

ภาคผนวก ง

ใบรับรองผลการตรวจวัดและวิเคราะห์

ภาคผนวก ง.1

ใบรับรองผลการตรวจวัดคุณภาพอากาศในบรรยากาศ



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Technology IRPC School

Monitor period : 01-08 Jul 2022

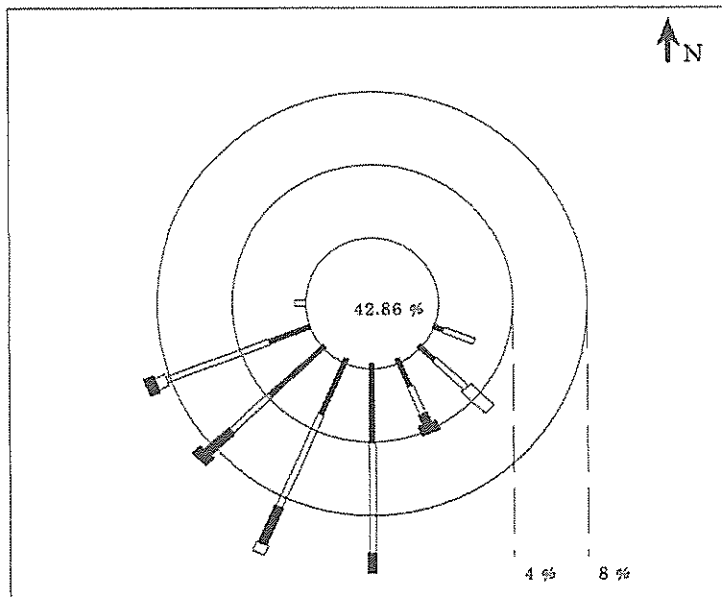
Wind Speed Model : NRG Symphonie

Serial No : A5090

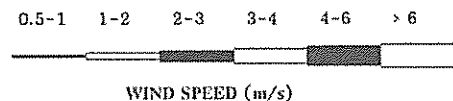
Wind Direction Model : NRG Symphonie

Serial No : A5090


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	0.0060	0.0179	0.0000	0.0000	0.0000	0.0000	0.0238
SE	0.0119	0.0238	0.0000	0.0179	0.0000	0.0000	0.0536
SSE	0.0179	0.0179	0.0060	0.0000	0.0060	0.0000	0.0476
S	0.0476	0.0655	0.0119	0.0000	0.0000	0.0000	0.1250
SSW	0.0357	0.0595	0.0238	0.0060	0.0000	0.0000	0.1250
SW	0.0417	0.0298	0.0179	0.0000	0.0060	0.0000	0.0952
WSW	0.0238	0.0595	0.0000	0.0060	0.0060	0.0000	0.0952
W	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
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	0.4286						

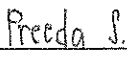


Application : WindPro Ver.1.0

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-222030-Technology IRPC School 01-08 Jul 2022


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Technology IRPC School

Monitor period : 01-08 Jul 2022

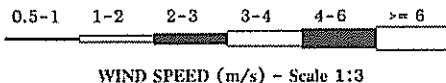
Wind Speed Model : NRG Symphonie

Serial No : A5090

Wind Direction Model : NRG Symphonie

Serial No : A5090

Time	01-02 Jul 2022		02-03 Jul 2022		03-04 Jul 2022		04-05 Jul 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	1.1	SSW	1.0	WSW	1.0	WSW	2.1	S
11:00 - 12:00	0.1	SSW	1.7	SSW	3.4	WSW	0.3	SE
12:00 - 13:00	0.1	SW	2.4	SW	1.4	WSW	1.2	S
13:00 - 14:00	1.3	WSW	1.5	W	1.9	SE	1.6	SSW
14:00 - 15:00	3.0	SE	0.6	SW	1.5	WSW	0.4	SSW
15:00 - 16:00	0.2	SSE	1.0	SSW	0.8	SSW	0.6	SSE
16:00 - 17:00	1.4	SSW	0.1	S	0.2	SW	0.8	SW
17:00 - 18:00	1.0	SSE	0.9	SSW	1.2	S	3.0	SE
18:00 - 19:00	1.0	S	0.3	WSW	1.0	WSW	0.5	SSW
19:00 - 20:00	0.9	SW	0.1	S	0.7	SW	1.6	S
20:00 - 21:00	0.1	WSW	0.2	SSW	4.3	SSE	1.4	SW
21:00 - 22:00	0.4	SE	1.1	S	1.5	SE	1.2	SSW
22:00 - 23:00	0.1	SSE	0.1	SSW	1.7	WSW	2.0	SSW
23:00 - 24:00	0.2	SSW	1.0	WSW	0.6	WSW	1.3	S
00:00 - 01:00	0.1	SSE	0.1	WSW	1.7	SSE	1.2	S
01:00 - 02:00	1.3	WSW	0.1	SW	1.6	SSW	0.5	S
02:00 - 03:00	0.7	S	0.2	SW	0.6	S	0.9	S
03:00 - 04:00	1.1	SE	0.2	SE	0.6	ESE	1.7	SSW
04:00 - 05:00	0.1	SSW	0.1	SE	1.2	SW	2.8	SSW
05:00 - 06:00	0.1	SSW	1.0	S	2.4	SSW	0.8	SW
06:00 - 07:00	0.1	SW	0.1	SW	2.0	SW	1.1	SE
07:00 - 08:00	0.1	SE	0.8	SSW	2.4	SSE	0.6	WSW
08:00 - 09:00	2.1	S	4.1	WSW	1.8	ESE	1.0	SW
09:00 - 10:00	0.9	S	1.5	S	0.8	SW	1.4	SW
Wind Rose								



File Control :R:\Database\Windrose\FileControl\Win-222030-Technology IRPC School 01-08 Jul 2022

(Miss Katesarin Vorradetwittaya)

 Environmental Scientist

(Miss Preeda Somjai)

 Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Technology IRPC School

Monitor period : 01-08 Jul 2022

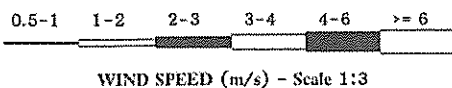
Wind Speed Model : NRG Symphonie

Serial No : A5090

Wind Direction Model : NRG Symphonie

Serial No : A5090

Time	05-06 Jul 2022		06-07 Jul 2022		07-08 Jul 2022		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
10:00 - 11:00	0.7	SSE	1.4	SSW	1.7	SSW	
11:00 - 12:00	0.2	SW	0.5	S	0.1	SE	
12:00 - 13:00	1.7	SSE	4.3	SW	0.3	SSW	
13:00 - 14:00	0.4	ESE	1.8	SW	0.1	S	
14:00 - 15:00	0.5	WSW	0.3	SSE	0.8	SE	
15:00 - 16:00	1.0	ESE	0.6	S	1.1	ESE	
16:00 - 17:00	0.2	WSW	0.1	SSW	2.5	SSW	
17:00 - 18:00	0.4	S	0.1	SSW	3.5	SE	
18:00 - 19:00	0.8	SSW	0.4	SE	0.4	SSE	
19:00 - 20:00	0.1	S	0.9	SW	0.1	SE	
20:00 - 21:00	0.2	SW	0.1	SW	0.1	SSE	
21:00 - 22:00	0.1	ESE	0.2	WSW	0.1	SE	
22:00 - 23:00	0.3	S	0.1	SSE	0.1	SW	
23:00 - 24:00	0.3	SSE	0.7	WSW	0.5	S	
00:00 - 01:00	0.2	SE	0.1	WSW	3.5	SSW	
01:00 - 02:00	0.1	ESE	0.2	WSW	1.6	S	
02:00 - 03:00	0.1	E	0.4	S	0.1	SW	
03:00 - 04:00	0.1	ESE	0.1	S	0.1	SW	
04:00 - 05:00	0.1	WSW	0.1	S	0.1	SE	
05:00 - 06:00	0.1	E	0.5	SE	0.4	N	
06:00 - 07:00	0.1	SSW	0.4	SW	0.1	S	
07:00 - 08:00	0.1	ESE	0.1	SSE	0.9	SSW	
08:00 - 09:00	2.0	SW	1.2	S	0.3	SSE	
09:00 - 10:00	1.6	WSW	0.8	SSE	0.4	SSE	
Wind Rose							



File Control :R:\Database\Windrose\Win-222030-Technology IRPC School 01-08 Jul 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)

Monitor period : 01-08 Jul 2022

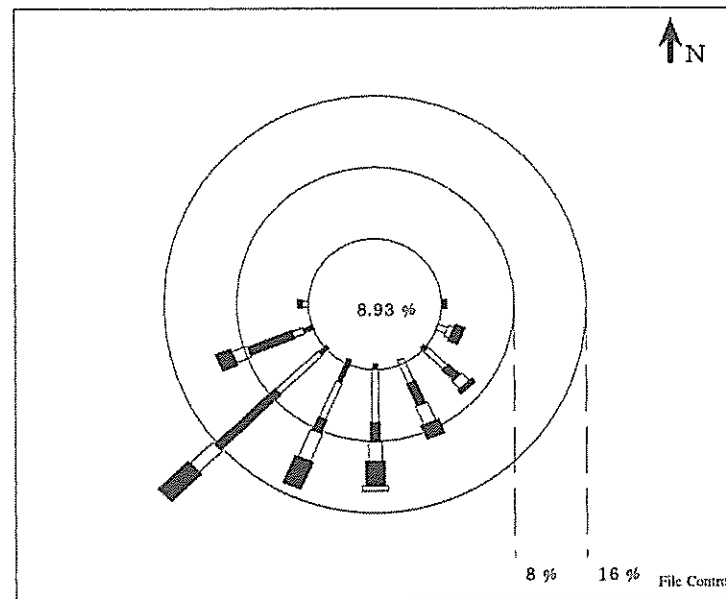
Wind Speed Model : NRG Symphonie

Serial No : A4904

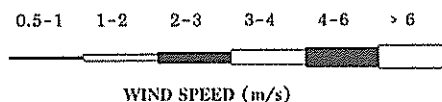
Wind Direction Model : NRG Symphonie

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
ESE	0.0000	0.0119	0.0000	0.0060	0.0119	0.0000	0.0298
SE	0.0060	0.0298	0.0179	0.0119	0.0060	0.0000	0.0714
SSE	0.0000	0.0298	0.0298	0.0238	0.0179	0.0000	0.1012
S	0.0060	0.0655	0.0238	0.0238	0.0298	0.0060	0.1548
SSW	0.0298	0.0476	0.0179	0.0357	0.0357	0.0000	0.1667
SW	0.0119	0.0655	0.0952	0.0357	0.0476	0.0000	0.2560
WSW	0.0119	0.0119	0.0536	0.0179	0.0179	0.0000	0.1131
W	0.0000	0.0060	0.0060	0.0000	0.0000	0.0000	0.0119
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0893						



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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)

Monitor period : 01-08 Jul 2022

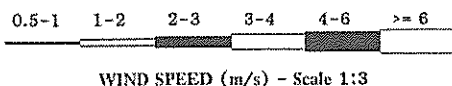
Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie

Serial No : A4904

Time	01-02 Jul 2022		02-03 Jul 2022		03-04 Jul 2022		04-05 Jul 2022	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
11:00 - 12:00	1.4	S	1.5	SSW	1.6	S	2.9	SSW
12:00 - 13:00	1.6	SSE	1.6	SSW	2.6	WSW	2.2	SW
13:00 - 14:00	4.5	SW	3.8	SW	4.2	WSW	2.6	SSE
14:00 - 15:00	5.2	SSW	2.6	SW	3.3	S	1.8	SSW
15:00 - 16:00	1.5	WSW	0.8	SSW	4.0	SSE	3.9	S
16:00 - 17:00	1.6	S	3.7	SW	4.0	S	2.5	SSW
17:00 - 18:00	1.0	SE	1.4	ESE	3.6	SE	2.4	SW
18:00 - 19:00	4.4	SW	2.0	WSW	5.6	SSW	4.3	SW
19:00 - 20:00	1.7	S	2.9	SW	2.7	SSE	2.5	SE
20:00 - 21:00	0.1	SSE	2.2	SSW	0.6	SSW	5.3	ESE
21:00 - 22:00	0.1	SSW	1.8	SSE	4.8	SW	4.1	S
22:00 - 23:00	2.0	S	2.1	SW	2.2	SW	1.2	SSE
23:00 - 24:00	4.0	SSW	5.1	WSW	4.5	S	4.7	SW
00:00 - 01:00	3.1	SSW	1.8	SW	4.3	SSW	3.3	SW
01:00 - 02:00	1.2	S	7.8	S	4.0	SSW	1.4	SW
02:00 - 03:00	1.1	SSW	4.0	SW	1.8	S	2.5	SW
03:00 - 04:00	2.5	WSW	5.6	SSW	1.7	SSW	3.7	S
04:00 - 05:00	3.4	SSE	1.3	SE	2.8	SW	1.1	SSW
05:00 - 06:00	3.4	SSE	4.4	S	1.4	SW	1.2	SSW
06:00 - 07:00	1.7	SW	1.5	WSW	1.7	W	3.4	S
07:00 - 08:00	4.2	SW	5.3	SW	4.9	SE	2.7	SE
08:00 - 09:00	4.2	S	3.9	SW	3.8	SSW	5.9	SSE
09:00 - 10:00	3.4	SW	3.0	SSW	2.7	SW	3.0	SSW
10:00 - 11:00	3.0	SW	3.8	ESE	3.0	WSW	2.9	SW
Wind Rose								



File Control :R:\Database\Windrose\WinControl\Win-222030-Moo4 of Ta-Phong Sub-District (North of Project Site) 01-08 Jul 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)

Monitor period : 01-08 Jul 2022

Wind Speed Model : NRG Symphonie

Serial No : A4904

Wind Direction Model : NRG Symphonie


Serial No : A4904

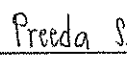
Time	05-06 Jul 2022		06-07 Jul 2022		07-08 Jul 2022		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
11:00 - 12:00	2.6	S	1.1	SE	3.3	WSW	
12:00 - 13:00	0.8	WSW	4.8	ESE	2.9	S	
13:00 - 14:00	1.2	SW	1.9	SW	3.7	SSE	
14:00 - 15:00	2.1	SSE	2.1	S	2.9	SE	
15:00 - 16:00	2.9	WSW	0.8	SW	3.2	SE	
16:00 - 17:00	1.3	ESE	2.2	SSE	2.3	WSW	
17:00 - 18:00	1.4	S	1.3	SSE	2.7	E	
18:00 - 19:00	0.4	WSW	2.3	W	2.2	WSW	
19:00 - 20:00	1.1	SW	1.8	SW	0.9	SSW	
20:00 - 21:00	2.3	WSW	2.0	WSW	1.0	S	
21:00 - 22:00	1.0	S	1.5	SSE	1.4	SW	
22:00 - 23:00	0.1	SW	0.7	SSW	1.6	SSW	
23:00 - 24:00	0.1	WSW	0.8	SE	0.8	SSW	
00:00 - 01:00	0.1	SSW	3.2	WSW	1.9	S	
01:00 - 02:00	0.1	SW	0.1	SSE	2.0	SSE	
02:00 - 03:00	0.1	WSW	0.6	WSW	0.6	SW	
03:00 - 04:00	0.1	SSW	2.3	SW	1.4	S	
04:00 - 05:00	1.2	SW	2.4	SW	1.8	SE	
05:00 - 06:00	0.1	SSE	1.3	SW	0.8	S	
06:00 - 07:00	0.1	NNE	2.2	SW	0.1	SSW	
07:00 - 08:00	0.1	SSE	2.3	SW	3.9	SSW	
08:00 - 09:00	2.5	SW	3.1	SSW	5.6	SSE	
09:00 - 10:00	1.1	SE	2.5	WSW	2.3	SW	
10:00 - 11:00	3.4	SSE	4.1	WSW	0.1	WSW	
Wind Rose							



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

File Control :R:\Database\Windrose\FileControl\Win-222030-Moo4 of Ta-Phong Sub-District (North of Project Site) 01-08 Jul 2022


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Sonjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-CPL

Location : Technology IRPC School

Monitor Period : 01-08 Jul 2022

Analyzer Model : Teledyne T100

Station No : Mobile 10

Serial No : 2010

Site Operator : Mr. Sittichai Sawangwongchai

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 (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	0.0041	0.0046	0.0030	0.0042	0.0040	0.0034	0.0025
11:00 - 12:00	0.0036	0.0030	0.0038	0.0032	0.0047	0.0028	0.0035
12:00 - 13:00	0.0047	0.0029	0.0036	0.0046	0.0028	0.0049	0.0021
13:00 - 14:00	0.0024	0.0040	0.0020	0.0048	0.0028	0.0048	0.0030
14:00 - 15:00	0.0044	0.0048	0.0041	0.0027	0.0036	0.0043	0.0023
15:00 - 16:00	0.0037	0.0040	0.0033	0.0042	0.0029	0.0025	0.0041
16:00 - 17:00	0.0045	0.0022	0.0036	0.0036	0.0031	0.0028	0.0025
17:00 - 18:00	0.0047	0.0040	0.0038	0.0020	0.0038	0.0043	0.0022
18:00 - 19:00	0.0025	0.0020	0.0023	0.0026	0.0047	0.0033	0.0022
19:00 - 20:00	0.0045	0.0020	0.0025	0.0036	0.0031	0.0045	0.0021
20:00 - 21:00	0.0041	0.0022	0.0044	0.0024	0.0037	0.0033	0.0039
21:00 - 22:00	0.0048	0.0039	0.0038	0.0021	0.0027	0.0044	0.0032
22:00 - 23:00	0.0038	0.0035	0.0045	0.0036	0.0048	0.0048	0.0034
23:00 - 00:00	0.0025	0.0047	0.0038	0.0046	0.0028	0.0025	0.0045
00:00 - 01:00	0.0026	0.0021	0.0048	0.0022	0.0022	0.0020	0.0024
01:00 - 02:00	0.0030	0.0045	0.0037	0.0049	0.0036	0.0047	0.0031
02:00 - 03:00	0.0046	0.0046	0.0046	0.0022	0.0029	0.0046	0.0030
03:00 - 04:00	0.0048	0.0029	0.0023	0.0027	0.0022	0.0033	0.0021
04:00 - 05:00	0.0034	0.0038	0.0042	0.0032	0.0032	0.0047	0.0039
05:00 - 06:00	0.0035	0.0026	0.0034	0.0048	0.0025	0.0027	0.0045
06:00 - 07:00	0.0023	0.0035	0.0031	0.0029	0.0040	0.0037	0.0039
07:00 - 08:00	0.0043	0.0036	0.0030	0.0043	0.0026	0.0038	0.0036
08:00 - 09:00	0.0036	0.0021	0.0036	0.0040	0.0023	0.0030	0.0033
09:00 - 10:00	0.0022	0.0040	0.0021	0.0035	0.0045	0.0040	0.0042
Average-24Hr*	0.0037	0.0034	0.0035	0.0035	0.0033	0.0037	0.0031
Max-1Hr	0.0048	0.0048	0.0048	0.0049	0.0048	0.0049	0.0045
Min-1Hr	0.0022	0.0020	0.0020	0.0020	0.0022	0.0020	0.0021
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-CPL

Location : Technology IRPC School	Monitor Period : 01-08 Jul 2022
Analyzer Model : Teledyne T100	Station No : Mobile 10
Serial No : 2010	Site Operator : Mr. Sittichai Sawangwongchai

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	SO ₂ Concentration (ppb)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	4.1	4.6	3.0	4.2	4.0	3.4	2.5
11:00 - 12:00	3.6	3.0	3.8	3.2	4.7	2.8	3.5
12:00 - 13:00	4.7	2.9	3.6	4.6	2.8	4.9	2.1
13:00 - 14:00	2.4	4.0	2.0	4.8	2.8	4.8	3.0
14:00 - 15:00	4.4	4.8	4.1	2.7	3.6	4.3	2.3
15:00 - 16:00	3.7	4.0	3.3	4.2	2.9	2.5	4.1
16:00 - 17:00	4.5	2.2	3.6	3.6	3.1	2.8	2.5
17:00 - 18:00	4.7	4.0	3.8	2.0	3.8	4.3	2.2
18:00 - 19:00	2.5	2.0	2.3	2.6	4.7	3.3	2.2
19:00 - 20:00	4.5	2.0	2.5	3.6	3.1	4.5	2.1
20:00 - 21:00	4.1	2.2	4.4	2.4	3.7	3.3	3.9
21:00 - 22:00	4.8	3.9	3.8	2.1	2.7	4.4	3.2
22:00 - 23:00	3.8	3.5	4.5	3.6	4.8	4.8	3.4
23:00 - 00:00	2.5	4.7	3.8	4.6	2.8	2.5	4.5
00:00 - 01:00	2.6	2.1	4.8	2.2	2.2	2.0	2.4
01:00 - 02:00	3.0	4.5	3.7	4.9	3.6	4.7	3.1
02:00 - 03:00	4.6	4.6	4.6	2.2	2.9	4.6	3.0
03:00 - 04:00	4.8	2.9	2.3	2.7	2.2	3.3	2.1
04:00 - 05:00	3.4	3.8	4.2	3.2	3.2	4.7	3.9
05:00 - 06:00	3.5	2.6	3.4	4.8	2.5	2.7	4.5
06:00 - 07:00	2.3	3.5	3.1	2.9	4.0	3.7	3.9
07:00 - 08:00	4.3	3.6	3.0	4.3	2.6	3.8	3.6
08:00 - 09:00	3.6	2.1	3.6	4.0	2.3	3.0	3.3
09:00 - 10:00	2.2	4.0	2.1	3.5	4.5	4.0	4.2
Average-24Hr*	3.7	3.4	3.5	3.5	3.3	3.7	3.1
Max-1Hr	4.8	4.8	4.8	4.9	4.8	4.9	4.5
Min-1Hr	2.2	2.0	2.0	2.0	2.2	2.0	2.1
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



