14:55-19:01	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 6	09/08/2022 08:04-12:19	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Track Loading	09/08/2022 07:49-12:04	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1

Analyst By: Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

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

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

- This report shall not be reproduced, except in full, without official approval.
- Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).  
The maximum concentration limit during any working time.
- ND = non-detectable.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 1643/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 08/08/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 11/08/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 11/08/2022
		Report Date	: 08/09/2022

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 ppm	RESULT ppm	STANDARD ppm
Panel 3	08/08/2022 10:05-10:20	NMHC	THC Analyzer/FID	< 0.05	1.35	1

Analyst By: Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

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

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

- This report shall not be reproduced, except in full, without official approval.
- ND = non-detectable.
- No Standard.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 2543/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 21/12/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 24/12/2022
		Test Date	: 26/12/2022
Tel/Fax	: 0-3897-1000 / -	Report Date	: 28/12/2022

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
Panel 1	21/12/2022 09:21-13:21	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 2	21/12/2022 09:45-13:45	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 3	21/12/2022 10:20-14:20	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20
Panel 5	21/12/2022 10:42-14:42	Hydrogen sulfide	NIOSH 6013/IC	< 0.03	ND	20

Analyst By :

Phatchara Samanchan  
(Miss Phatchara Samanchan)

Approved By :

Narisa Poowasanpetch  
(Miss Narisa Poowasanpetch)  
Technical Management Team

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

2. This report shall not be reproduced, except in full, without official approval.
3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).
4. ND = non-detectable.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 2543/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 21/12/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong Province 21150	Received Date	: 24/12/2022
		Test Date	: 24/12/2022
Tel/Fax	: 0-3897-1000 / -	Report Date	: 28/12/2022

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 ppm	RESULT ppm	STANDARD ppm
Panel 1	21/12/2022 09:21-09:36	Total Hydrocarbon	THC Analyzer / FID	< 0.10	5.12	4
Panel 2	21/12/2022 09:58-10:13	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.32	4
Panel 4	21/12/2022 10:35-10:50	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.11	4
Panel 5	21/12/2022 10:42-10:57	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.06	4
Panel 6	21/12/2022 11:02-11:17	Total Hydrocarbon	THC Analyzer / FID	< 0.10	4.01	4

Analyst By :

Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

Approved By :

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. ND = non-detectable.
4. - No Standard.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 2543/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 21/12/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	Received Date	: 24/12/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 28/12/2022
		Report Date	: 28/12/2022

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Panel 1	21/12/2022 09:30-13:30	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 2	21/12/2022 09:58-10:13	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 3	21/12/2022 10:20-14:20	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 5	21/12/2022 10:42-14:42	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Panel 6	21/12/2022 11:02-15:02	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1
Truck Loading	21/12/2022 10:53-14:53	Benzene	OSHA 1005/ GC FID	< 0.04	ND	1

Analyst By : Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

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

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

- This report shall not be reproduced, except in full, without official approval.
- Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).
- ND = non-detectable.



บริษัท ซีคอต จำกัด  
SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 2543/65
For	: PTT Global Chemical Public Co., Ltd, Branch 6 (Refinery GC6)	Sampling Date	: 21/12/2022
Address	: No.8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	Received Date	: 24/12/2022
Tel/Fax	: 0-3897-1000 / -	Test Date	: 24/12/2022
		Report Date	: 28/12/2022

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 ppm	RESULT ppm	STANDARD ppm
Panel 3	21/12/2022 10:12-10:27	NMHC	THC Analyzer/FID	< 0.05	0.15	1

Analyst By : Sudaporn Soonthorn  
(Miss Sudaporn Soonthorn)

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

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

- This report shall not be reproduced, except in full, without official approval.
- ND = non-detectable.
- No Standard.