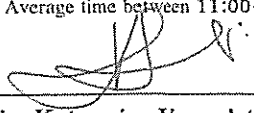
Ambient Air Monitoring Results : Sulfur dioxide MTR-CPL

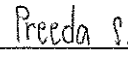
Location : Moo4 of Ta-Phong Sub-District (North of Project Site)	Monitor Period : 01-08 Jul 2022
Analyzer Model : API 100A	Station No : SS2-01
Serial No : 1505	Site Operator : Mr. Sittichai Sawangwongchai

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 (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	0.0027	0.0041	0.0034	0.0050	0.0039	0.0048	0.0041
12:00 - 13:00	0.0033	0.0028	0.0039	0.0035	0.0032	0.0050	0.0028
13:00 - 14:00	0.0049	0.0039	0.0036	0.0026	0.0029	0.0046	0.0027
14:00 - 15:00	0.0031	0.0046	0.0030	0.0043	0.0044	0.0032	0.0048
15:00 - 16:00	0.0032	0.0033	0.0049	0.0051	0.0026	0.0041	0.0043
16:00 - 17:00	0.0033	0.0047	0.0026	0.0038	0.0025	0.0038	0.0033
17:00 - 18:00	0.0030	0.0036	0.0028	0.0051	0.0034	0.0042	0.0032
18:00 - 19:00	0.0036	0.0051	0.0035	0.0042	0.0032	0.0029	0.0030
19:00 - 20:00	0.0047	0.0034	0.0034	0.0035	0.0034	0.0033	0.0042
20:00 - 21:00	0.0024	0.0049	0.0027	0.0043	0.0039	0.0045	0.0039
21:00 - 22:00	0.0043	0.0051	0.0048	0.0023	0.0025	0.0036	0.0047
22:00 - 23:00	0.0032	0.0029	0.0042	0.0049	0.0035	0.0044	0.0047
23:00 - 00:00	0.0032	0.0032	0.0031	0.0030	0.0025	0.0049	0.0031
00:00 - 01:00	0.0051	0.0044	0.0030	0.0039	0.0026	0.0029	0.0029
01:00 - 02:00	0.0047	0.0040	0.0030	0.0042	0.0046	0.0048	0.0030
02:00 - 03:00	0.0038	0.0048	0.0047	0.0048	0.0040	0.0037	0.0043
03:00 - 04:00	0.0036	0.0045	0.0036	0.0040	0.0030	0.0037	0.0051
04:00 - 05:00	0.0027	0.0048	0.0032	0.0043	0.0046	0.0023	0.0037
05:00 - 06:00	0.0049	0.0046	0.0026	0.0043	0.0033	0.0026	0.0051
06:00 - 07:00	0.0042	0.0045	0.0034	0.0038	0.0051	0.0040	0.0036
07:00 - 08:00	0.0035	0.0028	0.0042	0.0050	0.0029	0.0037	0.0041
08:00 - 09:00	0.0048	0.0035	0.0050	0.0033	0.0026	0.0047	0.0029
09:00 - 10:00	0.0038	0.0030	0.0034	0.0045	0.0036	0.0035	0.0034
10:00 - 11:00	0.0045	0.0023	0.0048	0.0030	0.0034	0.0048	0.0050
Average-24Hr*	0.0038	0.0040	0.0036	0.0040	0.0034	0.0039	0.0038
Max-1Hr	0.0051	0.0051	0.0050	0.0051	0.0051	0.0050	0.0051
Min-1Hr	0.0024	0.0023	0.0026	0.0023	0.0025	0.0023	0.0027
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

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


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Preeda Somjai)
 Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site) Monitor Period : 01-08 Jul 2022
Analyzer Model : API 100A Station No : SS2-01
Serial No : 1505 Site Operator : Mr. Sittichai Sawangwongchai

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)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	2.7	4.1	3.4	5.0	3.9	4.8	4.1
12:00 - 13:00	3.3	2.8	3.9	3.5	3.2	5.0	2.8
13:00 - 14:00	4.9	3.9	3.6	2.6	2.9	4.6	2.7
14:00 - 15:00	3.1	4.6	3.0	4.3	4.4	3.2	4.8
15:00 - 16:00	3.2	3.3	4.9	5.1	2.6	4.1	4.3
16:00 - 17:00	3.3	4.7	2.6	3.8	2.5	3.8	3.3
17:00 - 18:00	3.0	3.6	2.8	5.1	3.4	4.2	3.2
18:00 - 19:00	3.6	5.1	3.5	4.2	3.2	2.9	3.0
19:00 - 20:00	4.7	3.4	3.4	3.5	3.4	3.3	4.2
20:00 - 21:00	2.4	4.9	2.7	4.3	3.9	4.5	3.9
21:00 - 22:00	4.3	5.1	4.8	2.3	2.5	3.6	4.7
22:00 - 23:00	3.2	2.9	4.2	4.9	3.5	4.4	4.7
23:00 - 00:00	3.2	3.2	3.1	3.0	2.5	4.9	3.1
00:00 - 01:00	5.1	4.4	3.0	3.9	2.6	2.9	2.9
01:00 - 02:00	4.7	4.0	3.0	4.2	4.6	4.8	3.0
02:00 - 03:00	3.8	4.8	4.7	4.8	4.0	3.7	4.3
03:00 - 04:00	3.6	4.5	3.6	4.0	3.0	3.7	5.1
04:00 - 05:00	2.7	4.8	3.2	4.3	4.6	2.3	3.7
05:00 - 06:00	4.9	4.6	2.6	4.3	3.3	2.6	5.1
06:00 - 07:00	4.2	4.5	3.4	3.8	5.1	4.0	3.6
07:00 - 08:00	3.5	2.8	4.2	5.0	2.9	3.7	4.1
08:00 - 09:00	4.8	3.5	5.0	3.3	2.6	4.7	2.9
09:00 - 10:00	3.8	3.0	3.4	4.5	3.6	3.5	3.4
10:00 - 11:00	4.5	2.3	4.8	3.0	3.4	4.8	5.0
Average-24Hr*	3.8	4.0	3.6	4.0	3.4	3.9	3.8
Max-1Hr	5.1	5.1	5.0	5.1	5.1	5.0	5.1
Min-1Hr	2.4	2.3	2.6	2.3	2.5	2.3	2.7
Standard-1Hr	300 ppb(780 ug/cu.m)						
Standard-24Hr	120 ppb(300 ug/cu.m)						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-CPL

Location : Technology IRPC School

Monitor Period : 01-08 Jul 2022

Analyzer Model : API 200A

Station No : Mobile 10

Serial No : 1651

Site Operator : Mr. Sittichai Sawangwongchai

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 (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	0.0070	0.0077	0.0058	0.0149	0.0046	0.0050	0.0164
11:00 - 12:00	0.0146	0.0056	0.0085	0.0074	0.0102	0.0086	0.0068
12:00 - 13:00	0.0045	0.0135	0.0033	0.0027	0.0054	0.0120	0.0068
13:00 - 14:00	0.0103	0.0077	0.0055	0.0083	0.0056	0.0058	0.0058
14:00 - 15:00	0.0069	0.0048	0.0092	0.0031	0.0129	0.0098	0.0060
15:00 - 16:00	0.0049	0.0093	0.0059	0.0140	0.0114	0.0135	0.0139
16:00 - 17:00	0.0066	0.0148	0.0051	0.0052	0.0082	0.0126	0.0122
17:00 - 18:00	0.0068	0.0144	0.0110	0.0147	0.0059	0.0063	0.0050
18:00 - 19:00	0.0097	0.0142	0.0083	0.0094	0.0082	0.0142	0.0060
19:00 - 20:00	0.0070	0.0146	0.0084	0.0066	0.0106	0.0123	0.0140
20:00 - 21:00	0.0040	0.0089	0.0089	0.0058	0.0147	0.0093	0.0118
21:00 - 22:00	0.0079	0.0133	0.0053	0.0075	0.0140	0.0115	0.0037
22:00 - 23:00	0.0096	0.0070	0.0144	0.0130	0.0134	0.0111	0.0117
23:00 - 00:00	0.0060	0.0093	0.0096	0.0130	0.0099	0.0065	0.0086
00:00 - 01:00	0.0085	0.0085	0.0117	0.0083	0.0054	0.0074	0.0112
01:00 - 02:00	0.0158	0.0104	0.0106	0.0053	0.0058	0.0057	0.0060
02:00 - 03:00	0.0073	0.0060	0.0094	0.0055	0.0122	0.0052	0.0094
03:00 - 04:00	0.0084	0.0083	0.0051	0.0068	0.0120	0.0069	0.0068
04:00 - 05:00	0.0071	0.0104	0.0114	0.0045	0.0107	0.0049	0.0108
05:00 - 06:00	0.0078	0.0076	0.0158	0.0050	0.0055	0.0054	0.0146
06:00 - 07:00	0.0113	0.0089	0.0053	0.0121	0.0127	0.0051	0.0119
07:00 - 08:00	0.0049	0.0074	0.0078	0.0049	0.0143	0.0142	0.0109
08:00 - 09:00	0.0122	0.0051	0.0146	0.0105	0.0035	0.0067	0.0096
09:00 - 10:00	0.0085	0.0097	0.0073	0.0053	0.0121	0.0143	0.0116
Average-24Hr*	0.0082	0.0095	0.0087	0.0081	0.0095	0.0089	0.0096
Max-1Hr	0.0158	0.0148	0.0158	0.0149	0.0147	0.0143	0.0164
Min-1Hr	0.0040	0.0048	0.0033	0.0027	0.0035	0.0049	0.0037
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-CPL

Location : Technology IRPC School	Monitor Period : 01-08 Jul 2022
Analyzer Model : API 200A	Station No : Mobile 10
Serial No : 1651	Site Operator : Mr. Sittichai Sawangwongchai
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)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	7.0	7.7	5.8	14.9	4.6	5.0	16.4
11:00 - 12:00	14.6	5.6	8.5	7.4	10.2	8.6	6.8
12:00 - 13:00	4.5	13.5	3.3	2.7	5.4	12.0	6.8
13:00 - 14:00	10.3	7.7	5.5	8.3	5.6	5.8	5.8
14:00 - 15:00	6.9	4.8	9.2	3.1	12.9	9.8	6.0
15:00 - 16:00	4.9	9.3	5.9	14.0	11.4	13.5	13.9
16:00 - 17:00	6.6	14.8	5.1	5.2	8.2	12.6	12.2
17:00 - 18:00	6.8	14.4	11.0	14.7	5.9	6.3	5.0
18:00 - 19:00	9.7	14.2	8.3	9.4	8.2	14.2	6.0
19:00 - 20:00	7.0	14.6	8.4	6.6	10.6	12.3	14.0
20:00 - 21:00	4.0	8.9	8.9	5.8	14.7	9.3	11.8
21:00 - 22:00	7.9	13.3	5.3	7.5	14.0	11.5	3.7
22:00 - 23:00	9.6	7.0	14.4	13.0	13.4	11.1	11.7
23:00 - 00:00	6.0	9.3	9.6	13.0	9.9	6.5	8.6
00:00 - 01:00	8.5	8.5	11.7	8.3	5.4	7.4	11.2
01:00 - 02:00	15.8	10.4	10.6	5.3	5.8	5.7	6.0
02:00 - 03:00	7.3	6.0	9.4	5.5	12.2	5.2	9.4
03:00 - 04:00	8.4	8.3	5.1	6.8	12.0	6.9	6.8
04:00 - 05:00	7.1	10.4	11.4	4.5	10.7	4.9	10.8
05:00 - 06:00	7.8	7.6	15.8	5.0	5.5	5.4	14.6
06:00 - 07:00	11.3	8.9	5.3	12.1	12.7	5.1	11.9
07:00 - 08:00	4.9	7.4	7.8	4.9	14.3	14.2	10.9
08:00 - 09:00	12.2	5.1	14.6	10.5	3.5	6.7	9.6
09:00 - 10:00	8.5	9.7	7.3	5.3	12.1	14.3	11.6
Average-24Hr*	8.2	9.5	8.7	8.1	9.5	8.9	9.6
Max-1Hr	15.8	14.8	15.8	14.9	14.7	14.3	16.4
Min-1Hr	4.0	4.8	3.3	2.7	3.5	4.9	3.7
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-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)

Monitor Period : 01-08 Jul 2022

Analyzer Model : API 200A

Station No : SS2-01

Serial No : 2365

Site Operator : Mr. Sittichai Sawangwongchai

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 (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	0.0064	0.0129	0.0087	0.0123	0.0089	0.0091	0.0104
12:00 - 13:00	0.0052	0.0083	0.0091	0.0124	0.0132	0.0054	0.0089
13:00 - 14:00	0.0053	0.0067	0.0096	0.0115	0.0052	0.0058	0.0074
14:00 - 15:00	0.0067	0.0107	0.0120	0.0070	0.0097	0.0097	0.0113
15:00 - 16:00	0.0108	0.0100	0.0081	0.0120	0.0114	0.0061	0.0082
16:00 - 17:00	0.0072	0.0099	0.0122	0.0092	0.0109	0.0064	0.0055
17:00 - 18:00	0.0059	0.0093	0.0087	0.0122	0.0084	0.0120	0.0115
18:00 - 19:00	0.0107	0.0077	0.0070	0.0077	0.0074	0.0105	0.0091
19:00 - 20:00	0.0111	0.0109	0.0094	0.0066	0.0075	0.0067	0.0100
20:00 - 21:00	0.0088	0.0074	0.0075	0.0109	0.0066	0.0100	0.0117
21:00 - 22:00	0.0081	0.0082	0.0063	0.0080	0.0068	0.0122	0.0074
22:00 - 23:00	0.0078	0.0079	0.0069	0.0109	0.0107	0.0056	0.0117
23:00 - 00:00	0.0060	0.0085	0.0084	0.0081	0.0107	0.0089	0.0086
00:00 - 01:00	0.0060	0.0093	0.0068	0.0078	0.0096	0.0116	0.0094
01:00 - 02:00	0.0081	0.0085	0.0066	0.0060	0.0062	0.0082	0.0083
02:00 - 03:00	0.0051	0.0063	0.0057	0.0079	0.0088	0.0125	0.0069
03:00 - 04:00	0.0072	0.0072	0.0068	0.0050	0.0074	0.0066	0.0070
04:00 - 05:00	0.0047	0.0081	0.0100	0.0094	0.0080	0.0088	0.0084
05:00 - 06:00	0.0057	0.0083	0.0122	0.0109	0.0054	0.0095	0.0084
06:00 - 07:00	0.0095	0.0075	0.0075	0.0092	0.0111	0.0094	0.0061
07:00 - 08:00	0.0125	0.0103	0.0056	0.0062	0.0054	0.0064	0.0087
08:00 - 09:00	0.0103	0.0089	0.0059	0.0083	0.0119	0.0069	0.0118
09:00 - 10:00	0.0100	0.0081	0.0070	0.0116	0.0099	0.0108	0.0108
10:00 - 11:00	0.0135	0.0095	0.0079	0.0073	0.0090	0.0109	0.0092
Average-24Hr*	0.0080	0.0088	0.0082	0.0091	0.0088	0.0087	0.0090
Max-1Hr	0.0135	0.0129	0.0122	0.0124	0.0132	0.0125	0.0118
Min-1Hr	0.0047	0.0063	0.0056	0.0050	0.0052	0.0054	0.0055
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

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


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Preeda Somjai)
 Technical Management Team



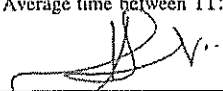
Ambient Air Monitoring Results : Nitrogen dioxide MTR-CPL


Location : Moo4 of Ta-Phong Sub-District (North of Project Site)	Monitor Period : 01-08 Jul 2022
Analyzer Model : API 200A	Station No : SS2-01
Serial No : 2365	Site Operator : Mr. Sittichai Sawangwongchai

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)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	6.4	12.9	8.7	12.3	8.9	9.1	10.4
12:00 - 13:00	5.2	8.3	9.1	12.4	13.2	5.4	8.9
13:00 - 14:00	5.3	6.7	9.6	11.5	5.2	5.8	7.4
14:00 - 15:00	6.7	10.7	12.0	7.0	9.7	9.7	11.3
15:00 - 16:00	10.8	10.0	8.1	12.0	11.4	6.1	8.2
16:00 - 17:00	7.2	9.9	12.2	9.2	10.9	6.4	5.5
17:00 - 18:00	5.9	9.3	8.7	12.2	8.4	12.0	11.5
18:00 - 19:00	10.7	7.7	7.0	7.7	7.4	10.5	9.1
19:00 - 20:00	11.1	10.9	9.4	6.6	7.5	6.7	10.0
20:00 - 21:00	8.8	7.4	7.5	10.9	6.6	10.0	11.7
21:00 - 22:00	8.1	8.2	6.3	8.0	6.8	12.2	7.4
22:00 - 23:00	7.8	7.9	6.9	10.9	10.7	5.6	11.7
23:00 - 00:00	6.0	8.5	8.4	8.1	10.7	8.9	8.6
00:00 - 01:00	6.0	9.3	6.8	7.8	9.6	11.6	9.4
01:00 - 02:00	8.1	8.5	6.6	6.0	6.2	8.2	8.3
02:00 - 03:00	5.1	6.3	5.7	7.9	8.8	12.5	6.9
03:00 - 04:00	7.2	7.2	6.8	5.0	7.4	6.6	7.0
04:00 - 05:00	4.7	8.1	10.0	9.4	8.0	8.8	8.4
05:00 - 06:00	5.7	8.3	12.2	10.9	5.4	9.5	8.4
06:00 - 07:00	9.5	7.5	7.5	9.2	11.1	9.4	6.1
07:00 - 08:00	12.5	10.3	5.6	6.2	5.4	6.4	8.7
08:00 - 09:00	10.3	8.9	5.9	8.3	11.9	6.9	11.8
09:00 - 10:00	10.0	8.1	7.0	11.6	9.9	10.8	10.8
10:00 - 11:00	13.5	9.5	7.9	7.3	9.0	10.9	9.2
Average-24Hr*	8.0	8.8	8.2	9.1	8.8	8.7	9.0
Max-1Hr	13.5	12.9	12.2	12.4	13.2	12.5	11.8
Min-1Hr	4.7	6.3	5.6	5.0	5.2	5.4	5.5
Standard-1Hr	170 ppb(320 ug/cu.m)						
Standard-24Hr	-						

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


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Preeda Somjai)
 Technical Management Team



Ambient Air Monitoring Results : Carbon monoxide MTR-CPL

Location : Technology IRPC School	Monitor Period : 01-08 Jul 2022
Analyzer Model : API 300A	Station No : Mobile 10
Serial No : 1343	Site Operator : Mr. Sittichai Sawangwongchai

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	CO Concentration (ppb)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	500.0	1100.0	1300.0	1900.0	100.0	600.0	200.0
11:00 - 12:00	900.0	300.0	500.0	1800.0	100.0	1800.0	1300.0
12:00 - 13:00	100.0	1500.0	1000.0	200.0	200.0	100.0	1500.0
13:00 - 14:00	1100.0	400.0	600.0	100.0	900.0	1100.0	1200.0
14:00 - 15:00	400.0	1400.0	1600.0	100.0	1300.0	300.0	1700.0
15:00 - 16:00	1400.0	1500.0	1400.0	1900.0	1600.0	1800.0	1000.0
16:00 - 17:00	600.0	1600.0	1600.0	800.0	1000.0	400.0	1600.0
17:00 - 18:00	900.0	1500.0	800.0	1700.0	1000.0	900.0	1600.0
18:00 - 19:00	500.0	1300.0	2100.0	200.0	700.0	1400.0	1000.0
19:00 - 20:00	1300.0	200.0	1500.0	1700.0	1600.0	1200.0	600.0
20:00 - 21:00	500.0	1200.0	400.0	1700.0	1800.0	200.0	1900.0
21:00 - 22:00	1000.0	600.0	300.0	1100.0	1500.0	1200.0	600.0
22:00 - 23:00	300.0	1100.0	300.0	2000.0	1500.0	600.0	1700.0
23:00 - 00:00	800.0	300.0	1000.0	800.0	1300.0	2100.0	1500.0
00:00 - 01:00	1100.0	300.0	700.0	500.0	900.0	300.0	700.0
01:00 - 02:00	700.0	900.0	700.0	1000.0	900.0	1100.0	1200.0
02:00 - 03:00	1400.0	600.0	1200.0	1300.0	400.0	800.0	1300.0
03:00 - 04:00	1800.0	300.0	1600.0	700.0	300.0	1000.0	800.0
04:00 - 05:00	1900.0	1600.0	800.0	600.0	1500.0	1900.0	1500.0
05:00 - 06:00	800.0	2000.0	400.0	1100.0	800.0	1600.0	1600.0
06:00 - 07:00	100.0	700.0	1200.0	300.0	1400.0	600.0	1100.0
07:00 - 08:00	1900.0	1000.0	1100.0	2000.0	1300.0	1800.0	1200.0
08:00 - 09:00	700.0	900.0	300.0	2000.0	400.0	1300.0	300.0
09:00 - 10:00	2100.0	100.0	1600.0	2100.0	1300.0	600.0	900.0
Average-24Hr*	1000.0	900.0	1000.0	1200.0	1000.0	1000.0	1200.0
Max-1Hr	2100.0	2000.0	2100.0	2100.0	1800.0	2100.0	1900.0
Min-1Hr	100.0	100.0	300.0	100.0	100.0	100.0	200.0
Standard-1Hr	30000 ppb(34.2 mg/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team




Ambient Air Monitoring Results : Carbon monoxide MTR-CPL

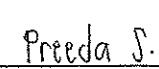
Location : Technology IRPC School	Monitor Period : 01-08 Jul 2022
Analyzer Model : API 300A	Station No : Mobile 10
Serial No : 1343	Site Operator : Mr. Sittichai Sawangwongchai

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	CO Concentration (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
10:00 - 11:00	0.5	1.1	1.3	1.9	0.1	0.6	0.2
11:00 - 12:00	0.9	0.3	0.5	1.8	0.1	1.8	1.3
12:00 - 13:00	0.1	1.5	1.0	0.2	0.2	0.1	1.5
13:00 - 14:00	1.1	0.4	0.6	0.1	0.9	1.1	1.2
14:00 - 15:00	0.4	1.4	1.6	0.1	1.3	0.3	1.7
15:00 - 16:00	1.4	1.5	1.4	1.9	1.6	1.8	1.0
16:00 - 17:00	0.6	1.6	1.6	0.8	1.0	0.4	1.6
17:00 - 18:00	0.9	1.5	0.8	1.7	1.0	0.9	1.6
18:00 - 19:00	0.5	1.3	2.1	0.2	0.7	1.4	1.0
19:00 - 20:00	1.3	0.2	1.5	1.7	1.6	1.2	0.6
20:00 - 21:00	0.5	1.2	0.4	1.7	1.8	0.2	1.9
21:00 - 22:00	1.0	0.6	0.3	1.1	1.5	1.2	0.6
22:00 - 23:00	0.3	1.1	0.3	2.0	1.5	0.6	1.7
23:00 - 00:00	0.8	0.3	1.0	0.8	1.3	2.1	1.5
00:00 - 01:00	1.1	0.3	0.7	0.5	0.9	0.3	0.7
01:00 - 02:00	0.7	0.9	0.7	1.0	0.9	1.1	1.2
02:00 - 03:00	1.4	0.6	1.2	1.3	0.4	0.8	1.3
03:00 - 04:00	1.8	0.3	1.6	0.7	0.3	1.0	0.8
04:00 - 05:00	1.9	1.6	0.8	0.6	1.5	1.9	1.5
05:00 - 06:00	0.8	2.0	0.4	1.1	0.8	1.6	1.6
06:00 - 07:00	0.1	0.7	1.2	0.3	1.4	0.6	1.1
07:00 - 08:00	1.9	1.0	1.1	2.0	1.3	1.8	1.2
08:00 - 09:00	0.7	0.9	0.3	2.0	0.4	1.3	0.3
09:00 - 10:00	2.1	0.1	1.6	2.1	1.3	0.6	0.9
Average-24Hr*	1.0	0.9	1.0	1.2	1.0	1.0	1.2
Max-1Hr	2.1	2.0	2.1	2.1	1.8	2.1	1.9
Min-1Hr	0.1	0.1	0.3	0.1	0.1	0.1	0.2
Standard-1Hr	30 ppm(34.2 mg/cu.m)						
Standard-24Hr	-						

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


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Preeda Somjai)
 Technical Management Team



Ambient Air Monitoring Results : Carbon monoxide MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)

Monitor Period : 01-08 Jul 2022

Analyzer Model : Teledyne 300E

Station No : SS2-01

Serial No : 924

Site Operator : Mr. Sittichai Sawangwongchai

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	CO Concentration (ppb)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	700.0	1500.0	1700.0	2000.0	1600.0	900.0	1600.0
12:00 - 13:00	900.0	800.0	1700.0	800.0	1800.0	1700.0	600.0
13:00 - 14:00	500.0	1400.0	1400.0	1000.0	1900.0	1600.0	1900.0
14:00 - 15:00	900.0	1100.0	1600.0	1100.0	1400.0	1200.0	1700.0
15:00 - 16:00	500.0	800.0	1300.0	2000.0	1100.0	900.0	600.0
16:00 - 17:00	1800.0	1100.0	1500.0	1200.0	600.0	1000.0	1400.0
17:00 - 18:00	1400.0	1100.0	1000.0	1600.0	600.0	1200.0	1900.0
18:00 - 19:00	1200.0	1700.0	1300.0	700.0	1600.0	1100.0	1600.0
19:00 - 20:00	500.0	600.0	700.0	600.0	1100.0	500.0	500.0
20:00 - 21:00	1600.0	1600.0	800.0	500.0	800.0	800.0	1200.0
21:00 - 22:00	1200.0	1300.0	1200.0	500.0	1400.0	1000.0	600.0
22:00 - 23:00	500.0	1300.0	900.0	1400.0	1100.0	1900.0	1200.0
23:00 - 00:00	900.0	1800.0	1000.0	1500.0	1300.0	1100.0	2000.0
00:00 - 01:00	1400.0	700.0	700.0	900.0	1000.0	1600.0	1600.0
01:00 - 02:00	1500.0	900.0	600.0	700.0	1800.0	700.0	1900.0
02:00 - 03:00	500.0	1800.0	700.0	1100.0	2000.0	1300.0	1400.0
03:00 - 04:00	800.0	1300.0	1900.0	1200.0	600.0	1000.0	1500.0
04:00 - 05:00	700.0	600.0	1100.0	1700.0	1300.0	1300.0	1000.0
05:00 - 06:00	1000.0	700.0	1900.0	700.0	1200.0	500.0	1900.0
06:00 - 07:00	800.0	1600.0	1600.0	600.0	700.0	1800.0	1000.0
07:00 - 08:00	900.0	800.0	1000.0	500.0	1800.0	1500.0	600.0
08:00 - 09:00	1000.0	1200.0	900.0	1700.0	500.0	1800.0	1400.0
09:00 - 10:00	1800.0	600.0	1400.0	1000.0	800.0	1400.0	800.0
10:00 - 11:00	1900.0	1600.0	1500.0	800.0	1300.0	1700.0	1000.0
Average-24Hr*	1000.0	1200.0	1200.0	1100.0	1200.0	1200.0	1300.0
Max-1Hr	1900.0	1800.0	1900.0	2000.0	2000.0	1900.0	2000.0
Min-1Hr	500.0	600.0	600.0	500.0	500.0	500.0	500.0
Standard-1Hr	30000 ppb(34.2 mg/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Carbon monoxide MTR-CPL

Location : Moo4 of Ta-Phong Sub-District (North of Project Site)	Monitor Period : 01-08 Jul 2022
Analyzer Model : Teledyne 300E	Station No : SS2-01
Serial No : 924	Site Operator : Mr. Sittichai Sawangwongchai

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	CO Concentration (ppm)						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	0.7	1.5	1.7	2.0	1.6	0.9	1.6
12:00 - 13:00	0.9	0.8	1.7	0.8	1.8	1.7	0.6
13:00 - 14:00	0.5	1.4	1.4	1.0	1.9	1.6	1.9
14:00 - 15:00	0.9	1.1	1.6	1.1	1.4	1.2	1.7
15:00 - 16:00	0.5	0.8	1.3	2.0	1.1	0.9	0.6
16:00 - 17:00	1.8	1.1	1.5	1.2	0.6	1.0	1.4
17:00 - 18:00	1.4	1.1	1.0	1.6	0.6	1.2	1.9
18:00 - 19:00	1.2	1.7	1.3	0.7	1.6	1.1	1.6
19:00 - 20:00	0.5	0.6	0.7	0.6	1.1	0.5	0.5
20:00 - 21:00	1.6	1.6	0.8	0.5	0.8	0.8	1.2
21:00 - 22:00	1.2	1.3	1.2	0.5	1.4	1.0	0.6
22:00 - 23:00	0.5	1.3	0.9	1.4	1.1	1.9	1.2
23:00 - 00:00	0.9	1.8	1.0	1.5	1.3	1.1	2.0
00:00 - 01:00	1.4	0.7	0.7	0.9	1.0	1.6	1.6
01:00 - 02:00	1.5	0.9	0.6	0.7	1.8	0.7	1.9
02:00 - 03:00	0.5	1.8	0.7	1.1	2.0	1.3	1.4
03:00 - 04:00	0.8	1.3	1.9	1.2	0.6	1.0	1.5
04:00 - 05:00	0.7	0.6	1.1	1.7	1.3	1.3	1.0
05:00 - 06:00	1.0	0.7	1.9	0.7	1.2	0.5	1.9
06:00 - 07:00	0.8	1.6	1.6	0.6	0.7	1.8	1.0
07:00 - 08:00	0.9	0.8	1.0	0.5	1.8	1.5	0.6
08:00 - 09:00	1.0	1.2	0.9	1.7	0.5	1.8	1.4
09:00 - 10:00	1.8	0.6	1.4	1.0	0.8	1.4	0.8
10:00 - 11:00	1.9	1.6	1.5	0.8	1.3	1.7	1.0
Average-24Hr*	1.0	1.2	1.2	1.1	1.2	1.2	1.3
Max-1Hr	1.9	1.8	1.9	2.0	2.0	1.9	2.0
Min-1Hr	0.5	0.6	0.6	0.5	0.5	0.5	0.5
Standard-1Hr	30 ppm(34.2 mg/cu.m)						
Standard-24Hr	-						

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.2

ใบรับรองผลการตรวจวัดคุณภาพอากาศจากปล่องระบายอากาศ



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	: UBE Chemical (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Stk(Cert.)/Jul/RTO
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 05/07/2022
RECEIVED DATE	: 06/07/2022	ANALYTICAL DATE	: 07/07/2022
REPORT DATE	: 21/07/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: Outlet of RTO Stack	SITE OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: LPG

STACK DESCRIPTION

Height	: 35.0	m	Gas Velocity	: 9.5	m/s
Diameter	: 1.95	m	Flow Rate*	: 1,057	Ncu.m/min
Temperature	: 159.8	°C	Excess Oxygen	: 12.7	%

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		12.7%O ₂	7%O ₂		
Oxide of Nitrogen (NO _x)	ppm	2.8	4.7	200	U.S. EPA Method 7

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.7-239-ก-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ก-6419

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

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

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

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

B.E.2549 @ 7% O₂.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: UBE Chemical (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Std(Cert.)/Jul/RTO
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 05/07/2022
RECEIVED DATE	: 06/07/2022	ANALYTICAL DATE	: 06/07/2022
REPORT DATE	: 21/07/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: Outlet of RTO Stack	SITE OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: LPG

STACK DESCRIPTION

Height	: 35.0	m	Gas Velocity	: 9.5	m/s
Diameter	: 1.95	m	Flow Rate*	: 1,057	Ncu.m/min
Temperature	: 159.8	°C	Excess Oxygen	: 12.7	%

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		12.7% O ₂	7% O ₂		
Carbon Monoxide (CO)	ppm	80.3	136.1	690	U.S. EPA Method 10

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

REG.NO.จ-239-จ-0001

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-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. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment,
B.E.2549 @ 7% O₂.



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: UBE Chemical (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Stk(Cert.)/Jul/HTS Furnace
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 06/07/2022
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 08/07/2022
REPORT DATE	: 21/07/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: HTS Furnace Off Gas	SITE OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: LPG+H ₂

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 3.7	m/s
Diameter	: 1.24	m	Flow Rate*	: 109	Ncu.m/min
Temperature	: 379.8	°C	Excess Oxygen	: 2.8	%

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		2.8% O ₂	7%O ₂		
Oxides of Nitrogen (NO _x)	ppm	18.3	14.1	200	U.S. EPA Method 7

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-ท-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

- Remark :
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 2. This report shall not be reproduced, except in full, without official approval.
 3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.
 4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549 @ 7% O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/WGT
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 06/07/2022
RECEIVED DATE : 08/07/2022 ANALYTICAL DATE : 08/07/2022
REPORT DATE : 21/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Waste Gas Treatment Off Gas SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Combustion FUEL TYPE : LPG+H₂

STACK DESCRIPTION

Height : 37.0 m Gas Velocity : 41.8 m/s
Diameter : 0.9 m Flow Rate* : 932 Neu.m/min
Temperature : 174.4 °C Excess Oxygen : 7.2 %

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		7.2% O ₂	7% O ₂		
Oxides of Nitrogen (NO _x)	ppm	48.4	49.1	200	U.S. EPA Method 7

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ก-6419

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B.E.2549 @ 7% O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: UBE Chemical (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Stk(Cert.)/Jul/WGT
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 06/07/2022
RECEIVED DATE	: 08/07/2022	ANALYTICAL DATE	: 15/07/2022
REPORT DATE	: 21/07/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: Waste Gas Treatment Off Gas	SITE OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: LPG+H ₂

STACK DESCRIPTION

Height	: 37.0	m	Gas Velocity	: 41.8	m/s
Diameter	: 0.9	m	Flow Rate*	: 932	Ncu.m/min
Temperature	: 174.4	°C	Excess Oxygen	: 7.2	%

PARAMETER	UNIT	RESULT*		STANDARD	REFERENCE METHOD
		7.2% O ₂	7% O ₂		
Ammonia (NH ₃)	ppm	5.1	5.2	-	U.S. EPA Method CTM-027

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

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 4. - means standard is not specified yet.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: UBE Chemical (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Stk(Cert.)/Jul/Column Ds
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 05/07/2022
RECEIVED DATE	: 06/07/2022	ANALYTICAL DATE	: 14/07/2022
REPORT DATE	: 21/07/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: Column Ds Off Gas	SITE OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Process		

STACK DESCRIPTION

Height	: 25.0	m	Gas Velocity	: 15.4	m/s
Diameter	: 0.5	m	Flow Rate*	: 104	Ncu.m/min
Temperature	: 196.0	°C	Excess Oxygen	: 6.6	%

PARAMETER	UNIT	RESULT*	STANDARD ^{1/}	REFERENCE METHOD
Sulfur Dioxide (SO ₂)	ppm	ND	500	U.S. EPA Method 6

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

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4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment,
B.E.2549 @ Actual O₂.

5. ND (Non-detectable) means the concentration is less than 1.9 ppm @ Actual O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/Column Si
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 05/07/2022
RECEIVED DATE : 06/07/2022 ANALYTICAL DATE : 11-14/07/2022
REPORT DATE : 21/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Column Si Off Gas SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Process

STACK DESCRIPTION

Height : 23.0 m Gas Velocity : 45.8 m/s
Diameter : 0.5 m Flow Rate* : 449 Ncu.m/min
Temperature : 45.0 °C Excess Oxygen : 11.7 %

PARAMETER	UNIT	RESULT*	STANDARD ^{1/}	REFERENCE METHOD
Particulate Matter (PM)	mg/Ncu.m.	4.3	400	U.S. EPA Method 5
Sulfur Dioxide (SO ₂)	ppm	ND	500	U.S. EPA Method 6

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Mairin Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ก-6419

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4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment,
B.E.2549 @ Actual O₂.

5. ND (Non-detectable) means the concentration is less than 1.9 ppm @ Actual O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/Outlet of 2nd Absorption
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 05/07/2022
RECEIVED DATE : 06/07/2022 ANALYTICAL DATE : 14/07/2022
REPORT DATE : 21/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Outlet of 2nd Absorption Tower Off Gas SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Process

STACK DESCRIPTION

Height	: 35.0	m	Gas Velocity	: 10.0	m/s
Diameter	: 0.9	m	Flow Rate*	: 352	Ncu.m/min
Temperature	: 36.0	°C	Excess Oxygen	: 2.5	%

PARAMETER	UNIT	RESULT*	STANDARD	REFERENCE METHOD
Sulfur Trioxide (SO ₃)	ppm	ND	-	U.S. EPA Method 8

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

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 4. - means standard is not specified yet.
 5. ND (Non-detectable) means the concentration is less than 0.015 ppm @ Actual O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/Combined
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 06/07/2022
RECEIVED DATE : 08/07/2022 ANALYTICAL DATE : 08-14/07/2022
REPORT DATE : 21/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Combined Stack (Incinerator Unit 4400) SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Combustion FUEL TYPE : Mixed Anone

STACK DESCRIPTION

Height : 90.0 m Gas Velocity : 10.6 m/s
Diameter : 0.37 m Flow Rate* : 53.6 Ncu.m/min
Temperature : 61.0 °C Excess Oxygen : 12.3 %

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		12.3% O ₂	7%O ₂		
Particulate Matter (PM)	mg/Ncu.m.	3.1	5.1	320	U.S. EPA Method 5
Sulfur Dioxide (SO ₂)	ppm	ND	ND	60	U.S. EPA Method 6
Oxides of Nitrogen (NO _x)	ppm	26.4	42.6	200	U.S. EPA Method 7

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

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 5. ND (Non-detectable) means the concentration is less than 1.9 ppm @ Actual O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/Combined
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 06/07/2022
RECEIVED DATE : 08/07/2022 ANALYTICAL DATE : 08/07/2022
REPORT DATE : 21/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Combined Stack (Incinerator Unit 4400) SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Combustion FUEL TYPE : Mixed Anone

STACK DESCRIPTION

Height : 90.0 m Gas Velocity : 10.6 m/s
Diameter : 0.37 m Flow Rate* : 53.6 Ncu.m/min
Temperature : 61.0 °C Excess Oxygen : 12.3 %

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		12.3% O ₂	7% O ₂		
Carbon Monoxide (CO)	ppm	2.5	4.0	690	U.S. EPA Method 10

Sudaporn Soonthorn
(Miss Sudaporn Soonthorn)

Analyst

REG.NO.จ-239-ท-0001

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

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B.E.2549 @ 7% O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemicals (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Outlet(Jul)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 25/07/2022
RECEIVED DATE : 26/07/2022 ANALYTICAL DATE : 26-27/07/2022
REPORT DATE : 04/08/2022 SAMPLE CONDITION : Normal
STACK LOCATION : AR Boiler (Outlet) SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Combustion FUEL TYPE : Mixed Anonc/Diesel Oil
STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 14.5 m/s
Diameter : 1.33 m Flow Rate* : 773 Ncu.m/min
Temperature : 138.3 °C Oxygen Content : 9.4 %

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE METHOD
		9.4% O ₂	7% O ₂	7% O ₂	
Particulate Matter (PM)	mg/Ncu.m.	10.4	12.6	320	U.S. EPA Method 5
Sulfur Dioxide (SO ₂)	ppm	ND	ND	60	U.S. EPA Method 6
Oxide of Nitrogen (NO _x)	ppm	4.7	5.7	200	U.S. EPA Method 7

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ท-6419

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4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and Notification of the Ministry of Natural Resources and Environment, B.E.2549 @ 7%O₂.

5. ND (Non-detectable) means the concentration is less than 1.9 ppm @ Actual O₂.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030/Stk(Cert.)/Outlet(Jul)
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 25/07/2022
RECEIVED DATE	: 26/07/2022	ANALYTICAL DATE	: 26/07/2022
REPORT DATE	: 04/08/2022	SAMPLE CONDITION	: Normal
STACK LOCATION	: AR Boiler (Outlet)	OPERATOR	: Mr. Song Henhchwankul
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Mixed Anone/Diesel Oil

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 14.5	m/s
Diameter	: 1.33	m	Flow Rate*	: 773	Ncu.m/min
Temperature	: 138.3	°C	Oxygen Content	: 9.4	%

PARAMETER	UNIT	RESULT*		STANDARD ^{1/}	REFERENCE
		9.4% O ₂	7% O ₂	7% O ₂	METHOD
Carbon Monoxide (CO)	ppm	6.2	7.6	690	U.S. EPA Method 10

Sudaporn Soonthorn

(Miss Sudaporn Soonthorn)

Analyst

REG.NO.จ-239-จ-0001

Narisa Poowasanpet

(Miss Narisa Poowasanpet)

Technical Management Team

REG.NO.จ-239-ก-6419

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : UBE Chemical (Asia) Public Co., Ltd. REFERENCE NO. : 222030/Stk(Cert.)/Jul/Dryer (1410-V17)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 07/07/2022
RECEIVED DATE : 08/07/2022 ANALYTICAL DATE : 11-12/07/2022
REPORT DATE : 14/07/2022 SAMPLE CONDITION : Normal
STACK LOCATION : Dryer Off Gas (1410-V17) SITE OPERATOR : Mr. Song Henhchwankul
SOURCE DESCRIPTION : Process

STACK DESCRIPTION

Height	: 23.0	m	Gas Velocity	: 18.5	m/s
Diameter	: 0.9	m	Flow Rate*	: 606	Ncu.m/min
Temperature	: 57.0	°C	Excess Oxygen	: 20.7	%

PARAMETER	UNIT	RESULT*	STANDARD ^{1/}	REFERENCE METHOD
Particulate Matter (PM)	mg/Ncu.m.	0.8	400	U.S. EPA Method 5

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO.จ-239-จ-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ก-6419

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4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment,
B.E.2549 @ Actual O₂.

ภาคผนวก ง.3

ใบรับรองผลการตรวจวัดระดับเสียง

ใบรับรองผลการตรวจวัดระดับเสียงในชุมชน



Noise Monitoring Result : Community Noise MTR-CPL

Location : Moo 4 of Ta-Phong Sub-District

Monitor Period : 01-08 Jul 2022

SLM Model : RION NL-21

Serial No : 00487723

Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 93.9/0.1

Expire Date : 23 Dec 2022

Cal Sheet No.: NC-74-2022-070

Time	Equivalent Sound Pressure Level (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
14:00 - 15:00	50.7	50.9	50.9	50.5	50.3	51.1	51.1
15:00 - 16:00	49.0	49.8	50.5	49.5	50.4	52.8	51.7
16:00 - 17:00	50.4	50.1	50.4	50.8	50.0	55.2	56.5
17:00 - 18:00	50.8	50.1	50.5	50.1	49.8	54.4	53.6
18:00 - 19:00	51.6	50.9	50.9	52.2	54.3	52.1	50.0
19:00 - 20:00	52.9	50.5	50.3	53.6	56.1	51.4	50.8
20:00 - 21:00	51.2	51.4	50.8	53.0	52.2	51.0	54.8
21:00 - 22:00	52.2	48.9	50.6	50.6	50.7	53.1	52.5
22:00 - 23:00	49.8	51.6	50.1	50.2	49.7	52.3	53.5
23:00 - 00:00	48.9	49.5	60.7	53.7	49.9	48.5	51.3
00:00 - 01:00	48.9	49.8	57.0	58.9	50.2	56.3	54.1
01:00 - 02:00	48.9	50.4	59.2	50.6	50.2	56.7	58.6
02:00 - 03:00	49.4	50.6	49.6	50.6	50.6	50.7	55.0
03:00 - 04:00	50.5	50.0	48.8	50.7	46.8	52.2	50.5
04:00 - 05:00	50.0	50.4	49.7	50.5	46.7	57.2	48.3
05:00 - 06:00	50.6	50.1	50.1	50.4	47.2	53.8	49.2
06:00 - 07:00	50.8	50.4	49.6	50.0	46.6	49.0	57.2
07:00 - 08:00	52.6	51.2	50.4	49.5	46.7	48.3	51.5
08:00 - 09:00	53.1	53.7	51.4	49.8	49.2	49.3	50.5
09:00 - 10:00	52.1	51.9	53.0	52.2	50.6	51.1	49.7
10:00 - 11:00	52.7	51.5	52.8	53.0	53.5	53.1	52.9
11:00 - 12:00	52.2	51.2	52.4	52.9	53.1	53.2	52.6
12:00 - 13:00	51.6	51.9	50.3	51.4	51.9	52.2	50.9
13:00 - 14:00	50.9	50.8	49.7	49.8	56.1	52.0	51.9
Leq(24)*	51.1	50.8	53.2	52.1	51.4	53.0	53.3
Ldn	56.6	56.9	61.3	59.2	56.1	60.2	60.5
Lmax **	70.7	76.7	71.3	72.8	78.4	76.4	79.2
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

** Maximum Sound Pressure Level between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-CPL

Location : Moo 4 of Ta-Phong Sub-District

Monitor Period : 01-08 Jul 2022

SLM Model : RION NL-21

Serial No : 00487723

Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021


SLM Reading / Adjust dB(A) : 93.9/0.1

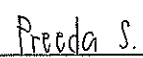
Expire Date : 23 Dec 2022

Cal Sheet No.: NC-74-2022-070

Time	L90 (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
14:00 - 15:00	46.9	49.1	48.7	47.7	47.6	47.1	48.7
15:00 - 16:00	47.2	47.1	48.1	47.4	47.5	47.1	48.3
16:00 - 17:00	48.5	47.8	48.3	47.6	46.8	47.2	47.9
17:00 - 18:00	48.7	47.8	48.4	47.1	47.3	47.3	46.5
18:00 - 19:00	48.6	47.6	48.1	47.6	48.0	47.9	47.5
19:00 - 20:00	48.7	47.6	48.1	47.9	48.3	47.9	47.2
20:00 - 21:00	49.2	49.0	48.8	48.5	48.7	47.4	48.2
21:00 - 22:00	49.0	47.5	49.2	48.0	48.0	47.5	48.4
22:00 - 23:00	48.7	48.1	49.0	48.5	48.0	47.4	48.0
23:00 - 00:00	47.9	47.5	49.1	49.4	48.5	46.8	48.3
00:00 - 01:00	47.7	48.0	48.6	49.4	48.6	48.4	47.7
01:00 - 02:00	47.8	49.3	48.5	49.5	49.0	48.6	47.5
02:00 - 03:00	48.0	49.5	48.1	49.6	46.9	48.9	47.6
03:00 - 04:00	49.6	48.5	47.5	49.7	45.7	48.2	47.4
04:00 - 05:00	48.7	49.1	48.4	49.6	45.5	48.7	47.0
05:00 - 06:00	49.3	48.4	48.6	49.4	46.2	47.7	48.1
06:00 - 07:00	48.6	48.0	48.5	48.8	45.2	46.5	48.7
07:00 - 08:00	49.7	48.7	48.6	48.5	45.1	46.3	48.6
08:00 - 09:00	50.0	49.4	48.8	47.7	45.7	47.9	48.2
09:00 - 10:00	50.0	48.3	49.0	48.3	46.8	49.1	47.7
10:00 - 11:00	50.0	48.2	48.7	48.8	47.1	49.3	47.8
11:00 - 12:00	50.1	48.8	48.9	48.8	47.0	49.2	47.0
12:00 - 13:00	49.8	49.9	47.9	48.1	46.5	48.6	46.6
13:00 - 14:00	49.4	49.1	47.4	47.7	48.0	48.6	48.5
L90(avg)*	48.9	48.5	48.5	48.6	47.3	48.0	47.9

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-CPL

Location : Technology IRPC School
SLM Model : RION NL-21
Site Operator : Mr. Sittichai Sawangwongchai

Monitor Period : 01-08 Jul 2022
Serial No : 00187505

Calibrator Model : RION NC-74
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.9/0.1
Cal Sheet No.: NC-74-2022-070

Serial No : 34283648
Certified Date : 24 Dec 2021
Expire Date : 23 Dec 2022

Time	Equivalent Sound Pressure Level (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	60.9	61.9	64.2	61.5	60.7	59.6	59.5
12:00 - 13:00	61.2	61.2	63.1	63.1	59.9	59.3	59.2
13:00 - 14:00	62.3	60.8	62.8	61.2	59.8	59.1	59.1
14:00 - 15:00	60.9	60.9	62.2	60.3	56.5	58.3	62.3
15:00 - 16:00	60.7	61.1	61.6	60.6	59.4	58.0	60.9
16:00 - 17:00	61.5	60.9	60.3	60.1	59.5	58.8	60.7
17:00 - 18:00	62.7	61.1	59.5	60.0	59.0	58.9	61.5
18:00 - 19:00	60.0	61.5	60.2	60.2	59.5	58.9	62.7
19:00 - 20:00	59.1	61.6	60.9	59.9	59.5	59.1	60.2
20:00 - 21:00	58.8	61.0	62.3	60.2	60.4	59.5	60.9
21:00 - 22:00	57.9	59.3	59.3	62.7	60.7	61.0	62.3
22:00 - 23:00	57.1	58.2	58.9	58.5	58.9	59.0	59.3
23:00 - 00:00	56.5	58.0	59.4	58.1	59.0	58.4	58.9
00:00 - 01:00	57.3	57.5	57.1	57.5	58.3	57.8	58.9
01:00 - 02:00	56.4	55.8	55.9	57.4	57.5	56.9	59.0
02:00 - 03:00	56.0	55.8	54.6	55.7	56.8	57.1	58.3
03:00 - 04:00	56.1	56.0	55.0	57.5	57.5	56.2	57.5
04:00 - 05:00	58.3	55.1	56.3	55.2	56.2	56.2	56.8
05:00 - 06:00	62.3	55.4	55.3	55.4	56.1	57.1	56.8
06:00 - 07:00	61.9	57.4	57.0	55.4	56.1	56.3	61.3
07:00 - 08:00	61.3	61.8	63.7	56.8	56.5	57.0	61.1
08:00 - 09:00	61.1	64.1	61.8	61.3	58.1	59.7	61.2
09:00 - 10:00	61.1	63.9	61.8	61.1	60.0	59.5	50.1
10:00 - 11:00	62.3	62.6	61.6	61.2	59.8	59.4	50.0
Leq(24)*	60.2	60.5	60.6	59.8	58.8	58.6	59.9
Ldn	65.5	64.3	64.5	64.2	64.3	64.1	65.4
Lmax **	86.8	77.6	83.4	77.4	75.5	78.2	83.4
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-CPL

Location : Technology IRPC School

Monitor Period : 01-08 Jul 2022

SLM Model : RION NL-21

Serial No : 00187505

Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021


SLM Reading / Adjust dB(A) : 93.9/0.1


Expire Date : 23 Dec 2022

Cal Sheet No.: NC-74-2022-070

Time	L90 (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
11:00 - 12:00	57.7	58.3	61.3	59.2	58.1	56.9	56.8
12:00 - 13:00	57.9	58.8	60.8	60.8	57.8	57.2	56.8
13:00 - 14:00	59.4	58.3	59.9	58.7	57.5	56.8	56.8
14:00 - 15:00	57.8	58.7	59.3	58.0	54.9	55.8	59.4
15:00 - 16:00	57.8	58.6	58.7	57.7	57.2	55.7	57.8
16:00 - 17:00	58.7	57.8	57.1	58.0	57.9	56.2	57.8
17:00 - 18:00	58.4	57.6	56.2	57.0	56.6	56.8	58.7
18:00 - 19:00	56.9	58.7	57.0	56.9	56.8	56.5	58.4
19:00 - 20:00	56.4	58.0	58.1	56.8	56.8	56.9	57.0
20:00 - 21:00	55.6	56.5	57.4	58.0	58.3	56.8	58.1
21:00 - 22:00	54.7	55.7	56.1	57.3	57.7	57.6	57.4
22:00 - 23:00	54.3	55.3	56.0	55.5	56.6	56.6	56.1
23:00 - 00:00	54.1	54.3	54.9	55.1	56.8	56.0	56.0
00:00 - 01:00	54.5	53.9	53.0	54.2	56.1	54.9	56.6
01:00 - 02:00	54.2	53.1	52.5	53.7	55.7	54.2	56.8
02:00 - 03:00	54.1	53.2	51.8	53.6	54.8	54.8	56.1
03:00 - 04:00	53.9	53.7	52.5	52.0	54.8	54.3	55.7
04:00 - 05:00	54.9	53.2	53.1	52.6	54.6	54.1	54.8
05:00 - 06:00	57.0	51.8	52.7	52.3	54.4	54.7	54.6
06:00 - 07:00	58.3	53.5	53.9	53.3	54.4	53.9	55.7
07:00 - 08:00	58.7	56.2	57.0	54.6	54.9	54.7	57.7
08:00 - 09:00	58.4	59.6	57.8	55.7	55.5	55.9	58.6
09:00 - 10:00	58.3	61.9	59.0	57.7	56.4	56.5	48.7
10:00 - 11:00	57.0	60.6	59.2	58.6	56.4	56.8	48.7
L90(avg)*	57.0	57.4	57.3	56.8	56.5	56.0	56.8

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-CPL

Location : North Fence of Project Site

Monitor Period : 01-08 Jul 2022

SLM Model : RION NL-21

Serial No : 00487734

Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 93.9/0.1

Expire Date : 23 Dec 2022

Cal Sheet No.: NC-74-2022-070

Time	Equivalent Sound Pressure Level (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
13:00 - 14:00	57.4	57.1	57.4	56.4	56.8	57.0	56.6
14:00 - 15:00	56.7	57.8	57.3	56.2	57.4	57.1	57.4
15:00 - 16:00	56.9	57.2	56.9	56.6	57.4	57.3	56.7
16:00 - 17:00	56.6	57.4	56.7	56.4	57.0	55.9	56.9
17:00 - 18:00	57.2	57.3	56.1	56.8	57.2	55.8	56.6
18:00 - 19:00	57.3	57.3	56.3	56.7	57.0	55.1	57.2
19:00 - 20:00	56.6	57.4	56.4	56.9	57.6	55.1	56.3
20:00 - 21:00	56.3	57.2	56.4	57.1	57.9	55.3	56.4
21:00 - 22:00	56.1	56.7	56.5	56.8	57.9	55.7	56.4
22:00 - 23:00	55.9	56.9	56.4	56.8	57.9	55.4	56.5
23:00 - 00:00	56.1	57.2	56.2	57.8	58.1	55.4	56.4
00:00 - 01:00	56.4	57.3	56.0	58.5	57.2	55.3	56.2
01:00 - 02:00	56.7	57.2	56.4	58.5	56.9	55.5	56.9
02:00 - 03:00	57.1	57.1	56.3	58.4	56.9	55.8	56.7
03:00 - 04:00	57.0	56.7	56.1	58.3	56.7	56.0	56.9
04:00 - 05:00	56.6	56.6	56.0	57.8	56.9	56.0	57.1
05:00 - 06:00	56.1	56.5	56.0	57.9	57.1	56.4	56.6
06:00 - 07:00	56.1	56.2	56.0	58.2	57.5	56.9	56.4
07:00 - 08:00	56.3	56.4	56.6	57.1	57.4	57.0	56.5
08:00 - 09:00	56.6	56.5	56.1	56.7	57.2	56.6	56.6
09:00 - 10:00	56.8	56.9	56.2	56.9	57.2	56.4	56.1
10:00 - 11:00	56.7	57.5	56.5	57.1	58.2	56.5	57.2
11:00 - 12:00	56.4	57.7	56.6	57.3	57.5	56.6	56.7
12:00 - 13:00	56.5	57.3	56.1	56.9	57.2	56.1	56.9
Leq(24)*	56.6	57.1	56.4	57.3	57.4	56.1	56.7
Ldn	62.9	63.3	62.6	64.3	63.7	62.4	63.1
Lmax **	75.5	77.0	71.3	68.0	71.6	68.4	75.5
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

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-CPL

Location : North Fence of Project Site

Monitor Period : 01-08 Jul 2022

SLM Model : RION NL-21

Serial No : 00487734

Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 93.9/0.1

Expire Date : 23 Dec 2022

Cal Sheet No.: NC-74-2022-070

Time	L90 (dB(A))						
	01-02 Jul 2022	02-03 Jul 2022	03-04 Jul 2022	04-05 Jul 2022	05-06 Jul 2022	06-07 Jul 2022	07-08 Jul 2022
13:00 - 14:00	56.3	56.1	56.4	55.7	56.3	56.6	55.3
14:00 - 15:00	56.2	57.1	56.6	55.5	56.9	56.6	56.3
15:00 - 16:00	56.4	56.3	56.3	55.9	56.9	56.5	56.2
16:00 - 17:00	56.2	57.0	56.1	55.8	56.4	55.1	56.4
17:00 - 18:00	56.5	56.8	55.7	55.9	56.6	54.9	56.2
18:00 - 19:00	56.5	56.8	55.8	56.2	56.6	54.6	56.5
19:00 - 20:00	56.2	57.0	55.9	56.4	56.8	54.7	55.8
20:00 - 21:00	55.9	56.7	55.9	56.7	57.5	54.9	55.9
21:00 - 22:00	55.8	56.3	56.1	56.3	57.6	55.2	55.9
22:00 - 23:00	55.7	56.4	56.0	56.3	57.6	55.1	56.1
23:00 - 00:00	55.8	56.6	55.8	57.3	57.1	55.1	56.0
00:00 - 01:00	56.0	56.7	55.6	57.7	56.9	55.0	55.8
01:00 - 02:00	56.2	56.5	55.9	57.9	56.6	55.2	56.6
02:00 - 03:00	56.4	56.5	55.9	57.8	56.6	55.4	56.4
03:00 - 04:00	56.3	56.3	55.7	57.7	56.4	55.6	56.6
04:00 - 05:00	56.1	56.1	55.6	57.4	56.6	55.6	56.9
05:00 - 06:00	55.6	56.0	55.6	57.5	56.9	55.9	56.1
06:00 - 07:00	55.8	55.9	55.6	57.7	57.0	56.3	56.1
07:00 - 08:00	55.9	56.0	55.5	56.6	57.0	56.4	56.1
08:00 - 09:00	56.2	56.0	55.7	56.3	57.0	56.1	56.2
09:00 - 10:00	56.2	56.3	55.8	56.5	56.9	56.1	55.6
10:00 - 11:00	55.9	56.9	55.8	56.6	56.9	56.1	56.7
11:00 - 12:00	55.9	57.0	55.9	56.7	56.9	56.2	56.3
12:00 - 13:00	56.1	56.6	55.7	56.5	56.7	55.6	56.4
L90(avg)*	56.1	56.5	55.9	56.8	56.9	55.7	56.2

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

ใบรับรองผลการตรวจวัดระดับเสียงที่ความถี่ต่างๆ



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

SOUND PRESSURE LEVEL AT EACH FREQUENCY REPORT

CLIENT NAME	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030 Octave (Cert.)/May22
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Sound Level Meter (Octave Band)
MEASUREMENT LOCATION	: CPL Plant	CALIBRATOR	: Sound Calibrator
MEASUREMENT DATE	: 18/05/2022	CALIBRATOR TYPE	: Class 1 S/N : 0254955
SITE OPERATOR	: Mr. phakphum Thanthai	CALIBRATION REF.	: 114 dB@1 KHz

Location	Sound Pressure Level (dBA)	Sound Pressure Level at each Frequency (dBA)									
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	16,000 Hz
Cyclohexanone (1110-K1)	84.8	34.5	48.9	58.7	67.9	75.2	77.7	80.2	78.7	73.0	59.7
SA & WLC (4140-I)	85.7	40.0	56.8	61.2	66.7	72.1	80.1	81.1	78.7	77.1	65.3
Hydroxylamine Unit (1210-PB1)	86.5	36.2	51.4	61.0	69.0	76.8	84.1	80.7	74.0	65.6	52.9
Refrigeration Unit (2510-K1)	83.7	33.0	50.6	57.5	78.7	77.2	76.3	77.5	70.5	60.2	44.5
Wastewater Treatment (4700-B1)	86.6	48.9	57.9	63.6	72.1	79.4	76.7	79.6	81.7	77.6	66.0

(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.



บริษัท ซีคอต จำกัด

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SOUND PRESSURE LEVEL AT EACH FREQUENCY REPORT

CLIENT NAME	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030 Octave (Cert.)/Dec22
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Sound Level Meter (Octave Band)
MEASUREMENT LOCATION	: CPL Plant	CALIBRATOR	: Sound Calibrator
MEASUREMENT DATE	: 09/12/2022	CALIBRATOR TYPE	: Class 1 S/N : 0254955
SITE OPERATOR	: Miss Thipsuda Wannakran	CALIBRATION REF.	: 114 dB@1 KHz

Location	Sound Pressure Level (dBA)	Sound Pressure Level at each Frequency (dBA)									
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	16,000 Hz
Cyclohexanone (1110-K1)	86.0	37.4	49.4	59.4	69.2	76.3	79.9	80.3	80.5	74.6	57.6
SA & WLC (4140-1)	86.7	40.4	57.3	62.2	67.4	73.3	77.8	84.8	77.7	71.1	58.6
Hydroxylamine Unit (1210-PB1)	94.0	41.6	51.8	66.9	75.4	82.8	92.0	88.2	80.0	64.9	43.4
Refrigeration Unit (2510-K1)	85.5	37.6	54.8	59.9	75.4	79.8	80.0	81.2	76.0	63.9	45.4
Wastewater Treatment (4700-B1)	90.0	49.6	58.8	66.9	86.4	78.8	80.0	84.2	83.0	78.9	64.4

(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.

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Noise Monitoring Result : Working Noise MTR-CPL

Location : Cyclohexanone (1110-K1)

Monitor Period : Jul 06, 2022

SLM Model : Cirrus CR161B

Serial No : G302737

Site Operator : Mr. Thanawut Duansaeng

Calibrator Model : Cirrus CR515

Serial No : 94296

Calibration Ref dB(A) : 94.0

Certified Date : Dec 24, 2021

SLM Reading / Adjust dB(A) : 93.7/0.0

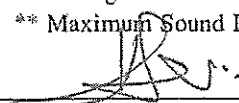
Expire Date : Dec 23, 2022

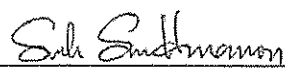
Cal Sheet No.: CR-515-2022-059

Time	Equivalent Sound Pressure Level (dB(A))	
	Jul 06, 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	84.4	
09:00 - 10:00	84.4	
10:00 - 11:00	84.2	
11:00 - 12:00	84.2	
12:00 - 13:00	84.1	
13:00 - 14:00	84.0	
14:00 - 15:00	83.6	
15:00 - 16:00	83.6	
16:00 - 17:00	83.8	
17:00 - 18:00	83.8	
18:00 - 19:00	83.9	
19:00 - 20:00	84.0	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	84.0	
Lmax **	98.9	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Refrigeration Unit (2510-K1)		Monitor Period : Jul 06, 2022	
SLM Model : Cirrus CR162B		Serial No : G301020	
Site Operator : Mr. Thanawut Duansaeng			
Calibrator Model : Cirrus CR:515		Serial No : 94296	
Calibration Ref dB(A) : 94.0		Certified Date : Dec 24, 2021	
SLM Reading / Adjust dB(A) : 93.7/0.1		Expire Date : Dec 23, 2022	
Cal Sheet No.: CR-515-2022-059			
Time	Equivalent Sound Pressure Level (dB(A))		
	Jul 06, 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	83.3		
09:00 - 10:00	83.1		
10:00 - 11:00	82.9		
11:00 - 12:00	82.7		
12:00 - 13:00	82.9		
13:00 - 14:00	82.8		
14:00 - 15:00	82.6		
15:00 - 16:00	82.7		
16:00 - 17:00	83.0		
17:00 - 18:00	83.3		
18:00 - 19:00	83.3		
19:00 - 20:00	83.3		
20:00 - 21:00			
21:00 - 22:00			
22:00 - 23:00			
23:00 - 24:00			
Leq(12)*	83.0		
Lmax **	85.9		
Standard-12Hr	87 dB(A)		
Standard-Max	140 dB(A)		

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : SA & WLC (4140-1)
SLM Model : Cirrus CR162B
Site Operator : Mr. Thanawut Duansaeng

Monitor Period : Jul 06, 2022
Serial No : G301027


Calibrator Model : Cirrus CR:515
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 93.7/-0.1
Cal Sheet No.: CR-515-2022-059

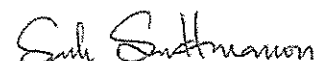
Serial No : 94296
Certified Date : Dec 24, 2021
Expire Date : Dec 23, 2022

Time	Equivalent Sound Pressure Level (dB(A))	
	Jul 06, 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	84.1	
09:00 - 10:00	84.3	
10:00 - 11:00	84.0	
11:00 - 12:00	84.0	
12:00 - 13:00	84.1	
13:00 - 14:00	84.2	
14:00 - 15:00	84.5	
15:00 - 16:00	84.5	
16:00 - 17:00	84.8	
17:00 - 18:00	84.8	
18:00 - 19:00	84.5	
19:00 - 20:00	84.8	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	84.4	
Lmax **	106.2	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Wastewater Treatment (4700-B1)

Monitor Period : Jul 06, 2022

SLM Model : Cirrus CR161B

Serial No : G302743

Site Operator : Mr. Thanawut Duansaeng

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/-0.1

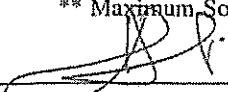
Expire Date : Dec 23, 2022


Cal Sheet No.: CR-515-2022-059

Time	Equivalent Sound Pressure Level (dB(A))	
	Jul 06, 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	87.3	
09:00 - 10:00	87.3	
10:00 - 11:00	86.9	
11:00 - 12:00	86.9	
12:00 - 13:00	86.8	
13:00 - 14:00	86.8	
14:00 - 15:00	86.6	
15:00 - 16:00	86.7	
16:00 - 17:00	86.7	
17:00 - 18:00	86.7	
18:00 - 19:00	86.8	
19:00 - 20:00	86.8	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	86.9	
Lmax **	98.4	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Hydroxylamine Unit (1210-PB1)

Monitor Period : Aug 23, 2022

SLM Model : RION NL-21

Serial No : 00487723

Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : Dec 24, 2021

SLM Reading / Adjust dB(A) : 94.0/0.0


Expire Date : Dec 23, 2022

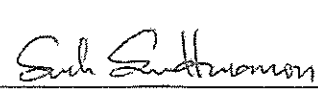
Cal Sheet No.: NC-74-2022-076

Time	Equivalent Sound Pressure Level (dB(A))	
	Aug 23, 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	86.6	
10:00 - 11:00	86.5	
11:00 - 12:00	86.6	
12:00 - 13:00	87.0	
13:00 - 14:00	87.1	
14:00 - 15:00	86.8	
15:00 - 16:00	86.8	
16:00 - 17:00	86.5	
17:00 - 18:00	86.5	
18:00 - 19:00	86.4	
19:00 - 20:00	86.3	
20:00 - 21:00	86.4	
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	86.6	
Lmax **	92.6	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 09:00-21:00

** Maximum Sound Pressure Level between 09:00-21:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Cyclohexanone (1110-K1)

Monitor Period : Dec 09, 2022

SLM Model : CASELLA CEL-246

Serial No : 3173303

Site Operator : Mr. Watcharakan Pramakhate

Calibrator Model : CASELLA CEL120/2

Serial No : 2839225

Calibration Ref dB(A) : 114.0

Certified Date : Dec 24, 2021

SLM Reading / Adjust dB(A) : 113.8/0.2

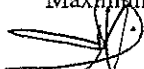
Expire Date : Dec 23, 2022


Cal Sheet No.: CEL120/2-2022-114

Time	Equivalent Sound Pressure Level (dB(A))
	Dec 09, 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	84.0
09:00 - 10:00	84.0
10:00 - 11:00	83.9
11:00 - 12:00	83.8
12:00 - 13:00	83.3
13:00 - 14:00	83.4
14:00 - 15:00	83.5
15:00 - 16:00	83.5
16:00 - 17:00	83.7
17:00 - 18:00	83.7
18:00 - 19:00	83.8
19:00 - 20:00	83.7
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	83.7
Lmax **	91.8
Standard-12Hr	87 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Hydroxylamine Unit (1210-PB1)
SLM Model : RION NL-21
Site Operator : Mr. Phuwadech Kaewjirakulsri

Monitor Period : Dec 28, 2022
Serial No : 00198277

Calibrator Model : RION NC-74
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 94.1/-0.1
Cal Sheet No.: NC-74-2022-101

Serial No : 34283648
Certified Date : Dec 24, 2021
Expire Date : Dec 23, 2022

Time	Equivalent Sound Pressure Level (dB(A))	
	Dec 28, 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	91.9	
08:00 - 09:00	92.7	
09:00 - 10:00	91.5	
10:00 - 11:00	91.5	
11:00 - 12:00	91.6	
12:00 - 13:00	91.4	
13:00 - 14:00	91.0	
14:00 - 15:00	91.0	
15:00 - 16:00	91.3	
16:00 - 17:00	91.5	
17:00 - 18:00	92.1	
18:00 - 19:00	92.7	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	91.7	
Lmax **	94.4	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00
** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Refrigeration Unit (2510-K1)	Monitor Period : Dec 09, 2022
SLM Model : CASELLA CEL-246	Serial No : 3173306
Site Operator : Mr. Watcharakan Pramakhate	

Calibrator Model : CASELLA CEL120/2	Serial No : 2839225
Calibration Ref dB(A) : 114.0	Certified Date : Dec 24, 2021
SLM Reading / Adjust dB(A) : 113.8/0.2	Expire Date : Dec 23, 2022
Cal Sheet No.: CEL120/2-2022-114	

Time	Equivalent Sound Pressure Level (dB(A))	
	Dec 09, 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	83.9	
09:00 - 10:00	85.0	
10:00 - 11:00	84.8	
11:00 - 12:00	83.9	
12:00 - 13:00	84.5	
13:00 - 14:00	84.9	
14:00 - 15:00	85.4	
15:00 - 16:00	85.4	
16:00 - 17:00	85.7	
17:00 - 18:00	85.8	
18:00 - 19:00	85.2	
19:00 - 20:00	85.5	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	85.0	
Lmax **	94.8	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : SA & WLC (4140-1)	Monitor Period : Dec 09, 2022
SLM Model : CASELLA CEL-246	Serial No : 3173343
Site Operator : Mr. Watcharakan Pramakhate	

Calibrator Model : CASELLA CEL120/2	Serial No : 2839225
Calibration Ref dB(A) : 114.0	Certified Date : Dec 24, 2021
SLM Reading / Adjust dB(A) : 113.7/0.3	Expire Date : Dec 23, 2022
Cal Sheet No.: CEL120/2-2022-114	

Time	Equivalent Sound Pressure Level (dB(A))	
	Dec 09, 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	86.5	
09:00 - 10:00	86.5	
10:00 - 11:00	86.9	
11:00 - 12:00	86.8	
12:00 - 13:00	85.4	
13:00 - 14:00	85.4	
14:00 - 15:00	85.8	
15:00 - 16:00	85.7	
16:00 - 17:00	85.0	
17:00 - 18:00	85.6	
18:00 - 19:00	86.0	
19:00 - 20:00	85.6	
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		

Leq(12)*	86.0
Lmax **	89.8

Standard-12Hr	87 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-CPL

Location : Wastewater Treatment (4700-B1)	Monitor Period : Dec 28, 2022
SLM Model : RION NL-21	Serial No : 00487719
Site Operator : Mr. Phuwadech Kaewjirakulsri	

Calibrator Model : RION NC-74	Serial No : 34283648
Calibration Ref dB(A) : 94.0	Certified Date : Dec 24, 2021
SLM Reading / Adjust dB(A) : 93.8/0.2	Expire Date : Dec 23, 2022
Cal Sheet No.: NC-74-2022-101	

Time	Equivalent Sound Pressure Level (dB(A))
	Dec 28, 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	88.1
08:00 - 09:00	85.3
09:00 - 10:00	85.6
10:00 - 11:00	85.0
11:00 - 12:00	85.2
12:00 - 13:00	85.2
13:00 - 14:00	85.1
14:00 - 15:00	85.3
15:00 - 16:00	85.2
16:00 - 17:00	85.1
17:00 - 18:00	85.0
18:00 - 19:00	85.2
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	

Leq(12)*	85.5
Lmax **	89.2

Standard-12Hr	87 dB(A)
Standard-Max	140 dB(A)

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

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

ใบรับรองผลการตรวจวัดระดับเสียงเฉลี่ยที่ลูกจ้างได้รับ
เฉลี่ยตลอดเวลาการทำงาน (TWA)



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030 (Cert.)/Dec/Noise Dose
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/12/2022	CALIBRATOR MODEL	: 22R
MEASUREMENT LOCATION	: CPL	SERIAL NO.	: 79781
SITE OPERATOR	: Mr. Thipsuda Wannakran	CALIBRATOR REF.	: 114 dB @1,000 Hz

USER ID	AREA/PLANT	TIME	%Dose	SOUND PRESSURE LEVEL (dBA)	
				TWA (12-hr)	STANDARD*
90702	1110-K1	08.12-19.00	77.6	82.1	83.0
90202	4140-B1	08.13-19.00	44.3	79.7	83.0
90875	4700-B1	08.15-19.00	93.7	83.0	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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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.



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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	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030 (Cert.)/Dec/Noise Dose
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 28/12/2022	CALIBRATOR MODEL	: 22R
MEASUREMENT LOCATION	: CPL	SERIAL NO.	: 79781
SITE OPERATOR	: Mr. Phakphum Thanthai	CALIBRATOR REF.	: 114 dB @1,000 Hz

USER ID	AREA/PLANT	TIME	%Dose	SOUND PRESSURE LEVEL (dBA)	
				TWA (12-hr)	STANDARD*
91197	1210-PB1	07.22-19.00	57.5	80.8	83.0
91088	2510-K1	07.22-19.00	19.4	76.1	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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 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	: UBE Chemicals (Asia) Public Co., Ltd.	REFERENCE NO.	: 222030 (Cert.)/Jul/Noise Dose
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/07/2022	CALIBRATOR MODEL	: RC 110 A
MEASUREMENT LOCATION	: CPL	CALIBRATOR TYPE	: Calibrator SERIAL NO. : 95168
SITE OPERATOR	: Mr. Baworn Deechaiya	CALIBRATION REF.	: 114 dB @1,000 Hz

USER ID	AREA/PLANT	TIME	%Dose	SOUND PRESSURE LEVEL (dBA)	
				TWA (12-hr)	STANDARD*
90666	1110-K1	08.00-19.59	85.5	82.6	83.0
90695	4140-B1	08.10-20.00	30.2	78.1	83.0
91197	1210-PB1	08.12-20.02	90.7	82.8	83.0
90990	2510-K1	08.11-20.03	50.5	80.3	83.0
19040	4700-B1	08.13-20.57	63.1	81.3	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.

ภาคผนวก ง.4

ใบรับรองผลการวิเคราะห์คุณภาพน้ำทิ้ง

บริเวณจุดระบายน้ำเข้าระบบบำบัดน้ำเสีย (Receiving Tank)
ก่อนเข้า Equalization Cooler



Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2272470
Date Received : Jul 06, 2022
Date Reported : Jul 15, 2022
Report Number : 2342070-1

TESTING
No.0042

Page 1 of 1

Sample Number 2272470-1
Sampled Date Jul 06, 2022 11:03 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Jul 06, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	622	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	1337	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.7	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	37.8	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1280	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	102	APHA (2017), -4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	13	APHA (2017), 2540 D	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banchongkit

Narumon Banchongkit
Supervisor
โทรศัพท์ ๖-323-๙-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager
โทรศัพท์ ๖-323-๙-9442

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2272470
Date Received : Jul 06, 2022
Date Reported : Jul 15, 2022
Report Number : 2342070-2

Page 1 of 1

Sample Number 2272470-1
Sampled Date Jul 06, 2022 11:03 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Jul 06, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	150	Flow meter	Rayong
Sulfate	mg/L	0.6	2	824	Based on APHA (2017), 4500-SO4(E)	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Technical Management

N. Banchongkit

Narumon Banchongkit
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Dej Changchon
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 2284694
Date Received : Aug 03, 2022
Date Reported : Aug 09, 2022
Report Number : 2369892-1

Page 1 of 1

Sample Number 2284694-1
Sampled Date Aug 03, 2022 9:20 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Aug 03, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	538	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	1135	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	34.9	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2130	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	130	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	27	APHA (2017), 2540 D	Rayong

Sampled By : Narunat thammasaro

Remark :

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Technical Management

N. Banphit

Narumon Banchongkit
Supervisor
หมายเลขโทรศัพท์ 3-323-9445

Approved by

D. Changchon

Dej Changchon
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Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2284694
Date Received : Aug 03, 2022
Date Reported : Aug 09, 2022
Report Number : 2369892-2

Page 1 of 1

Sample Number 2284694-1
Sampled Date Aug 03, 2022 9:20 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Aug 03, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	160	Flow meter	Rayong
Sulfate	mg/L	0.6	2	678	Based on APHA (2017), 4500-SO4(E)	Rayong

Sampled By : Narunat thammasaro

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banphit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100626
Date Received : Sep 20, 2022
Date Reported : Sep 27, 2022
Report Number : 2405271-1



TESTING
No.0042

Page 1 of 1

Sample Number 22100626-1
Sampled Date Sep 20, 2022 12:00 PM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Sep 20, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	618	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	1172	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.7	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	34.3	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1620	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	121	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	29	APHA (2017), 2540 D	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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Technical Management

N. Banphit

Narumon Banchongkit
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Approved by

D. Changchon

Dej Changchon
Senior Manager
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140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100626
Date Received : Sep 20, 2022
Date Reported : Sep 27, 2022
Report Number : 2405271-2

Page 1 of 1

Sample Number 22100626-1
Sampled Date Sep 20, 2022 12:00 PM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Sep 20, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	150	Flow meter	Rayong
Sulfate	mg/L	0.6	2	256	Based on APHA (2017), 4500-SO ₄ (E)	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banphit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22112267
Date Received : Oct 05, 2022
Date Reported : Oct 12, 2022
Report Number : 2430060-1

Page 1 of 1

Sample Number 22112267-1
Sampled Date Oct 05, 2022 11:48 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Oct 05, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	650	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	1332	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	3	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	9.2	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	33.6	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2460	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	180	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	34	APHA (2017), 2540 D	Rayong

Sampled By : Tanasit Wongsachai

Remark :

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Technical Management

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Narumon Banchongkit
Supervisor
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Approved by

D. Changchon

Dej Changchon
Senior Manager
โทรศัพท์ 3-323-9-9442

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TESTING
No.0042



Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22112267
Date Received : Oct 05, 2022
Date Reported : Oct 12, 2022
Report Number : 2430060-2

Page 1 of 1

Sample Number 22112267-1
Sampled Date Oct 05, 2022 11:48 AM
Sample Description Wastewater
Location Influent (S-32-002)
Date Analysis Commenced Oct 05, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	170	Flow meter	Rayong
Sulfate	mg/L	0.6	2	1035	Based on APHA (2017), 4500-SO4(E)	Rayong

Sampled By : Tanasit Wongsachai

Remark :

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22121722
Date Received : Nov 03, 2022
Date Reported : Nov 10, 2022
Report Number : 2452409-1



TESTING
No.0042

Page 1 of 1

Sample Number	22121722-1
Sampled Date	Nov 03, 2022 11:18 AM
Sample Description	Wastewater
Location	Influent (S-32-002)
Date Analysis Commenced	Nov 03, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	207	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	863	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	6.7	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	31.6	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	3060	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	54.8	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	36	APHA (2017), 2540 D	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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Technical Management

N. Banphat

Narumon Banchongkit
Supervisor
โทรศัพท์ ๖-๓๒๓-๖-๙๔๔๕

Approved by

D. Chongchon

Dej Changchon
Senior Manager
โทรศัพท์ ๖-๓๒๓-๖-๙๔๔๕

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22121722
Date Received : Nov 03, 2022
Date Reported : Nov 10, 2022
Report Number : 2452409-2

Page 1 of 1

Sample Number	22121722-1
Sampled Date	Nov 03, 2022 11:18 AM
Sample Description	Wastewater
Location	Influent (S-32-002)
Date Analysis Commenced	Nov 03, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	80	Flow meter	Rayong
Sulfate	mg/L	0.6	2	1738	Based on APHA (2017), 4500-SO4(E)	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banphat

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22137120

Date Received : Dec 07, 2022
Date Reported : Dec 14, 2022
Report Number : 2488294-1

TESTING
No.0042

Page 1 of 1

Sample Number	22137120-1
Sampled Date	Dec 07, 2022 9:58 AM
Sample Description	Wastewater
Location	Influent (S-32-002)
Date Analysis Commenced	Dec 07, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2	397	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	5	1689	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	8.7	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	33.1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1150	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	83.7	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Norg (C), part NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	27	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Technical Management

N. Banongkit

Narumon Banchongkit
Supervisor
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Approved by

D. Changchon

Dej Changchon
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22137120

Date Received : Dec 07, 2022
Date Reported : Dec 14, 2022
Report Number : 2488294-2

Page 1 of 1

Sample Number	22137120-1
Sampled Date	Dec 07, 2022 9:58 AM
Sample Description	Wastewater
Location	Influent (S-32-002)
Date Analysis Commenced	Dec 07, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Flow rate	m3/hr	-	-	150	Flow meter	Rayong
Sulfate	mg/L	0.6	2	200	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-SO4 (E)	Rayong

Sampled By : Tanasit Wongsachai

Remark :
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บริเวณจุดระบายน้ำทิ้งหลังผ่าน Final Check Basin



Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

TESTING
No.0042
Lot ID: 2271913
Date Received : Jul 06, 2022
Date Reported : Jul 14, 2022
Report Number : 2340410-1

Page 1 of 1

Sample Number 2271913-1
Sampled Date Jul 06, 2022 9:40 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Jul 06, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	32	≤120	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.2	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	34.4	≤40	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1360	≤5000 (1)	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	1.1	≤100	APHA (2017), 4500-Horg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	APHA (2017), 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banumit

Narumon Banchongkit
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Approved by

D. Chongchon

Dej Changchon
Senior Manager
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2271913
Date Received : Jul 06, 2022
Date Reported : Jul 14, 2022
Report Number : 2340410-2

Page 1 of 1

Sample Number 2271913-1
Sampled Date Jul 06, 2022 9:40 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Jul 06, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m ³ /h	-	-	120	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	1654	No Standard	Based on APHA (2017), 4500-SO4(E)	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 2284663
Date Received : Aug 03, 2022
Date Reported : Aug 10, 2022
Report Number : 2369867-1

Page 1 of 1

Sample Number	2284663-1
Sampled Date	Aug 03, 2022 9:30 AM
Sample Description	Wastewater
Location	Effluent (S-32-104)
Date Analysis Commenced	Aug 03, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	22	≤120	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.0	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	32.7	≤40	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1530	(1)	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	1.9	≤100	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	APHA (2017), 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.
Sampled By : Narunat thammassaro

Remark :
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Technical Management

N. Banchoangkit

Narunat Banchoangkit
Supervisor
โทร: 09-00000000 0-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager
โทร: 09-00000000 0-9442

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2284663
Date Received : Aug 03, 2022
Date Reported : Aug 10, 2022
Report Number : 2369867-2

Page 1 of 1

Sample Number	2284663-1
Sampled Date	Aug 03, 2022 9:30 AM
Sample Description	Wastewater
Location	Effluent (S-32-104)
Date Analysis Commenced	Aug 03, 2022
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	121	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	618	No Standard	Based on APHA (2017), 4500-SO4(E)	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.
Sampled By : Narunat thammassaro

Remark :
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Approved by

N. Banchoangkit

Narunat Banchoangkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 2297671
Date Received : Sep 20, 2022
Date Reported : Sep 27, 2022
Report Number : 2399654-1

Page 1 of 1

Sample Number 2297671-1
Sampled Date Sep 20, 2022 10:10 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Sep 20, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	23	≤120	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.6	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	33.7	≤40	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1270	≤5000 (1)	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	1.5	≤100	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	7	≤50	APHA (2017), 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Technical Management

N. Banchongkit

Narumon Banchongkit
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Approved by

D. Changchon

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 2297671
Date Received : Sep 20, 2022
Date Reported : Sep 27, 2022
Report Number : 2399654-2

Page 1 of 1

Sample Number 2297671-1
Sampled Date Sep 20, 2022 10:10 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Sep 20, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	114	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	322	No Standard	Based on APHA (2017), 4500-SO4(E)	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 22112160
Date Received : Oct 05, 2022
Date Reported : Oct 12, 2022
Report Number : 2429961-1

Page 1 of 1

Sample Number 22112160-1
Sampled Date Oct 05, 2022 9:40 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Oct 05, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	29	≤120	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.0	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	35.4	≤40	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	3260	≤5000 (1)	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	2.2	≤100	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	APHA (2017), 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banachkit

Narumon Banachongkit
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โทรศัพท์มือถือ 3-323-9-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22112160
Date Received : Oct 05, 2022
Date Reported : Oct 12, 2022
Report Number : 2429961-2

Page 1 of 1

Sample Number 22112160-1
Sampled Date Oct 05, 2022 9:40 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Oct 05, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	119	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	1343	No Standard	Based on APHA (2017), 4500-SO4(E)	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

TESTING
No.0042
Lot ID: 22121707
Date Received : Nov 03, 2022
Date Reported : Nov 10, 2022
Report Number : 2452394-1

Page 1 of 1

Sample Number 22121707-1
Sampled Date Nov 03, 2022 9:25 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Nov 03, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	33	≤120	APHA (2017), 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.1	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	29.8	≤40	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1068	≤5000 (1)	APHA (2017), 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	3.7	≤100	APHA (2017), 4500-Norg (C), NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	APHA (2017), 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banachonkit

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Approved by

D. Changchon

Dej Changchon
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22121707
Date Received : Nov 03, 2022
Date Reported : Nov 10, 2022
Report Number : 2452394-2

Page 1 of 1

Sample Number 22121707-1
Sampled Date Nov 03, 2022 9:25 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Nov 03, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m ³ /hr	-	-	55.000	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	347	No Standard	Based on APHA (2017), 4500-SO4(E)	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).
(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampled By : Tanasit Wongsachai

Remark :

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 22136975
Date Received : Dec 07, 2022
Date Reported : Dec 14, 2022
Report Number : 2487872-1

Page 1 of 2

Sample Number 22136975-1
Sampled Date Dec 07, 2022 9:50 AM
Sample Description Wastewater
Location Effluent (S-32-104)
Date Analysis Commenced Dec 07, 2022
Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	5	38	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	34.5	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2120	≤5000 (1)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	<1.0	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Norg (C), part NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	6	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

(1) Total Dissolved Solids when discharged to receiving water having TDS > 3,000 mg/L, TDS in the to-be-discharged wastewater can exceed the TDS already found in the receiving water by not higher than 5,000 mg/L.

Technical Management

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138258
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant



TESTING
No.0042

Lot ID: 22136975
Date Received : Dec 07, 2022
Date Reported : Dec 14, 2022
Report Number : 2487872-1

Page 2 of 2

Note : For Total Dissolved Solids guideline set by Environmental Impact Assessment Report of UBE Chemicals (Asia) Public Company Limited.

Sampling By : Tanasit Wongsachai โทรศัพท์ 323-9-9460

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

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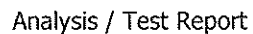
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Lot ID: 22136975
Date Received : Dec 07, 2022
Date Reported : Dec 14, 2022
Report Number : 2487872-2

Page 1 of 1

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	128	No Standard	Flow meter	Rayong
Sulfate	mg/L	0.6	2	272	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-SO4 (E)	Rayong

Sampling By : Tanasit Wongsachai โทร.09-0909-323-2-9460

Remark :

- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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ภาคผนวก ง.5

ใบรับรองผลการวิเคราะห์คุณภาพน้ำทะเล



Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
 140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location: Caprolactam Plant

Lot ID: 22100644

Date Received : Oct 07, 2022
 Date Reported : Jan 13, 2023
 Report Number : 2405319-1 Rev. No.1

Page 1 of 4

Sample Number	22100644-1
Sampled Date	Oct 07, 2022 11:05 AM
Sample Description	Sea Water
Location	ท่าเรือ TPI
Date Analysis Commenced	Oct 07, 2022
Condition of Sample	Contained in one BOD bottle, two glass vials, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Aluminium	mg/L	0.03	0.10	Not Detected	No Standard	Based on APHA (2017), 3125	Bangkok
Mercury	mg/L	0.000003	0.00005	<0.00005	≤0.0001	Based on US EPA, Method 1631 Revision E	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	<1.8	≤1000	APHA (2017), 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen	mg/L	0.02	0.05	0.07	≤0.95	Based on APHA (2017), 4500-NH ₃ F	Rayong
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	No Standard	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	50	No Standard	APHA (2017), 5220 C	Rayong
Depth	m	-	-	13.90	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	6.2	>4	Based on APHA (2017), 4500-O(C)	Rayong
Flow rate	m ³ /hr	-	-	28037	No Standard	Flow meter	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.2	7.0-8.5	Based on APHA (2017), 4500-H (B)	Rayong
Phosphate as P	mg/L	0.002	0.005	Not Detected	≤0.045	Based on APHA (2017), 4500-P(E)	Rayong
Salinity	ppt	-	0.1	27.2	Change from lower salinity not more than 10%	Based on APHA (2017), 2520 B	Rayong
Temperature	Degree C	-	-	32.0	Change from natural condition not more than 2 degree C	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	32650	No Standard	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	No Standard	APHA (2017), 2540 D	Rayong

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Sithichok Thongnguen
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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100644

Date Received : Oct 07, 2022
Date Reported : Jan 13, 2023
Report Number : 2405319-1 Rev. No.1

Page 2 of 4

Sample Number	22100644-1
Sampled Date	Oct 07, 2022 11:05 AM
Sample Description	Sea Water
Location	ท่าเรือ TPI
Date Analysis Commenced	Oct 07, 2022
Condition of Sample	Contained in one BOD bottle, two glass vials, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Transparency	m	-	-	3.0	Change from Natural condition not more than 10% of the lowest transparency	NIOSH (1994)	Rayong
Turbidity	NTU	-	0.1	0.4	No Standard	Based on APHA (2017), 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : Velocity is 2.48 m/s

This Analysis test report is reissued to supersede report No.2405319-1, Date Reported : Oct 15, 2022 due to revise analytical information.

Sampling By :

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location: Caprolactam Plant

Lot ID: 22100644

Date Received : Oct 07, 2022
Date Reported : Jan 13, 2023
Report Number : 2405319-1 Rev. No.1

Page 3 of 4

Sample Number 22100644-2
Sampled Date Oct 07, 2022 11:38 AM
Sample Description Sea Water
Location ทะเลเปิดจุดที่ 1
Date Analysis Commenced Oct 07, 2022
Condition of Sample Contained in one BOD bottle, two glass vials, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Aluminium	mg/L	0.03	0.10	Not Detected	No Standard	Based on APHA (2017), 3125	Bangkok
Mercury	mg/L	0.000003	0.00005	<0.00005	≤0.0001	Based on US EPA, Method 1631 Revision E	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	<1.8	≤1000	APHA (2017), 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen	mg/L	0.02	0.05	<0.05	≤0.95	Based on APHA (2017), 4500-NH3 F	Rayong
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	No Standard	APHA (2017), 5210 B	Rayong
COD	mg/L	1.5	5	39	No Standard	APHA (2017), 5220 C	Rayong
Depth	m	-	-	11.30	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	6.4	>4	Based on APHA (2017), 4500-O(C)	Rayong
Flow rate	m ³ /hr	-	-	12196	No Standard	Flow meter	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.2	7.0-8.5	Based on APHA (2017), 4500-H (B)	Rayong
Phosphate as P	mg/L	0.002	0.005	Not Detected	≤0.045	Based on APHA (2017), 4500-P(E)	Rayong
Salinity	ppt	-	0.1	27.2	Change from lower salinity not more than 10%	Based on APHA (2017), 2520 B	Rayong
Temperature	Degree C	-	-	31.9	Change from natural condition not more than 2 degree C	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	31450	No Standard	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	No Standard	APHA (2017), 2540 D	Rayong

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location: Caprolactam Plant

Lot ID: 22100644

Date Received : Oct 07, 2022
Date Reported : Jan 13, 2023
Report Number : 2405319-1 Rev. No.1

Page 4 of 4

Sample Number	22100644-2
Sampled Date	Oct 07, 2022 11:38 AM
Sample Description	Sea Water
Location	ทะเลเปิดจุดที่ 1
Date Analysis Commenced	Oct 07, 2022
Condition of Sample	Contained in one BOD bottle, two glass vials, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Transparency	m	-	-	3.0	Change from Natural condition not more than 10% of the lowest transparency	NIOSH (1994)	Rayong
Turbidity	NTU	-	0.1	0.6	No Standard	Based on APHA (2017), 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : Velocity is 1.35 m/s

This Analysis test report is reissued to supersede report No.2405319-1, Date Reported : Oct 15, 2022 due to revise analytical information.

Sampling By :

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location: Caprolactam Plant

Lot ID: 22100713

Date Received : Oct 07, 2022
Date Reported : Jan 13, 2023
Report Number : 2405381-1 Rev. No.1

Page 1 of 1

Sample Number 22100713-1
Sampled Date Oct 07, 2022 10:15 AM
Sample Description Sea Water
Location จุดอ่างล้าง
Date Analysis Commenced Oct 07, 2022
Condition of Sample data sheet

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	22738	No Standard	Flow meter	Rayong
Temperature	Degree C	-	-	31.8	Change from natural condition not more than 2 degree C	Based on APHA (2017), 2550 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : Velocity is 1.80 m/s

This Analysis test report is reissued to supersede report No.2405381-1, Date Reported : Oct 11, 2022 due to revise analytical information.

Sampling By :

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Approved by

N. Banphit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730

Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 1 of 12

Sample Number 22100730-1
Sampled Date Oct 07, 2022 7:30 AM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

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140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 2 of 12

Sample Number 22100730-2
Sampled Date Oct 07, 2022 9:30 AM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
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Approved by

N. Banphit

Narumon Banchongkit
Supervisor

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Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 3 of 12

Sample Number 22100730-3
Sampled Date Oct 07, 2022 11:05 AM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 4 of 12

Sample Number 22100730-4
Sampled Date Oct 07, 2022 1:10 PM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 5 of 12

Sample Number 22100730-5
Sampled Date Oct 07, 2022 3:00 PM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

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Sample Number 22100730-6
Sampled Date Oct 07, 2022 5:05 PM
Sample Description Sea Water
Location ท่าเรือ TPI
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banongkit

Narumon Banchongkit
Supervisor

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Client : UBE Chemicals (Asia) Public Company Limited
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P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730

Date Received : Oct 07, 2022

Date Reported : Oct 12, 2022

Report Number : 2405421-1

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Sample Number 22100730-7
Sampled Date Oct 07, 2022 7:42 AM
Sample Description Sea Water
Location ทะเลเปิดจุดที่ 1
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

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N. Banmit

Narumon Banchongkit
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P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

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Sample Number 22100730-8
Sampled Date Oct 07, 2022 9:40 AM
Sample Description Sea Water
Location ทะเลเปิดจุดที่ 1
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	3	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

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Sample Number	22100730-9
Sampled Date	Oct 07, 2022 11:38 AM
Sample Description	Sea Water
Location	ทะเลเปิดจุดที่ 1
Date Analysis Commenced	Oct 08, 2022
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

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Sample Number 22100730-10
Sampled Date Oct 07, 2022 1:20 PM
Sample Description Sea Water
Location ทะเลเปิดจุดที่ 1
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730

Date Received : Oct 07, 2022

Date Reported : Oct 12, 2022

Report Number : 2405421-1

Page 11 of 12

Sample Number	22100730-11
Sampled Date	Oct 07, 2022 3:10 PM
Sample Description	Sea Water
Location	ทะเลเปิดจุดที่ 1
Date Analysis Commenced	Oct 08, 2022
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	3	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100730
Date Received : Oct 07, 2022
Date Reported : Oct 12, 2022
Report Number : 2405421-1

Page 12 of 12

Sample Number 22100730-12
Sampled Date Oct 07, 2022 4:55 PM
Sample Description Sea Water
Location ทะเลเปิดจุดที่ 1
Date Analysis Commenced Oct 08, 2022
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	APHA (2017), 2540 D	Rayong

Sampled By : Pitthaya Thongtaeng

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location: Caprolactam Plant

Lot ID: 22100713

Date Received : Oct 07, 2022

Date Reported : Oct 11, 2022

Report Number : 2405381-1

Page 1 of 1

Sample Number 22100713-1
Sampled Date Oct 07, 2022 10:15 AM
Sample Description Sea Water
Location จดอ้างอิง
Date Analysis Commenced Oct 07, 2022
Condition of Sample data sheet

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Flow rate	m3/hr	-	-	22738	No Standard	Flow meter	Rayong
Temperature	Degree C	-	-	31.8	Change from natural condition not more than 2 degree C	Based on APHA (2017), 2550 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Sampled By : Pitthaya Thongtaeng

Remark :

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Approved by

N. Banphit

Narumon Banchongkit
Supervisor

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ภาคผนวก ง.6

ใบรับรองผลการวิเคราะห์คุณภาพน้ำใต้ดิน



Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100723
Date Received : Nov 23, 2022
Date Reported : Jan 16, 2023
Report Number : 2505593-1 Rev. No.1

Page 1 of 1

Sample Number 22100723-2
Sampled Date Nov 23, 2022 10:30 AM
Sample Description Groundwater
Location บ่อน้ำต้นที่หน้าหล้าพัน ร.7
Date Analysis Commenced Nov 24, 2022
Condition of Sample Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Water Testing								
pH at 25 degree C		-	-	8.0	7.0-8.5	6.5-9.2	Based on APHA (2017), 4500-H (B)	Rayong

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505593-1, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ว-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ว-204-จ-8592

Remark :

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Technical Management

N. Banchongkit

Narumon Banchongkit
Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

TESTING

No.0009

Lot ID: 22100723

Date Received : Nov 23, 2022

Date Reported : Jan 16, 2023

Report Number : 2505593-2 Rev. No.1

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000

P/O : 4500138262

Project Name : Environmental Monitoring

Project Location : Caprolactam Plant

Page 1 of 1

Sample Number	22100723-2
Sampled Date	Nov 23, 2022 10:30 AM
Sample Description	Groundwater
Location	บ่อน้ำดื่มที่บ้านหน้าพัน ร.7
Date Analysis Commenced	Nov 28, 2022
Condition of Sample	Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Metals Testing								
Mercury *	mg/L	0.0001	0.0005	Not Detected	Not Detected	≤0.001	Based on APHA (2017), 3112	Bangkok

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505593-2, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ว-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ว-204-จ-8592

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chanatt L.

Chanattagarn Imchom

Supervisor

ทะเบียนเลขที่ ว-204-จ-4710

Approved by

Kanok Korn Anek

Kanokkorn Anek

Senior Manager

ทะเบียนเลขที่ ว-204-ก-6111

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Analysis / Test Report

TESTING

No.0009

Lot ID: 22100723

Date Received : Nov 23, 2022

Date Reported : Jan 16, 2023

Report Number : 2505593-3 Rev. No.1

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000

P/O : 4500138262

Project Name : Environmental Monitoring

Project Location : Caprolactam Plant

Page 1 of 1

Sample Number	22100723-2
Sampled Date	Nov 23, 2022 10:30 AM
Sample Description	Groundwater
Location	บ่อน้ำดินที่บ้านหน้าพัน ร.7
Date Analysis Commenced	Nov 23, 2022
Condition of Sample	Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Metals Testing								
Aluminium	mg/L	0.003	0.005	0.02	No Standard	No Standard	Based on APHA (2017), 3125	Bangkok
Iron	mg/L	0.003	0.005	0.02	≤0.5	≤1.0	Based on APHA (2017), 3125	Bangkok
Microbiological Testing								
Total Coliform	MPN/100mL	-	-	330.0	<2.2	No Standard	APHA (2017), 9221 B	Bangkok
Water Testing								
Chloride as Cl *	mg/L	0.06	0.2	44.0	≤250	≤600	APHA (2017), 4110 B	Bangkok
Nitrate as N	mg/L	0.06	0.2	10.5	No Standard	No Standard	APHA (2017), 4110 B	Bangkok
Temperature *	Degree C	-	-	28.8	No Standard	No Standard	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	376	≤600	≤1200	APHA (2017), 2540 C	Rayong
Total Hardness as CaCO ₃ *	mg/L	-	1	216	≤300	≤500	Based on APHA (2017), 2340 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	<5	No Standard	No Standard	APHA (2017), 2540 D	Rayong

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505593-3, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ร-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ร-204-จ-8592

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by

Chanatt L.

Chanattagarn Imchom
Supervisor

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

Lot ID: 22100723
Date Received : Nov 23, 2022
Date Reported : Jan 16, 2023
Report Number : 2505592-1 Rev. No.1

Page 1 of 1

Sample Number	22100723-1							
Sampled Date	Nov 23, 2022 11:15 AM							
Sample Description	Groundwater							
Location	บ่อน้ำดินที่บ้านปลวกเค็ด							
Date Analysis Commenced	Nov 24, 2022							
Condition of Sample	Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Water Testing								
pH at 25 degree C		-	-	6.7	7.0-8.5	6.5-9.2	Based on APHA (2017), 4500-H (B)	Rayong

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505592-1, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ว-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ว-204-จ-8592

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Technical Management

N. Banchongkit

Narumon Banchongkit
Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager

ทะเบียนเลขที่ ว-323-จ-9442

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

TESTING
No.0009
Lot ID: 22100723
Date Received : Nov 23, 2022
Date Reported : Jan 16, 2023
Report Number : 2505592-2 Rev. No.1

Page 1 of 1

Sample Number	22100723-1							
Sampled Date	Nov 23, 2022 11:15 AM							
Sample Description	Groundwater							
Location	บ่อน้ำดื่มที่บ้านปลวกแดง							
Date Analysis Commenced	Nov 28, 2022							
Condition of Sample	Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Metals Testing								
Mercury *	mg/L	0.0001	0.0005	Not Detected	Not Detected	≤0.001	Based on APHA (2017), 3112	Bangkok

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505592-2, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ว-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ว-204-จ-8592

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Technical Management

Chanatt L.

Chanattagarn Imchom
Supervisor
ทะเบียนเลขที่ ว-204-จ-4710

Approved by

Kanokkorn Anek

Kanokkorn Anek
Senior Manager
ทะเบียนเลขที่ ว-204-จ-6111

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Analysis / Test Report

Client : UBE Chemicals (Asia) Public Company Limited
140/6 Moo 4, Tambol Tapong, Amphur Muang, Rayong Thailand 21000
P/O : 4500138262
Project Name : Environmental Monitoring
Project Location : Caprolactam Plant

TESTING
No.0009
Lot ID: 22100723
Date Received : Nov 23, 2022
Date Reported : Jan 16, 2023
Report Number : 2505592-3 Rev. No.1

Page 1 of 1

Sample Number	22100723-1
Sampled Date	Nov 23, 2022 11:15 AM
Sample Description	Groundwater
Location	บ่อน้ำดินที่บ้านปลวกเกิด
Date Analysis Commenced	Nov 23, 2022
Condition of Sample	Contained in two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
Metals Testing								
Aluminium	mg/L	0.003	0.005	0.15	No Standard	No Standard	Based on APHA (2017), 3125	Bangkok
Iron	mg/L	0.003	0.005	0.19	≤0.5	≤1.0	Based on APHA (2017), 3125	Bangkok
Microbiological Testing								
Total Coliform	MPN/100mL	-	-	130.0	<2.2	No Standard	APHA (2017), 9221 B	Bangkok
Water Testing								
Chloride as Cl *	mg/L	0.06	0.2	27.9	≤250	≤600	APHA (2017), 4110 B	Bangkok
Nitrate as N	mg/L	0.06	0.2	3.8	No Standard	No Standard	APHA (2017), 4110 B	Bangkok
Temperature *	Degree C	-	-	29.0	No Standard	No Standard	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	326	≤600	≤1200	APHA (2017), 2540 C	Rayong
Total Hardness as CaCO ₃ *	mg/L	-	1	144	≤300	≤500	Based on APHA (2017), 2340 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	<5	No Standard	No Standard	APHA (2017), 2540 D	Rayong

Guideline : Notification of the Ministry of Natural Resource and Environment, dated March 24, B.E.2551 (2008), published in the Royal Government Gazette, Vol. 125, Part 85 D, dated May 21, B.E.2551 (2008).
(1) Suitable Allowance, (2) Maximum allowable.

Note : This Analysis test report is reissued to supersede report No.2505592-3, Date Reported : Nov 30, 2022 due to revise guideline/specification

Sampling By : Tanasit Wongsachai ทะเบียนเลขที่ ว-323-จ-9460 , Thanasoun Namakunna ทะเบียนเลขที่ ว-204-จ-8592

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Chanatt L.

Chanattagarn Imchom
Supervisor

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ภาคผนวก ง.7

ใบรับรองผลการวิเคราะห์คุณภาพสิ่งแวดล้อม
ด้านนิเวศวิทยาและการประมง



สถานีวิจัยประมงศรีราชา

101/12 หมู่ 9 ต. บางพระ

อ. ศรีราชา จ. ชลบุรี 20110

โทร./โทรสาร. (038) 311379

Client : UBE Chemicals (Asia) Public Company Limited

Address : 140/6 Moo 4 Tambol Tapong, Amphur Muang, Rayong, Thailand, 21000

Project name : Environmental Monitoring

Project Location : Caprolactam Plant

รายงานผลการวิเคราะห์แพลงก์ตอนพืช

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2565)

ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)	
	22100682-1	22100682-2
Division Cyanophyta		
Class Cyanophyceae		
Order Nostocales		
Family Oscillatoriaceae		
1. <i>Oscillatoria</i> sp.	13,000	-
Division Chromophyta		
Class Bacillariophyceae		
Order Biddulphiales		
Suborder Coscinodiscineae		
Family Thalassiosiraceae		
2. <i>Cyclotella striata</i>	27,000	-
Family Coscinodiscaceae		
3. <i>Coscinodiscus asteromphalus</i>	-	15,000

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2565)

(ต่อ)

ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)	
	22100682-1	22100682-2
Suborder Rhizosoleniineae		
Family Rhizosoleniaceae		
4. <i>Pseudosolenia calcar-avis</i>	13,000	-
Suborder Biddulphiineae		
Family Hemiaulaceae		
5. <i>Cerataulina pelagica</i>	13,000	-
Order Bacillariales		
Suborder Bacillariineae		
Family Naviculaceae		
6. <i>Amphora ovalis</i>	-	30,000
Family Bacillariaceae		
7. <i>Nitzschia</i> sp.	27,000	-
Class Dinophyceae		
Order Prorocentrales		
Family Prorocentraceae		
8. <i>Prorocentrum micans</i>	-	30,000
Order Noctilucales		
Family Noctilucaeae		
9. <i>Noctiluca scintillans</i>	1,091,000	3,902,000
Order Gonyaulacalea		
Family Ceratiaceae		
10. <i>Ceratium furca</i>	-	15,000
Order Peridiniales		
Family Protoperidiniaceae		
11. <i>Protoperidinium depressum</i>	-	15,000

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2565)

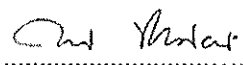
(ต่อ)

ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)	
	22100682-1	22100682-2
ชนิดแพลงก์ตอนพืช	6	6
ปริมาณแพลงก์ตอนพืช	1,184,000	4,007,000
ดัชนีความหลากหลายแพลงก์ตอนพืช	0.3964	0.1619
ดัชนีความสม่ำเสมอแพลงก์ตอนพืช	0.2212	0.0904

Sample Location :

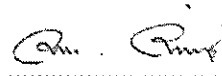
1. สถานี 22100582-1 : ท่าเรือ TPI
2. สถานี 22100582-2 : ทะเลเปิดจุดที่ 1

Condition of Sample : contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)



(นางสาวกนกวรรณ ขวาค้อน)

ผู้วิเคราะห์



(นายอลงกต อินทราชติ)

หัวหน้าสถานีวิจัยประมงศรีราชา



สถานีวิจัยประมงศรีราชา

101/12 หมู่ 9 ต. บางพระ

อ. ศรีราชา จ. ชลบุรี 20110

โทร./โทรสาร. (038) 311379

Client : UBE Chemicals (Asia) Public Company Limited

Address : 140/6 Moo 4 Tambol Tapong, Amphur Muang, Rayong, Thailand, 21000

Project name : Environmental Monitoring

Project Location : Caprolactam Plant

รายงานผลการวิเคราะห์แพลงก์ตอนสัตว์

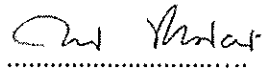
ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2565)

ชนิดแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)	
	22100582-1	22100582-2
Phylum Annelida		
Class Polychaeta		
1. Polychaete larvae	13,000	-
Phylum Arthropoda		
Class Crustacea		
Subclass Copepoda		
2. Copepod nauplius	13,000	15,000
Order Cyclopoida		
3. Cyclopoid copepod	-	15,000
ชนิดแพลงก์ตอนสัตว์	2	2
ปริมาณแพลงก์ตอนสัตว์	26,000	30,000
ดัชนีความหลากหลายแพลงก์ตอนสัตว์	0.6931	0.6931
ดัชนีความสม่ำเสมอแพลงก์ตอนสัตว์	0.9999	0.9999

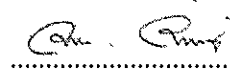
Sample Location :

1. สถานี 22100682-1 : ท่าเรือ TPI
2. สถานี 22100682-2 : ทะเลเปิดจุดที่ 1

Condition of Sample : contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)



(นางสาวกนกวรรณ ขวาค้อน)
ผู้วิเคราะห์



(นายอลงกต อินทรชาติ)
หัวหน้าสถานีวิจัยประมงศรีราชา

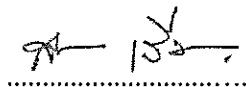
ชนิดสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)	
	22100677-1	22100677-2
Phylum Annelida		
Class Polychaeta		
Order Capitellida		
Family Capitellidae		
<i>Heteromastus</i> sp. (ไส้เดือนทะเล)	15	-
Family Maldanidae		
<i>Euchymene</i> sp. (ไส้เดือนทะเล)	15	-
Order Orbiniida		
Family Orbiniidae		
<i>Scoloplos</i> sp. (ไส้เดือนทะเล)	15	30
Order Phylodocida		
Family Glyceridae		
<i>Glycera</i> sp. (ไส้เดือนทะเล)	-	15

ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 7 ตุลาคม 2565) (ต่อ)

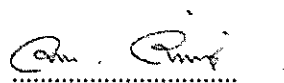
ชนิดสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)	
	22100677-1	22100677-2
Order Spionida Family Magelonidae <i>Magelona</i> sp. (ไส้เดือนทะเล)	-	15
Phylum Arthropoda Class Malacostraca Order Decapoda Family Diogenidae <i>Diogenes</i> sp. (ปูเสฉวน)	-	15
Phylum Mollusca Class Bivalvia Order Venerida Family Tellinidae <i>Tellina</i> sp. (หอยสองฝาชนิดหนึ่ง)	-	45
Phylum Echinodermata Class Ophiuroidea Order Ophiurida Family Ophiotrichidae <i>Ophiotrix</i> sp. (ดาวเปราะ)	15	-
Phylum Chordata Class Leptocardii Order Amphioxiformes Family Branchiostomatidae <i>Branchiostoma</i> sp. (แอมฟิออกซัส)	134	15
ชนิดสัตว์หน้าดิน	5	6
ปริมาณสัตว์หน้าดิน	194	135
ค่าดัชนีความหลากหลายสัตว์หน้าดิน	1.0473	1.6770

Sample Location : 1. สถานี 22100677-1 : ท่าเรือ TPI
2. สถานี 22100677-2 : ทะเลเปิดจุดที่ 1

Condition of Sample : contained in one plastic zip bag



(นายสาโรจน์ เริ่มคำริห์)
ผู้วิเคราะห์



(นายอลงกต อินทราชติ)
หัวหน้าสถานีวิจัยประมงศรีราชา

ภาคผนวก ง.8

ใบรับรองผลการตรวจวัดสารเบนซีน ภายในสถานประกอบการ



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.	: 1448/65
For	: UBE Chemicals (Asia) Public Company Limited	Sampling Date	: 06/07/2022
Address	: 140/6 Moo 4, Ta-Phong Sub-District, Muang District, Rayong Province 21000	Received Date	: 07/07/2022
		Test Date	: 11/07/2022
Tel/Fax	: 0-3892-8700 / 0-3892-8965	Report Date	: 18/07/2022

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	RESULT	STANDARD
				ppm	ppm	ppm
1320-V27	06/07/2022	Benzene	NIOSH 1501/GC FID	< 0.02	ND	1
	08:55-10:55					
1320-P17	06/07/2022	Benzene	NIOSH 1501/GC FID	< 0.02	ND	1
	08:54-10:54					

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. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

ภาคผนวก จ

ใบแสดงการสอบเทียบเครื่องมือ



SOUND LEVEL METER CALIBRATION

Calibration Location:

SECOT

Calibration Date:

Jul 1, 22

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
RION	NC-74	34283648	94.00	1000

No.	Brand	Model	Serial No.	Microphone Serial No.	SLM Reading (dB)	dB Adjust
50	RION	NL-21	00187505	117809	93.9	0.1
66	RION	NL-21	00487723	118993	93.9	0.1
77	RION	NL-21	00487734	119006	93.9	0.1

Calibrated by :

Approved by :

Preeda S.



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Aug 23, 22

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
RION	NC-74	34283648	94.00	1000

No.	Brand	Model	Serial No.	Microphone Serial No.	SLM Reading (dB)	dB Adjust
66	RION	NL-21	00487723	118993	94.0	0.0

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Dec 9, 22

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)		
CASELLA	CEL120/2	2839225	114.0	1000		
No.	Brand	Model	Serial No.	Microphone Serial No.	SLM Reading (dB)	dB Adjust
14	CASELLA	CEL-246	3173306	3173306	113.8	0.2
17	CASELLA	CEL-246	3173318	3173318	113.8	0.2
19	CASELLA	CEL-246	3173330	3173330	113.8	0.2
24	CASELLA	CEL-246	3173343	3173343	113.7	0.3
25	CASELLA	CEL-246	3173350	3173350	113.8	0.2

Calibrated by :

Approved by :

**SOUND LEVEL METER CALIBRATION**

Calibration Location: SECOT

Calibration Date: Dec 28, 22

SOUND LEVEL CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
RION	NC-74	34283648	94.0	1000

No.	Brand	Model	Serial No.	Microphone Serial No.	SLM Reading (dB)	dB Adjust
62	RION	NL-21	00487719	118988	93.8	0.2
95	RION	NL-21	00198277	123480	94.1	-0.1

Calibrated by :

Approved by :



**ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT**

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

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860-8 Fax: +66 2324 0917-8



NSC-TISI-TIS 17025
CALIBRATION 0110

Certificate No.: CP20210095EA

Operation No.: CP2021120016

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: RION

Model/Type: NC-74

Serial No.: 34283648

ID No.: -

Customer: SECOT Co.,Ltd.

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

Received Date: 21 December 2021

Calibrated Date: 24 December 2021

Issued Date: 28 December 2021

Calibrated by: Ms. Juntaporn Kunhakom

Approved by: _____

(Mr. Sittichai Swaksuriyawong)

Group Manager

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

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor $k = 2.00$, providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.

Certificate No.: CP20210095EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: RION
Model/Type: NC-74
Serial No.: 34283648
ID No.: -
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa

Method of Calibration :-

IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1010-21	13 June 2022
2) Waveform Generator	33511B	MY52302264	0144RF21	17 June 2022
3) Audio Analyzing DMM	2015-P	4079144	E1U210398	2 February 2022
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P210047 0255TE21	16 June 2022 7 July 2022

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

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

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

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

Result of Calibration:-

1. Function : Sound pressure level

Norminal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value ^[1] (dB)	Acceptance limit ^[3] (dB)
1000	94	94.22	0.22	±0.25

2. Function : Frequency

Norminal Sound Pressure level (dB)	Specified Frequency (Hz)	Measured value (Hz)	Deviated value ^[2] (%)	Acceptance limit ^[3] (%)
94	1000	1003.0	0.3	±0.7

Certificate No.: CP20210095EA

Calibration Report

3. Function : Total distortion + noise

Norminal Sound Pressure level (dB)	Norminal Frequency (Hz)	Measured value ^[4] (%)	Acceptance limit ^[5] (%)
94	1000	1.3	2.5

Uncertainty of measurement

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

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

Remarks: 1. Using the 1/2-inch microphone adaptor NC-74-002.
2. Acceptance limit was IEC 60942:2017 Class 1.

-- End of Report --

ภาคผนวก จ

วิธีการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

ตารางที่ ก-1 วิธีการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

โครงการโรงงานผลิตคาโปรแลคตัม บริษัท อุเบะ เคมิคอลส์ (เอเชีย) จำกัด (มหาชน)

พารามิเตอร์	วิธีการตรวจวัด	วิธีการวิเคราะห์
1. คุณภาพอากาศในบรรยากาศ		
- ความเร็วและทิศทางการลม (Wind Speed/ Wind Direction)	Wind Vane and Cup Anemometer	ASTM : D5741-96
- ฝุ่นละอองรวม (TSP)	High Volume Air Sampler	Pre-Post Weight Difference
- ฝุ่นละอองขนาดเล็กไม่เกิน 10 ไมครอน (PM-10)	Size Selective Inlet High Volume Air Sampler	Pre-Post Weight Difference
- ก๊าซไนโตรเจนไดออกไซด์ (NO ₂)	Instrumental Reference Method	Chemiluminescence
- ก๊าซซัลเฟอร์ไดออกไซด์ (SO ₂)	Instrumental Reference Method	UV Fluorescence
- ก๊าซคาร์บอนมอนอกไซด์ (CO)	Instrumental Reference Method	Non-Dispersive Infrared Detection
2. คุณภาพอากาศจากปล่องระบายอากาศ		
- ฝุ่นละออง (PM)	Isokinetic Stack Sampling Technique	Pre-Post Weight Difference (U.S. EPA Method 5)
- ก๊าซซัลเฟอร์ไดออกไซด์ (SO ₂)	Impingment Absorption	Barium-thorin Titration Method (U.S. EPA Method 6)
- ก๊าซออกไซด์ของไนโตรเจน (NO _x)	Vacuum Flask	Phenoldisulfonic Acid Method (U.S. EPA Method 7)
- ก๊าซคาร์บอนมอนอกไซด์ (CO)	Bag Sampling	Non-dispersive Infrared Detection (U.S. EPA Method 10)
- ก๊าซแอมโมเนียที่ละลาย (NH ₃ Slip)	Impingment Absorption	CTM-027/Ion Chromatography
3. ระดับเสียง		
- ระดับเสียงเฉลี่ย 24 ชั่วโมง (Leq(24))	Sound Pressure Level Meter	-
- ระดับเสียงเปอร์เซ็นต์ไทล์ที่ 90 (L ₉₀)	Sound Pressure Level Meter	-
- ระดับเสียงสูงสุด (Lmax)	Sound Pressure Level Meter	-
- การจัดทำ Noise Contour Map	Sound Pressure Level Meter	โปรแกรม SURFER
- ระดับเสียงที่ความถี่ต่างๆ	Octave Band Analyzer	-
- ระดับเสียงเฉลี่ย 12 ชั่วโมง (Leq(12))	Sound Pressure Level Meter	-
- ปริมาณเสียงสะสมที่ตัวพนักงาน (TWA)	Noise Dosimeter	-

ตารางที่ ก-1 วิธีการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

โครงการโรงงานผลิตคาปรีแลคตัม บริษัท อุเบะ เคมิคอลส์ (เอเชีย) จำกัด (มหาชน) (ต่อ)

พารามิเตอร์	วิธีการตรวจวัด	วิธีการวิเคราะห์
4. คุณภาพน้ำทิ้ง		
- อัตราการไหล (Flow Rate)	Flow Meter	-
- อุณหภูมิ (Temperature)	Grab Sampling	Thermometer
- ความเป็นกรด-ด่าง (pH)	Grab Sampling	Electrometric Method
- ของแข็งแขวนลอย (SS)	Grab Sampling	Dried at 103-105 °C
- ปริมาณของแข็งละลายน้ำทั้งหมด (TDS)	Grab Sampling	Dried at 103-105 °C
- บีโอดี (BOD ₅)	Grab Sampling	5-Day BOD Test, Membrane Electrode
- น้ำมันและไขมัน (Oil & Grease)	Grab Sampling	Partition-Gravimetric
- ซีโอดี (COD)	Grab Sampling	Close Reflux, Titrimetric
5. คุณภาพน้ำทะเล		
- ความเร็วกระแสน้ำ (Velocity)	Flow Meter	-
- อุณหภูมิ (Temperature)	Grab Sampling	Thermometer
- ความเป็นกรด-ด่าง (pH)	Grab Sampling	Electrometric Method
- ความลึกน้ำ (Depth)	Grab Sampling	Meter Line
- ความโปร่งแสง (Transparency)	Grab Sampling	Secchi Disc
- ของแข็งแขวนลอย (SS)	Grab Sampling	Dried at 103-105 °C
- ปริมาณออกซิเจนละลาย (DO)	Grab Sampling	Membrane Electrode
- ปริมาณของแข็งละลายน้ำทั้งหมด (TDS)	Grab Sampling	Dried at 103-105 °C
- บีโอดี (BOD ₅)	Grab Sampling	5-Day BOD Test, Membrane Electrode
- น้ำมันและไขมัน (Oil & Grease)	Grab Sampling	Partition-Gravimetric
- ซีโอดี (COD)	Grab Sampling	Close Reflux, Titrimetric
- ความขุ่น (Turbidity)	Grab Sampling	Nephelometric
- ความเค็ม (Salinity)	Grab Sampling	Electrical Conductivity
- ไนโตรเจนในรูปแอมโมเนีย (NH ₃ -N)	Grab Sampling	Distillation and Titrimetric
- แบคทีเรียในกลุ่มโคลิฟอร์มทั้งหมด (Total Coliform Bacteria)	Grab Sampling	Multiple Tube Fermentation Technique
- ฟอสเฟต (PO ₄ -P)	Grab Sampling	Ascorbic Acid

ตารางที่ ก-1 วิธีการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

โครงการโรงงานผลิตคาโปรแลคตัม บริษัท อุเบะ เคมิคอลส์ (เอเชีย) จำกัด (มหาชน) (ต่อ)

พารามิเตอร์	วิธีการตรวจวัด	วิธีการวิเคราะห์
5. คุณภาพน้ำทะเล (ต่อ) - โปรท (Hg)	Grab Sampling	Cold-Vapour Fluorescence
6. คุณภาพน้ำใต้ดิน - ความเป็นกรด-ด่าง (pH)	Grab Sampling	Electrometric Method
- ปริมาณของแข็งละลายน้ำทั้งหมด (TDS)	Grab Sampling	Dried at 103-105 °C
- ไนเตรต-ไนโตรเจน (NO ₃ -N)	Grab Sampling	Cadmium Reduction Electrometric
- คลอไรด์ (Cl ⁻)	Grab Sampling	Argentometric
- เหล็กทั้งหมด (Fe)	Grab Sampling	Digestion, Direct-Air Acetylene Flame
- โปรท (Hg)	Grab Sampling	Cold-Vapor Atomic Absorption Spectrometric
- ความกระด้างทั้งหมด (Hardness)	Grab Sampling	EDTA Titrimetric
- แบคทีเรียในกลุ่ม โคลิฟอร์มทั้งหมด (Total Coliform Bacteria)	Grab Sampling	Multiple Tube Fermentation Technique
7. นิเวศวิทยาทางทะเลและการประมง - แพลงก์ตอนและสัตว์หน้าดิน	Grab Sampling	Counting Technique
8. สารเบนซีนในพื้นที่ที่มีการทำงานเกี่ยวข้องกับสารเบนซีน	Sorbent Tube	Gas Chromatography (NIOSH 1501)

ภาคผนวก ข

ใบอนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๗๕ ๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๐๕ กุมภาพันธ์ ๒๕๖๕

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอต จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๘ มกราคม ๒๕๖๕

ตามหนังสือที่อ้างถึง บริษัท ซีคอต จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙
สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลง
บุคลากรของห้องปฏิบัติการวิเคราะห์ ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๔ ราย

- | | |
|--------------------------------------|----------------------------|
| ๑) นางสาวโชติมาส ไทยเจริญ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๖ |
| ๒) นางสาวณัฐศิริ เลิศธีรพัฒน์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๓ |
| ๓) นางสาวเกษารินทร์ คิลคึก | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๔ |
| ๔) นางสาวจิรนนท์ จิตุหะศรี ปิยะธนากร | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๒ |

๒. ให้เพิ่มผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ ราย

นางสาวณัฐศิริ เลิศธีรพัฒน์ ทะเบียนเลขที่ ว-๒๓๙-ก-๐๐๐๑

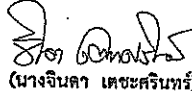
๓. ให้เพิ่มเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๒ ราย

- | | |
|----------------------------------|----------------------------|
| ๑) นางสาวสุดาพร สุนทร | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๑ |
| ๒) นางสาวสัณณิษฐ์ อินทรประสิทธิ์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๒ |

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ที่ อก ๐๓๑๐(๑)/๑๗๕๐๕ ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓ คือในวันที่ ๒ พฤษภาคม ๒๕๖๖ ทั้งนี้ สามารถยื่นคำ
ขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม ตาม QR Code ห้ายหนังสือฉบับนี้

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินดา เทชะรินทร์)

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม



ยื่นคำขอผ่านระบบอิเล็กทรอนิกส์

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๔

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ที่ อก ๐๓๑๐(๑)/ ๑๗๕ ๐๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ เขตราชเทวี
กรุงเทพมหานคร ๑๐๕๐๐

๒๑ ตุลาคม ๒๕๖๓

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอต จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๔ มีนาคม ๒๕๖๓

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๒ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอต จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการ
วิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ
กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอต จำกัด ต่ออายุหนังสือรับขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑

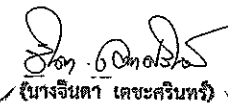
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย ตามสิ่งที่ส่งมาด้วย ๒

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย จำนวน ๔๖ รายการ น้ำใต้ดิน
จำนวน ๑๒๓ รายการ อากาศเสีย จำนวน ๒๗ รายการ สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน ๓๔ รายการ
และดิน จำนวน ๑๒๒ รายการ รวมทั้งสิ้นจำนวน ๓๕๖ รายการ ตามสิ่งที่ส่งมาด้วย ๓

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

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินดา เทชะรินทร์)

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๒๐๒ ๔๐๐๒ ๐ ๒๒๐๒ ๔๑๖๖

โทรสาร ๐ ๒๒๕๕ ๓๒๐๘ ๐ ๒๒๕๕ ๓๔๑๕

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑ ๑ ๘ ๐ ๔

ลงวันที่ ๒๑

ตุลาคม ๒๕๖๓

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

- ๑) นางสาวณัฐิ เกรียงไกรอุดม
- ๒) นางสาวอารยา ทิพรักษ์
- ๓) นายขรรชัย เกรียงไกรอุดม
- ๔) นางสาวเข็มชุตตา อินทร์ศร
- ๕) นางสาวปรีดา สมใจ
- ๖) นางสาวอรัญญา มาตา
- ๗) นางสาวลดาวัลย์ วงศ์เจริญ
- ๘) นางสาวณัฏฐวรรณ เกตะวันดี
- ๙) นางสาวนริสา ภูวสรทรัพย์
- ๑๐) นางสาวศิริวรรณ นิมนต์

- ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๒๐
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๖๓
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๗๕
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๗๖
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๗๘
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๗๙
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๘๐
ทะเบียนเลขที่ ว-๒๓๙-ก-๕๘๘๑
ทะเบียนเลขที่ ว-๒๓๙-ก-๖๔๑๙
ทะเบียนเลขที่ ว-๒๓๙-ก-๖๔๒๐

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑ ๑ ๘ ๐ ๔

ลงวันที่ ๒๑

ตุลาคม ๒๕๖๓

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย

- ๑) นางสาวสุรัชวิทย์ ชัยธรรม
- ๒) นางสาวสุธาทิพย์ เทียนเตี้ย
- ๓) นางสาวสุนันทา ศิริภูมินานนท์
- ๔) นายบวร ดิษฐ์ยะ
- ๕) นางสาวเกศรินทร์ วรเดชวิทยา
- ๖) นายอนิวัฒน์ พิมพ์นา
- ๗) นายจิตพล สมประสงค์
- ๘) นางสาวศศิธร พรหมประเสริฐ
- ๙) นายศิวนนท์ กลวงษ์
- ๑๐) นางสาวโชติมาส ไทยเจริญ
- ๑๑) นางสาวปิยขวัญ สุระโคตร
- ๑๒) นางสาวณัฐศิริ เลิศธีรพัฒน์
- ๑๓) นางสาวเกษรรินทร์ ศิลศึก
- ๑๔) นางสาวอลิษา คณิธรานนท์
- ๑๕) นางสาวจรินทร์ จิตตะศรี ปิยะธนากร
- ๑๖) นางสาวสิริวรรณ แก้วชิงดวง
- ๑๗) นางสาวปัทมวรรณ สุวรรณวิโรจน์
- ๑๘) นางสาวกนิษฐา เจริญเชื้อ
- ๑๙) นายจิรากร ลิมศิลา
- ๒๐) นายชนาธิป สิงห์เกษมศักดิ์
- ๒๑) นายวัชรกานต์ ประมาคเค
- ๒๒) นายทอง เฮงขวัญกุล
- ๒๓) นางสาวกฤษณา จันทุม
- ๒๔) นางสาวพรนภา บุตรธรรม
- ๒๕) นางสาวธาริณี อาจปลิว
- ๒๖) นายธนโชติ ช่างล้อ
- ๒๗) นางสาวพัชรา สมานลันท์
- ๒๘) นางสาวจุฑารัตน์ แจ่มเรือน
- ๒๙) นางสาวจณิสตา กุ้ยอ่อน
- ๓๐) นางสาววรัญญา เขียนมัน
- ๓๑) นางสาวจิรารัตน์ นุริตมนต์

- ทะเบียนเลขที่ ว-๒๓๙-จ-๕๘๒๕
ทะเบียนเลขที่ ว-๒๓๙-จ-๕๘๒๙
ทะเบียนเลขที่ ว-๒๓๙-จ-๕๘๘๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๕๘๘๖
ทะเบียนเลขที่ ว-๒๓๙-จ-๕๘๘๑
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๑
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๒
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๕
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๖
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๑
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๔
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๑
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๒
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๔
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๖
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๗
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๘
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๐
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๒
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๒
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๔
ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๖
ทะเบียนเลขที่ ว-๒๓๙-จ-๘๑๘๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๘๕๔๓
ทะเบียนเลขที่ ว-๒๓๙-จ-๘๘๓๗
ทะเบียนเลขที่ ว-๒๓๙-จ-๘๘๓๘
ทะเบียนเลขที่ ว-๒๓๙-จ-๘๘๓๙

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคोट จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๘ ๐ ๔

ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๒ รายการ

น้ำเสีย จำนวน 46 รายการ

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

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

10 Chemical...

-๒-

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chemical Oxygen Demand	1) Open Reflux, Titrimetric method ⁽⁴⁾ 2) Close Reflux, Colorimetric method ⁽⁴⁾ 3) Closed Reflux, Titrimetric Method ⁽⁴⁾
11	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
12	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
13	Color	ADMI Weighted-Ordinate Spectrophotometric Method ⁽⁴⁾
14	Copper	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾
15	Cyanide	Distillation, Colorimetric method ⁽⁴⁾
16	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
17	4,4'-DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
18	4,4'-DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
19	4,4'-DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
20	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾

ริกาญจน์

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

21 Endosulfan I...

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

วิทย์

(นางริกาญจน์ ฉัตรสกุลวิไล)

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32 Manganese...

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

วิทย์

(นางริกาญจน์ ฉัตรสกุลวิไล)

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น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 123 รายการ

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



16 Beryllium...

(นางริกาญจน์ จัตรสกุลวิไล)

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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
16	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
19	Bromodichloromethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
20	Bromoform	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
21	Butanol	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
23	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
25	Carbon disulfide	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
26	Carbon tetrachloride	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
27	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
29	Chlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
30	Chlorodibromomethane	Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾
31	Chloroform	Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾



(นางริกาญจน์ จัตรสกุลวิไล)

32 2-Chlorophenol...

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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
33	Chromium	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
34	Chromium (III)	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
35	Chromium (VI)	1) Colorimetric Method ⁽⁴⁾ 2) Extraction, Air-Acetylene Flame Method ⁽⁴⁾
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
37	Cyanide	1) Distillation, Titrimetric Method ⁽⁴⁾ 2) Distillation, Colorimetric Method ⁽⁴⁾
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾
39	DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
40	DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
41	DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾



(นางริกาญจน์ จิตรสกุลชัย)

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และทะเบียนห้องปฏิบัติการ

42 Dibenz(a,h)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
43	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
44	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
45	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
46	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
47	3,3'-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
48	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
49	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
50	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
51	cis-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
52	trans-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
54	1,2-Dichloropropane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
55	1,3-Dichloropropane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
56	1,3-Dichloropropene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
57	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
58	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾



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และทะเบียนห้องปฏิบัติการ

59 2,4-Dimethylphenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
63	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
64	Endosulfan	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
65	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
66	Ethylbenzene	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
69	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
70	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
72	Hexachloro-1,3-butadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

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73 n-Hexane...

(นางริกาญจน์ ฉัตรสกุลวิไล)

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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
73	n-Hexane	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾
74	α -HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
75	β -HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
76	γ -HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
81	Lead	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
82	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾
83	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾
84	Methanol	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾


วิทย์

85 Methoxychlor...

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


 (นางริกาญจน์ จิตรสกุลวิไล)
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 และประเมินผลกระทบต่อสุขภาพ

97 pH...

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



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112 1,1,2-Trichloroethane...

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


อากาศเสีย (ปล่องระบาย) จำนวน 27 รายการ

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


 (นางรศกัญจน์ ฉัตรสกุลชีโล)
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 และทะเบียนห้องปฏิบัติการ

2 Arsenic...

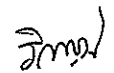
ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
2	Arsenic	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
3	Beryllium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
4	Cadmium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
5	Carbon monoxide	Instrumental Analyzer Method ^[5]
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]
7	Chromium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
8	Cobalt	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
9	Copper	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
10	Cresol	Adsorption Sampling, Gas Chromatographic Method ^[5]
11	Dioxin/Furans	Isokinetic Sampling, Analysis by ISO/IEC 17025 Accredited Laboratory or Analysis by Department of Industrial Works Registered Laboratory (Dioxins/Furans Analysis Approved) ^[5]
12	Hydrogen chloride	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5]


 (นางรศกัญจน์ ฉัตรสกุลชีโล)
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14 Hydrogen Sulfide...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ^[5]
15	Lead	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
16	Manganese	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
17	Mercury	Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[5]
18	Nickel	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
19	Opacity	Ringelmann's Method ^[2]
20	Oxide of Nitrogen	1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Absorption Sampling, Phenoldisulfonic acid Method ^[5] 3) Instrumental Analyzer Method ^[5]
21	Selenium	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
22	Sulfur dioxide	1) Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5] 2) Instrumental Analyzer Method ^[5]
23	Sulfuric acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5]
24	Tin	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
25	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method ^[5]

26 Vanadium...



(นางริกาญจน์ จิตกรสุลโว)
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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
26	Vanadium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5]
27	Xylene	1) Adsorption Sampling, Gas Chromatographic Method ^[5] 2) Adsorption Sampling, Gas Chromatographic/Mass Spectrometric Method ^[5]

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26]
2	Antimony	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
3	Arsenic	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]
4	Barium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14]

3) Digestion...


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



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3) Digestion...

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



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3) Soxhlet...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
16	DDT	3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet...

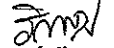
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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
20	Lead	4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^(1,6,15) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 4) Digestion, Inductively Coupled Plasma Method ^(7,14)
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^(1,18) 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁹⁾ 4) Digestion, Inductively Coupled Plasma Method ^(7,14)
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(1,9,22) 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 3) Soxhlet Extraction, Gas Chromatographic Method ^(10,22) 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)

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25 Nickel...


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


 (นางริกาญจน์ ฉัตรสกุลวิไล) 33 Vanadium...
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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14]

ดิน จำนวน 122 รายการ

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


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 และทะเบียนข้อปฏิบัติการ

9 Benz(a)anthracene...

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

(นางริกาญจน์ อัครสกุลวิไล)

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และประเมินภัยพิบัติ

27 Chlordane...


ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
28	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
32	2-Chlorophenol	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
33	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
34	Chromium (III)	1) Digestion, Flame Atomic-Absorption Spectrometric Method; Colorimetric Method; Calculation Method ^[7,8,15,17] 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation Method ^[7,8,14,17]
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^[8,17]
36	Chrysene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
37	Cyanide	1) Extraction, Distillation, Titrimetric Method ^[27,28,29] 2) Extraction, Distillation, Colorimetric Method ^[27,28,29]
38	2,4-D	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[24]
39	DDD	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
40	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]

(นางริกาญจน์ อัครสกุลวิไล)

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41 DDT...

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



57 Dieldrin...

(นางริกาญจน์ จัตรสกุลไธ)

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และทะเบียนห้องปฏิบัติการ

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



70 Heptachlor epoxide...

(นางริกาญจน์ จัตรสกุลไธ)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และทะเบียนห้องปฏิบัติการ

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

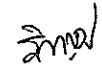


(นางริกาญจน์ จักรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และหน่วยงานที่เกี่ยวข้อง

83 Mercury...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽¹⁹⁾ 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
84	Methanol	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^(11,21)
85	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^(11,22) 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
86	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,25)
87	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,25)
88	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
89	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
90	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(13,25)
91	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
92	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method ^(7,15) 2) Digestion, Inductively Coupled Plasma Method ^(7,14)
93	Nitrobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
94	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26)
95	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	Soxhlet Extraction, Gas Chromatographic Method ^(10,23)



(นางริกาญจน์ จักรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และหน่วยงานที่เกี่ยวข้อง

96 Pentachlorophenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[24]
97	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
98	Phenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26]
99	Pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26]
100	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
101	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
102	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
103	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
104	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
105	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
106	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
107	TPH (C ₉ -C ₁₆)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,21]
108	TPH (C ₁₆ -C ₃₅)	1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,25]
109	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]
110	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25]

(นางริกาญจน์ ฉัตรสกุลวิไล)
ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

111 1,1,2-Trichloroethane...

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

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ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

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(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

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วิภา

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

ภาคผนวก ข

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่าย
การรับรองห้องปฏิบัติการทดสอบ ตาม ISO/IEC 17025
จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)



ใบรับรองเลขที่ 20T173/1151

ใบรับรองห้องปฏิบัติการ

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑

เลขานุการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

ออกใบรับรองฉบับนี้ให้

บริษัท ซีคोट จำกัด

มีห้องปฏิบัติการตั้งอยู่เลขที่

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ได้รับการรับรองความสามารถห้องปฏิบัติการทดสอบ

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

ข้อกำหนดทั่วไปว่าด้วยความสามารถห้องปฏิบัติการทดสอบและสอบเทียบ

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔

โดยมีสาขาการรับรองตามรายละเอียดแนบท้ายใบรับรอง

ตั้งแต่วันที่ ๙ กันยายน พ.ศ. ๒๕๖๓

ถึง วันที่ ๘ กันยายน พ.ศ. ๒๕๖๖

ออกให้ ณ วันที่ ๒๓ กันยายน ๒๕๖๓

(นายระกิด์ วันทกิจอนวิษฐ์)

รองเลขาธิการ ปฏิบัติราชการแทน

เลขานุการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

ชื่อห้องปฏิบัติการ

ที่อยู่

หมายเลขการรับรองที่

สถานภาพห้องปฏิบัติการ

ห้องปฏิบัติการทดสอบ บริษัท ซีคोट จำกัด

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ทดสอบ 0394

☒ ถาวร
 ☐ นอกสถานที่
 ☐ ชั่วคราว
 ☐ เคลื่อนที่

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

ฉบับที่ 1 ตั้งแต่วันที่ 9 กันยายน 2563

หน้า 1/5

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
สาขาส่งแวดล้อม		
1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)	- COD 100 mg/l to 4 000 mg/l	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 5220 D
2. คุณภาพอากาศ (air quality)		
2.1 บริเวณทำงาน (workplace)	- Total dust 0.10 mg/filter to 2.00 mg/filter	- NIOSH Manual of Analytical Methods (NMAM), method 0500, 4 th edition, 15 th August 1994 (Exclude Sampling)
	- Respirable dust 0.10 mg/filter to 2.00 mg/filter	- NIOSH Manual of Analytical Method(NMAM), method 0600, 4 th edition, 15 th January 1998 (Exclude Sampling)
	- Benzene 1.10 µg/tube to 420 µg/tube	- NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4 th edition, 15 th March 2003 (Exclude Sampling)
	- Toluene 1.10 µg/tube to 420 µg/tube	
	- Total xylenes 2.20 µg/tube to 840 µg/tube	
	• m,p-xylene 1.10 µg/tube to 420 µg/tube	
	• o-xylene 1.10 µg/tube to 420 µg/tube	

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

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

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

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

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
สาขาสิ่งแวดล้อม 2. คุณภาพอากาศ (ต่อ) (air quality) (cont.) 2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	- Volatile organic compounds (VOCs) (cont.) • 1,2 - dichloroethane 0.08 µg/m ³ to 80.00 µg/m ³ • Benzene 0.06 µg/m ³ to 63.00 µg/m ³ • Carbon tetrachloride 0.25 µg/m ³ to 125 µg/m ³ • Trichloroethylene 0.21 µg/m ³ to 107 µg/m ³ • 1,2 - dichloropropane 0.18 µg/m ³ to 92.00 µg/m ³ • Tetrachloroethylene 0.27 µg/m ³ to 135 µg/m ³ • 1,2 - dibromoethane 0.31 µg/m ³ to 153 µg/m ³ • 1,1,2,2 - tetrachloroethane 0.69 µg/m ³ to 137 µg/m ³	- In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling)

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

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

สาขาการทดสอบ	รายการทดสอบ	วิธีทดสอบ
สาขาสิ่งแวดล้อม 2. คุณภาพอากาศ (ต่อ) (air quality) (cont.) 2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	- Volatile organic compounds (VOCs) (cont.) • Benzyl chloride 0.52 µg/m ³ to 103 µg/m ³ • 1,4 - dichlorobenzene 0.24 µg/m ³ to 120 µg/m ³	- In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling)

ออกให้ ณ วันที่ ๑3 กันยายน ๒563

(นายวีระศักดิ์ วันทองธนวัน)
รองเลขาธิการ ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม