

ภาคผนวก ง

ใบรับรองผลการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

ใบรับรองผลการตรวจวัดคุณภาพอากาศในบรรยากาศ



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 21-28 Apr 2025

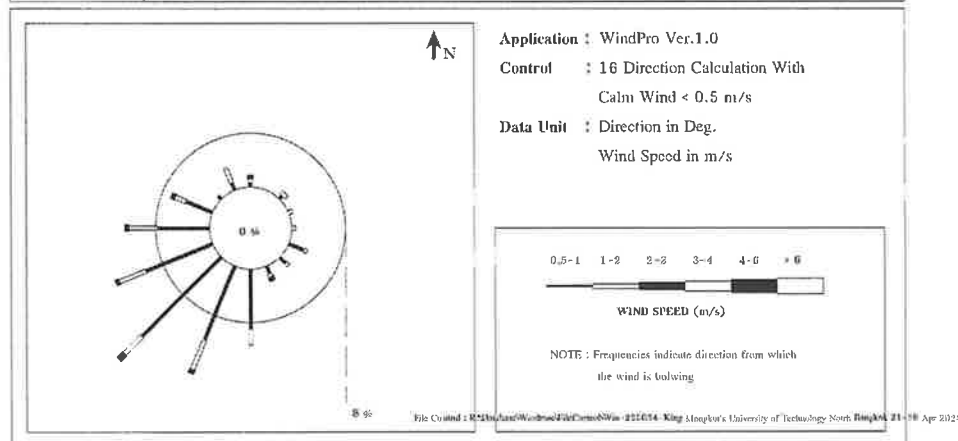
Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0060	0.0060	0.0060	0.0000	0.0000	0.0000	0.0179
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0060	0.0000	0.0000	0.0060	0.0000	0.0000	0.0119
ENE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
E	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
ESE	0.0238	0.0060	0.0000	0.0000	0.0000	0.0000	0.0298
SE	0.0119	0.0060	0.0000	0.0000	0.0000	0.0000	0.0179
SSE	0.0119	0.0060	0.0060	0.0000	0.0000	0.0000	0.0238
S	0.0893	0.0238	0.0000	0.0000	0.0000	0.0000	0.1131
SSW	0.1190	0.0476	0.0060	0.0000	0.0000	0.0000	0.1726
SW	0.1667	0.0357	0.0119	0.0000	0.0000	0.0000	0.2143
WSW	0.1071	0.0417	0.0060	0.0000	0.0000	0.0000	0.1548
W	0.0774	0.0417	0.0060	0.0000	0.0000	0.0000	0.1250
WNW	0.0417	0.0179	0.0060	0.0000	0.0000	0.0000	0.0655
NW	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
NNW	0.0119	0.0238	0.0000	0.0000	0.0000	0.0000	0.0357
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 21-28 Apr 2025

Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

Time	21-22 Apr 2025		22-23 Apr 2025		23-24 Apr 2025		24-25 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	1.5	W	1.0	W	0.7	S	1.0	WSW
13:00 - 14:00	0.9	SW	0.8	SW	0.7	SSW	0.7	SSW
14:00 - 15:00	0.7	WSW	0.9	SSW	0.7	WSW	1.0	SSW
15:00 - 16:00	0.8	W	0.9	S	0.6	SW	0.9	SSW
16:00 - 17:00	1.0	WSW	1.0	WSW	1.0	SE	1.0	SW
17:00 - 18:00	0.7	S	0.7	SW	0.5	S	0.9	W
18:00 - 19:00	0.7	SW	0.7	SW	0.5	ESE	1.0	W
19:00 - 20:00	0.9	SSW	0.9	SW	0.9	SE	1.0	S
20:00 - 21:00	1.0	SSW	0.8	SSW	0.7	SSE	1.0	SW
21:00 - 22:00	0.7	SW	0.9	SW	1.0	SSE	1.0	SSW
22:00 - 23:00	1.0	W	0.7	SSW	1.0	ESE	0.8	SW
23:00 - 24:00	0.8	WSW	1.0	WSW	0.9	ESE	0.9	SSW
00:00 - 01:00	2.4	W	1.0	SSW	0.9	ESE	0.9	WSW
01:00 - 02:00	1.5	S	1.0	SSW	0.7	SSE	0.7	SW
02:00 - 03:00	1.0	SSW	1.9	WNW	1.0	E	0.7	SW
03:00 - 04:00	0.9	SW	2.3	SW	1.3	SW	0.7	S
04:00 - 05:00	0.8	SW	1.5	NNW	0.9	SW	0.7	S
05:00 - 06:00	0.8	WSW	0.7	WNW	1.0	WSW	0.7	S
06:00 - 07:00	2.0	N	0.6	WNW	0.7	WSW	0.8	W
07:00 - 08:00	1.7	SW	2.5	SSW	0.8	S	0.7	SSW
08:00 - 09:00	0.8	SW	0.5	SW	1.0	SW	0.7	SSW
09:00 - 10:00	0.9	SW	0.7	W	0.8	S	0.7	SW
10:00 - 11:00	0.8	WSW	0.6	SSW	0.8	W	0.8	SSW
11:00 - 12:00	0.8	W	0.5	S	1.0	SW	1.0	S



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

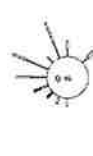
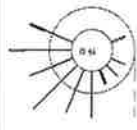
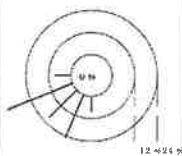


Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 21-28 Apr 2025
Wind Speed Model : Novalynx WS-25 Serial No : A5088
Wind Direction Model : Novalynx WS-25 Serial No : A5088

Time	25-26 Apr 2025		26-27 Apr 2025		27-28 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
12:00 - 13:00	0.7	SSW	0.5	SW	1.3	S
13:00 - 14:00	1.0	SSW	0.6	W	2.5	SW
14:00 - 15:00	0.7	WSW	0.6	WSW	1.6	NNW
15:00 - 16:00	0.9	S	0.6	SSW	0.6	NNW
16:00 - 17:00	0.8	WSW	0.7	W	0.5	W
17:00 - 18:00	0.8	SW	0.6	S	1.8	SSW
18:00 - 19:00	0.9	W	0.7	SSW	1.5	NNW
19:00 - 20:00	0.9	SW	0.7	SW	0.6	NNW
20:00 - 21:00	1.0	WSW	0.6	SW	0.6	WNW
21:00 - 22:00	0.9	WSW	0.7	WSW	1.0	WNW
22:00 - 23:00	0.8	SSW	0.6	WSW	0.7	WNW
23:00 - 24:00	0.5	SW	0.5	SSW	2.8	WSW
00:00 - 01:00	0.5	SW	2.3	SSE	1.5	N
01:00 - 02:00	0.5	SSW	0.7	SE	0.8	NW
02:00 - 03:00	0.5	WSW	0.7	ESE	1.0	W
03:00 - 04:00	0.5	WSW	1.7	ENE	0.8	WNW
04:00 - 05:00	0.6	SW	2.5	WNW	3.0	NE
05:00 - 06:00	0.6	SSW	0.7	WNW	0.8	NE
06:00 - 07:00	0.5	WSW	0.6	WNW	1.1	WNW
07:00 - 08:00	0.6	WSW	1.4	W	0.7	W
08:00 - 09:00	0.6	SSW	0.5	SW	1.0	NNW
09:00 - 10:00	0.6	WSW	0.5	W	0.7	N
10:00 - 11:00	0.7	W	0.5	S	1.3	W
11:00 - 12:00	0.6	S	0.6	S	1.0	WSW

Wind Rose



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

File Control : R:\Database\Windrose\file\form\Win-225054-King Mongkut's University of Technology North Bangkok 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

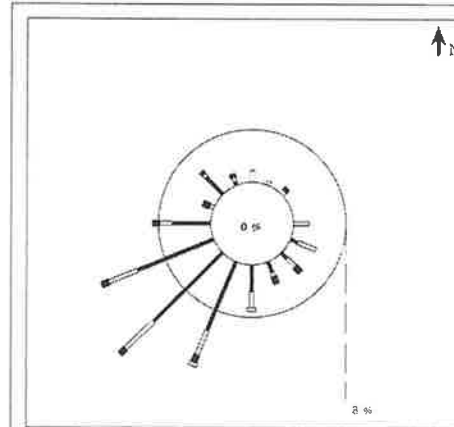
Preeda S.
(Miss Preeda Somjai)
Technical Management Team



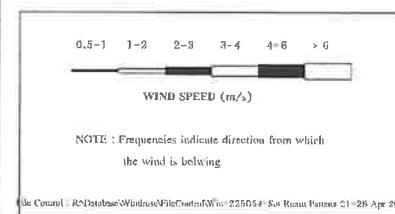
Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 21-28 Apr 2025
Wind Speed Model : Novalynx NL-32 Serial No : 1203
Wind Direction Model : Novalynx NL-32 Serial No : 1203

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						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	0.0179	0.0000	0.0000	0.0000	0.0000	0.0179
NNE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NE	0.0000	0.0060	0.0060	0.0000	0.0000	0.0000	0.0119
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0238	0.0000	0.0000	0.0000	0.0000	0.0238
ESE	0.0119	0.0298	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0119	0.0179	0.0119	0.0000	0.0000	0.0000	0.0417
SSE	0.0179	0.0060	0.0119	0.0000	0.0000	0.0000	0.0357
S	0.0417	0.0238	0.0000	0.0060	0.0000	0.0000	0.0714
SSW	0.1131	0.0417	0.0119	0.0060	0.0000	0.0000	0.1726
SW	0.1488	0.0595	0.0119	0.0000	0.0000	0.0000	0.2202
WSW	0.1250	0.0476	0.0119	0.0000	0.0000	0.0000	0.1845
W	0.0595	0.0179	0.0119	0.0000	0.0000	0.0000	0.0893
WNW	0.0000	0.0060	0.0119	0.0000	0.0000	0.0000	0.0179
NW	0.0357	0.0060	0.0060	0.0000	0.0000	0.0000	0.0476
NNW	0.0060	0.0060	0.0060	0.0000	0.0000	0.0000	0.0179
CALM	0.0000						



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



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\file\form\Win-225054-Soi Ruam Pattana 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



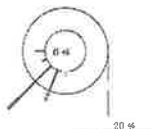
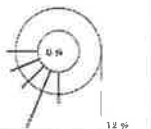
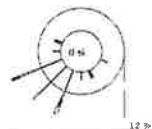
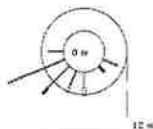
Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 21-28 Apr 2025
 Wind Speed Model : Novalynx NL-32 Serial No : 1203
 Wind Direction Model : Novalynx NL-32 Serial No : 1203

Time	21-22 Apr 2025		22-23 Apr 2025		23-24 Apr 2025		24-25 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
13:00 - 14:00	3.0	S	3.0	SSW	0.9	S	0.9	SSW
14:00 - 15:00	0.9	WSW	0.7	SW	0.7	SSW	0.7	SW
15:00 - 16:00	1.0	S	0.9	S	0.7	WSW	1.0	SW
16:00 - 17:00	0.9	WSW	0.8	SW	0.7	W	0.9	SSW
17:00 - 18:00	0.8	SW	0.9	SSW	0.7	SSW	0.8	SW
18:00 - 19:00	0.9	SW	0.8	SW	0.7	SSW	0.7	SW
19:00 - 20:00	0.9	W	0.9	SSW	0.9	SSW	0.7	W
20:00 - 21:00	0.8	SW	2.7	SSE	1.0	SSW	1.0	SSW
21:00 - 22:00	0.7	WSW	0.7	ESE	0.9	WSW	0.9	SW
22:00 - 23:00	0.9	WSW	1.6	WSW	0.9	SSW	0.9	SSW
23:00 - 24:00	0.7	W	0.9	WSW	0.8	SW	0.8	WSW
00:00 - 01:00	0.7	WSW	1.0	SW	0.8	S	1.0	SSW
01:00 - 02:00	0.7	SSW	0.8	SSW	0.9	W	0.9	SW
02:00 - 03:00	1.0	WSW	1.0	WSW	1.0	SW	0.8	SW
03:00 - 04:00	0.7	SW	0.7	SSW	1.0	S	1.0	SSW
04:00 - 05:00	0.9	SSW	0.7	SW	0.7	SW	0.9	W
05:00 - 06:00	1.0	SSW	0.7	SW	0.8	SSW	0.7	SW
06:00 - 07:00	0.7	WSW	2.9	WNW	0.8	WSW	0.9	SSW
07:00 - 08:00	2.0	SE	2.9	WSW	0.7	S	0.9	SW
08:00 - 09:00	1.3	WSW	0.9	WSW	0.9	WSW	1.0	SW
09:00 - 10:00	1.3	ESE	1.7	W	0.9	SW	1.0	SW
10:00 - 11:00	2.5	SW	2.5	SSW	1.0	SSW	0.9	SW
11:00 - 12:00	1.0	S	0.8	WSW	0.9	W	0.9	SW
12:00 - 13:00	1.9	ESE	0.8	WSW	0.8	W	1.0	S

Wind Rose



File Control: R:\Pattana\Windrose\Site\Centre\Win-225054-Soi Ruam Pattana 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 21-28 Apr 2025
 Wind Speed Model : Novalynx NL-32 Serial No : 1203
 Wind Direction Model : Novalynx NL-32 Serial No : 1203

Time	25-26 Apr 2025		26-27 Apr 2025		27-28 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
13:00 - 14:00	0.9	SW	0.7	S	2.0	WSW
14:00 - 15:00	1.0	WSW	1.7	SE	2.8	NNW
15:00 - 16:00	0.9	SSW	2.3	SW	0.7	NW
16:00 - 17:00	1.0	WSW	1.9	E	0.7	NW
17:00 - 18:00	0.7	SSW	1.0	ESE	1.7	SSW
18:00 - 19:00	2.5	SE	0.8	SE	1.8	WNW
19:00 - 20:00	0.8	SSE	1.5	SW	0.8	NNW
20:00 - 21:00	0.7	SSE	0.9	S	0.8	W
21:00 - 22:00	0.9	ESE	0.9	SW	1.0	NW
22:00 - 23:00	1.0	SE	1.0	WSW	0.9	W
23:00 - 24:00	1.0	E	0.7	WSW	1.9	SW
00:00 - 01:00	1.0	ESE	2.7	SSE	2.8	WNW
01:00 - 02:00	2.9	W	1.0	SE	1.0	N
02:00 - 03:00	0.9	WSW	1.0	SSE	0.7	NW
03:00 - 04:00	1.0	SW	1.4	NE	1.0	N
04:00 - 05:00	0.9	WSW	2.7	NW	2.9	NE
05:00 - 06:00	1.8	E	0.8	NW	1.0	NNE
06:00 - 07:00	0.9	S	0.9	NW	1.7	W
07:00 - 08:00	1.0	ESE	1.3	WSW	0.7	NW
08:00 - 09:00	0.8	SE	0.8	SSW	1.0	N
09:00 - 10:00	0.8	SSE	0.9	WSW	1.0	NNW
10:00 - 11:00	2.3	SSW	1.0	SW	2.1	W
11:00 - 12:00	0.8	WSW	1.0	SW	0.8	WSW
12:00 - 13:00	0.8	SW	1.7	E	1.0	W

Wind Rose



File Control: R:\Pattana\Windrose\Site\Centre\Win-225054-Soi Ruam Pattana 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

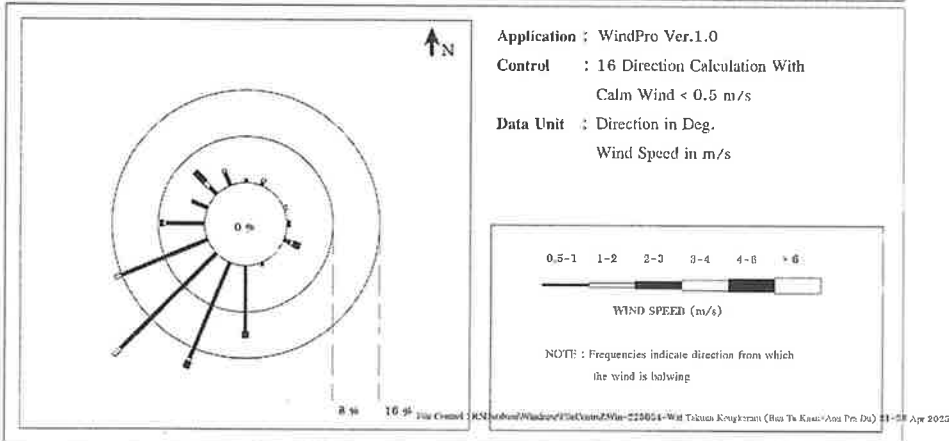


Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 21-28 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
NNE	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
E	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0060
ESE	0.0119	0.0060	0.0119	0.0000	0.0000	0.0000	0.0298
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
S	0.1131	0.0000	0.0119	0.0000	0.0000	0.0000	0.1250
SSW	0.1786	0.0060	0.0119	0.0000	0.0000	0.0000	0.1964
SW	0.2321	0.0179	0.0000	0.0000	0.0000	0.0000	0.2500
WSW	0.1607	0.0119	0.0000	0.0000	0.0000	0.0000	0.1726
W	0.0655	0.0060	0.0060	0.0000	0.0000	0.0000	0.0774
WNW	0.0298	0.0000	0.0000	0.0000	0.0000	0.0000	0.0298
NW	0.0179	0.0119	0.0238	0.0000	0.0000	0.0000	0.0536
NNW	0.0238	0.0060	0.0000	0.0000	0.0000	0.0000	0.0298
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Preeda C.
 (Miss Preeda Somjai)
 Technical Management Team



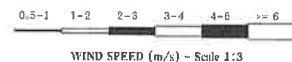
Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 21-28 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	21-22 Apr 2025		22-23 Apr 2025		23-24 Apr 2025		24-25 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	0.7	W	0.7	SW	0.5	S	0.5	SSW
10:00 - 11:00	2.2	S	0.7	WSW	0.7	WSW	0.5	SW
11:00 - 12:00	0.5	SSW	0.5	WSW	0.5	S	0.6	S
12:00 - 13:00	0.7	WSW	0.6	SW	0.5	SSW	0.6	SSW
13:00 - 14:00	0.5	S	0.7	SSW	0.6	W	0.6	WSW
14:00 - 15:00	0.6	S	0.6	SSW	0.7	SSW	2.1	W
15:00 - 16:00	0.6	WSW	0.6	S	0.6	SW	1.9	SW
16:00 - 17:00	0.7	SW	0.6	SSW	0.5	SSW	0.5	SSW
17:00 - 18:00	0.7	SW	0.6	S	0.6	SSW	0.5	SW
18:00 - 19:00	0.7	WSW	0.6	SSW	0.6	SSW	0.6	SSW
19:00 - 20:00	0.5	WSW	0.7	SW	0.7	SW	0.7	W
20:00 - 21:00	0.7	S	0.7	S	0.7	SSW	0.7	SSW
21:00 - 22:00	0.7	S	0.6	WSW	0.6	W	0.6	SSW
22:00 - 23:00	0.5	SW	0.7	SW	0.7	S	0.6	S
23:00 - 24:00	0.5	WSW	0.5	SW	1.9	ESE	0.6	S
00:00 - 01:00	0.6	SSW	0.7	SW	0.6	ESE	0.7	SSW
01:00 - 02:00	0.7	SW	0.7	SW	2.4	S	0.6	SSW
02:00 - 03:00	0.7	W	2.2	NW	2.3	E	0.6	SW
03:00 - 04:00	0.6	SW	1.8	WSW	1.0	WSW	0.6	SW
04:00 - 05:00	0.5	SW	2.0	NW	0.5	WSW	0.7	WSW
05:00 - 06:00	0.7	SW	0.7	W	0.7	SW	0.7	WSW
06:00 - 07:00	2.0	NW	0.6	N	0.6	W	0.5	SW
07:00 - 08:00	1.7	SSW	1.8	SW	0.6	WSW	0.7	SW
08:00 - 09:00	0.7	WSW	0.5	SSW	0.6	SW	0.7	SW

Wind Rose



(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Preeda C.
 (Miss Preeda Somjai)
 Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

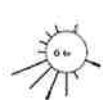
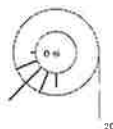
Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 21-28 Apr 2025

Wind Speed Model : Novalynx WS-25 Serial No : A4907

Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	25-26 Apr 2025		26-27 Apr 2025		27-28 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	0.7	SW	0.5	SW	0.5	WSW
10:00 - 11:00	0.7	S	0.6	SSW	0.5	WSW
11:00 - 12:00	0.5	SW	0.5	WSW	0.7	SSW
12:00 - 13:00	0.5	SW	0.7	SW	2.3	ESE
13:00 - 14:00	0.7	WSW	0.6	SW	2.2	SSW
14:00 - 15:00	0.5	SSW	0.5	WSW	1.7	NW
15:00 - 16:00	0.6	WSW	0.6	SSW	0.5	NNW
16:00 - 17:00	0.6	S	0.6	SSW	0.6	W
17:00 - 18:00	0.7	WSW	0.6	S	1.4	SW
18:00 - 19:00	0.5	WSW	0.5	WSW	1.9	NW
19:00 - 20:00	0.6	SW	0.5	S	0.7	WNW
20:00 - 21:00	0.7	WSW	0.7	SW	0.7	NW
21:00 - 22:00	0.6	SW	0.6	WSW	0.6	NW
22:00 - 23:00	0.7	SW	0.5	W	0.7	NNW
23:00 - 24:00	0.6	SSW	0.6	S	1.3	W
00:00 - 01:00	0.7	SW	2.5	ESE	1.8	NNW
01:00 - 02:00	0.6	W	0.6	SSE	0.7	WNW
02:00 - 03:00	0.7	SSW	0.7	ESE	0.5	WNW
03:00 - 04:00	0.6	SW	1.7	NNE	0.7	WNW
04:00 - 05:00	0.6	SW	0.9	NW	1.4	ENE
05:00 - 06:00	0.7	SSW	0.5	WNW	0.5	NNE
06:00 - 07:00	0.7	S	0.7	NNW	2.2	NW
07:00 - 08:00	0.5	SSW	2.5	SSW	0.7	W
08:00 - 09:00	0.7	SW	0.7	WSW	0.7	NNW

Wind Rose



File Control: R:\Database\Windmst\FireControl\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

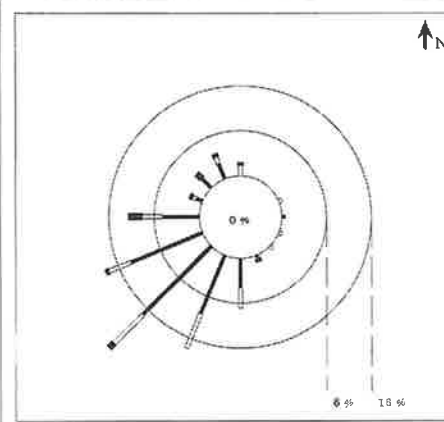
MTR-BST Site 1

Location : Boundary at NE of Plant (I-8) Monitor period : 21-28 Apr 2025

Wind Speed Model : Novalynx WS-25 Serial No : A5092

Wind Direction Model : Novalynx WS-25 Serial No : A5092

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	0.0179	0.0060	0.0000	0.0000	0.0000	0.0238
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	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
E	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060
ESE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
SE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
SSE	0.0060	0.0000	0.0060	0.0000	0.0000	0.0000	0.0119
S	0.0536	0.0357	0.0000	0.0000	0.0000	0.0000	0.0893
SSW	0.1131	0.0655	0.0000	0.0000	0.0000	0.0000	0.1786
SW	0.1726	0.0714	0.0119	0.0000	0.0000	0.0000	0.2560
WSW	0.1369	0.0417	0.0060	0.0000	0.0000	0.0000	0.1845
W	0.0655	0.0357	0.0238	0.0000	0.0000	0.0000	0.1250
WNW	0.0119	0.0060	0.0060	0.0000	0.0000	0.0000	0.0238
NW	0.0238	0.0000	0.0119	0.0000	0.0000	0.0000	0.0357
NNW	0.0298	0.0119	0.0060	0.0000	0.0000	0.0000	0.0476
CALM	0.0000						



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



NOTE : Frequencies indicate direction from which the wind is blowing

File Control: R:\Database\Windmst\FireControl\Win-225054-Boundary at NE of Plant (I-8) 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

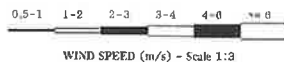
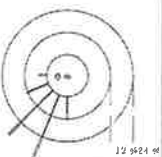
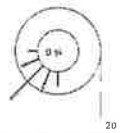
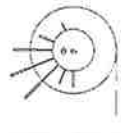
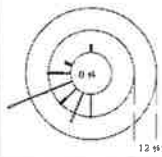


Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Boundary at NE of Plant (1-8) Monitor period : 21-28 Apr 2025
Wind Speed Model : Novalynx WS-25 Serial No : A5092
Wind Direction Model : Novalynx WS-25 Serial No : A5092

Time	21-22 Apr 2025		22-23 Apr 2025		23-24 Apr 2025		24-25 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	2.3	WNW	0.9	SSW	0.7	SSW	1.0	W
10:00 - 11:00	1.6	WSW	1.0	W	0.7	SW	0.8	SW
11:00 - 12:00	0.8	S	1.0	S	0.7	S	0.7	S
12:00 - 13:00	0.7	S	1.0	WSW	0.8	SW	0.8	WSW
13:00 - 14:00	0.7	W	0.9	SW	0.7	SSW	1.0	SSW
14:00 - 15:00	0.9	WSW	0.7	WSW	1.0	SW	0.7	WSW
15:00 - 16:00	0.7	WSW	1.0	S	0.8	SW	0.8	SSW
16:00 - 17:00	0.7	SSW	0.9	SW	0.8	WSW	0.7	SW
17:00 - 18:00	0.9	SSW	0.9	WSW	0.8	WSW	0.7	SW
18:00 - 19:00	0.8	SW	0.8	SW	0.7	W	1.0	SW
19:00 - 20:00	0.9	SSW	0.9	WSW	1.0	SSW	0.8	SSW
20:00 - 21:00	0.7	WSW	1.0	SW	1.0	SSW	0.7	SSW
21:00 - 22:00	0.7	WSW	0.9	W	0.9	W	0.8	WSW
22:00 - 23:00	0.9	WSW	1.0	W	1.0	SW	0.9	SSW
23:00 - 24:00	0.8	WSW	0.9	W	0.8	SW	0.9	SW
00:00 - 01:00	0.7	SW	0.7	SSW	0.7	SSW	1.0	SW
01:00 - 02:00	2.1	W	1.0	WSW	0.9	WSW	0.8	SW
02:00 - 03:00	2.8	SW	1.5	WNW	0.8	SW	0.9	SSW
03:00 - 04:00	1.0	SSW	1.3	SW	0.9	SW	0.9	SSW
04:00 - 05:00	0.7	S	1.1	W	0.8	S	1.0	SSW
05:00 - 06:00	0.8	WSW	0.8	NNW	0.9	SW	0.9	SW
06:00 - 07:00	2.4	N	0.8	WNW	0.8	S	0.9	S
07:00 - 08:00	2.3	W	1.2	SW	1.0	WSW	1.0	S
08:00 - 09:00	0.7	WSW	0.7	WSW	1.0	SW	1.0	SSW

Wind Rose



File Control: R:\Database\Windrose\Win-225054-Boundary at NE of Plant (1-6) 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Sonjai)
Technical Management Team

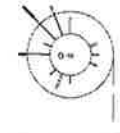
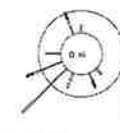
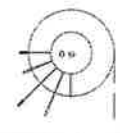


Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Boundary at NE of Plant (1-8) Monitor period : 21-28 Apr 2025
Wind Speed Model : Novalynx WS-25 Serial No : A5092
Wind Direction Model : Novalynx WS-25 Serial No : A5092

Time	25-26 Apr 2025		26-27 Apr 2025		27-28 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	0.9	SSW	1.0	SW	0.9	SW
10:00 - 11:00	1.0	SW	1.0	SSW	1.0	SSW
11:00 - 12:00	0.8	SW	0.8	SW	0.8	S
12:00 - 13:00	1.0	WSW	0.7	SW	1.1	ESE
13:00 - 14:00	0.7	SW	0.8	WSW	1.4	SSW
14:00 - 15:00	0.7	SSW	1.0	WSW	2.6	NW
15:00 - 16:00	0.8	SSW	0.7	WSW	0.9	WNW
16:00 - 17:00	1.0	S	0.9	SW	1.0	W
17:00 - 18:00	0.8	W	0.7	SW	2.6	W
18:00 - 19:00	2.2	W	0.9	SW	2.5	NW
19:00 - 20:00	2.7	SW	0.8	W	0.7	NW
20:00 - 21:00	1.0	S	1.0	SSW	0.8	NNW
21:00 - 22:00	1.0	SSW	1.0	SW	1.0	W
22:00 - 23:00	0.8	W	0.9	W	0.8	NW
23:00 - 24:00	0.7	SW	0.7	WSW	0.8	W
00:00 - 01:00	1.0	SW	2.9	SSE	0.9	NW
01:00 - 02:00	0.8	WSW	0.9	SSE	0.7	NNW
02:00 - 03:00	0.8	WSW	1.0	SE	1.0	N
03:00 - 04:00	1.0	WSW	1.7	N	0.9	NW
04:00 - 05:00	0.7	W	2.7	NNW	1.9	ENE
05:00 - 06:00	0.7	SW	0.7	NNW	0.7	E
06:00 - 07:00	0.9	SSW	1.0	NNW	1.8	N
07:00 - 08:00	1.0	S	2.2	WSW	1.0	NNW
08:00 - 09:00	0.7	SSW	0.9	SW	0.8	NNW

Wind Rose



File Control: R:\Database\Windrose\Win-225054-Boundary at NE of Plant (1-8) 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Sonjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Boundary at SW of Plant (I-7)

Monitor period : 21-28 Apr 2025

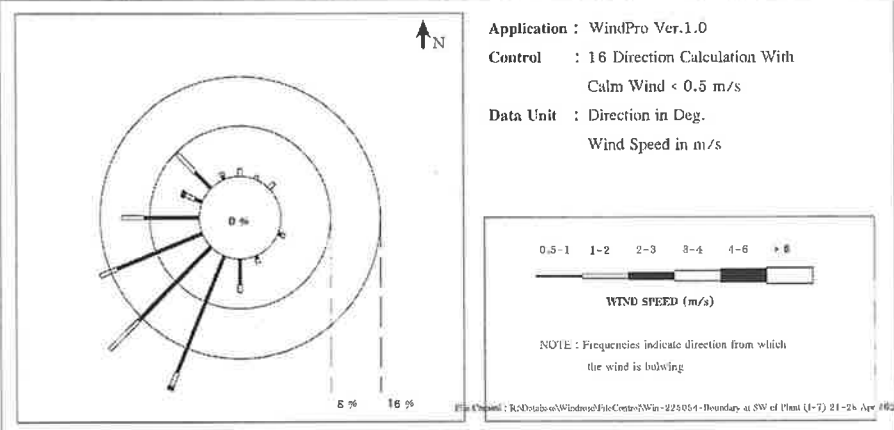
Wind Speed Model : Novalynx WS-25

Serial No : A4904

Wind Direction Model : Novalynx WS-25

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	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
NNE	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NE	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0119
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	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
S	0.0417	0.0119	0.0000	0.0000	0.0000	0.0000	0.0536
SSW	0.2024	0.0238	0.0060	0.0000	0.0000	0.0000	0.2321
SW	0.1667	0.0655	0.0000	0.0000	0.0000	0.0000	0.2321
WSW	0.1488	0.0298	0.0000	0.0000	0.0000	0.0000	0.1786
W	0.0893	0.0357	0.0000	0.0000	0.0000	0.0000	0.1250
WNW	0.0119	0.0179	0.0060	0.0000	0.0000	0.0000	0.0357
NW	0.0357	0.0417	0.0000	0.0000	0.0000	0.0000	0.0774
NNW	0.0060	0.0060	0.0000	0.0000	0.0000	0.0000	0.0119
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Boundary at SW of Plant (I-7)

Monitor period : 21-28 Apr 2025

Wind Speed Model : Novalynx WS-25

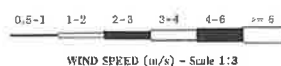
Serial No : A4904

Wind Direction Model : Novalynx WS-25

Serial No : A4904

Time	21-22 Apr 2025		22-23 Apr 2025		23-24 Apr 2025		24-25 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	1.2	WSW	1.3	WSW	0.7	SW	0.7	WSW
11:00 - 12:00	0.7	SSW	0.8	WSW	0.7	W	0.7	W
12:00 - 13:00	0.7	SSW	1.0	SW	0.7	WSW	0.7	SW
13:00 - 14:00	0.9	SW	1.4	W	0.7	WSW	0.9	SW
14:00 - 15:00	0.8	SSW	0.7	WSW	0.8	SW	0.6	SW
15:00 - 16:00	0.7	SW	0.8	SW	0.8	W	0.7	SSW
16:00 - 17:00	0.7	SSW	0.8	WSW	1.0	SW	0.9	SW
17:00 - 18:00	0.8	SSW	0.8	SSW	0.7	WSW	0.7	WSW
18:00 - 19:00	0.8	WSW	0.7	WSW	0.7	SW	0.9	W
19:00 - 20:00	0.7	SW	0.7	SSW	0.8	SSW	0.7	S
20:00 - 21:00	0.9	S	1.4	S	0.8	SW	0.7	SSW
21:00 - 22:00	0.8	S	0.7	SSW	0.8	WSW	1.6	SSW
22:00 - 23:00	0.7	W	1.4	W	0.8	WSW	0.8	WSW
23:00 - 24:00	0.7	WSW	0.7	WSW	0.7	S	0.7	SSW
00:00 - 01:00	0.7	SSW	0.7	SSW	0.6	S	0.9	W
01:00 - 02:00	1.3	SW	0.9	SSW	0.7	SSW	0.8	SW
02:00 - 03:00	1.8	WSW	1.1	NW	0.7	SW	0.8	SSW
03:00 - 04:00	0.9	W	1.0	SSW	0.9	SW	0.7	WSW
04:00 - 05:00	0.7	WSW	0.9	NW	0.7	SSW	0.9	SSW
05:00 - 06:00	0.7	WSW	0.8	WNW	0.8	SSW	0.8	WSW
06:00 - 07:00	1.6	NW	1.0	WNW	0.7	SW	1.1	SW
07:00 - 08:00	2.4	SSW	1.7	SW	0.8	SW	0.8	SSW
08:00 - 09:00	1.0	SSW	0.7	SSW	0.8	WSW	0.9	SSW
09:00 - 10:00	1.2	WSW	0.7	SW	0.8	SW	0.8	WSW

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

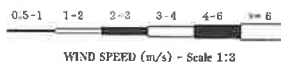
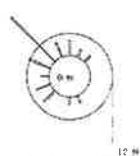
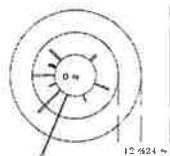
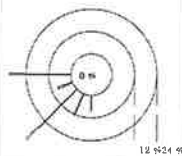


Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Boundary at SW of Plant (1-7)				Monitor period : 21-28 Apr 2025		
Wind Speed Model : Novalynx WS-25				Serial No : A4904		
Wind Direction Model : Novalynx WS-25				Serial No : A4904		
Time	25-26 Apr 2025		26-27 Apr 2025		27-28 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
10:00 - 11:00	0.9	SSW	1.6	SSW	0.8	WSW
11:00 - 12:00	0.7	SW	0.7	SSW	0.8	WSW
12:00 - 13:00	0.8	W	0.7	SSW	1.8	SSE
13:00 - 14:00	0.7	S	0.7	SSW	1.0	SW
14:00 - 15:00	0.7	W	1.6	W	1.7	NW
15:00 - 16:00	0.8	SW	1.6	SW	0.9	NW
16:00 - 17:00	1.1	W	1.6	W	1.4	NW
17:00 - 18:00	0.7	SW	0.7	SSW	1.7	S
18:00 - 19:00	1.7	WSW	0.7	SW	1.6	WNW
19:00 - 20:00	1.7	SW	0.8	SSW	0.7	WNW
20:00 - 21:00	0.8	W	0.8	SSW	0.8	W
21:00 - 22:00	0.9	W	0.8	SW	0.8	NW
22:00 - 23:00	0.7	SW	0.8	SSW	1.3	NNW
23:00 - 24:00	0.7	SW	0.6	WSW	1.0	SW
00:00 - 01:00	0.8	SSW	1.7	ESE	0.9	NW
01:00 - 02:00	1.1	SW	0.8	ESE	0.6	NNW
02:00 - 03:00	0.7	W	0.8	SSE	0.8	NW
03:00 - 04:00	0.9	WSW	1.1	NE	1.1	WNW
04:00 - 05:00	0.6	W	2.0	WNW	1.2	NNE
05:00 - 06:00	1.1	W	1.6	NW	1.6	NE
06:00 - 07:00	0.8	S	1.6	NW	1.2	NW
07:00 - 08:00	0.8	SSW	1.6	SW	0.9	NW
08:00 - 09:00	0.7	SW	0.8	W	1.5	N
09:00 - 10:00	0.9	SW	0.7	SSW	1.6	N

Wind Rose



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

File Count: 37212400\Windrose\Win-225054-Boundary at SW of Plant (1-7) 21-28 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-Amb-2504-0244
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 21-27/04/2025
RECEIVED DATE	: 03/05/2025	ANALYTICAL DATE	: 09/05/2025
REPORT DATE	: 14/05/2025	SAMPLE CONDITION	: Normal
SITE OPERATOR	: Mr. Siwanon Kulawong		
LOCATION DESCRIPTION	: 1. Wat Takuan Kungkarant (Ban Tu Kuan-Aou Pra Du)		
	2. Boundary at NE of Plant (1-8)		
	3. Boundary at SW of Plant (1-7)		

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	RESULTS			REFERENCE METHOD
				1	2	3	
Non-methane	21/04/2025	ppm	<0.05	0.05	0.05	0.11	Flame Ionization
Hydrocarbon	22/04/2025	ppm	<0.05	0.05	0.10	0.05	Detection Method
(NMHC)	23/04/2025	ppm	<0.05	0.05	0.05	0.05	
	24/04/2025	ppm	<0.05	0.05	0.05	0.05	
	25/04/2025	ppm	<0.05	0.05	0.09	0.05	
	26/04/2025	ppm	<0.05	0.05	0.05	0.05	
	27/04/2025	ppm	<0.05	0.05	0.05	0.06	

(Miss Sudaporn Soonthorn)

Analyst

(Miss Narisa Poowasanpeich)

Technical Management Team

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

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บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-Amb-2504-0244
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 21-27/04/2025
RECEIVED DATE : 03/05/2025 ANALYTICAL DATE : 07/05/2025
REPORT DATE : 14/05/2025 SAMPLE CONDITION : Normal
SITE OPERATOR : Mr. Siwanon Kulawong
LOCATION DESCRIPTION : 1. Wat Takuan Kongkaram (Ban To Kuan-Aou Pm Du)
2. Boundary at NE of Plant (1-8)
3. Boundary at SW of Plant (1-7)

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	RESULTS			REFERENCE METHOD
				1	2	3	
Methyl Tertiary	21/04/2025	ppm	<0.01	ND	ND	ND	Modif.NIOSH 1615
Butyl Ether	22/04/2025	ppm	<0.01	ND	ND	ND	
(MTBE)	23/04/2025	ppm	<0.01	ND	ND	ND	
	24/04/2025	ppm	<0.01	ND	ND	ND	
	25/04/2025	ppm	<0.01	ND	ND	ND	
	26/04/2025	ppm	<0.01	ND	ND	ND	
	27/04/2025	ppm	<0.01	ND	ND	ND	

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Maing Poowasanpeth

(Miss Narisa Poowasanpetch)

Technical Management Team

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AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-Amb-2504-0244
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 21-27/04/2025
RECEIVED DATE : 03/05/2025 ANALYTICAL DATE : 09/05/2025
REPORT DATE : 14/05/2025 SAMPLE CONDITION : Normal
SITE OPERATOR : Mr. Siwanon Kulawong
LOCATION DESCRIPTION : 1. King Mongkut's University of Technology North Bangkok (Rayong)
2. Soi Ruam Pattana

PARAMETER	SAMPLING DATE	UNITS	ND Non-detectable	REFERENCE		METHOD
				1	2	
Total Hydrocarbon	21/04/2025	ppm	<0.10	3.84	4.12	Flame Ionization
(THC)	22/04/2025	ppm	<0.10	3.65	4.05	Detection Method
	23/04/2025	ppm	<0.10	3.97	4.28	
	24/04/2025	ppm	<0.10	3.82	3.81	
	25/04/2025	ppm	<0.10	4.01	3.90	
	26/04/2025	ppm	<0.10	3.95	4.11	
	27/04/2025	ppm	<0.10	3.42	4.01	

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Maing Poowasanpeth

(Miss Narisa Poowasanpetch)

Technical Management Team

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

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Ambient Air Monitoring Results : Oxides of Nitrogen MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SCT-14
Serial No : 2385 Site Operator : Mr. Siwanon Kulawong

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

Time	NOx Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	0.0063	0.0068	0.0072	0.0063	0.0052	0.0090	0.0061
11:00 - 12:00	0.0095	0.0083	0.0065	0.0047	0.0083	0.0062	0.0051
12:00 - 13:00	0.0089	0.0067	0.0072	0.0051	0.0084	0.0046	0.0089
13:00 - 14:00	0.0085	0.0077	0.0056	0.0054	0.0080	0.0087	0.0189
14:00 - 15:00	0.0063	0.0051	0.0068	0.0100	0.0095	0.0086	0.0088
15:00 - 16:00	0.0078	0.0051	0.0082	0.0068	0.0064	0.0072	0.0087
16:00 - 17:00	0.0041	0.0042	0.0106	0.0085	0.0080	0.0047	0.0061
17:00 - 18:00	0.0097	0.0080	0.0069	0.0041	0.0108	0.0086	0.0080
18:00 - 19:00	0.0087	0.0070	0.0068	0.0056	0.0090	0.0072	0.0060
19:00 - 20:00	0.0072	0.0084	0.0052	0.0079	0.0104	0.0054	0.0046
20:00 - 21:00	0.0089	0.0075	0.0072	0.0064	0.0078	0.0030	0.0058
21:00 - 22:00	0.0064	0.0088	0.0082	0.0057	0.0087	0.0055	0.0074
22:00 - 23:00	0.0081	0.0109	0.0094	0.0098	0.0083	0.0087	0.0079
23:00 - 00:00	0.0065	0.0104	0.0094	0.0056	0.0072	0.0083	0.0083
00:00 - 01:00	0.0067	0.0087	0.0103	0.0034	0.0073	0.0081	0.0100
01:00 - 02:00	0.0074	0.0056	0.0092	0.0060	0.0088	0.0099	0.0031
02:00 - 03:00	0.0100	0.0044	0.0090	0.0081	0.0087	0.0061	0.0068
03:00 - 04:00	0.0093	0.0069	0.0063	0.0080	0.0088	0.0066	0.0063
04:00 - 05:00	0.0069	0.0104	0.0061	0.0088	0.0083	0.0097	0.0080
05:00 - 06:00	0.0066	0.0086	0.0087	0.0051	0.0075	0.0076	0.0106
06:00 - 07:00	0.0075	0.0054	0.0112	0.0081	0.0079	0.0076	0.0133
07:00 - 08:00	0.0076	0.0088	0.0082	0.0081	0.0071	0.0082	0.0066
08:00 - 09:00	0.0069	0.0069	0.0093	0.0077	0.0083	0.0045	0.0065
09:00 - 10:00	0.0103	0.0103	0.0061	0.0087	0.0082	0.0076	0.0065
Average-24Hr*	0.0077	0.0076	0.0079	0.0067	0.0079	0.0071	0.0078
Max-1Hr	0.0103	0.0103	0.0112	0.0100	0.0108	0.0099	0.0189
Min-1Hr	0.0041	0.0042	0.0052	0.0034	0.0052	0.0030	0.0031
Standard-1Hr							
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preda S.
(Miss Preda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Oxides of Nitrogen MTR-BST Site 1

Location : Boundary at NE of Plant (1-8) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SECOT-019
Serial No : 1505 Site Operator : Mr. Siwanon Kulawong

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

Time	NOx Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
09:00 - 10:00	0.0140	0.0095	0.0065	0.0067	0.0078	0.0076	0.0066
10:00 - 11:00	0.0115	0.0073	0.0045	0.0076	0.0073	0.0073	0.0047
11:00 - 12:00	0.0101	0.0095	0.0089	0.0055	0.0082	0.0072	0.0077
12:00 - 13:00	0.0106	0.0075	0.0060	0.0082	0.0127	0.0089	0.0054
13:00 - 14:00	0.0068	0.0081	0.0060	0.0079	0.0083	0.0082	0.0123
14:00 - 15:00	0.0092	0.0102	0.0077	0.0047	0.0054	0.0134	0.0128
15:00 - 16:00	0.0101	0.0070	0.0128	0.0071	0.0115	0.0083	0.0054
16:00 - 17:00	0.0071	0.0052	0.0038	0.0123	0.0080	0.0131	0.0112
17:00 - 18:00	0.0089	0.0057	0.0088	0.0093	0.0096	0.0079	0.0099
18:00 - 19:00	0.0042	0.0076	0.0092	0.0110	0.0070	0.0093	0.0098
19:00 - 20:00	0.0125	0.0110	0.0057	0.0137	0.0075	0.0067	0.0094
20:00 - 21:00	0.0128	0.0122	0.0081	0.0080	0.0045	0.0105	0.0104
21:00 - 22:00	0.0099	0.0081	0.0073	0.0061	0.0075	0.0079	0.0121
22:00 - 23:00	0.0114	0.0085	0.0045	0.0102	0.0140	0.0108	0.0109
23:00 - 00:00	0.0070	0.0082	0.0079	0.0108	0.0066	0.0112	0.0103
00:00 - 01:00	0.0074	0.0088	0.0118	0.0101	0.0104	0.0116	0.0101
01:00 - 02:00	0.0087	0.0070	0.0085	0.0088	0.0060	0.0085	0.0056
02:00 - 03:00	0.0126	0.0070	0.0058	0.0087	0.0144	0.0048	0.0096
03:00 - 04:00	0.0138	0.0086	0.0078	0.0100	0.0076	0.0064	0.0057
04:00 - 05:00	0.0102	0.0101	0.0094	0.0104	0.0120	0.0049	0.0075
05:00 - 06:00	0.0056	0.0164	0.0103	0.0128	0.0064	0.0082	0.0128
06:00 - 07:00	0.0073	0.0112	0.0101	0.0100	0.0116	0.0094	0.0112
07:00 - 08:00	0.0108	0.0083	0.0122	0.0083	0.0089	0.0124	0.0082
08:00 - 09:00	0.0132	0.0086	0.0121	0.0078	0.0080	0.0109	0.0112
Average-24Hr*	0.0098	0.0087	0.0082	0.0087	0.0088	0.0089	0.0092
Max-1Hr	0.0140	0.0164	0.0128	0.0137	0.0144	0.0134	0.0128
Min-1Hr	0.0042	0.0052	0.0036	0.0047	0.0045	0.0048	0.0047
Standard-1Hr							
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preda S.
(Miss Preda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Oxides of Nitrogen MTR-BST Site 1

Location : Boundary at SW of Plant (1-7) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SCT-15
Serial No : 2386 Site Operator : Mr. Siwanon Kulawong

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

Time	NOx Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	0.0099	0.0085	0.0045	0.0039	0.0066	0.0089	0.0026
11:00 - 12:00	0.0128	0.0076	0.0067	0.0036	0.0047	0.0034	0.0106
12:00 - 13:00	0.0050	0.0102	0.0090	0.0031	0.0121	0.0099	0.0089
13:00 - 14:00	0.0100	0.0116	0.0092	0.0036	0.0081	0.0106	0.0106
14:00 - 15:00	0.0099	0.0100	0.0058	0.0078	0.0104	0.0118	0.0187
15:00 - 16:00	0.0091	0.0083	0.0116	0.0026	0.0094	0.0098	0.0095
16:00 - 17:00	0.0086	0.0102	0.0074	0.0089	0.0112	0.0126	0.0094
17:00 - 18:00	0.0117	0.0119	0.0108	0.0078	0.0078	0.0092	0.0081
18:00 - 19:00	0.0106	0.0120	0.0095	0.0060	0.0134	0.0129	0.0065
19:00 - 20:00	0.0202	0.0112	0.0086	0.0107	0.0066	0.0068	0.0198
20:00 - 21:00	0.0118	0.0105	0.0103	0.0131	0.0068	0.0191	0.0233
21:00 - 22:00	0.0131	0.0093	0.0068	0.0068	0.0104	0.0170	0.0171
22:00 - 23:00	0.0089	0.0100	0.0065	0.0185	0.0096	0.0156	0.0122
23:00 - 00:00	0.0091	0.0042	0.0109	0.0170	0.0049	0.0096	0.0125
00:00 - 01:00	0.0063	0.0121	0.0200	0.0090	0.0174	0.0169	0.0182
01:00 - 02:00	0.0076	0.0046	0.0048	0.0060	0.0074	0.0045	0.0049
02:00 - 03:00	0.0128	0.0135	0.0098	0.0082	0.0078	0.0086	0.0087
03:00 - 04:00	0.0099	0.0109	0.0105	0.0071	0.0100	0.0096	0.0101
04:00 - 05:00	0.0112	0.0126	0.0112	0.0087	0.0120	0.0103	0.0086
05:00 - 06:00	0.0096	0.0125	0.0101	0.0099	0.0046	0.0092	0.0132
06:00 - 07:00	0.0106	0.0146	0.0099	0.0111	0.0091	0.0120	0.0125
07:00 - 08:00	0.0132	0.0113	0.0088	0.0105	0.0070	0.0113	0.0085
08:00 - 09:00	0.0115	0.0048	0.0106	0.0031	0.0035	0.0094	0.0108
09:00 - 10:00	0.0103	0.0081	0.0070	0.0077	0.0101	0.0022	0.0092
Average-24Hr*	0.0105	0.0099	0.0089	0.0081	0.0088	0.0101	0.0114
Max-1Hr	0.0202	0.0146	0.0200	0.0185	0.0174	0.0191	0.0233
Min-1Hr	0.0050	0.0042	0.0032	0.0026	0.0035	0.0022	0.0026
Standard-1Hr	-						
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-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SCT-14
Serial No : 2385 Site Operator : Mr. Siwanon Kulawong

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

Time	NO2 Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	0.0029	0.0045	0.0038	0.0041	0.0030	0.0058	0.0027
11:00 - 12:00	0.0045	0.0053	0.0024	0.0032	0.0047	0.0025	0.0038
12:00 - 13:00	0.0055	0.0034	0.0035	0.0041	0.0034	0.0025	0.0054
13:00 - 14:00	0.0041	0.0042	0.0029	0.0038	0.0040	0.0038	0.0127
14:00 - 15:00	0.0040	0.0089	0.0031	0.0056	0.0059	0.0057	0.0084
15:00 - 16:00	0.0031	0.0024	0.0060	0.0045	0.0027	0.0053	0.0036
16:00 - 17:00	0.0031	0.0032	0.0062	0.0061	0.0036	0.0037	0.0059
17:00 - 18:00	0.0058	0.0041	0.0054	0.0028	0.0061	0.0054	0.0045
18:00 - 19:00	0.0053	0.0025	0.0082	0.0036	0.0053	0.0030	0.0041
19:00 - 20:00	0.0036	0.0038	0.0034	0.0042	0.0060	0.0035	0.0029
20:00 - 21:00	0.0046	0.0035	0.0023	0.0043	0.0057	0.0020	0.0028
21:00 - 22:00	0.0053	0.0052	0.0062	0.0039	0.0030	0.0035	0.0037
22:00 - 23:00	0.0056	0.0062	0.0051	0.0049	0.0038	0.0054	0.0042
23:00 - 00:00	0.0054	0.0059	0.0061	0.0029	0.0029	0.0057	0.0055
00:00 - 01:00	0.0034	0.0045	0.0056	0.0021	0.0057	0.0031	0.0052
01:00 - 02:00	0.0064	0.0030	0.0061	0.0035	0.0033	0.0058	0.0018
02:00 - 03:00	0.0060	0.0031	0.0043	0.0044	0.0046	0.0020	0.0044
03:00 - 04:00	0.0059	0.0034	0.0028	0.0039	0.0033	0.0047	0.0028
04:00 - 05:00	0.0048	0.0050	0.0044	0.0035	0.0034	0.0059	0.0053
05:00 - 06:00	0.0042	0.0053	0.0048	0.0033	0.0031	0.0045	0.0057
06:00 - 07:00	0.0041	0.0027	0.0082	0.0040	0.0048	0.0059	0.0090
07:00 - 08:00	0.0060	0.0042	0.0035	0.0061	0.0050	0.0044	0.0028
08:00 - 09:00	0.0058	0.0034	0.0049	0.0054	0.0042	0.0032	0.0044
09:00 - 10:00	0.0056	0.0059	0.0045	0.0043	0.0032	0.0035	0.0018
Average-24Hr*	0.0047	0.0042	0.0046	0.0041	0.0042	0.0042	0.0047
Max-1Hr	0.0064	0.0062	0.0062	0.0061	0.0061	0.0059	0.0127
Min-1Hr	0.0029	0.0024	0.0024	0.0021	0.0027	0.0020	0.0018
Standard-1Hr	0.17 ppm(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-BST Site 1

Location : Boundary at NE of Plant (I-8) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SECOT-019
Serial No : 1505 Site Operator : Mr. Siwanon Kulawong

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

Time	NO2 Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
09:00 - 10:00	0.0098	0.0072	0.0026	0.0033	0.0053	0.0027	0.0034
10:00 - 11:00	0.0092	0.0055	0.0031	0.0029	0.0043	0.0061	0.0027
11:00 - 12:00	0.0090	0.0056	0.0060	0.0024	0.0055	0.0048	0.0046
12:00 - 13:00	0.0058	0.0028	0.0045	0.0043	0.0092	0.0046	0.0033
13:00 - 14:00	0.0056	0.0053	0.0045	0.0034	0.0035	0.0037	0.0098
14:00 - 15:00	0.0072	0.0067	0.0039	0.0029	0.0025	0.0069	0.0081
15:00 - 16:00	0.0088	0.0025	0.0084	0.0037	0.0074	0.0044	0.0021
16:00 - 17:00	0.0026	0.0025	0.0022	0.0089	0.0051	0.0094	0.0070
17:00 - 18:00	0.0072	0.0020	0.0055	0.0057	0.0066	0.0053	0.0068
18:00 - 19:00	0.0023	0.0046	0.0065	0.0066	0.0030	0.0073	0.0051
19:00 - 20:00	0.0085	0.0088	0.0024	0.0094	0.0052	0.0043	0.0072
20:00 - 21:00	0.0092	0.0081	0.0071	0.0038	0.0031	0.0067	0.0087
21:00 - 22:00	0.0051	0.0038	0.0036	0.0032	0.0047	0.0067	0.0085
22:00 - 23:00	0.0087	0.0054	0.0028	0.0085	0.0094	0.0066	0.0069
23:00 - 00:00	0.0041	0.0036	0.0055	0.0087	0.0025	0.0077	0.0050
00:00 - 01:00	0.0043	0.0077	0.0098	0.0088	0.0093	0.0093	0.0074
01:00 - 02:00	0.0047	0.0032	0.0040	0.0046	0.0049	0.0039	0.0045
02:00 - 03:00	0.0078	0.0047	0.0022	0.0040	0.0097	0.0030	0.0080
03:00 - 04:00	0.0089	0.0089	0.0062	0.0060	0.0030	0.0040	0.0048
04:00 - 05:00	0.0070	0.0055	0.0068	0.0086	0.0083	0.0026	0.0046
05:00 - 06:00	0.0034	0.0100	0.0055	0.0095	0.0054	0.0068	0.0091
06:00 - 07:00	0.0027	0.0069	0.0087	0.0059	0.0066	0.0059	0.0063
07:00 - 08:00	0.0089	0.0053	0.0086	0.0038	0.0049	0.0100	0.0040
08:00 - 09:00	0.0089	0.0047	0.0064	0.0051	0.0042	0.0087	0.0076
Average-24Hr*	0.0055	0.0055	0.0055	0.0056	0.0056	0.0059	0.0061
Max-1Hr	0.0098	0.0100	0.0098	0.0095	0.0097	0.0100	0.0098
Min-1Hr	0.0023	0.0020	0.0022	0.0024	0.0025	0.0026	0.0021
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr							

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-BST Site 1

Location : Boundary at SW of Plant (I-7) Monitor Period : 21-28 Apr 2025
Analyzer Model : API 200A Station No : SCT-15
Serial No : 2386 Site Operator : Mr. Siwanon Kulawong

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

Time	NO2 Concentration (ppm)						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	0.0062	0.0023	0.0030	0.0028	0.0034	0.0027	0.0011
11:00 - 12:00	0.0094	0.0063	0.0024	0.0025	0.0035	0.0021	0.0061
12:00 - 13:00	0.0019	0.0063	0.0042	0.0014	0.0072	0.0063	0.0056
13:00 - 14:00	0.0077	0.0071	0.0012	0.0012	0.0063	0.0022	0.0094
14:00 - 15:00	0.0064	0.0072	0.0023	0.0046	0.0069	0.0068	0.0101
15:00 - 16:00	0.0065	0.0066	0.0075	0.0015	0.0049	0.0077	0.0077
16:00 - 17:00	0.0058	0.0071	0.0052	0.0059	0.0065	0.0084	0.0050
17:00 - 18:00	0.0059	0.0073	0.0064	0.0079	0.0058	0.0050	0.0048
18:00 - 19:00	0.0078	0.0087	0.0072	0.0049	0.0084	0.0089	0.0026
19:00 - 20:00	0.0116	0.0083	0.0076	0.0079	0.0053	0.0023	0.0112
20:00 - 21:00	0.0092	0.0072	0.0067	0.0081	0.0033	0.0122	0.0150
21:00 - 22:00	0.0092	0.0055	0.0053	0.0024	0.0084	0.0109	0.0121
22:00 - 23:00	0.0068	0.0052	0.0031	0.0122	0.0056	0.0102	0.0087
23:00 - 00:00	0.0060	0.0025	0.0077	0.0102	0.0019	0.0054	0.0098
00:00 - 01:00	0.0022	0.0086	0.0122	0.0048	0.0107	0.0107	0.0103
01:00 - 02:00	0.0043	0.0020	0.0033	0.0011	0.0034	0.0017	0.0007
02:00 - 03:00	0.0098	0.0091	0.0053	0.0043	0.0086	0.0067	0.0069
03:00 - 04:00	0.0077	0.0072	0.0074	0.0045	0.0050	0.0073	0.0051
04:00 - 05:00	0.0076	0.0088	0.0072	0.0058	0.0088	0.0067	0.0062
05:00 - 06:00	0.0059	0.0099	0.0053	0.0086	0.0016	0.0045	0.0082
06:00 - 07:00	0.0081	0.0098	0.0070	0.0089	0.0067	0.0080	0.0081
07:00 - 08:00	0.0085	0.0083	0.0054	0.0053	0.0025	0.0071	0.0073
08:00 - 09:00	0.0066	0.0038	0.0067	0.0019	0.0017	0.0075	0.0057
09:00 - 10:00	0.0074	0.0062	0.0028	0.0031	0.0060	0.0005	0.0075
Average-24Hr*	0.0072	0.0067	0.0055	0.0050	0.0055	0.0063	0.0073
Max-1Hr	0.0116	0.0099	0.0122	0.0122	0.0107	0.0122	0.0150
Min-1Hr	0.0019	0.0020	0.0012	0.0011	0.0016	0.0005	0.0007
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



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 07-08 Jan 2025

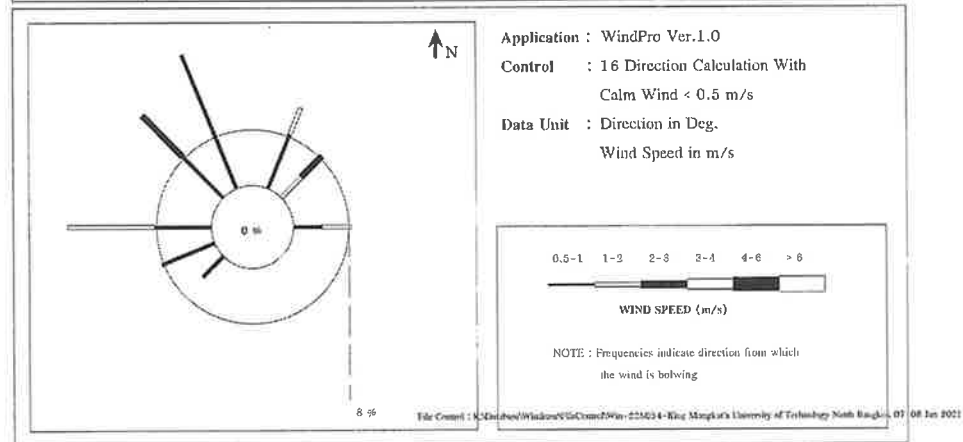
Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

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



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 07-08 Jan 2025

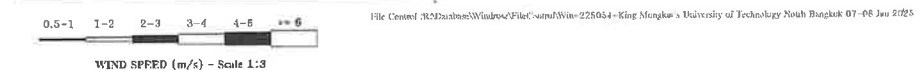
Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

Time	07-08 Jan 2025	
	WS(m/s)	WD
10:00 - 11:00	2.1	NE
11:00 - 12:00	1.4	W
12:00 - 13:00	1.9	E
13:00 - 14:00	0.8	W
14:00 - 15:00	1.2	W
15:00 - 16:00	0.5	WSW
16:00 - 17:00	0.5	WSW
17:00 - 18:00	0.8	NNW
18:00 - 19:00	0.6	NNW
19:00 - 20:00	1.0	W
20:00 - 21:00	0.6	SW
21:00 - 22:00	2.2	NW
22:00 - 23:00	0.7	NNW
23:00 - 24:00	0.7	NNW
00:00 - 01:00	0.7	NNE
01:00 - 02:00	0.6	NNE
02:00 - 03:00	2.4	NW
03:00 - 04:00	1.9	NNE
04:00 - 05:00	0.7	E
05:00 - 06:00	0.8	NW
06:00 - 07:00	0.5	NNW
07:00 - 08:00	0.7	NW
08:00 - 09:00	0.6	W
09:00 - 10:00	1.4	NE



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 07-08 Jan 2025

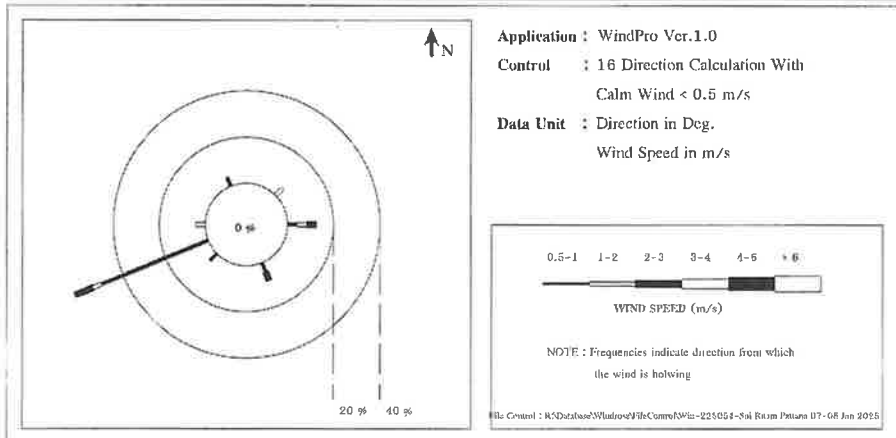
Wind Speed Model : Novalynx WS-25

Serial No : A4905

Wind Direction Model : Novalynx WS-25

Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0417	0.0417	0.0417	0.0000	0.0000	0.0000	0.1250
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0417	0.0000	0.0417	0.0000	0.0000	0.0000	0.0833
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.5000	0.0417	0.0833	0.0000	0.0000	0.0000	0.6250
W	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 07-08 Jan 2025

Wind Speed Model : Novalynx WS-25

Serial No : A4905

Wind Direction Model : Novalynx WS-25

Serial No : A4905

Time	07-08 Jan 2025	
	WS(m/s)	WD
10:00 - 11:00	1.8	NE
11:00 - 12:00	0.5	NNW
12:00 - 13:00	0.6	SSE
13:00 - 14:00	1.0	WSW
14:00 - 15:00	2.0	SSE
15:00 - 16:00	2.0	WSW
16:00 - 17:00	1.6	W
17:00 - 18:00	0.5	SW
18:00 - 19:00	0.6	WSW
19:00 - 20:00	0.7	WSW
20:00 - 21:00	0.5	WSW
21:00 - 22:00	0.6	WSW
22:00 - 23:00	0.7	WSW
23:00 - 24:00	0.6	WSW
00:00 - 01:00	0.5	WSW
01:00 - 02:00	0.6	WSW
02:00 - 03:00	0.7	WSW
03:00 - 04:00	0.5	WSW
04:00 - 05:00	0.6	WSW
05:00 - 06:00	0.6	WSW
06:00 - 07:00	2.3	WSW
07:00 - 08:00	2.4	E
08:00 - 09:00	1.8	E
09:00 - 10:00	0.6	E

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 07-08 Jan 2025

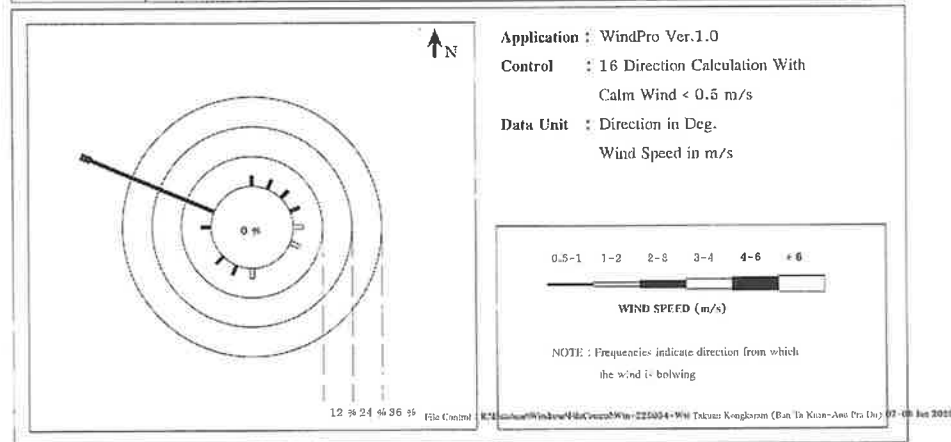
Wind Speed Model : Novalynx WS-25

Serial No : A5092

Wind Direction Model : Novalynx WS-25

Serial No : A5092

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.5417	0.0000	0.0000	0.0000	0.0000	0.0000	0.5833
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du)

Monitor period : 07-08 Jan 2025

Wind Speed Model : Novalynx WS-25

Serial No : A5092

Wind Direction Model : Novalynx WS-25

Serial No : A5092

Time	07-08 Jan 2025	
	WS(m/s)	WD
11:00 - 12:00	0.8	SSW
12:00 - 13:00	1.1	E
13:00 - 14:00	0.6	W
14:00 - 15:00	0.5	SW
15:00 - 16:00	1.1	S
16:00 - 17:00	2.4	WNW
17:00 - 18:00	0.7	N
18:00 - 19:00	0.7	WNW
19:00 - 20:00	0.7	WNW
20:00 - 21:00	0.7	WNW
21:00 - 22:00	0.7	WNW
22:00 - 23:00	0.5	WNW
23:00 - 24:00	0.6	WNW
00:00 - 01:00	0.6	WNW
01:00 - 02:00	0.6	WNW
02:00 - 03:00	0.6	WNW
03:00 - 04:00	0.6	WNW
04:00 - 05:00	0.5	WNW
05:00 - 06:00	0.7	WNW
06:00 - 07:00	0.7	WNW
07:00 - 08:00	0.5	NNE
08:00 - 09:00	0.8	NE
09:00 - 10:00	0.6	ENE
10:00 - 11:00	1.9	ESE

Wind Rose



File Control R:\Database\Windrose\FileControl\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 07-08 Jan 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0049/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 07-08/01/2025	ANALYTICAL DATE	: 10-11/01/2025
SAMPLING TIME	: 10:44-11:44	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 09/01/2025	FILE CODE	: 225054_TO-15_January
REPORT DATE	: 13/01/2025		

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		King Mongkut's University of Technology North Bangkok (KMUTNB (Rayong))		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	1.19	2.63	5.3

Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA Methods TO-15.1999

Sirwan Chimsa-ngu
(Miss Sirwan Chimsa-ngu)

Analyst

Mrs. Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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

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

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



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0049/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 07-08/01/2025	ANALYTICAL DATE	: 10-11/01/2025
SAMPLING TIME	: 10:58-11:58	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 09/01/2025	FILE CODE	: 225054_TO-15_January
REPORT DATE	: 13/01/2025		

Compound	Non Detection		SAMPLING LOCATION		STANDARD* ($\mu\text{g}/\text{m}^3$)
			Sol Ruum Pattana		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA Methods TO-15.1999

Sirwan Chimsa-ngu
(Miss Sirwan Chimsa-ngu)

Analyst

Mrs. Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0049/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subaerospheric Pressure Sampling
SAMPLING DATE	: 07-08-01/2025	ANALYTICAL DATE	: 10-11-01/2025
SAMPLING TIME	: 11:19-12:19	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 09/01/2025	FILE CODE	: 225054 TO-15 January
REPORT DATE	: 13/01/2025		

Compound	SAMPLING LOCATION				STANDARD* ($\mu\text{g}/\text{m}^3$)
	Non Detection		Wat Tukuan Kongkaram (Ban Ta Kuan-Aou Pra Du)		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.3
Methods for the Determination of Toxic Organic Compound in Ambient Air, 2 nd ed., EPA Methods TO-15, 1999					

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

Siriwan Chimsaeng
(Miss Siriwan Chimsaeng)

Analyst

Araya Tipparak

(Mrs. Araya Tipparak)

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

R:\Database\Windrose\16\Case\Win-255054-King Mongkut's University of Technology North Bangkok 04-05 Feb 2025



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 04-05 Feb 2025

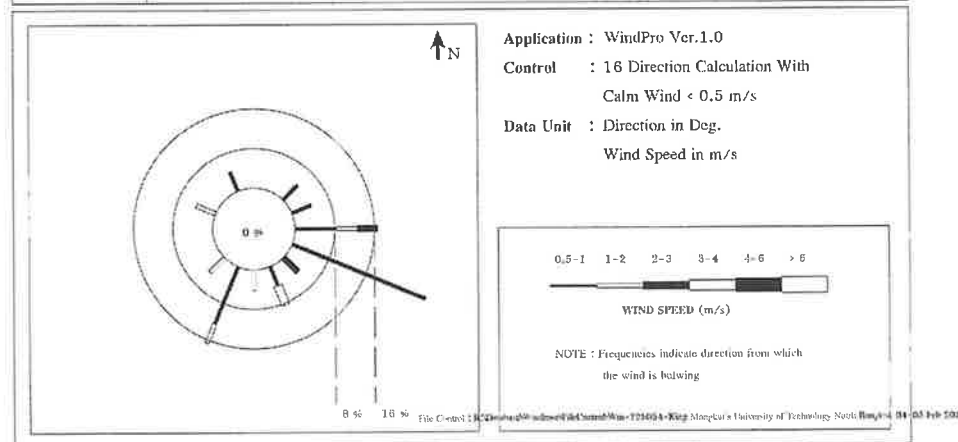
Wind Speed Model : Novalynx WS-25

Serial No : A5092

Wind Direction Model : Novalynx WS-25

Serial No : A5092

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.0833	0.0417	0.0417	0.0000	0.0000	0.0000	0.1667
ESE	0.2917	0.0000	0.0000	0.0000	0.0000	0.0000	0.2917
SE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
SSE	0.0417	0.0000	0.0000	0.0417	0.0000	0.0000	0.0833
S	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.1250	0.0417	0.0000	0.0000	0.0000	0.0000	0.1667
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Sonjai)
Technical Management Team



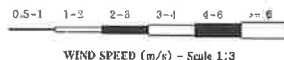
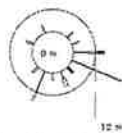
Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 04-05 Feb 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5092
 Wind Direction Model : Novalynx WS-25 Serial No : A5092

Time	04-05 Feb 2025	
	WS(m/s)	WD
12:00 - 13:00	3.1	SSE
13:00 - 14:00	0.6	ENE
14:00 - 15:00	0.9	SSW
15:00 - 16:00	1.6	SW
16:00 - 17:00	0.7	SSW
17:00 - 18:00	2.0	SE
18:00 - 19:00	1.2	SSW
19:00 - 20:00	0.8	E
20:00 - 21:00	0.5	E
21:00 - 22:00	1.9	E
22:00 - 23:00	0.6	NE
23:00 - 24:00	1.4	WNW
00:00 - 01:00	0.9	ESE
01:00 - 02:00	0.6	ESE
02:00 - 03:00	0.5	ESE
03:00 - 04:00	0.7	ESE
04:00 - 05:00	0.7	ESE
05:00 - 06:00	0.7	ESE
06:00 - 07:00	2.1	E
07:00 - 08:00	0.7	ESE
08:00 - 09:00	0.5	SSE
09:00 - 10:00	0.9	NNW
10:00 - 11:00	1.4	S
11:00 - 12:00	0.5	SSW

Wind Rose



File Control : R:\Database\Windrose\Win\225054-King Mongkut's University of Technology North Bangkok 04-05 Feb 2025

(Signature)

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Signature)

(Miss Preeda Sonjai)
Technical Management Team

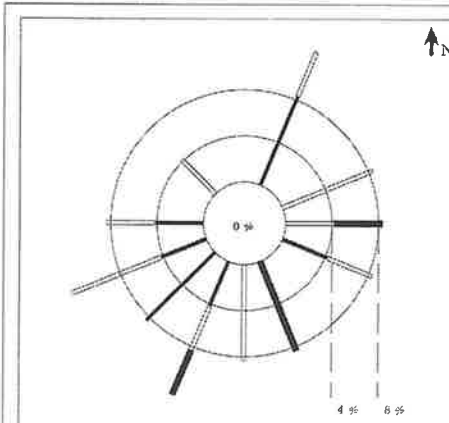


Meteorological Monitoring Results : Wind Rose

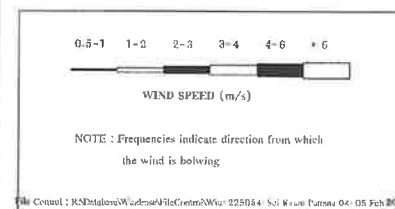
MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 04-05 Feb 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5088
 Wind Direction Model : Novalynx WS-25 Serial No : A5088

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



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



File Control : R:\Database\Windrose\Win\225054-Soi Ruam Pattana 04-05 Feb 2025

(Signature)

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Signature)

(Miss Preeda Sonjai)
Technical Management Team

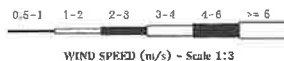
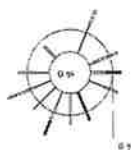


Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 04-05 Feb 2025
Wind Speed Model : Novalynx WS-25 Serial No : A5088
Wind Direction Model : Novalynx WS-25 Serial No : A5088

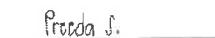
Time	04-05 Feb 2025	
	WS(m/s)	WD
12:00 - 13:00	1.2	WSW
13:00 - 14:00	1.4	NNE
14:00 - 15:00	1.9	WSW
15:00 - 16:00	1.0	S
16:00 - 17:00	0.7	SW
17:00 - 18:00	1.2	SSW
18:00 - 19:00	0.9	SW
19:00 - 20:00	2.4	SSE
20:00 - 21:00	0.7	ESE
21:00 - 22:00	1.4	ENE
22:00 - 23:00	2.2	E
23:00 - 24:00	0.5	SSW
00:00 - 01:00	1.2	ENE
01:00 - 02:00	0.6	NNE
02:00 - 03:00	2.5	SSW
03:00 - 04:00	0.5	WSW
04:00 - 05:00	2.1	SSE
05:00 - 06:00	1.3	E
06:00 - 07:00	1.0	ESE
07:00 - 08:00	0.8	NNE
08:00 - 09:00	1.6	S
09:00 - 10:00	1.6	NW
10:00 - 11:00	1.0	W
11:00 - 12:00	0.5	W

Wind Rose



File Content : R:\Database\Windmet\FileCenter\Win-225054-Soi Ruam Pattana 04-05 Feb 2025


(Miss Katesarin Vorradetwittaya)
Environmental Scientist

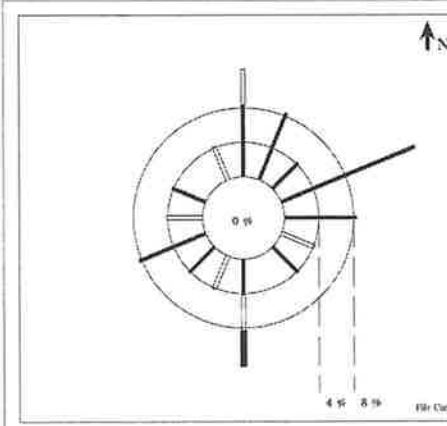

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 04-05 Feb 2025
Wind Speed Model : Campbell CR510 Serial No : 1632
Wind Direction Model : Campbell CR510 Serial No : 1632

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




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



NOTE : Frequencies indicate direction from which the wind is blowing

File Content : R:\Database\Windmet\FileCenter\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 04-05 Feb 2025

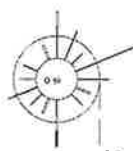

(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team

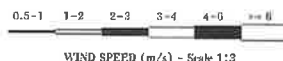
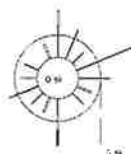


Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du)		Monitor period : 04-05 Feb 2025	
Wind Speed Model : Campbell CR510		Serial No : 1682	
Wind Direction Model : Campbell CR510		Serial No : 1632	
Time	04-05 Feb 2025		
	WS(m/s)	WD	
11:00 - 12:00	1.6	NNW	
12:00 - 13:00	2.3	S	
13:00 - 14:00	0.6	SE	
14:00 - 15:00	1.8	SSW	
15:00 - 16:00	0.7	SW	
16:00 - 17:00	0.6	WSW	
17:00 - 18:00	0.6	WSW	
18:00 - 19:00	0.5	S	
19:00 - 20:00	0.6	N	
20:00 - 21:00	0.7	ENE	
21:00 - 22:00	0.6	NNE	
22:00 - 23:00	0.7	ENE	
23:00 - 24:00	0.7	NE	
00:00 - 01:00	0.7	ENE	
01:00 - 02:00	0.7	N	
02:00 - 03:00	1.0	S	
03:00 - 04:00	0.6	E	
04:00 - 05:00	1.1	N	
05:00 - 06:00	0.5	ENE	
06:00 - 07:00	0.5	NNE	
07:00 - 08:00	0.7	E	
08:00 - 09:00	1.6	ESE	
09:00 - 10:00	0.9	WNW	
10:00 - 11:00	1.3	W	
Wind Rose			

Wind Rose



File Control : 2250514-War Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 04-05 Feb 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0196-58
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 04-05-02-2025	ANALYTICAL DATE	: 07-02-2025
SAMPLING TIME	: 12:28-11:28	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 06-02-2025	FILE CODE	: 225054 TU-15 February
REPORT DATE	: 11-02-2025		

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		King Mongkut's University of Technology North Bangkok (KMUTNB (Rayong))		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	1.87	4.14	5.3

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

Silwan Chinsanga
(Miss Silwan Chinsanga)
Analyst

(Mrs. Araya Tippaak)
Technical Management Team

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



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SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0196-68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 04-05/02/2025 ANALYTICAL DATE : 07-02/2025
SAMPLING TIME : 12:15-11:15 SAMPLE CONDITION : Normal
RECEIVED DATE : 06-02/2025 FILE CODE : 225054_TO-15_February
REPORT DATE : 11-02/2025

Compound	Non Detection		SAMPLING LOCATION		STANDARD* (µg/m ³)
			Soi Ruam Pattana		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	1.68	3.72	5.3

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15, 1999

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tippavuk)

(Mrs. Araya Tippavuk)

Technical Management Team

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0196-68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 04-05/02/2025 ANALYTICAL DATE : 07-02/2025
SAMPLING TIME : 11:41-10:45 SAMPLE CONDITION : Normal
RECEIVED DATE : 06-02/2025 FILE CODE : 225054 TO-15_February
REPORT DATE : 11-02/2025

Compound	Non Detection		SAMPLING LOCATION		STANDARD*
			Wat Takuu Klongkarum (Ban Ta Kuan-Aou Pra Du)		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd : EPA Methods TO-15, 1999

Siriwan Chimsa-nga

(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tippavuk)

(Mrs. Araya Tippavuk)

Technical Management Team

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

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

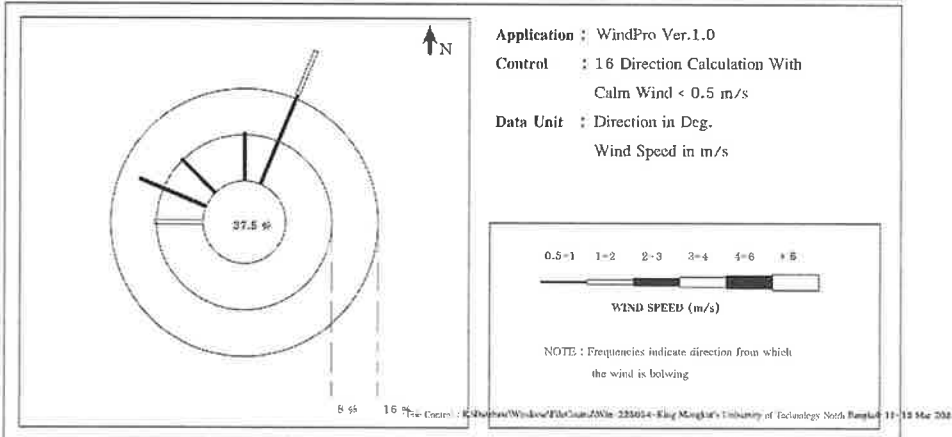
3. * Notification of the Pollution Control Department, dated December 18, B.E. 2551 (2008), which was published in the Royal Government Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10851
Wind Direction Model : Campbell CR510 Serial No : 10851

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	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
NNE	0.1667	0.0833	0.0000	0.0000	0.0000	0.0000	0.2500
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
WNW	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
NW	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.3750						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

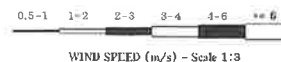


Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10851
Wind Direction Model : Campbell CR510 Serial No : 10851

Time	11-12 Mar 2025	
	WS(m/s)	WD
08:00 - 09:00	1.6	NNE
09:00 - 10:00	0.7	N
10:00 - 11:00	0.4	NW
11:00 - 12:00	0.9	NW
12:00 - 13:00	1.1	W
13:00 - 14:00	1.4	W
14:00 - 15:00	0.4	NNW
15:00 - 16:00	0.2	NNW
16:00 - 17:00	0.6	N
17:00 - 18:00	1.6	NNE
18:00 - 19:00	0.7	NNE
19:00 - 20:00	0.6	NNE
20:00 - 21:00	0.5	NNE
21:00 - 22:00	0.5	NNE
22:00 - 23:00	0.1	NNE
23:00 - 24:00	0.2	WNW
00:00 - 01:00	0.7	WNW
01:00 - 02:00	0.5	WNW
02:00 - 03:00	0.3	WNW
03:00 - 04:00	0.2	NW
04:00 - 05:00	0.8	NW
05:00 - 06:00	0.3	NW
06:00 - 07:00	0.2	NW
07:00 - 08:00	0.9	WNW

Wind Rose



File Central: R:\Database\Windrose\Fit-Central\Win-225054-King Mongkut's University of Technology North Bangkok 11-12 Mar 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

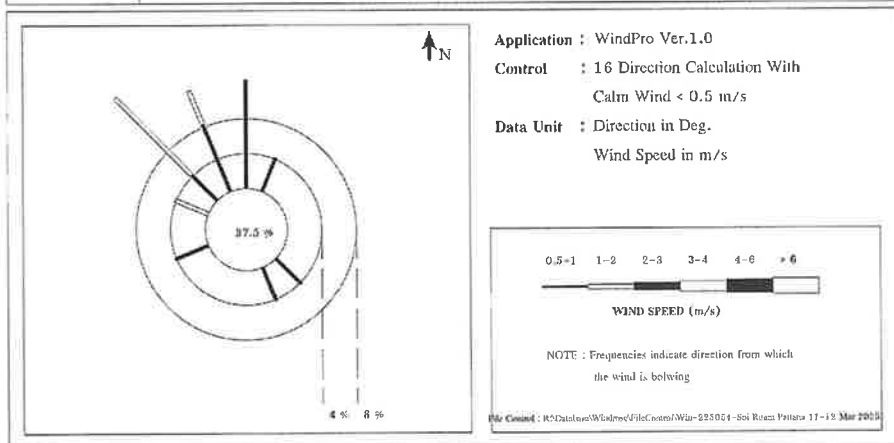
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10693
Wind Direction Model : Campbell CR510 Serial No : 10693

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	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250
NNE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NW	0.0417	0.1250	0.0000	0.0000	0.0000	0.0000	0.1667
NNW	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
CALM	0.3750						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10693
Wind Direction Model : Campbell CR510 Serial No : 10693

Time	11-12 Mar 2025	
	WS(m/s)	WD
08:00 - 09:00	1.7	WNW
09:00 - 10:00	0.4	NW
10:00 - 11:00	0.6	NW
11:00 - 12:00	1.4	NW
12:00 - 13:00	1.2	NW
13:00 - 14:00	1.5	NNW
14:00 - 15:00	0.8	N
15:00 - 16:00	0.6	N
16:00 - 17:00	0.5	NNE
17:00 - 18:00	0.3	N
18:00 - 19:00	0.1	S
19:00 - 20:00	0.1	S
20:00 - 21:00	0.2	WSW
21:00 - 22:00	0.8	WSW
22:00 - 23:00	0.5	N
23:00 - 24:00	0.4	NNW
00:00 - 01:00	1.3	NW
01:00 - 02:00	0.6	NNW
02:00 - 03:00	0.5	NNW
03:00 - 04:00	0.7	SE
04:00 - 05:00	0.9	SSE
05:00 - 06:00	0.3	SSE
06:00 - 07:00	0.2	SSE
07:00 - 08:00	0.1	NW

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

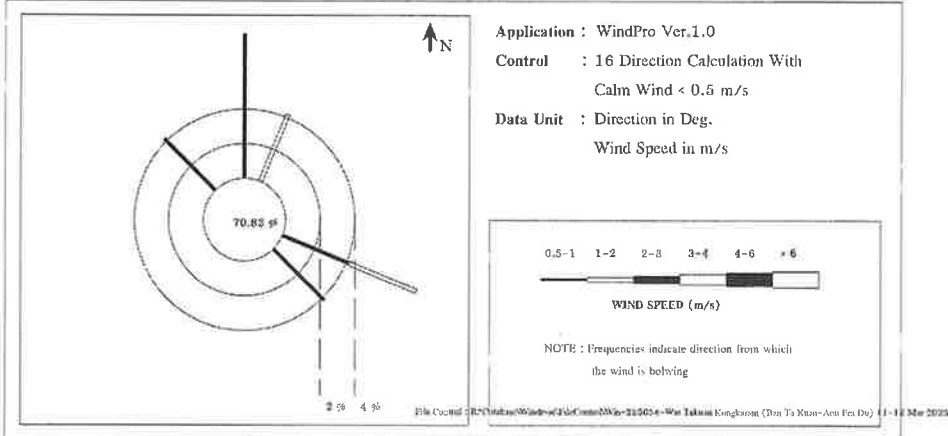
Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Wat Takuan Kongkaran (Ban Ta Kuan-Aou Pra Du) Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10853
Wind Direction Model : Campbell CR510 Serial No : 10853

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	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
NNE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
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	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
SE	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WSW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
W	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.7083						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Wat Takuan Kongkaran (Ban Ta Kuan-Aou Pra Du) Monitor period : 11-12 Mar 2025
Wind Speed Model : Campbell CR510 Serial No : 10853
Wind Direction Model : Campbell CR510 Serial No : 10853

Time	11-12 Mar 2025	
	WS(m/s)	WD
09:00 - 10:00	0.1	NE
10:00 - 11:00	0.1	NE
11:00 - 12:00	0.3	N
12:00 - 13:00	0.6	N
13:00 - 14:00	1.2	NNE
14:00 - 15:00	0.3	SW
15:00 - 16:00	0.4	W
16:00 - 17:00	0.7	N
17:00 - 18:00	0.1	ENE
18:00 - 19:00	0.2	ENE
19:00 - 20:00	0.2	E
20:00 - 21:00	0.3	ESE
21:00 - 22:00	0.5	ESE
22:00 - 23:00	1.2	ESE
23:00 - 24:00	0.4	SE
00:00 - 01:00	0.3	SSW
01:00 - 02:00	0.1	SSW
02:00 - 03:00	0.1	S
03:00 - 04:00	0.2	SE
04:00 - 05:00	0.4	SE
05:00 - 06:00	0.5	SE
06:00 - 07:00	0.3	SE
07:00 - 08:00	0.3	NNW
08:00 - 09:00	0.8	NW

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0470/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 11-12/03/2025	ANALYTICAL DATE	: 15-16/03/2025
SAMPLING TIME	: 08:57-08:35	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 13/03/2025	FILE CODE	: 225054 TO-15 March
REPORT DATE	: 17/03/2025		

Compound	SAMPLING LOCATION				STANDARD* ($\mu\text{g}/\text{m}^3$)
	Non Detection		King Mongkut's University of Technology North Bangkok (KMUTNB (Ryong))		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd EPA Methods TO-15.1999

Sirivan Chimsa-nga
(Miss Sirivan Chimsa-nga)

Analyst

Araya Tipparuk
(Mrs. Araya Tipparuk)

Technical Management Team

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

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

3. * Notification of the Pollution Control Department, dated December 18,B.E.2551(2008), which was published in the Royal Government

Gazette Vol. 126, Special Part 13D dated January 27, B.E. 2552 (2009).



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SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0470/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 11-12/03/2025	ANALYTICAL DATE	: 15-16/03/2025
SAMPLING TIME	: 08:50-08:42	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 13/03/2025	FILE CODE	: 225054 TO-15 March
REPORT DATE	: 17/03/2025		

Compound	Non Detection		SAMPLING LOCATION		STANDARD ^a ($\mu\text{g}/\text{m}^3$)
			Sol Ruum Pattana		
	ppbv	$\mu\text{g}/\text{m}^3$ ⁴	ppbv	$\mu\text{g}/\text{m}^3$ ³	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Methods for the Determination of Toxic Organic Compound in Ambient Air, 2nd EPA Methods TO-15.1999

Sirivan Chimsa-nga
(Miss Sirivan Chimsa-nga)

Analyst

Araya Tipparuk
(Mrs. Araya Tipparuk)

Technical Management Team

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0470-68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 11-12-03-2025 ANALYTICAL DATE : 15-16-03-2025
SAMPLING TIME : 09:26-09:05 SAMPLE CONDITION : Normal
RECEIVED DATE : 13-03-2025 FILE CODE : 225054 TO-15 March
REPORT DATE : 17-03-2025

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		Wat Takuan Kongkarn (Ban Ta Kuan-Anu Pra Du)		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	ND	ND	5.3

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

Siriwan Chimsa-ngu
(Miss Siriwan Chimsa-ngu)

Analyst

(Mrs. Araya Tipparuk)
(Mrs. Araya Tipparuk)

Technical Management Team

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

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

K:\Database\Windrose\SiteControl\Win-225054-King Mongkut's University of Technology North Bangkok, 22-23 Apr 2025



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 22-23 Apr 2025

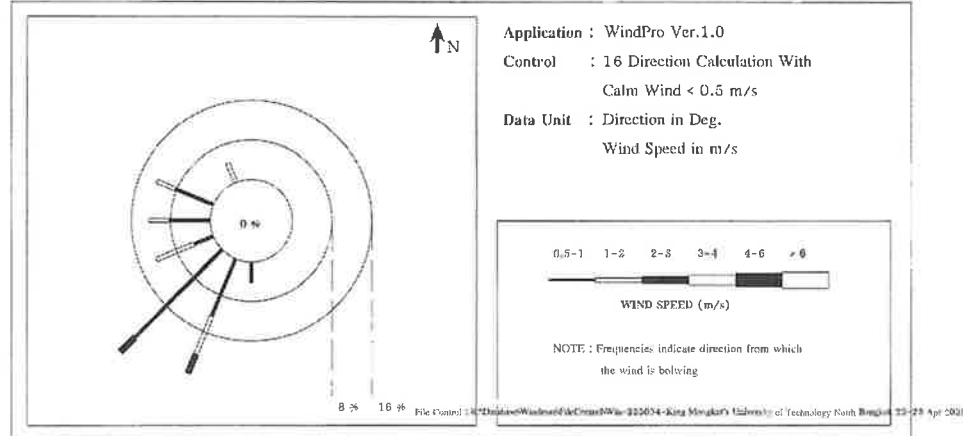
Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
SSW	0.1250	0.0833	0.0417	0.0000	0.0000	0.0000	0.2500
SW	0.2500	0.0000	0.0417	0.0000	0.0000	0.0000	0.2917
WSW	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
W	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
WNW	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
CALM	0.0000						



(Miss Katesarin Vorradeewitlaya)
(Miss Katesarin Vorradeewitlaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 22-23 Apr 2025

Wind Speed Model : Novalynx WS-25

Serial No : A5088

Wind Direction Model : Novalynx WS-25

Serial No : A5088

Time	22-23 Apr 2025	
	WS(m/s)	WD
10:00 - 11:00	0.8	WSW
11:00 - 12:00	0.8	W
12:00 - 13:00	1.0	W
13:00 - 14:00	0.8	SW
14:00 - 15:00	0.9	SSW
15:00 - 16:00	0.9	S
16:00 - 17:00	1.0	WSW
17:00 - 18:00	0.7	SW
18:00 - 19:00	0.7	SW
19:00 - 20:00	0.9	SW
20:00 - 21:00	0.8	SSW
21:00 - 22:00	0.9	SW
22:00 - 23:00	0.7	SSW
23:00 - 24:00	1.0	WSW
00:00 - 01:00	1.0	SSW
01:00 - 02:00	1.0	SSW
02:00 - 03:00	1.9	WNW
03:00 - 04:00	2.3	SW
04:00 - 05:00	1.5	NNW
05:00 - 06:00	0.7	WNW
06:00 - 07:00	0.6	WNW
07:00 - 08:00	2.5	SSW
08:00 - 09:00	0.5	SW
09:00 - 10:00	0.7	W

Wind Rose



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

File Created: R:\Database\Windrose\Win-225054-King Mongkut's University of Technology North Bangkok 22-23 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 22-23 Apr 2025

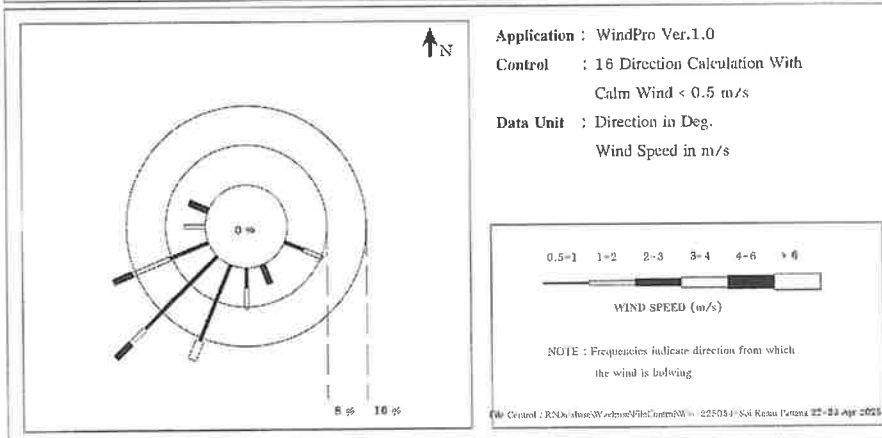
Wind Speed Model : Novalynx NL-32

Serial No : 1203

Wind Direction Model : Novalynx NL-32

Serial No : 1203

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						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	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
S	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
SSW	0.1667	0.0000	0.0000	0.0417	0.0000	0.0000	0.2083
SW	0.2083	0.0417	0.0417	0.0000	0.0000	0.0000	0.2917
WSW	0.0833	0.0833	0.0417	0.0000	0.0000	0.0000	0.2083
W	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



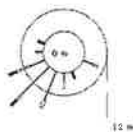
Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana Monitor period : 22-23 Apr 2025
 Wind Speed Model : Novalynx NL-32 Serial No : 1203
 Wind Direction Model : Novalynx NL-32 Serial No : 1203

Time	22-23 Apr 2025	
	WS(m/s)	WD
10:00 - 11:00	2.5	SW
11:00 - 12:00	1.0	S
12:00 - 13:00	1.9	ESE
13:00 - 14:00	3.0	SSW
14:00 - 15:00	0.7	SW
15:00 - 16:00	0.9	S
16:00 - 17:00	0.8	SW
17:00 - 18:00	0.9	SSW
18:00 - 19:00	0.8	SW
19:00 - 20:00	0.9	SSW
20:00 - 21:00	2.7	SSE
21:00 - 22:00	0.7	ESE
22:00 - 23:00	1.6	WSW
23:00 - 24:00	0.9	WSW
00:00 - 01:00	1.0	SW
01:00 - 02:00	0.8	SSW
02:00 - 03:00	1.0	WSW
03:00 - 04:00	0.7	SSW
04:00 - 05:00	0.7	SW
05:00 - 06:00	0.7	SW
06:00 - 07:00	2.9	WNW
07:00 - 08:00	2.9	WSW
08:00 - 09:00	0.9	WSW
09:00 - 10:00	1.7	W

Wind Rose



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

File Created: R:\Data\ase\Windrose\Site\Contest\Win-225014-Soi Ruam Pattana 22-23 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

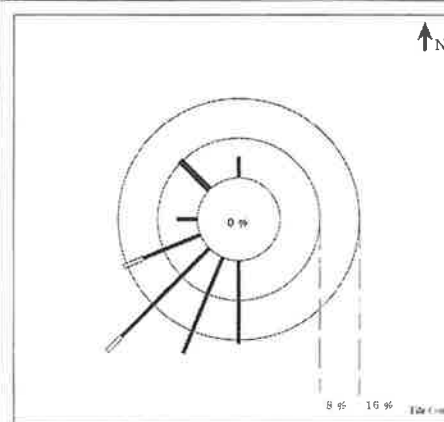


Meteorological Monitoring Results : Wind Rose

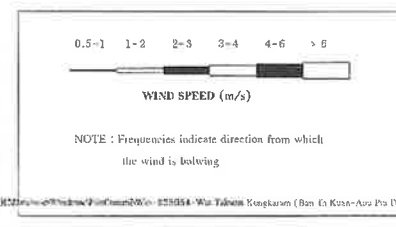
MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 22-23 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						Total
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	
N	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
NNE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ENE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.1667	0.0000	0.0000	0.0000	0.0000	0.0000	0.1667
SSW	0.2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.2083
SW	0.2500	0.0417	0.0000	0.0000	0.0000	0.0000	0.2917
WSW	0.1250	0.0417	0.0000	0.0000	0.0000	0.0000	0.1667
W	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0833	0.0000	0.0000	0.0000	0.0833
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



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



NOTE : Frequencies indicate direction from which the wind is blowing

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



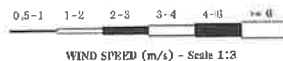
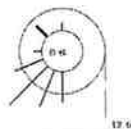
Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 22-23 Apr 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A4907
 Wind Direction Model : Novalynx WS-25 Serial No : A4907


Time	22-23 Apr 2025	
	WS(m/s)	WD
10:00 - 11:00	0.7	WSW
11:00 - 12:00	0.5	WSW
12:00 - 13:00	0.6	SW
13:00 - 14:00	0.7	SSW
14:00 - 15:00	0.6	SSW
15:00 - 16:00	0.6	S
16:00 - 17:00	0.6	SSW
17:00 - 18:00	0.6	S
18:00 - 19:00	0.6	SSW
19:00 - 20:00	0.7	SW
20:00 - 21:00	0.7	S
21:00 - 22:00	0.6	WSW
22:00 - 23:00	0.7	SW
23:00 - 24:00	0.5	SW
00:00 - 01:00	0.7	SW
01:00 - 02:00	0.7	SW
02:00 - 03:00	2.2	NW
03:00 - 04:00	1.8	WSW
04:00 - 05:00	2.0	NW
05:00 - 06:00	0.7	W
06:00 - 07:00	0.6	N
07:00 - 08:00	1.8	SW
08:00 - 09:00	0.5	SSW
09:00 - 10:00	0.5	S

Wind Rose



File Control: K:\Database\Windrose\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 22-23 Apr 2025


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Preeda Somjai)
 Technical Management Team



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

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 239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

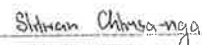
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th


AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0719.68
 SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
 SAMPLING DATE : 22-23/04/2025 ANALYTICAL DATE : 03-05/2025
 SAMPLING TIME : 13:16-13:18 SAMPLE CONDITION : Normal
 RECEIVED DATE : 24/04/2025 FILE CODE : 225054 TO-15 April
 REPORT DATE : 05/05/2025

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		King Mongkut's University of Technology North Bangkok (KMUTNB (Rayong))		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Method for the Determination of Toxic Organic Compounds in Ambient Air, EPA Method TO-15, 1999


 (Miss Sirin Chinnagat)
 Analyst


 (Mrs. Amya Tipparak)
 Technical Management Team

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

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

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



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0719/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subambient Pressure Sampling
SAMPLING DATE	: 22-23/04/2025	ANALYTICAL DATE	: 03-05/2025
SAMPLING TIME	: 13:26-13:25	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 24/04/2025	FILE CODE	: 225054 TO-15 April
REPORT DATE	: 05/05/2025		

Compound	Non Detection		SAMPLING LOCATION		STANDARD* ($\mu\text{g}/\text{m}^3$)
			Sri Ruen Pattana		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Method for the Determination of Toxic Organic Compound in Ambient Air, 2nd EPA Method TO-15, 1999

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparak)

(Mrs. Araya Tipparak)
Technical Management Team

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0719/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subambient Pressure Sampling
SAMPLING DATE	: 22-23/04/2025	ANALYTICAL DATE	: 03-05/2025
SAMPLING TIME	: 13:39-13:45	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 24/04/2025	FILE CODE	: 225054 TO-15 April
REPORT DATE	: 05/05/2025		

Compound	Non Detection		SAMPLING LOCATION		STANDARD* ($\mu\text{g}/\text{m}^3$)
			Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du)		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.3

Method for the Determination of Toxic Organic Compound in Ambient Air, 2nd EPA Method TO-15, 1999

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tipparak)

(Mrs. Araya Tipparak)
Technical Management Team

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Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 20-21 May 2025

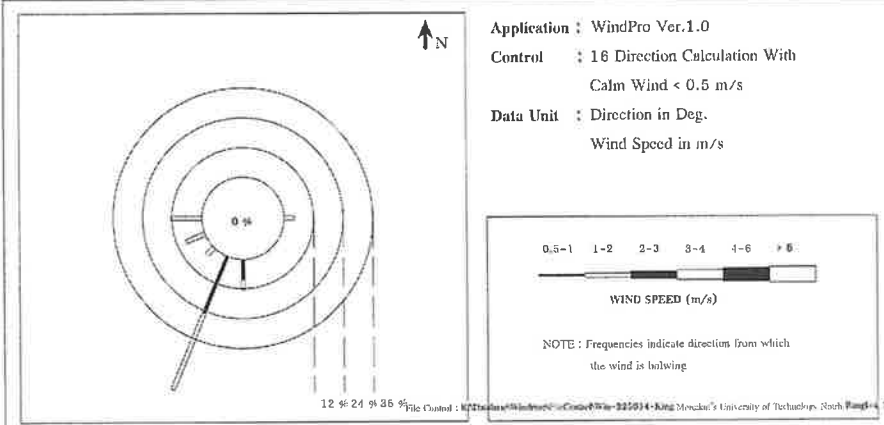
Wind Speed Model : Novalynx NL-32

Serial No : 1201

Wind Direction Model : Novalynx NL-32

Serial No : 1201

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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0833	0.0417	0.0000	0.0000	0.0000	0.0000	0.1250
SSW	0.2500	0.3333	0.0000	0.0000	0.0000	0.0000	0.5833
SW	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
WSW	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
W	0.0000	0.1250	0.0000	0.0000	0.0000	0.0000	0.1250
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 20-21 May 2025

Wind Speed Model : Novalynx NL-32

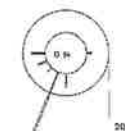
Serial No : 1201

Wind Direction Model : Novalynx NL-32

Serial No : 1201

Time	20-21 May 2025	
	WS(m/s)	WD
13:00 - 14:00	1.1	SSW
14:00 - 15:00	1.7	SSW
15:00 - 16:00	1.3	SSW
16:00 - 17:00	1.4	SSW
17:00 - 18:00	0.8	SSW
18:00 - 19:00	0.7	SSW
19:00 - 20:00	0.6	SSW
20:00 - 21:00	0.7	SSW
21:00 - 22:00	1.1	S
22:00 - 23:00	0.6	S
23:00 - 24:00	0.7	S
00:00 - 01:00	1.4	SSW
01:00 - 02:00	0.9	SSW
02:00 - 03:00	1.4	SSW
03:00 - 04:00	1.8	SSW
04:00 - 05:00	0.8	SSW
05:00 - 06:00	1.6	SSW
06:00 - 07:00	1.7	SW
07:00 - 08:00	1.3	WSW
08:00 - 09:00	1.7	E
09:00 - 10:00	1.3	W
10:00 - 11:00	1.6	W
11:00 - 12:00	1.0	W
12:00 - 13:00	1.1	WSW

Wind Rose



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 20-21 May 2025

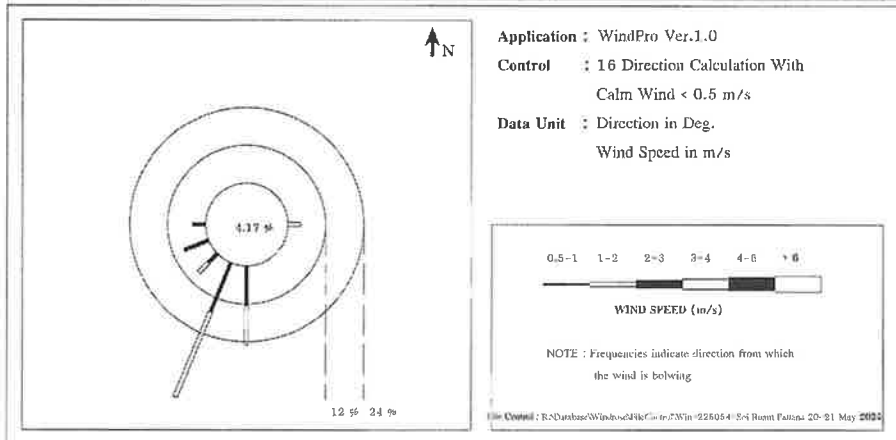
Wind Speed Model : Novalynx WS-25

Serial No : A5091

Wind Direction Model : Novalynx WS-25

Serial No : A5091

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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.1250	0.1250	0.0000	0.0000	0.0000	0.0000	0.2500
SSW	0.1667	0.2917	0.0000	0.0000	0.0000	0.0000	0.4583
SW	0.0417	0.0417	0.0000	0.0000	0.0000	0.0000	0.0833
WSW	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
W	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0417						



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 20-21 May 2025

Wind Speed Model : Novalynx WS-25

Serial No : A5091

Wind Direction Model : Novalynx WS-25

Serial No : A5091

Time	20-21 May 2025	
	WS(m/s)	WD
13:00 - 14:00	0.7	SSW
14:00 - 15:00	1.0	SSW
15:00 - 16:00	0.7	SSW
16:00 - 17:00	0.7	SSW
17:00 - 18:00	0.6	SSW
18:00 - 19:00	1.1	SSW
19:00 - 20:00	1.1	SSW
20:00 - 21:00	0.9	S
21:00 - 22:00	1.7	S
22:00 - 23:00	1.4	S
23:00 - 24:00	0.9	S
00:00 - 01:00	1.3	S
01:00 - 02:00	1.7	SSW
02:00 - 03:00	0.8	S
03:00 - 04:00	1.5	SSW
04:00 - 05:00	1.4	SSW
05:00 - 06:00	1.2	SSW
06:00 - 07:00	1.3	SW
07:00 - 08:00	0.4	WSW
08:00 - 09:00	1.1	E
09:00 - 10:00	0.7	W
10:00 - 11:00	0.5	WSW
11:00 - 12:00	0.5	WSW
12:00 - 13:00	0.7	SW



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

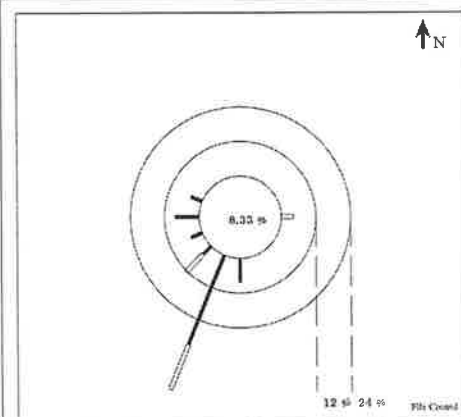
MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 20-21 May 2025

Wind Speed Model : Novalynx WS-25 Serial No : A4907

Wind Direction Model : Novalynx WS-25 Serial No : A4907

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
S	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
SSW	0.3333	0.1667	0.0000	0.0000	0.0000	0.0000	0.5000
SW	0.0417	0.0833	0.0000	0.0000	0.0000	0.0000	0.1250
WSW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
W	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833
WNW	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
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	0.0833						



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



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\Folder\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 20-21 May 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

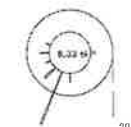
Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 20-21 May 2025

Wind Speed Model : Novalynx WS-25 Serial No : A4907

Wind Direction Model : Novalynx WS-25 Serial No : A4907

Time	20-21 May 2025	
	WS(m/s)	WD
12:00 - 13:00	0.7	SSW
13:00 - 14:00	1.0	SW
14:00 - 15:00	0.7	SW
15:00 - 16:00	0.7	SSW
16:00 - 17:00	0.6	SSW
17:00 - 18:00	1.1	SSW
18:00 - 19:00	1.1	SSW
19:00 - 20:00	0.9	SSW
20:00 - 21:00	0.7	S
21:00 - 22:00	0.4	S
22:00 - 23:00	0.9	S
23:00 - 24:00	1.3	SSW
00:00 - 01:00	1.7	SSW
01:00 - 02:00	0.8	SSW
02:00 - 03:00	0.6	SSW
03:00 - 04:00	0.7	SSW
04:00 - 05:00	0.7	SSW
05:00 - 06:00	1.3	SW
06:00 - 07:00	0.4	WSW
07:00 - 08:00	1.1	E
08:00 - 09:00	0.7	WNW
09:00 - 10:00	0.5	W
10:00 - 11:00	0.5	W
11:00 - 12:00	0.7	WSW

Wind Rose



File Control : R:\Database\Windrose\Folder\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) 20-21 May 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0931-68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 20-21-05/2025	ANALYTICAL DATE	: 24-26/05/2025
SAMPLING TIME	: 13:25-13:12	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 22/05/2025	FILE CODE	: 225054 TO-15 May
REPORT DATE	: 26/05/2025		

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		Klong Mongkut's University of Technology North Bangkok (KMUTNB (Ranyong))		
	ppbv ^a	µg/m ³ ^b	ppbv	µg/m ³ ^b	
1,3-butadiene	0.003	0.007	ND	ND	5.3
Methods for the Determination of Toxic Organic Compound in Ambient Air, 2 nd EPA Method, TO-15, 1999					

Sirwan Chimsanga
(Miss Sirwan Chimsanga)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 0931-68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 20-21-05/2025	ANALYTICAL DATE	: 24-26/05/2025
SAMPLING TIME	: 13:14-12:49	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 22/05/2025	FILE CODE	: 225054 TO-15 May
REPORT DATE	: 26/05/2025		

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		Sol Ruum Pattana		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	ND	ND	5.3
Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2nd ed., EPA Methods TO-15.1999					

Sirwan Chimsanga
(Miss Sirwan Chimsanga)

Analyst

(Mrs. Araya Tipparuk)

Technical Management Team

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

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

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



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SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0931-68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 20-21-05-2025 ANALYTICAL DATE : 24-26-05-2025
SAMPLING TIME : 12:53-12:35 SAMPLE CONDITION : Normal
RECEIVED DATE : 22-05-2025 FILE CODE : 225054_TO-15_May
REPORT DATE : 26-05-2025

Compound	SAMPLING LOCATION				STANDARD* ($\mu\text{g}/\text{m}^3$)
	Non Detection		Wat Tufnan Kongkaram (Ban Ta Kuan-Aon Pra Du)		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	ND	ND	5.5

Method for the Determination of Toxic Organic Compounds in Ambient Air, EPA Method 821-15.1999

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

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Meteorological Monitoring Results : Wind Rose
MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 17-18 Jun 2025

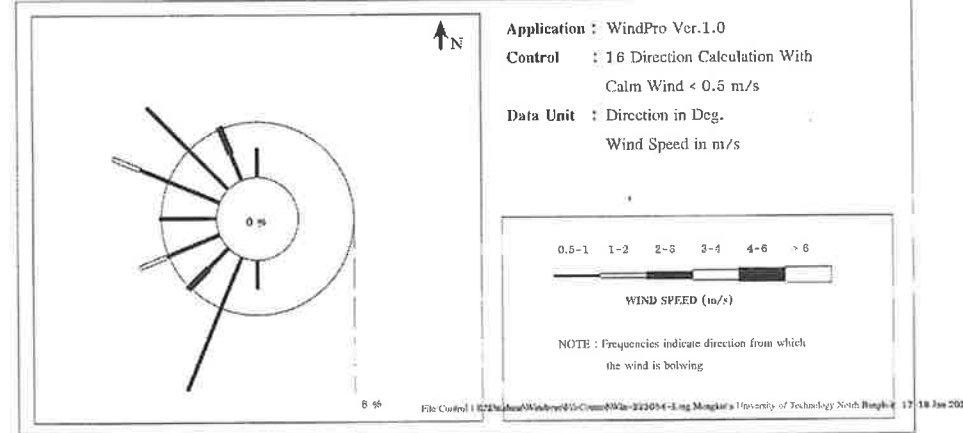
Wind Speed Model : Novalynx WS-25

Serial No : A4905

Wind Direction Model : Novalynx WS-25

Serial No : A4905

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



Katesarin Vorradetwittaya
(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda Somjai
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : King Mongkut's University of Technology North Bangkok Monitor period : 17-18 Jun 2025

Wind Speed Model : Novalynx WS-25

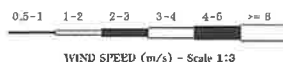
Serial No : A4905

Wind Direction Model : Novalynx WS-25

Serial No : A4905

Time	17-18 Jun 2025	
	WS(m/s)	WD
14:00 - 15:00	0.5	SW
15:00 - 16:00	0.5	WSW
16:00 - 17:00	1.9	WNW
17:00 - 18:00	2.5	SW
18:00 - 19:00	0.6	SSW
19:00 - 20:00	0.7	SSW
20:00 - 21:00	0.6	SSW
21:00 - 22:00	0.6	SSW
22:00 - 23:00	0.6	WSW
23:00 - 24:00	0.5	W
00:00 - 01:00	0.5	S
01:00 - 02:00	0.6	SSW
02:00 - 03:00	2.2	NNW
03:00 - 04:00	0.7	W
04:00 - 05:00	0.7	NW
05:00 - 06:00	0.6	WNW
06:00 - 07:00	0.6	WNW
07:00 - 08:00	0.6	NW
08:00 - 09:00	0.6	WNW
09:00 - 10:00	0.5	NW
10:00 - 11:00	0.6	N
11:00 - 12:00	0.6	NNW
12:00 - 13:00	0.7	NW
13:00 - 14:00	1.5	WSW

Wind Rose



File Control : R:\Database\Windrose\FireControl\Win-225054-King Mongkut's University of Technology North Bangkok. 17-18 Jun 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Soi Ruam Pattana

Monitor period : 17-18 Jun 2025

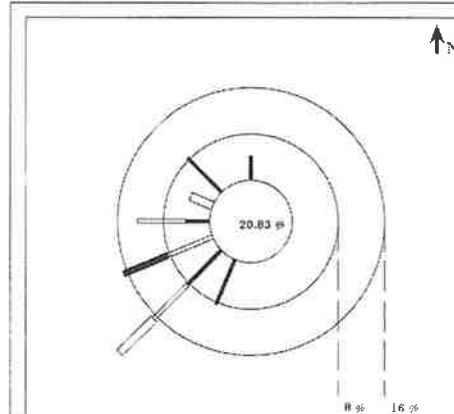
Wind Speed Model : Novalynx WS-25

Serial No : A5084

Wind Direction Model : Novalynx WS-25

Serial No : A5084

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



Application : WindPro Ver.1.0

Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s

Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which
the wind is blowing

File Control : R:\Database\Windrose\FireControl\Win-225054-Soi Ruam Pattana 17-18 Jun 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

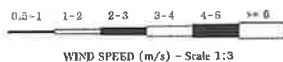
Location : Soi Ruam Pattana Monitor period : 17-18 Jun 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5084
 Wind Direction Model : Novalynx WS-25 Serial No : A5084

Time	17-18 Jun 2025	
	WS(m/s)	WD
14:00 - 15:00	3.4	SW
15:00 - 16:00	1.0	SW
16:00 - 17:00	2.6	WSW
17:00 - 18:00	1.9	SW
18:00 - 19:00	0.4	SW
19:00 - 20:00	0.8	SW
20:00 - 21:00	3.2	SW
21:00 - 22:00	0.7	SSW
22:00 - 23:00	1.4	WSW
23:00 - 24:00	0.9	SW
00:00 - 01:00	1.4	W
01:00 - 02:00	1.9	W
02:00 - 03:00	0.8	NW
03:00 - 04:00	0.0	N
04:00 - 05:00	0.1	N
05:00 - 06:00	0.0	N
06:00 - 07:00	0.0	N
07:00 - 08:00	0.5	W
08:00 - 09:00	3.2	WNW
09:00 - 10:00	0.9	NW
10:00 - 11:00	0.7	N
11:00 - 12:00	1.8	WSW
12:00 - 13:00	0.8	SSW
13:00 - 14:00	2.4	WSW

Wind Rose



12.9%



File Control : R:\Database\Windrose\FileControl\Win-225054-Soi Ruam Pattana 17-18 Jun 2025

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Sonjai)
 Technical Management Team

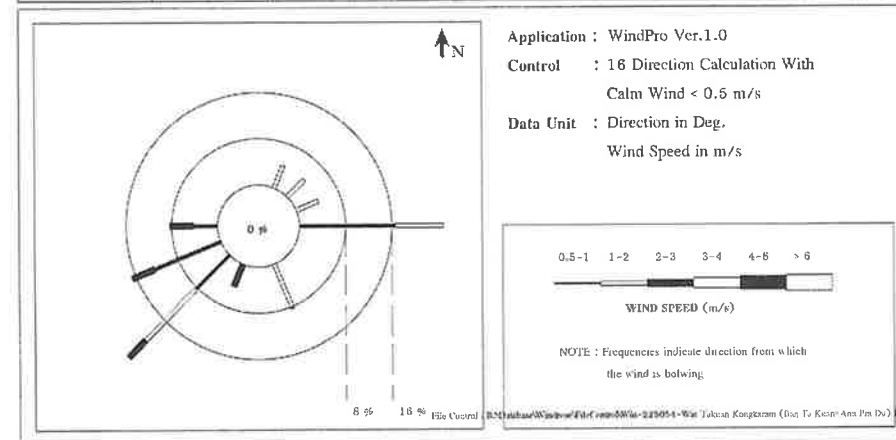


Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du) Monitor period : 17-18 Jun 2025
 Wind Speed Model : Novalynx WS-25 Serial No : A5086
 Wind Direction Model : Novalynx WS-25 Serial No : A5086

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	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
NE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
ENE	0.0000	0.0417	0.0000	0.0000	0.0000	0.0000	0.0417
E	0.1667	0.0833	0.0000	0.0000	0.0000	0.0000	0.2500
ESE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSE	0.0000	0.0833	0.0000	0.0000	0.0000	0.0000	0.0833
S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SSW	0.0000	0.0000	0.0417	0.0000	0.0000	0.0000	0.0417
SW	0.0833	0.1250	0.0417	0.0000	0.0000	0.0000	0.2500
WSW	0.1250	0.0000	0.0417	0.0000	0.0000	0.0000	0.1667
W	0.0417	0.0000	0.0417	0.0000	0.0000	0.0000	0.0833
WNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CALM	0.0000						



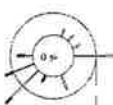
(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Sonjai)
 Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-BST Site 1

Location : Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du)		Monitor period : 17-18 Jun 2025	
Wind Speed Model : Novalynx WS-25		Serial No : A5086	
Wind Direction Model : Novalynx WS-25		Serial No : A5086	
Time	17-18 Jun 2025		
	WS(m/s)	WD	
14:00 - 15:00	1.8	ENE	
15:00 - 16:00	2.5	SSW	
16:00 - 17:00	1.8	NNE	
17:00 - 18:00	1.2	SW	
18:00 - 19:00	1.7	SSE	
19:00 - 20:00	2.5	W	
20:00 - 21:00	2.2	SW	
21:00 - 22:00	1.3	E	
22:00 - 23:00	2.1	WSW	
23:00 - 24:00	0.7	W	
00:00 - 01:00	0.5	WSW	
01:00 - 02:00	0.7	WSW	
02:00 - 03:00	1.9	NE	
03:00 - 04:00	0.5	E	
04:00 - 05:00	0.7	E	
05:00 - 06:00	0.7	E	
06:00 - 07:00	0.6	E	
07:00 - 08:00	1.2	E	
08:00 - 09:00	1.4	SW	
09:00 - 10:00	0.7	SW	
10:00 - 11:00	0.7	WSW	
11:00 - 12:00	1.8	SSE	
12:00 - 13:00	1.6	SW	
13:00 - 14:00	0.7	SW	
Wind Rose			

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

File Control R:\Database\WinData\Win-225054-Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pru Du) 17-18 Jun 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No.	: 1142/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Subatmospheric Pressure Sampling
SAMPLING DATE	: 17-18/06/2025	ANALYTICAL DATE	: 22-24-06/2025
SAMPLING TIME	: 15:05-14:56	SAMPLE CONDITION	: Normal
RECEIVED DATE	: 19/06/2025	FILE CODE	: 225054_TD-15_June
REPORT DATE	: 24/06/2025		

Compound	SAMPLING LOCATION				STANDARD* ($\mu\text{g}/\text{m}^3$)
	Non Detection		King Mongkut's University of Technology North Bangkok (KMUTNB (Rayong))		
	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	
1,3-butadiene	0.003	0.007	1.66	3.67	5.3

Method(s) for the Determination of Toxic Organic Compound in Ambient Air, 2nd EPA Method TO-15, 1999

Sriwan Chimsa-nga

(Miss Sriwan Chimsa-nga)

Analyst

Araya Tipparak

(Miss Araya Tipparak)

Technical Management Team

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

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 1142/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 17-18/06/2025 ANALYTICAL DATE : 22-24/06/2025
SAMPLING TIME : 15:12-15:02 SAMPLE CONDITION : Normal
RECEIVED DATE : 19/06/2025 FILE CODE : 225054 TO-15 June
REPORT DATE : 24/06/2025

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³)
	Non Detection		Soi Ruam Pattana		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003	0.007	0.40	0.89	5.3

Methods for the Determination of Toxic Organic Compound in Ambient Air, EPA Methods TO-15, 1999

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tippasuk)

Technical Management Team

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

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 1142/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Subatmospheric Pressure Sampling
SAMPLING DATE : 17-18/06/2025 ANALYTICAL DATE : 22-24/06/2025
SAMPLING TIME : 14:50-14:32 SAMPLE CONDITION : Normal
RECEIVED DATE : 19/06/2025 FILE CODE : 225054 TO-15 June
REPORT DATE : 24/06/2025

Compound	SAMPLING LOCATION				STANDARD* (µg/m ³) (1)
	Non Detection		Wat Takuan Kongkaram (Ban Ta Kuan-Aou Pra Du)		
	ppbv	µg/m ³	ppbv	µg/m ³	
1,3-butadiene	0.003*	0.007	0.17	0.82	5.3 (2)

Methods for the Determination of Toxic Organic Compound in Ambient Air, EPA Methods TO-15, 1999

Siriwan Chimsa-nga
(Miss Siriwan Chimsa-nga)

Analyst

(Mrs. Araya Tippasuk)

Technical Management Team

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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	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 21/04/2025
RECEIVED DATE	: 23/04/2025	ANALYTICAL DATE	: 26/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 3.90	m/s
Diameter	: 1.30	m	Flow Rate*	: 66.46	Ncu.m/min
Temperature	: 958.7	°C	Moisture	: 11.1	%
Excess Oxygen	: 15.5	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		15.5%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.03)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.
(Miss Sudaporn Soonthorn)

Analyst

Maini Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

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

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

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

4. ^{1/} Emission standard @ 7%O₂ according to EIA report.



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SECOT CO., LTD.

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

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 22/04/2025
RECEIVED DATE	: 23/04/2025	ANALYTICAL DATE	: 26/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.06	m/s
Diameter	: 1.30	m	Flow Rate*	: 68.56	Ncu.m/min
Temperature	: 965.5	°C	Moisture	: 11.4	%
Excess Oxygen	: 12.9	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.9%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.02)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.
(Miss Sudaporn Soonthorn)

Analyst

Maini Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

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

4. ^{1/} Emission standard @ 7%O₂ according to EIA report.



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SECOT CO., LTD.

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 23/04/2025
RECEIVED DATE	: 24/04/2025	ANALYTICAL DATE	: 26/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.06	m/s
Diameter	: 1.30	m	Flow Rate*	: 68.71	Ncu.m/min
Temperature	: 964.7	°C	Moisture	: 11.1	%
Excess Oxygen	: 11.8	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		11.8%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.02)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Main Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 24/04/2025
RECEIVED DATE	: 25/04/2025	ANALYTICAL DATE	: 26/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.05	m/s
Diameter	: 1.30	m	Flow Rate*	: 68.34	Ncu.m/min
Temperature	: 971.7	°C	Moisture	: 10.9	%
Excess Oxygen	: 11.6	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		11.6%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.01)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Main Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 25/04/2025
RECEIVED DATE	: 28/04/2025	ANALYTICAL DATE	: 30/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.22	m/s
Diameter	: 1.30	m	Flow Rate*	: 71.27	Ncu.m ³ /min
Temperature	: 969.5	°C	Moisture	: 11.0	%
Excess Oxygen	: 12.9	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.9%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.02)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REF. NO.	: 224054-Stack-2504-0243
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 26/04/2025
RECEIVED DATE	: 30/04/2025	ANALYTICAL DATE	: 02/05/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.48	m/s
Diameter	: 1.30	m	Flow Rate*	: 75.38	Ncu.m ³ /min
Temperature	: 971.5	°C	Moisture	: 11.5	%
Excess Oxygen	: 12.6	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.6%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.02)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. REF. NO. : 224054-Stack-2504-0243
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 27/04/2025
RECEIVED DATE : 30/04/2025 ANALYTICAL DATE : 02/05/2025
REPORT DATE : 13/05/2025 SAMPLE CONDITION : Normal
STACK LOCATION : BD Destruction Unit (Outlet) OPERATOR : Mr. Rommadon Lemmad
SOURCE DESCRIPTION : Combustion FUEL TYPE : C4-LPG

STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 4.56 m/s
Diameter : 1.30 m Flow Rate* : 76.78 Ncu.m/min
Temperature : 972.5 °C Moisture : 11.3 %
Excess Oxygen : 12.2 %

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.2%O ₂	7%O ₂		
1,3-Butadiene	ppm	ND (<0.01)	ND (<0.02)	0.24 ^{1/}	US.EPA Method 18

Sudaporn S.

(Miss Sudaporn Soonthorn)

Analyst

Maing Poowasanpet

(Miss Narisa Poowasanpet)

Technical Management Team

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4. ^{1/} Emission standard @ 7%O₂ according to EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. REF. NO. : 224054-Stack-2504-0243
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 21/04/2025
RECEIVED DATE : 23/04/2025 ANALYTICAL DATE : 30/04/2025
REPORT DATE : 13/05/2025 SAMPLE CONDITION : Normal
STACK LOCATION : BD Destruction Unit (Outlet) OPERATOR : Mr. Rommadon Lemmad
SOURCE DESCRIPTION : Combustion FUEL TYPE : C4-LPG

STACK DESCRIPTION

Height : 30.0 m Gas Velocity : 3.90 m/s
Diameter : 1.30 m Flow Rate* : 66.46 Ncu.m/min
Temperature : 958.7 °C Moisture : 11.1 %
Excess Oxygen : 15.5 %

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		15.5%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	21.29	54.80	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Pornapa Budthum

(Miss Pornnapa Budthum)

Analyst

REG.NO. 7-239-0-0018

Maing Poowasanpet

(Miss Narisa Poowasanpet)

Technical Management Team

REG.NO. 7-239-0-0010

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4. ^{1/} Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006) @ 7%O₂.

5. ^{2/} Emission standard @ 7%O₂ according to EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	Bangkok Synthetics Co., Ltd.	REF. NO.	224054-Stack-2504-0243
SAMPLING BY	SECOT Co., Ltd.	SAMPLING DATE	22/04/2025
RECEIVED DATE	23/04/2025	ANALYTICAL DATE	30/04/2025
REPORT DATE	13/05/2025	SAMPLE CONDITION	Normal
STACK LOCATION	BD Destruction Unit (Outlet)	OPERATOR	Mr. Rommadon Lemmad
SOURCE DESCRIPTION	Combustion	FUEL TYPE	C4-LPG

STACK DESCRIPTION

Height	30.0	m	Gas Velocity	4.06	m/s
Diameter	1.30	m	Flow Rate*	68.56	Ncu.m/min
Temperature	965.5	°C	Moisture	11.4	%
Excess Oxygen	12.9	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.9%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	42.89	74.52	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Bongsa Puthum

(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-0-0018

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-0-0010

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5. ^{2/} Emission standard @ 7%O₂ according to EIA report.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	Bangkok Synthetics Co., Ltd.	REF. NO.	224054-Stack-2504-0243
SAMPLING BY	SECOT Co., Ltd.	SAMPLING DATE	23/04/2025
RECEIVED DATE	24/04/2025	ANALYTICAL DATE	30/04/2025
REPORT DATE	13/05/2025	SAMPLE CONDITION	Normal
STACK LOCATION	BD Destruction Unit (Outlet)	OPERATOR	Mr. Rommadon Lemmad
SOURCE DESCRIPTION	Combustion	FUEL TYPE	C4-LPG

STACK DESCRIPTION

Height	30.0	m	Gas Velocity	4.06	m/s
Diameter	1.30	m	Flow Rate*	68.71	Ncu.m/min
Temperature	964.7	°C	Moisture	11.1	%
Excess Oxygen	11.8	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		11.8%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	41.35	63.16	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Bongsa Puthum

(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-0-0018

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-0-0010

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5. ^{2/} Emission standard @ 7%O₂ according to EIA report.



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RECEIVED DATE	: 25/04/2025	ANALYTICAL DATE	: 30/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.05	m/s
Diameter	: 1.30	m	Flow Rate*	: 68.34	Ncu.m/min
Temperature	: 971.7	°C	Moisture	: 10.9	%
Excess Oxygen	: 11.6	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		11.6%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	38.88	58.11	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Pornapa Budthum

(Miss Pornapa Budthum)

Analyst

REG.NO. 7-239-ท-0018

Marisa Poowanapetch

(Miss Narisa Poowanapetch)

Technical Management Team

REG.NO. 7-239-ท-0010

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5. ^{2/} Emission standard @ 7%O₂ according to EIA report.



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SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 25/04/2025
RECEIVED DATE	: 28/04/2025	ANALYTICAL DATE	: 30/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.22	m/s
Diameter	: 1.30	m	Flow Rate*	: 71.27	Ncu.m/min
Temperature	: 969.5	°C	Moisture	: 11.0	%
Excess Oxygen	: 12.9	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.9%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	38.23	66.42	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Pornapa Budthum

(Miss Pornapa Budthum)

Analyst

REG.NO. 7-239-ท-0018

Marisa Poowanapetch

(Miss Narisa Poowanapetch)

Technical Management Team

REG.NO. 7-239-ท-0010

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5. ^{2/} Emission standard @ 7%O₂ according to EIA report.



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RECEIVED DATE	: 30/04/2025	ANALYTICAL DATE	: 30/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.48	m/s
Diameter	: 1.30	m	Flow Rate*	: 75.38	Ncu.m/min
Temperature	: 971.5	°C	Moisture	: 11.5	%
Excess Oxygen	: 12.6	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.6%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	34.62	57.98	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Bongsa Puthum

(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-ก-0018

Maia Poowanapetch

(Miss Narisa Poowanapetch)

Technical Management Team

REG.NO. 2-239-ก-0010

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SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 27/04/2025
RECEIVED DATE	: 30/04/2025	ANALYTICAL DATE	: 30/04/2025
REPORT DATE	: 13/05/2025	SAMPLE CONDITION	: Normal
STACK LOCATION	: BD Destruction Unit (Outlet)	OPERATOR	: Mr. Rommadon Lemmad
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: C4-LPG

STACK DESCRIPTION

Height	: 30.0	m	Gas Velocity	: 4.56	m/s
Diameter	: 1.30	m	Flow Rate*	: 76.78	Ncu.m/min
Temperature	: 972.5	°C	Moisture	: 11.3	%
Excess Oxygen	: 12.2	%			

PARAMETER	UNITS	RESULTS*		STANDARD	REFERENCE METHOD
		12.2%O ₂	7%O ₂		
Oxide of Nitrogen	ppm	35.90	57.36	200 ^{1/} /80 ^{2/}	US.EPA Method 7

Bongsa Puthum

(Miss Pornnapa Budthum)

Analyst

REG.NO. 2-239-ก-0018

Maia Poowanapetch

(Miss Narisa Poowanapetch)

Technical Management Team

REG.NO. 2-239-ก-0010

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

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

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

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006) @ 7%O₂.

5. ^{2/} Emission standard @ 7%O₂ according to EIA report.

ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป



Noise Monitoring Result : Community Noise MTR-BST Site 1

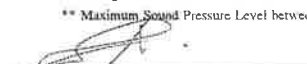
Location : Boundary-N	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G301014
Site Operator : Mr. Siwanon Kulawong	

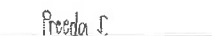
Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.3/-0.6	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	67.2	68.0	66.7	66.3	66.2	66.3	64.1
11:00 - 12:00	66.4	67.2	66.8	66.2	67.1	66.2	64.0
12:00 - 13:00	66.3	66.5	66.1	66.5	65.4	66.6	63.9
13:00 - 14:00	66.5	66.4	66.8	67.0	66.6	67.0	65.2
14:00 - 15:00	67.0	66.9	67.6	66.7	66.0	67.5	65.5
15:00 - 16:00	67.2	67.2	67.4	66.0	66.4	67.0	65.0
16:00 - 17:00	67.6	67.9	68.0	66.0	66.0	66.7	64.3
17:00 - 18:00	66.5	66.5	66.5	65.7	65.3	66.3	64.1
18:00 - 19:00	66.2	66.2	66.3	65.1	66.0	65.8	64.1
19:00 - 20:00	66.0	66.1	66.6	64.8	65.4	65.6	64.0
20:00 - 21:00	66.1	65.9	66.7	65.2	65.4	65.4	64.0
21:00 - 22:00	66.1	65.7	66.8	65.3	65.1	65.4	64.0
22:00 - 23:00	66.1	65.9	66.9	65.4	65.0	65.1	64.0
23:00 - 00:00	66.2	65.9	66.6	65.5	64.9	64.9	64.0
00:00 - 01:00	66.1	65.9	66.2	66.5	65.0	64.9	64.0
01:00 - 02:00	66.0	66.0	66.1	66.5	65.3	64.9	64.0
02:00 - 03:00	66.1	65.9	66.1	66.1	65.3	64.8	64.1
03:00 - 04:00	66.2	66.0	66.1	66.0	65.3	64.8	64.0
04:00 - 05:00	66.1	66.0	66.2	65.6	65.4	64.8	64.6
05:00 - 06:00	66.1	66.0	66.2	65.3	65.2	64.5	64.9
06:00 - 07:00	66.1	66.1	66.1	64.7	65.2	65.3	64.7
07:00 - 08:00	66.1	66.1	66.2	64.5	65.2	65.3	64.3
08:00 - 09:00	66.7	66.6	66.6	64.9	65.5	64.5	64.0
09:00 - 10:00	66.4	66.3	66.6	66.5	65.8	64.2	64.8
Leq(24)*	66.4	66.4	66.7	65.8	65.6	65.7	64.3
Ldn	72.6	72.5	72.8	72.2	71.7	71.5	70.7
Lmax**	90.1	93.9	96.7	96.3	93.6	86.4	86.0
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-BST Site 1

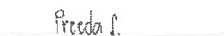
Location : Boundary-N	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G301014
Site Operator : Mr. Siwanon Kulawong	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.3/-0.6	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
10:00 - 11:00	66.2	66.4	66.0	65.6	65.0	65.5	63.6
11:00 - 12:00	65.8	66.3	66.2	65.5	65.1	65.7	63.6
12:00 - 13:00	66.7	66.0	66.2	65.8	65.1	66.0	63.6
13:00 - 14:00	65.8	65.9	66.0	65.8	65.0	66.0	64.2
14:00 - 15:00	66.4	66.1	66.3	65.7	65.4	66.1	64.7
15:00 - 16:00	66.4	66.2	66.2	65.3	65.4	66.0	64.2
16:00 - 17:00	66.2	66.2	66.3	65.2	65.1	66.1	63.9
17:00 - 18:00	66.0	66.0	66.1	65.2	64.9	65.8	63.7
18:00 - 19:00	65.7	65.7	66.0	64.6	65.4	65.3	63.8
19:00 - 20:00	65.7	65.6	66.1	64.4	65.0	65.2	63.7
20:00 - 21:00	65.7	65.4	66.3	64.8	65.0	65.1	63.6
21:00 - 22:00	65.7	65.3	66.4	64.8	64.6	65.0	63.7
22:00 - 23:00	65.7	65.5	66.5	64.9	64.6	64.7	63.6
23:00 - 00:00	65.8	65.6	66.1	64.9	64.5	64.5	63.6
00:00 - 01:00	65.6	65.5	65.8	65.5	64.5	64.5	63.7
01:00 - 02:00	65.6	65.5	65.7	65.7	64.7	64.6	63.7
02:00 - 03:00	65.7	65.5	65.6	65.4	64.7	64.5	63.7
03:00 - 04:00	65.8	65.5	65.6	65.3	64.5	64.5	63.7
04:00 - 05:00	65.7	65.5	65.7	65.0	64.9	64.5	64.2
05:00 - 06:00	65.7	65.6	65.7	64.8	64.6	64.1	64.4
06:00 - 07:00	65.7	65.6	65.7	64.3	64.8	64.4	64.3
07:00 - 08:00	65.7	65.7	65.7	64.2	64.8	64.4	63.8
08:00 - 09:00	65.9	66.0	66.0	64.4	64.8	63.9	63.6
09:00 - 10:00	65.8	65.9	65.8	65.1	65.1	63.5	63.7
L90(avg)*	65.8	65.8	66.0	65.1	64.9	65.1	63.9

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise

MTR-BST Site 1

Location : Boundary-S		Monitor Period : 21-28 Apr 2025					
SLM Model : Cirrus CR162B		Serial No : G300990					
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515		Serial No : 97097					
Calibration Ref dB(A) : 94.0		Certified Date : 02 Oct 2024					
SLM Reading / Adjust dB(A) : 93.0/0.7		Expire Date : 01 Oct 2025					
Cal Sheet No. : CR-515-2025-111							
Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	59.4	59.5	59.3	58.5	58.9	61.7	61.3
12:00 - 13:00	56.9	58.7	60.1	57.6	57.3	62.1	62.1
13:00 - 14:00	60.0	63.1	61.2	58.3	58.2	61.8	62.6
14:00 - 15:00	59.5	60.3	61.6	61.7	62.1	62.7	62.0
15:00 - 16:00	62.8	64.0	59.1	59.6	60.6	61.9	62.0
16:00 - 17:00	58.6	58.0	66.5	59.1	65.5	62.2	61.5
17:00 - 18:00	58.4	65.1	60.2	61.4	58.6	62.7	62.0
18:00 - 19:00	57.9	58.9	58.7	58.4	58.1	62.5	61.5
19:00 - 20:00	58.3	58.8	59.0	58.9	58.3	63.3	61.4
20:00 - 21:00	59.3	58.5	58.7	58.2	59.7	63.3	61.7
21:00 - 22:00	58.8	58.6	59.4	59.6	59.4	62.8	62.7
22:00 - 23:00	62.4	62.3	63.1	62.6	63.3	62.2	61.5
23:00 - 00:00	62.5	62.0	63.5	63.5	63.2	62.6	61.6
00:00 - 01:00	62.0	61.6	63.2	62.9	63.1	62.7	60.1
01:00 - 02:00	61.9	61.2	63.6	62.7	62.5	62.5	60.1
02:00 - 03:00	62.0	61.1	62.8	62.4	62.2	62.4	62.2
03:00 - 04:00	61.8	61.5	62.6	62.1	62.1	62.4	61.9
04:00 - 05:00	61.8	61.4	61.9	61.7	62.4	61.9	62.5
05:00 - 06:00	61.7	61.5	61.9	61.7	62.0	61.9	62.5
06:00 - 07:00	62.1	61.4	61.8	61.6	62.5	65.7	62.6
07:00 - 08:00	62.0	61.2	61.7	61.4	62.1	65.8	62.6
08:00 - 09:00	61.2	61.6	61.3	62.1	61.9	62.3	62.4
09:00 - 10:00	59.9	63.1	62.2	61.2	61.9	61.5	61.8
10:00 - 11:00	59.5	62.5	60.0	58.4	61.7	61.8	62.5
Leq(24)*	60.8	61.5	61.8	61.0	61.6	62.8	61.9
Ldn	68.2	68.0	69.0	68.5	68.8	69.3	68.2
Lmax **	91.1	90.4	90.2	88.3	88.3	85.1	87.9
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-BST Site 1

Location : Boundary-S		Monitor Period : 21-28 Apr 2025					
SLM Model : Cirrus CR162B		Serial No : G300990					
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515		Serial No : 97097					
Calibration Ref dB(A) : 94.0		Certified Date : 02 Oct 2024					
SLM Reading / Adjust dB(A) : 93.0/0.7		Expire Date : 01 Oct 2025					
Cal Sheet No. : CR-515-2025-111							
Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	57.6	57.0	56.7	56.9	56.3	60.2	60.4
12:00 - 13:00	57.4	56.4	56.7	56.3	56.3	60.5	60.6
13:00 - 14:00	57.7	56.6	57.0	56.6	56.3	60.8	61.7
14:00 - 15:00	57.6	56.7	57.6	56.9	57.2	61.1	60.8
15:00 - 16:00	57.8	56.8	57.5	56.9	57.1	60.7	61.0
16:00 - 17:00	57.4	56.7	57.4	57.2	57.4	61.1	60.7
17:00 - 18:00	57.2	57.5	57.8	57.5	57.2	61.3	61.1
18:00 - 19:00	56.9	57.2	57.9	57.2	57.4	61.2	60.6
19:00 - 20:00	57.4	57.2	58.0	57.4	57.5	61.7	60.5
20:00 - 21:00	58.1	57.4	57.9	57.4	58.1	61.9	60.7
21:00 - 22:00	58.2	57.9	58.3	57.9	58.3	61.4	61.0
22:00 - 23:00	61.6	61.3	62.1	61.3	62.3	60.9	60.6
23:00 - 00:00	61.5	61.0	62.1	61.8	62.1	61.5	59.7
00:00 - 01:00	60.9	60.6	62.0	61.8	62.0	61.7	59.6
01:00 - 02:00	60.9	60.3	62.4	61.5	61.4	61.6	59.7
02:00 - 03:00	61.0	60.2	61.6	61.3	61.2	61.4	61.4
03:00 - 04:00	60.7	60.6	61.5	61.0	61.1	61.3	61.2
04:00 - 05:00	60.9	60.5	60.9	60.6	61.3	61.0	61.7
05:00 - 06:00	60.8	60.5	60.9	60.9	61.2	60.9	61.4
06:00 - 07:00	61.1	60.5	60.9	60.5	61.4	60.5	61.6
07:00 - 08:00	61.0	60.1	60.4	60.1	61.1	61.4	60.7
08:00 - 09:00	59.5	60.0	60.1	59.9	60.9	61.4	60.8
09:00 - 10:00	57.7	57.6	57.9	57.9	60.2	60.5	57.5
10:00 - 11:00	57.6	57.1	57.3	56.5	60.2	60.0	57.8
L90(avg)*	59.4	59.0	59.7	59.4	59.9	61.1	60.6

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-BST Site 1

Location : Boundary-E	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G302333
Site Operator : Mr. Siwanon Kulawong	


Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	59.4	60.0	60.5	60.8	61.2	60.9	60.0
12:00 - 13:00	58.5	58.0	59.5	58.3	59.5	60.6	59.6
13:00 - 14:00	59.5	61.1	62.3	61.1	61.4	61.1	60.5
14:00 - 15:00	59.3	61.6	64.4	62.4	61.4	61.3	60.4
15:00 - 16:00	59.2	60.0	61.1	60.1	60.1	60.6	60.5
16:00 - 17:00	61.2	60.5	61.4	60.4	60.9	61.4	60.5
17:00 - 18:00	63.8	62.9	64.3	60.7	62.9	61.1	61.6
18:00 - 19:00	61.2	61.4	62.5	63.3	60.4	60.9	61.5
19:00 - 20:00	60.1	59.2	61.8	61.7	59.9	60.1	59.9
20:00 - 21:00	57.1	58.9	58.3	57.2	58.2	59.6	60.0
21:00 - 22:00	65.1	59.8	58.1	57.9	58.7	59.9	59.1
22:00 - 23:00	60.4	61.2	59.9	60.1	58.9	58.9	59.3
23:00 - 00:00	60.5	60.3	59.5	60.8	59.8	58.7	59.6
00:00 - 01:00	60.5	60.1	61.0	60.8	60.7	59.0	59.1
01:00 - 02:00	60.5	59.6	60.6	61.0	60.5	58.5	59.0
02:00 - 03:00	61.3	59.6	60.7	60.2	60.2	59.0	59.7
03:00 - 04:00	60.4	59.4	60.2	59.8	59.5	58.2	59.8
04:00 - 05:00	60.1	59.4	60.2	60.2	59.7	58.3	58.3
05:00 - 06:00	60.1	61.0	61.1	60.3	60.2	59.1	60.6
06:00 - 07:00	62.3	63.7	61.8	61.8	61.1	63.0	63.9
07:00 - 08:00	66.9	71.1	65.4	65.4	62.8	64.2	66.7
08:00 - 09:00	63.0	63.8	64.5	64.6	62.5	60.9	63.1
09:00 - 10:00	64.7	62.7	64.3	62.9	60.5	59.9	63.8
10:00 - 11:00	60.8	64.7	61.7	60.5	61.1	59.8	61.8
Leq(24)*	61.7	62.5	61.9	61.3	60.7	60.4	61.3
Ldn	67.4	67.6	67.3	67.2	66.8	66.1	67.0
Lmax**	92.7	95.5	94.4	94.7	90.1	89.2	96.6
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team


**Noise Monitoring Result : Background Noise**
MTR-BST Site 1


Location : Boundary-E	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G302333
Site Operator : Mr. Siwanon Kulawong	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	56.3	56.3	56.6	57.2	56.3	58.2	58.1
12:00 - 13:00	55.4	55.3	56.3	55.5	55.2	58.1	57.7
13:00 - 14:00	55.9	56.3	57.7	57.2	56.8	58.9	58.5
14:00 - 15:00	56.1	57.0	57.7	56.5	57.0	59.1	56.5
15:00 - 16:00	56.3	56.4	57.2	57.1	55.9	58.6	58.4
16:00 - 17:00	56.8	57.1	56.8	55.8	56.2	58.5	58.5
17:00 - 18:00	56.9	56.9	57.7	56.5	56.9	58.1	59.1
18:00 - 19:00	56.5	56.5	57.6	56.6	56.4	58.0	58.8
19:00 - 20:00	56.0	55.6	55.7	55.5	54.9	58.1	58.4
20:00 - 21:00	55.4	55.7	55.9	55.2	55.6	58.2	58.7
21:00 - 22:00	55.7	56.6	56.4	56.0	56.4	58.1	58.0
22:00 - 23:00	58.9	59.5	58.6	58.5	58.4	57.7	57.8
23:00 - 00:00	59.2	58.8	58.2	58.7	58.4	57.7	58.1
00:00 - 01:00	59.1	59.0	59.2	59.2	58.9	58.0	57.9
01:00 - 02:00	59.2	58.6	59.2	59.3	59.1	57.4	57.9
02:00 - 03:00	59.2	58.6	59.1	58.9	58.8	57.0	58.6
03:00 - 04:00	58.9	58.4	59.0	58.7	58.4	57.0	58.7
04:00 - 05:00	58.4	58.3	58.9	58.8	58.4	57.4	58.3
05:00 - 06:00	58.4	58.5	58.7	58.4	57.9	57.8	58.6
06:00 - 07:00	59.4	59.3	59.5	59.1	58.4	58.9	59.1
07:00 - 08:00	59.8	60.3	59.9	58.9	59.1	59.3	59.5
08:00 - 09:00	58.8	60.2	59.4	58.4	58.8	56.4	59.3
09:00 - 10:00	58.1	57.6	59.4	56.6	58.1	58.0	57.7
10:00 - 11:00	57.4	57.1	57.3	57.5	58.3	57.8	57.9
L90(avg)*	57.8	57.9	58.2	57.7	57.6	58.1	58.4

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-BST Site 1

Location : Boundary-W	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G300769
Site Operator : Mr. Siwanon Kulawong	
Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.4/-0.7	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	69.4	69.6	68.4	68.7	66.9	68.2	67.4
12:00 - 13:00	68.7	67.8	68.1	67.7	66.3	66.5	67.8
13:00 - 14:00	69.7	67.1	68.2	68.0	65.9	68.7	67.3
14:00 - 15:00	67.8	67.3	69.3	67.6	68.7	68.5	68.3
15:00 - 16:00	68.4	67.3	68.9	67.6	67.4	68.4	68.0
16:00 - 17:00	69.0	68.8	69.3	67.9	67.0	67.7	67.5
17:00 - 18:00	71.6	70.7	70.7	69.6	69.9	71.0	70.2
18:00 - 19:00	69.3	70.5	70.2	69.6	70.9	71.0	67.4
19:00 - 20:00	70.0	69.5	70.3	71.0	70.3	69.8	69.4
20:00 - 21:00	69.2	67.9	70.4	67.8	69.9	67.0	68.6
21:00 - 22:00	66.5	65.4	68.0	65.7	67.0	65.2	66.4
22:00 - 23:00	65.5	66.4	68.1	65.5	67.3	64.4	65.7
23:00 - 00:00	66.0	67.1	67.5	66.3	68.4	65.0	66.0
00:00 - 01:00	65.8	66.1	66.6	68.8	66.3	65.3	65.6
01:00 - 02:00	63.9	65.7	65.9	68.1	66.7	65.1	64.6
02:00 - 03:00	64.7	65.0	66.5	66.9	66.2	64.9	64.7
03:00 - 04:00	65.9	66.1	66.7	66.4	67.0	66.9	67.4
04:00 - 05:00	65.5	66.0	66.8	66.6	66.9	67.4	66.3
05:00 - 06:00	67.4	66.9	66.6	66.1	66.6	67.7	67.7
06:00 - 07:00	69.8	69.6	69.9	68.8	69.7	69.8	71.2
07:00 - 08:00	71.9	72.3	72.2	71.5	72.7	71.1	72.6
08:00 - 09:00	69.1	70.5	69.4	68.3	68.8	68.8	71.6
09:00 - 10:00	68.4	68.1	68.8	69.4	67.0	68.8	69.6
10:00 - 11:00	71.2	68.0	67.3	67.6	67.7	67.4	69.2
Leq(24)*	68.6	68.3	68.8	68.2	68.4	68.2	68.5
Ldn	73.4	73.5	74.1	73.9	74.0	73.4	73.9
Lmax **	99.6	100.9	95.0	100.6	95.3	97.9	97.0
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

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

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-BST Site 1

Location : Boundary-W	Monitor Period : 21-28 Apr 2025
SLM Model : Cirrus CR162B	Serial No : G300769
Site Operator : Mr. Siwanon Kulawong	
Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 94.4/-0.7	Expire Date : 01 Oct 2025
Cal Sheet No. : CR-515-2025-111	

Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
11:00 - 12:00	64.4	63.9	63.8	61.6	60.3	62.3	63.4
12:00 - 13:00	62.8	61.3	63.7	60.7	60.0	62.7	63.3
13:00 - 14:00	63.8	60.0	64.1	61.6	60.0	63.0	64.4
14:00 - 15:00	63.5	61.5	64.1	62.0	60.5	63.9	64.6
15:00 - 16:00	62.6	61.2	63.2	61.6	60.5	64.0	64.4
16:00 - 17:00	63.4	60.6	62.9	61.3	60.4	64.3	63.5
17:00 - 18:00	63.7	62.7	63.9	61.4	61.0	64.2	63.5
18:00 - 19:00	62.1	61.4	63.6	60.9	65.4	63.6	62.9
19:00 - 20:00	63.3	62.8	64.7	61.2	65.1	63.8	62.6
20:00 - 21:00	62.4	62.6	64.0	62.8	64.6	62.2	63.1
21:00 - 22:00	62.1	61.5	63.6	62.1	63.5	62.3	62.2
22:00 - 23:00	61.7	61.7	63.3	62.0	63.6	61.7	63.0
23:00 - 00:00	62.5	62.5	63.1	62.8	63.5	62.0	62.0
00:00 - 01:00	62.1	62.1	62.3	65.9	63.6	62.2	61.9
01:00 - 02:00	61.3	63.1	62.7	66.4	63.8	62.4	62.1
02:00 - 03:00	61.6	63.5	63.1	64.8	63.8	62.5	62.0
03:00 - 04:00	61.9	62.2	63.1	64.0	64.2	62.4	61.7
04:00 - 05:00	61.7	62.5	62.7	63.1	64.5	62.8	62.9
05:00 - 06:00	61.8	62.2	63.3	62.8	64.5	64.2	64.9
06:00 - 07:00	63.6	64.8	64.4	61.9	64.9	63.5	65.8
07:00 - 08:00	65.4	65.7	66.0	63.4	65.7	65.7	66.1
08:00 - 09:00	62.8	64.8	63.2	61.3	61.6	64.6	65.0
09:00 - 10:00	62.0	64.0	62.8	61.8	61.3	63.6	63.6
10:00 - 11:00	65.3	63.8	61.6	60.6	62.2	63.5	64.1
L90(avg)*	63.0	62.6	63.6	62.7	63.2	63.3	63.6

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-BST Site 1

Location : Wat Takuan Kongkaram				Monitor Period : 21-28 Apr 2025			
SLM Model : Cirrus CR162B				Serial No : G302330			
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515				Serial No : 97097			
Calibration Ref dB(A) : 94.0				Certified Date : 02 Oct 2024			
SLM Reading / Adjust dB(A) : 93.7/0.0				Expire Date : 01 Oct 2025			
Cal Sheet No. : CR-515-2025-111							
Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
14:00 ~ 15:00	50.0	47.7	49.9	50.5	57.8	48.9	45.7
15:00 ~ 16:00	51.7	57.4	52.5	48.6	60.8	62.7	46.6
16:00 ~ 17:00	46.5	55.2	47.6	47.8	53.9	55.4	46.9
17:00 ~ 18:00	48.5	49.2	48.2	47.2	51.8	51.9	48.1
18:00 ~ 19:00	63.2	65.9	65.8	65.1	65.0	65.1	65.4
19:00 ~ 20:00	51.6	44.9	43.6	44.3	51.6	43.7	46.2
20:00 ~ 21:00	49.1	43.9	43.4	49.6	48.4	43.9	44.8
21:00 ~ 22:00	50.3	54.4	43.7	47.8	57.0	43.8	51.7
22:00 ~ 23:00	51.3	47.3	57.4	60.6	49.2	56.5	46.1
23:00 ~ 00:00	48.1	43.6	51.9	49.7	45.4	50.3	46.0
00:00 ~ 01:00	44.3	50.5	47.9	49.9	49.5	44.0	50.1
01:00 ~ 02:00	42.6	56.7	47.1	45.3	50.4	42.6	42.3
02:00 ~ 03:00	42.6	43.3	63.0	61.2	50.3	62.3	42.9
03:00 ~ 04:00	45.0	42.9	44.4	46.8	50.0	44.0	49.5
04:00 ~ 05:00	45.1	42.7	43.4	50.6	54.5	43.0	47.5
05:00 ~ 06:00	63.0	68.5	69.7	67.6	65.1	65.8	70.7
06:00 ~ 07:00	45.8	50.6	52.5	54.2	50.8	53.4	50.8
07:00 ~ 08:00	51.6	54.9	50.3	51.6	46.8	57.9	49.8
08:00 ~ 09:00	52.0	52.9	51.2	54.9	48.2	50.9	50.6
09:00 ~ 10:00	52.5	52.7	52.2	50.9	48.9	49.7	51.8
10:00 ~ 11:00	51.3	51.5	51.3	50.2	51.3	45.4	51.6
11:00 ~ 12:00	50.8	50.7	50.4	55.8	52.4	48.0	56.5
12:00 ~ 13:00	47.0	51.8	52.7	48.1	48.5	49.0	50.9
13:00 ~ 14:00	47.8	48.3	51.5	58.2	50.7	52.9	49.6
Leq(24)*	54.0	57.8	58.7	57.8	56.6	57.4	58.6
Ldn	60.5	65.5	67.3	66.0	63.0	64.7	67.3
Lmax **	76.0	83.3	90.0	94.3	81.1	87.1	80.8
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-BST Site 1

Location : Wat Takuan Kongkaram				Monitor Period : 21-28 Apr 2025			
SLM Model : Cirrus CR162B				Serial No : G302330			
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515				Serial No : 97097			
Calibration Ref dB(A) : 94.0				Certified Date : 02 Oct 2024			
SLM Reading / Adjust dB(A) : 93.7/0.0				Expire Date : 01 Oct 2025			
Cal Sheet No. : CR-515-2025-111							
Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
14:00 - 15:00	43.7	41.4	41.7	44.0	43.2	43.2	40.1
15:00 - 16:00	42.6	45.0	41.6	41.9	51.2	42.6	40.2
16:00 - 17:00	40.8	41.7	41.5	41.7	43.1	40.8	39.6
17:00 - 18:00	41.2	40.2	41.2	39.7	39.6	39.7	38.9
18:00 - 19:00	41.2	39.8	40.5	41.0	40.9	40.6	38.2
19:00 - 20:00	39.6	40.1	40.4	38.9	39.7	40.7	38.8
20:00 - 21:00	41.5	41.9	41.7	40.3	40.3	41.3	40.7
21:00 - 22:00	40.9	41.4	41.8	40.9	41.4	40.9	41.3
22:00 - 23:00	41.1	41.5	43.0	42.1	41.4	41.6	41.3
23:00 - 00:00	42.0	40.8	43.8	43.6	42.3	41.3	41.1
00:00 - 01:00	42.4	40.5	44.4	43.6	43.2	40.9	40.1
01:00 - 02:00	41.1	40.1	44.6	42.6	43.2	40.8	40.0
02:00 - 03:00	40.2	39.0	43.9	42.7	42.3	41.4	39.7
03:00 - 04:00	38.3	38.8	41.9	40.5	40.4	40.9	40.0
04:00 - 05:00	37.2	38.5	40.3	39.5	39.2	39.0	38.6
05:00 - 06:00	37.0	37.9	39.1	38.3	39.4	38.2	44.1
06:00 - 07:00	39.4	40.8	40.9	41.7	40.8	40.5	43.6
07:00 - 08:00	40.6	41.4	42.0	40.3	41.0	42.1	42.6
08:00 - 09:00	41.5	43.5	41.3	41.2	42.0	41.4	43.9
09:00 - 10:00	42.6	42.7	41.9	42.1	41.6	40.5	43.3
10:00 - 11:00	42.8	44.0	42.4	42.6	42.9	39.6	46.9
11:00 - 12:00	41.5	42.2	43.2	41.6	43.8	40.7	42.8
12:00 - 13:00	40.1	42.5	45.9	42.6	40.2	39.9	41.8
13:00 - 14:00	40.8	41.8	44.8	50.2	40.4	43.8	43.2
L90(avg)*	41.1	41.5	42.6	42.7	42.9	41.1	41.8

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-BST Site 1

Location : Soi Ruam Pattana				Monitor Period : 21-28 Apr 2025			
SLM Model : Cirrus CR162B				Serial No : G302741			
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515				Serial No : 97097			
Calibration Ref dB(A) : 94.0				Certified Date : 02 Oct 2024			
SLM Reading / Adjust dB(A) : 93.7/0.0				Expire Date : 01 Oct 2025			
Cal Sheet No. : CR-515-2025-111							
Time	Equivalent Sound Pressure Level (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
14:00 - 15:00	51.9	50.1	48.7	49.9	50.4	49.9	53.3
15:00 - 16:00	51.9	50.6	50.0	50.0	49.9	52.1	53.8
16:00 - 17:00	53.8	52.4	57.8	58.9	56.0	52.8	53.6
17:00 - 18:00	57.2	54.1	54.3	52.2	52.5	52.4	53.2
18:00 - 19:00	58.3	53.9	52.0	51.9	52.7	54.8	53.8
19:00 - 20:00	55.5	51.3	49.1	50.2	52.2	52.7	51.1
20:00 - 21:00	60.8	51.4	49.9	51.6	50.6	51.8	52.0
21:00 - 22:00	50.4	46.4	49.2	48.5	47.8	50.7	47.3
22:00 - 23:00	50.4	45.2	47.2	47.1	45.8	48.2	47.2
23:00 - 00:00	49.4	44.9	45.2	47.9	49.6	48.4	47.7
00:00 - 01:00	51.4	47.7	43.4	44.7	46.0	46.2	45.1
01:00 - 02:00	48.7	46.5	49.2	44.3	45.5	46.3	44.8
02:00 - 03:00	49.3	42.3	44.0	46.0	47.2	43.8	44.0
03:00 - 04:00	43.6	46.3	48.5	48.3	46.2	47.6	44.7
04:00 - 05:00	48.5	50.9	50.3	49.1	49.0	48.5	49.6
05:00 - 06:00	55.5	56.1	54.6	53.7	52.4	52.6	51.9
06:00 - 07:00	56.8	54.3	55.6	54.1	54.6	53.4	53.9
07:00 - 08:00	53.3	54.6	54.9	53.4	54.7	55.3	54.1
08:00 - 09:00	55.9	52.6	51.9	56.5	52.2	51.3	51.9
09:00 - 10:00	50.7	50.9	49.7	51.7	50.0	51.2	50.4
10:00 - 11:00	49.8	47.5	49.9	57.2	50.1	50.0	51.0
11:00 - 12:00	50.8	50.2	55.8	50.0	51.7	52.8	50.3
12:00 - 13:00	53.2	55.4	54.2	52.8	52.6	52.4	54.0
13:00 - 14:00	53.6	49.3	50.7	52.9	54.1	54.6	49.1
Leq(24)*	54.1	51.5	52.1	52.5	51.8	51.7	51.4
Ldn	59.0	57.2	57.4	57.0	56.7	56.4	56.1
Lmax **	90.0	82.8	80.4	85.5	81.3	81.9	78.4
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-BST Site 1

Location : Soi Ruam Pattana		Monitor Period : 21-28 Apr 2025					
SLM Model : Cirrus CR162B		Serial No : G302741					
Site Operator : Mr. Siwanon Kulawong							
Calibrator Model : Cirrus CR:515		Serial No : 97097					
Calibration Ref dB(A) : 94.0		Certified Date : 02 Oct 2024					
SLM Reading / Adjust dB(A) : 93.7/0.0		Expire Date : 01 Oct 2025					
Cal Sheet No. : CR-515-2025-111							
Time	L90 (dB(A))						
	21-22 Apr 2025	22-23 Apr 2025	23-24 Apr 2025	24-25 Apr 2025	25-26 Apr 2025	26-27 Apr 2025	27-28 Apr 2025
14:00 - 15:00	46.1	44.6	41.5	43.5	43.4	43.3	45.6
15:00 - 16:00	46.8	44.5	41.8	42.7	43.3	43.3	45.7
16:00 - 17:00	48.4	45.4	43.2	43.8	45.2	43.1	46.2
17:00 - 18:00	51.9	47.6	45.0	43.9	43.8	44.9	44.8
18:00 - 19:00	54.2	47.5	45.6	44.9	45.0	47.9	46.8
19:00 - 20:00	52.3	45.8	43.5	43.2	43.3	46.2	44.7
20:00 - 21:00	50.7	44.4	43.4	42.7	43.3	45.2	43.1
21:00 - 22:00	47.3	40.8	41.5	42.0	42.1	45.8	41.0
22:00 - 23:00	48.9	40.7	40.9	41.6	39.6	41.4	40.5
23:00 - 00:00	43.4	40.6	39.5	41.5	39.3	42.7	39.9
00:00 - 01:00	43.1	40.4	39.1	41.5	40.1	42.2	39.8
01:00 - 02:00	41.7	40.4	40.0	40.7	40.7	39.9	41.0
02:00 - 03:00	40.4	39.8	39.7	40.4	40.2	37.8	40.9
03:00 - 04:00	39.7	40.0	40.4	40.8	39.5	38.4	40.7
04:00 - 05:00	39.9	39.6	40.8	40.8	39.7	37.0	40.3
05:00 - 06:00	41.1	41.4	43.0	42.3	40.5	38.9	39.2
06:00 - 07:00	46.7	46.4	47.1	45.8	45.0	44.5	46.0
07:00 - 08:00	44.5	43.4	46.0	43.5	44.5	46.2	44.9
08:00 - 09:00	44.8	42.2	43.3	42.8	42.9	43.8	42.2
09:00 - 10:00	41.2	41.3	43.3	41.8	42.8	42.2	41.8
10:00 - 11:00	41.1	40.7	42.5	41.7	43.0	43.4	42.0
11:00 - 12:00	40.9	42.8	42.9	41.6	43.5	44.5	42.3
12:00 - 13:00	41.5	43.7	43.4	43.6	44.0	43.9	42.5
13:00 - 14:00	43.5	41.8	43.7	43.2	43.4	47.7	42.8
L90(avg)*	47.1	43.5	43.1	42.7	42.8	44.0	43.3

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

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

ใบรับรองผลการตรวจวัดคุณภาพดิน



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

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

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0731/67
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 10/04/2024 SAMPLING TIME : 14:22-14:34
RECEIVED DATE : 12/04/2024 ANALYTICAL DATE : 19-23/04/2024
REPORT DATE : 24/04/2024 SITE OPERATOR : Mr. Aniwat Pimwanna
SAMPLE CONDITION : Normal FILE CODE : 224054 SOIL April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW1	STANDARD ^{1/}
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	-
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE: US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED., 2006

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-8-0022

MR

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-8-0004

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

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0731/67
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 11/04/2024 SAMPLING TIME : 11:13-11:24
RECEIVED DATE : 12/04/2024 ANALYTICAL DATE : 19-23/04/2024
REPORT DATE : 24/04/2024 SITE OPERATOR : Mr. Aniwat Pimwanna
SAMPLE CONDITION : Normal FILE CODE : 224054 SOIL April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW2	STANDARD ^{1/}
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	-
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE: US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED., 2006

Jutarat Jaemruen

(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-8-0022

MR

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-8-0004

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0731/67
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 11/04/2024 SAMPLING TIME : 10:37-10:47
RECEIVED DATE : 12/04/2024 ANALYTICAL DATE : 19-23/04/2024
REPORT DATE : 24/04/2024 SITE OPERATOR : Mr. Aniwat Pimwanna
SAMPLE CONDITION : Normal FILE CODE : 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW3	STANDARD ¹⁾
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	-
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED. 2008

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Analyst

REG. NO. 7-239-0-0022

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-0-0004

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0731/67
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 10/04/2024 SAMPLING TIME : 17:02-17:11
RECEIVED DATE : 12/04/2024 ANALYTICAL DATE : 19-23/04/2024
REPORT DATE : 24/04/2024 SITE OPERATOR : Mr. Aniwat Pimwanna
SAMPLE CONDITION : Normal FILE CODE : 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW4	STANDARD ¹⁾
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	-
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED. 2008

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Analyst

REG. NO. 7-239-0-0022

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0731/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 10/04/2024	SAMPLING TIME	: 14:54-15:01
RECEIVED DATE	: 12/04/2024	ANALYTICAL DATE	: 19-23/04/2024
REPORT DATE	: 24/04/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
SAMPLE CONDITION	: Normal	FILE CODE	: 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW5	STANDARD ¹⁾
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED., 2001.

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(Miss Jutarat Jaemruen)

Analyst

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Technical Management Team

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0731/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 10-04/2024	SAMPLING TIME	: 16:29-16:37
RECEIVED DATE	: 12/04/2024	ANALYTICAL DATE	: 19-23/04/2024
REPORT DATE	: 24/04/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
SAMPLE CONDITION	: Normal	FILE CODE	: 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW6	STANDARD ¹⁾
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 1st ED., 2001.

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(Miss Jutarat Jaemruen)

Analyst

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0731/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 10/04/2024	SAMPLING TIME	: 15:57-16:05
RECEIVED DATE	: 12/04/2024	ANALYTICAL DATE	: 19-23/04/2024
REPORT DATE	: 24/04/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
SAMPLE CONDITION	: Normal	FILE CODE	: 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW7	STANDARD ^{1/}
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	*
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

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

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(Miss Jularat Jaemruen)

Analyst

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Araya Tipparak

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Technical Management Team

REG. NO. 7-239-9-0004

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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0731/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 10/04/2024	SAMPLING TIME	: 15:24-15:36
RECEIVED DATE	: 12/04/2024	ANALYTICAL DATE	: 19-23/04/2024
REPORT DATE	: 24/04/2024	SITE OPERATOR	: Mr. Aniwat Pimwanna
SAMPLE CONDITION	: Normal	FILE CODE	: 224054_SOIL_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW8	STANDARD ^{1/}
1,3-Butadiene	mg/kg	SW 846 5035A /8260D	< 0.001	ND	*
Methyl tert-butyl ether	mg/kg	SW 846 5035A /8260D	< 0.001	ND	≤ 1,000
Methanol	mg/kg	SW 846 3550C /8015D	< 0.32	ND	≤ 1,000
Toluene	mg/kg	SW 846 5035A /8260D	< 0.00025	ND	≤ 520

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

Jularat Jaemruen

(Miss Jularat Jaemruen)

Analyst

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GROUND WATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0535/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 21/03/2025 SAMPLING TIME : 08:51-08:59
RECEIVED DATE : 22/03/2025 ANALYTICAL DATE : 25-26/03/2025
REPORT DATE : 31/03/2025 SITE OPERATOR : Mr.Nattachai Chaiyakhot
SAMPLE CONDITION : Normal FILE CODE : 225054 GW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW1	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	*
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

REFERENCE: USEPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED. 2000

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

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Technical Management Team

REG. NO. 7-239-0-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0535/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 20/03/2025 SAMPLING TIME : 13:47-13:55
RECEIVED DATE : 22/03/2025 ANALYTICAL DATE : 22-31/03/2025
REPORT DATE : 31/03/2025 SITE OPERATOR : Mr.Nattachai Chaiyakhot
SAMPLE CONDITION : Normal FILE CODE : 225054 GW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW2	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	*
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

REFERENCE: USEPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED. 2000

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(Miss Jutarat Jaemruen)

Analyst

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(Mrs. Araya Tipparuk)

Technical Management Team

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

GROUND WATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0535/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 20/03/2025 SAMPLING TIME : 14:21-14:31
RECEIVED DATE : 22/03/2025 ANALYTICAL DATE : 22-31/03/2025
REPORT DATE : 31/03/2025 SITE OPERATOR : Mr.Natthachai Chaiyakhot
SAMPLE CONDITION : Normal FILE CODE : 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW3	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

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

Jutarat Jaemruen

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GROUND WATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No : 0535/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Pneumatic Bladder Pump
SAMPLING DATE : 21/03/2025 SAMPLING TIME : 11:17-11:28
RECEIVED DATE : 22/03/2025 ANALYTICAL DATE : 22-31/03/2025
REPORT DATE : 31/03/2025 SITE OPERATOR : Mr.Natthachai Chaiyakhot
SAMPLE CONDITION : Normal FILE CODE : 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW4	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

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

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Araya Tipparuk

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0515/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 21/03/2025	SAMPLING TIME	: 09:23-09:31
RECEIVED DATE	: 22/03/2025	ANALYTICAL DATE	: 22-31/03/2025
REPORT DATE	: 31/03/2025	SITE OPERATOR	: Mr.Natthachai Chaiyakhot
SAMPLE CONDITION	: Normal	FILE CODE	: 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW5	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER, 21ST ED. 2017 (A.W.A.A.P.H.A. 1924)

REFERENCE: U.S. EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3RD ED., 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-0-0022

(Mrs. Araya Tippiaruk)

Technical Management Team

REG. NO. 7-239-0-0004

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 3. ¹⁾ Notification of the Ministry of Industry, B.E.2559 (2016).
 4. * Not registered with the Department of Industrial Works.
 5. - Not available.



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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No	: 0515/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 21/03/2025	SAMPLING TIME	: 10:46-10:55
RECEIVED DATE	: 22/03/2025	ANALYTICAL DATE	: 22-31/03/2025
REPORT DATE	: 31/03/2025	SITE OPERATOR	: Mr.Natthachai Chaiyakhot
SAMPLE CONDITION	: Normal	FILE CODE	: 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW6	STANDARD ¹⁾
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER, 21ST ED. 2017 (A.W.A.A.P.H.A. 1924)

REFERENCE: U.S. EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3RD ED., 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)

Analyst

REG. NO. 7-239-0-0022

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REG. NO. 7-239-0-0014

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No :	0535/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 21/03/2025	SAMPLING TIME	: 10:19-10:27
RECEIVED DATE	: 22/03/2025	ANALYTICAL DATE	: 22-31/03/2025
REPORT DATE	: 31/03/2025	SITE OPERATOR	: Mr.Natthachai Chaiyakhot
SAMPLE CONDITION	: Normal	FILE CODE	: 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-7	STANDARD ^{1/}
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

REFERENCE : US EPA'S 9103 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3rd ED., 2008

Jutarat Jaemuen

(Miss Jutarat Jaemuen)

Analyst

REG. NO. 7-239-B-0022

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-B-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Synthetics Co., Ltd. (BST Site 1)	REQUEST SERVICE No :	0535/68
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING DATE	: 21/03/2025	SAMPLING TIME	: 09:51-10:00
RECEIVED DATE	: 22/03/2025	ANALYTICAL DATE	: 22-31/03/2025
REPORT DATE	: 31/03/2025	SITE OPERATOR	: Mr.Natthachai Chaiyakhot
SAMPLE CONDITION	: Normal	FILE CODE	: 225054 GW March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW8	STANDARD ^{1/}
1,3-Butadiene*	mg/l	SW 846 5030C/8260D	< 0.0005	ND	-
Methyl tert-butyl ether	mg/l	6200 B	< 0.0005	ND	≤ 24
Methanol	mg/l	6200 B	< 0.50	ND	≤ 60
Toluene	mg/l	6200 B	< 0.0002	ND	≤ 5.0

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

REFERENCE : US EPA'S 9103 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 3rd ED., 2008

Jutarat Jaemuen

(Miss Jutarat Jaemuen)

Analyst

REG. NO. 7-239-B-0022

Araya Tipparak

(Mrs. Araya Tipparak)

Technical Management Team

REG. NO. 7-239-B-0004

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จากระบบผลิตน้ำหล่อเย็น



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0069/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 10/01/2025 SAMPLING TIME : 10:45
RECEIVED DATE : 11/01/2025 ANALYTICAL DATE : 12-17/01/2025
REPORT DATE : 17/01/2025 SITE OPERATOR : Mr.Chanapon Oakkharaplon
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_January

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD
		METHODS	(non-detectable)	CW Return (Cooling tower)	
Total Organic Carbon*	mg/l	5310 B	< 0.01	15.64	-

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

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 4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0234/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 07/02/2025 SAMPLING TIME : 09:50
RECEIVED DATE : 08/02/2025 ANALYTICAL DATE : 10-14/02/2025
REPORT DATE : 23/02/2025 SITE OPERATOR : Mr.Chanapon Oakkharaplon
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_February

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD
		METHODS	(non-detectable)	CW Return (Cooling tower)	
Total Organic Carbon*	mg/l	5310 B	< 0.01	13.36	-

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

Khemchuda Insorn

(Miss Khemchuda Insorn)

Araya Tipparuk

(Mrs. Araya Tipparuk)

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0427/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 07/03/2025 SAMPLING TIME : 09:36
RECEIVED DATE : 08/03/2025 ANALYTICAL DATE : 10-14/03/2025
REPORT DATE : 19/03/2025 SITE OPERATOR : Mr. Tanachot Changlor
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION CW Return (Cooling tower)	STANDARD
Total Organic Carbon*	mg/l	5310 B	< 0.01	14.57	*

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19TH ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Araya Tippanuk

(Mrs. Araya Tippanuk)

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0624/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 04/04/2025 SAMPLING TIME : 14:08
RECEIVED DATE : 05/04/2025 ANALYTICAL DATE : 08-11/04/2025
REPORT DATE : 23/04/2025 SITE OPERATOR : Mr. Aniwat Pimwanna
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION CW Return (Cooling tower)	STANDARD
Total Organic Carbon*	mg/l	5310 B	< 0.01	14.83	*

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 19TH ED. 2017 (AWWA, APHA, WEF)

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(Miss Khemchuda Insorn)

Araya Tippanuk

(Mrs. Araya Tippanuk)

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 0775/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 02/05/2025 SAMPLING TIME : 10:15
RECEIVED DATE : 03/05/2025 ANALYTICAL DATE : 06-08/05/2025
REPORT DATE : 14/05/2025 SITE OPERATOR : Mr. Jecrawat Khothamhan
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION CW Return (Cooling tower)	STANDARD
Total Organic Carbon*	mg/l	5310 B	< 0.01	13.23	*

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

(Miss Khemchuda Insorn)

(Mrs. Araya Tippasuk)

Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME : Bangkok Synthetics Co., Ltd. (BST Site 1) REQUEST SERVICE No. : 1045/68
SAMPLING BY : SECOT Co., Ltd. SAMPLING METHOD : Grab
SAMPLING DATE : 06/06/2025 SAMPLING TIME : 08:26
RECEIVED DATE : 07/06/2025 ANALYTICAL DATE : 09-11/06/2025
REPORT DATE : 13/06/2025 SITE OPERATOR : Mr. Thanawut Duansaeng
SAMPLE CONDITION : Normal FILE CODE : 225054_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION CW Return (Cooling tower)	STANDARD
Total Organic Carbon*	mg/l	5310 B	< 0.01	17.92	*

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

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Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-DMF Compressor	Monitor Period : Apr 10, 2025
SLM Model : SCARLET ST-21D	Serial No : 820725
Site Operator : Miss Salisa Ainree	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-086	

Time	Equivalent Sound Pressure Level (dB(A))
	Apr 10, 2025
00:00 - 01:00	
01:00 - 02:00	
02:00 - 03:00	
03:00 - 04:00	
04:00 - 05:00	
05:00 - 06:00	
06:00 - 07:00	
07:00 - 08:00	
08:00 - 09:00	
09:00 - 10:00	84.5
10:00 - 11:00	84.4
11:00 - 12:00	84.3
12:00 - 13:00	84.8
13:00 - 14:00	84.9
14:00 - 15:00	85.0
15:00 - 16:00	85.1
16:00 - 17:00	85.0
17:00 - 18:00	
18:00 - 19:00	
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(8)*	84.8
Lmax **	88.5
Standard-8Hr	90 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-DMF Heat Exchanger	Monitor Period : Apr 10, 2025
SLM Model : SCARLET ST-21D	Serial No : 820723
Site Operator : Miss Salisa Ainree	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-086	

Time	Equivalent Sound Pressure Level (dB(A))
	Apr 10, 2025
00:00 - 01:00	
01:00 - 02:00	
02:00 - 03:00	
03:00 - 04:00	
04:00 - 05:00	
05:00 - 06:00	
06:00 - 07:00	
07:00 - 08:00	
08:00 - 09:00	83.2
09:00 - 10:00	83.5
10:00 - 11:00	83.7
11:00 - 12:00	84.2
12:00 - 13:00	84.1
13:00 - 14:00	84.2
14:00 - 15:00	84.0
15:00 - 16:00	84.0
16:00 - 17:00	
17:00 - 18:00	
18:00 - 19:00	
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(8)*	83.9
Lmax **	88.9
Standard-8Hr	90 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 08:00-16:00

** Maximum Sound Pressure Level between 08:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-DMF Steam Line		Monitor Period : Apr 10, 2025	
SLM Model : SCARLET ST-21D		Serial No : 820727	
Site Operator : Miss Salisa Ainree			
Calibrator Model : Cirrus CR:515		Serial No : 97097	
Calibration Ref dB(A) : 94.0		Certified Date : Oct 02 2024	
SLM Reading / Adjust dB(A) : 93.8/0.0		Expire Date : Oct 01 2025	
Cal Sheet No. : CR-515-2025-086			
Time	Equivalent Sound Pressure Level (dB(A))		
	Apr 10, 2025		
00:00 - 01:00			
01:00 - 02:00			
02:00 - 03:00			
03:00 - 04:00			
04:00 - 05:00			
05:00 - 06:00			
06:00 - 07:00			
07:00 - 08:00			
08:00 - 09:00	82.7		
09:00 - 10:00	82.7		
10:00 - 11:00	82.6		
11:00 - 12:00	82.9		
12:00 - 13:00	82.7		
13:00 - 14:00	82.4		
14:00 - 15:00	82.5		
15:00 - 16:00	82.5		
16:00 - 17:00			
17:00 - 18:00			
18:00 - 19:00			
19:00 - 20:00			
20:00 - 21:00			
21:00 - 22:00			
22:00 - 23:00			
23:00 - 24:00			
Leq(8)*	82.6		
Lmax **	96.5		
Standard-8Hr	90 dB(A)		
Standard-Max	140 dB(A)		

Remark : * Average time between 08:00-16:00

** Maximum Sound Pressure Level between 08:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-NMP Compressor		Monitor Period : Apr 10, 2025	
SLM Model : SCARLET ST-21D		Serial No : 820728	
Site Operator : Miss Salisa Ainree			
Calibrator Model : Cirrus CR:515		Serial No : 97097	
Calibration Ref dB(A) : 94.0		Certified Date : Oct 02 2024	
SLM Reading / Adjust dB(A) : 93.8/0.0		Expire Date : Oct 01 2025	
Cal Sheet No. : CR-515-2025-086			
Time	Equivalent Sound Pressure Level (dB(A))		
	Apr 10, 2025		
00:00 - 01:00			
01:00 - 02:00			
02:00 - 03:00			
03:00 - 04:00			
04:00 - 05:00			
05:00 - 06:00			
06:00 - 07:00			
07:00 - 08:00			
08:00 - 09:00			
09:00 - 10:00		84.2	
10:00 - 11:00		84.1	
11:00 - 12:00		84.8	
12:00 - 13:00		84.8	
13:00 - 14:00		85.0	
14:00 - 15:00		84.7	
15:00 - 16:00		84.5	
16:00 - 17:00		84.3	
17:00 - 18:00			
18:00 - 19:00			
19:00 - 20:00			
20:00 - 21:00			
21:00 - 22:00			
22:00 - 23:00			
23:00 - 24:00			
Leq(8)*		84.6	
Lmax **		95.4	
Standard-8Hr		90 dB(A)	
Standard-Max		140 dB(A)	

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-NMP Heat Exchanger	Monitor Period : Apr 10, 2025
SLM Model : SCARLET ST-21D	Serial No : 820726
Site Operator : Miss Salisa Ainree	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-086	

Time	Equivalent Sound Pressure Level (dB(A))	
	Apr 10, 2025	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		
08:00 - 09:00		
09:00 - 10:00	85.0	
10:00 - 11:00	84.8	
11:00 - 12:00	84.9	
12:00 - 13:00	85.0	
13:00 - 14:00	84.6	
14:00 - 15:00	84.7	
15:00 - 16:00	84.4	
16:00 - 17:00	84.6	
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	84.8	
Lmax **	97.1	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise MTR-BST Site 1

Location : BDU-NMP Steam Line	Monitor Period : Apr 10, 2025
SLM Model : SCARLET ST-21D	Serial No : 820722
Site Operator : Miss Salisa Ainree	

Calibrator Model : Cirrus CR:515	Serial No : 97097
Calibration Ref dB(A) : 94.0	Certified Date : Oct 02 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : Oct 01 2025
Cal Sheet No. : CR-515-2025-086	

Time	Equivalent Sound Pressure Level (dB(A))	
	Apr 10, 2025	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00		
08:00 - 09:00	82.2	
09:00 - 10:00	82.2	
10:00 - 11:00	82.2	
11:00 - 12:00	82.5	
12:00 - 13:00	82.7	
13:00 - 14:00	82.8	
14:00 - 15:00	82.7	
15:00 - 16:00	82.7	
16:00 - 17:00		
17:00 - 18:00		
18:00 - 19:00		
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(8)*	82.5	
Lmax **	97.5	
Standard-8Hr	90 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 08:00-16:00

** Maximum Sound Pressure Level between 08:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

ใบรับรองผลการตรวจวัดระดับเสียงที่พนักงานได้รับ
เฉลี่ยตลอดเวลาการทำงาน
(Time Weighted Average-TWA)



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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0142
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 02/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 39133	07.24-19.00	70.9	81.8	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0142
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 02/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 41255	07.17-19.00	55.9	80.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0142
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 02/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 41272	07.34-19.00	1.0	63.2	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0142
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 02/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621253	07.33-19.00	51.3	80.4	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0142
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 02/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Salisa Ainree CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621258	07.13-19.00	23.2	76.9	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0142
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 02/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Salisa Ainree CALIBRATOR REF. : 114 dB @1,000 Hz

Operator ID	Time	Results		Standard*
		% Dose	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621269	07.31-19.00	38.7	79.1	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0142
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 02/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Salisa Ainree CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 661460	07.26-19.00	48,1	80.1	83,0


 (Miss Katesarin Vorradeetwitaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 05/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 39134	07.37-19.00	55.9	80.7	83.0


 (Miss Katesarin Vorradeetwitaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 05/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 54812	07.53-19.00	9.8	73.2	83.0

(Miss Katesarin Vorradeewittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 05/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 571061	07.51-19.00	13.0	74.4	83.0

(Miss Katesarin Vorradeewittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 05/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 621250	07.51-19.00	25.4	77.3	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 05/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 621272	07.39-19.00	13.8	74.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 05/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 641323	07.49-19.00	44.2	79.7	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 37077	07.32-19.00	1.7	65.7	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


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

NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 39142	07.07-19.00	3.1	68.2	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 40209	07.30-19.00	91.6	82.9	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 06/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 621245	07.29-19.00	13.3	74.5	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 06/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 621248	07.28-19.00	21.2	76.5	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 641320	07.40-19.00	25.5	77.3	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 641322	07.35-19.00	49.5	80.2	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*	
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)	
MF5 : Shift C					
ID 42431	07.30-19.00	27.9	77.7	83.0	OK

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(Miss Sununta Sirawuttinanon)

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 52737	07.50-19.00	18.4	75.9	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 06/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 631316	07.37-19.00	14.5	74.9	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 07/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift B				
ID 561025	07.18-19.00	6.8	71.6	83.0

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(Miss Sununta Sirawuttinanon)

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 07/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

Operator ID	Time	Results		Standard*
		% Dose	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift B				
ID 651412	07.16-19.00	75.5	82.0	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 07/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM1 : Day				
ID 48619	08.09-16.09	11.9	75.8	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 07/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM1 : Day				
ID 49643	07.57-15.57	2.2	68.5	85.0

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MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 07/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM1 : Day				
ID 641372	07.58-15.58	12.2	75.9	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

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 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 07/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM2 : Day				
ID 651447	08.08-16.08	31.9	80.0	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 07/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
SD1 : Day				
ID 51676	07.46-15.46	55.4	82.4	85.0

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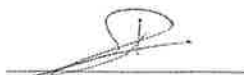
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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 07/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
SD1 : Day				
ID 671548	07.51-15.51	15.3	76.9	85.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 08/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 39118	07.46-19.00	0.7	61.5	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 08/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site I SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 54811	07.48-19.00	92.5	82.9	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 08/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site I SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 571053	07.53-19.00	27.4	77.6	83.0


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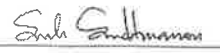
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 08/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 661463	07.18-19.00	94.5	83.0	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

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MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 08/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 41265	07.26-19.00	69.7	81.7	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift C				
ID 571062	07.18-19.00	34.6	78.6	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

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MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 39115	07.35-15.35	7.3	73.7	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 40204	07.45-15.45	9.7	74.9	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 42436	08.05-16.05	18.3	77.7	85.0


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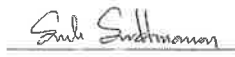
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 09/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 42438	08.06-16.06	5.7	72.6	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0143
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 09/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 43454	07.09-15.09	0.1	53.5	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 47586	08.05-16.05	1.6	67.2	85.0

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MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 48615	07.29-15.29	2.9	69.7	85.0

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 MEASUREMENT DATE : 09/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 51716	07.22-15.22	5.6	72.5	85.0


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 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 09/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 52728	08.06-16.06	0.2	58,7	85,0


 (Miss Katesarin Vorradetwittaya)

Environmental Scientist


 (Miss Sununta Sirawuttinanon)

Technical Management Team

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

NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 54814	08.05-16.05	45.1	81.6	85.0

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Environmental Scientist

(Miss Sununta Sirawuttinanon)

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 54837	07.49-15.49	21.1	78.3	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM1 : Day				
ID 52734	07.58-15.58	0.8	63.9	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 09/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
EPM2 : Day				
ID 591101	07.47-15.47	1.1	65.4	85.0

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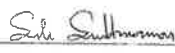
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 10/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift A				
ID 52731	07.13-19.00	6.7	71.6	83.0


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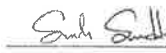
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0143
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 10/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift A				
ID 631292	07.14-19.00	33.5	78.5	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 13/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift D				
ID 51708	07.14-19.00	26.7	77.5	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 13/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift D				
ID 611202	07.17-19.00	70.0	81.7	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 13/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift D				
ID 631300	07.16-19.00	2.2	66.8	83.0


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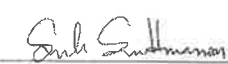
NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 13/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 39112	07.23-19.00	11.4	73,8	83,0


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(Miss Sununta Sirawuttinanon)

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 13/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site I	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
1D 621256	07.28-19.00	22.0	76.7	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

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MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 14/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site I	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 611203	07.35-15.35	8.6	74.4	85.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0144
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 14/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 611205	07.35-15.35	43.0	81.4	85.0


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MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 14/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 621238	07.34-15.34	2.8	69.5	85.0


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MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 14/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 651421	07.34-15.34	2.3	68.6	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0144
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 14/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 661455	07.34-15.34	38.2	80.8	85.0


(Miss Katesarin Vorradetwitaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

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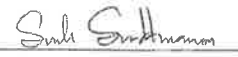
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 14/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 661477	07.34-15.34	8.8	74.5	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 14/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF5 : Day				
ID 39127	07.35-15.35	1.0	65.2	85.0


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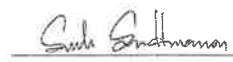
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0144
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 14/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF5 : Day				
ID 42384	07.34-15.34	15.4	76.9	85.0


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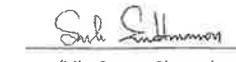
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2505-0290
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 15/05/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift B				
ID 621239	07.34-19.00	36.2	78.9	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0290
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 15/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 41260	07.30-19.00	12.6	74.3	83.0


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(Miss Sununta Sirawuttinanon)
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0290
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 15/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 41262	07.38-19.00	31.5	78.3	83.0


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(Miss Sununta Sirawuttinanon)
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0300
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 17/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 651446	07.10-19.00	2.1	66.5	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0300
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 17/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF3 : Shift C				
ID 52727	07.08-19.00	4.5	69.9	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 26/05/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift B				
ID 621244	07.24-19.00	59,3	81.0	83.0


 (Miss Katesarin Vorradetwittaya)

Environmental Scientist


 (Miss Sununta Sirawuttinanon)

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 40160	07.31-15.31	59.8	82.8	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site I SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (8 hr) (dBA)	TWA (8 hr) (dBA)
MF3 : Day				
ID 43453	07.50-15.50	10.7	75.3	85.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site I SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 41264	07.27-19.00	8.1	72.4	83.0


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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 621247	07.32-19.00	53.9	80.6	83.0

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Environmental Scientist

(Miss Sununta Sirawuttinanon)
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @ 1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 621252	07.25-19.00	10.2	73.4	83.0

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0331
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 27/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 661457	07.22-19.00	37.7	79.0	83.0


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


NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0332
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 29/05/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 40198	07.20-19.00	18.6	76.0	83.0


 (Miss Katesarin Vorradetwittaya)

Environmental Scientist


 (Miss Sununta Sirawuttinanon)

Technical Management Team

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4. TWA means Time Weighted Average.



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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0332
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 29/05/2025 CALIBRATOR TYPE : Pulsar 22R
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 79781
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621246	07.19-19.00	25.9	77.4	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

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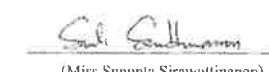
NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0332
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
MEASUREMENT DATE : 29/05/2025 CALIBRATOR TYPE : RC 110A
MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621259	07.19-19.00	23.0	76.9	83.0


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2505-0332
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 29/05/2025 CALIBRATOR TYPE : RC 110A
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 95167
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift C				
ID 621242	07.18-19.00	62.2	81.2	83.0


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME : Bangkok Synthetics Co., Ltd. REFERENCE NO. : 225054-NoiseDose-2506-0141
 MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Noise Dosimeter
 MEASUREMENT DATE : 02/06/2025 CALIBRATOR TYPE : Pulsar 22R
 MEASUREMENT LOCATION : BST Site 1 SERIAL NO. : 79781
 SITE OPERATOR : Miss Wiraya Patchimboon CALIBRATOR REF. : 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 621243	07.03-19.00	46.5	79.9	83.0


 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist


 (Miss Sununta Sirawuttinanon)
 Technical Management Team

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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2506-0141
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 02/06/2025	CALIBRATOR TYPE	: Pulsar 22R
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 79781
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift D				
ID 641321	07.03-19.00	33.5	78.5	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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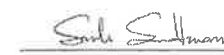
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NOISE MEASUREMENT RESULT : NOISE DOSE

CLIENT NAME	: Bangkok Synthetics Co., Ltd.	REFERENCE NO.	: 225054-NoiseDose-2506-0181
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 12/06/2025	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: BST Site 1	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Wiraya Patchimboon	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	TIME	RESULTS		STANDARD*
		% DOSE	TWA (12 hr) (dBA)	TWA (12 hr) (dBA)
MF5 : Shift A				
ID 621255	07.33-19.00	3.1	68.2	83.0


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0518/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 18/03/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 20/03/2025
		Test Date	: 24/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 25/03/2025

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
Lab (BST) : R-110	18/03/2025 08:05-16:05	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0492/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 13/03/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 15/03/2025
		Test Date	: 17/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/03/2025

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
Tar Loading (V-9941)	13/03/2025 08:08-16:08	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I
C-1401: BD Plant	13/03/2025 08:11-16:11	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I
BDU-NMP: Extractive Distillation :C-2241	13/03/2025 08:17-16:17	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I
BDU-NMP : BD Purification : C-2245	13/03/2025 08:14-16:14	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0518/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 18/03/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 20/03/2025
		Test Date	: 25/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 25/03/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	18/03/2025 08:05-16:05	Methyl tert-butyl ether	NIOSH 1615/GC FID	< 0.02	ND	50

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0493/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 11/03/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 15/03/2025
		Test Date	: 18/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/03/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
C-3001	11/03/2025 09:30-16:50	Methyl tert-butyl ether	NIOSH 1615/GC FID	< 0.02	ND	50

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0492/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 13/03/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 15/03/2025
		Test Date	: 18/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/03/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	13/03/2025 08:04-16:04	Methanol	NIOSH 2000/GC FID	≤ 0.04	ND	200

Analyst By: Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0493/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 11/03/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 15/03/2025
		Test Date	: 18/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/03/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
T-3001 : Stop Tank	11/03/2025 09:30-16:50	Methanol	NIOSH 2000/GC FID	≤ 0.04	ND	200

Analyst By: Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0711/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 22/04/2025
Address	: No.5/1, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 24/04/2025
		Test Date	: 28/04/2025
Tel/Fax	: 0-3869-8698	Report Date	: 02/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	22/04/2025 08:20-16:59	Toluene	NIOSH 1501/GC FID	< 0.02	ND	200

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maia Poonwasonpetch
(Miss Narisa Poowasonpetch)
Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0493/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 11/03/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 15/03/2025
		Test Date	: 17/03/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/03/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
T-1504 : ถังเก็บ Toluene	11/03/2025 09:15-16:40	Toluene	NIOSH 1501/GC FID	< 0.02	ND	200

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maia Poonwasonpetch
(Miss Narisa Poowasonpetch)
Technical Management Team

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SECOT CO., LTD.

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

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0868/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 09/05/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 14/05/2025
		Test Date	: 19/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	09/05/2025 08:22-16:22	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Miss Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0838/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 08/05/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 09/05/2025
		Test Date	: 19/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Tar Loading (V-9941)	08/05/2025 08:16-16:16	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I
C-1401; BD Plant	08/05/2025 08:22-16:22	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I
BDU-NMP; Extractive Distillation :C-2241	08/05/2025 08:30-16:30	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	0.18	I
BDU-NMP : BD Purification : C-2245	08/05/2025 08:33-16:33	1,3-Butadiene	NIOSH 1024/GC FID	< 0.02	ND	I

Analyst By :

Sudaporn S.

(Miss Sudaporn Soonthorn)

Approved By :

Miss Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0868/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 09/05/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 14/05/2025
		Test Date	: 15/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lah (BST) : R-110	09/05/2025 08:22-16:22	Methyl tert-butyl ether	NIOSH 1615/GC FID	< 0.02	ND	50

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maia Poowasanpeth
(Miss Narisa Poowasanpeth)
Technical Management Team

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0837/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 06/05/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 09/05/2025
		Test Date	: 14/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
C-3001	06/05/2025 09:21-17:21	Methyl tert-butyl ether	NIOSH 1615/GC FID	< 0.02	ND	50

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Maia Poowasanpeth
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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0948/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 23/05/2025
Address	: No.5/1, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 26/05/2025
		Test Date	: 26/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 02/06/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	23/05/2025 08:30-16:30	Methanol	NIOSH 2000/GC FID	< 0.04	ND	200

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0837/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 06/05/2025
Address	: No.5, 1-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 09/05/2025
		Test Date	: 15/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
T-3001 : Slop Tank	06/05/2025 08:53-17:11	Methanol	NIOSH 2000/GC FID	< 0.04	ND	200

Analyst By : Sudaporn S.
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Approved By : Mairisa Poowasanpet
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TEL. (662) 959-3600 FAX (662) 959-3535 Website : seco.co.th E-mail : envserv@seco.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0948/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 23/05/2025
Address	: No.5/1, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 26/05/2025
		Test Date	: 26/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 02/06/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Lab (BST) : R-110	23/05/2025 08:30-16:30	Toluene	NIOSH 1501/GC FID	<0.02	ND	200

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	Request Service No.	: 0837/68
For	: Bangkok Synthetics Co., Ltd. (BST Site 1)	Sampling Date	: 06/05/2025
Address	: No.5, I-7 Road, Map Ta Phut Sub-district, Muang District, Rayong Province 21150	Received Date	: 09/05/2025
		Test Date	: 17/05/2025
Tel/Fax	: 0-3869-8698	Report Date	: 20/05/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

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

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
T-1504 : ถังเก็บ Toluene	06/05/2025 08:46-17:07	Toluene	NIOSH 1501/GC FID	< 0.02	ND	200

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowanapetch
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ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ

Agilent CrossLab Start Up Services

Agilent GCMS Preventive Maintenance Checklist



Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results.

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak. This checklist will be completed at the end of the service and provided to you as a record of the preventive maintenance activities.

Introduction

Select the appropriate PM to be done and then perform the checklist under that section

- ☐ Interim Preventive Maintenance 6 months
- ☒ Major Preventive Maintenance Yearly

This checklist covers the following model(s):

Type	Model
SQ	5973 Series MSD
SQ	5975 Series MSD
SQ	5977 Series MSD
TQ	7000 Series MS/MS
TQ	7010 Series MS/MS
QTOF	7200 Series QTOF
QTOF	7250 Series QTOF

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Important Customer Web Links

- For more information about Agilent Technologies services, please visit our website using the following URL: <http://www.agilent.com/en-us/products/crosslab-instrument-services/service-repair>
- To access Agilent University, visit <http://www.agilent.com/crosslab/university/> to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- A useful Agilent Resource Center web page is available, which includes short videos on maintenance, quick lists of consumables for new instruments, and other valuable information. Check out the Resource Page here: <https://www.agilent.com/en-us/agilentresources>
- Need technical support, FAQs, supplies? – visit our Support Home page at <http://www.agilent.com/search/support>
- Get answers. Share insights. Build connections:
Join the Agilent Community at <https://community.agilent.com/welcome>

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check "Section not applicable" check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Ask the customer to sign the Service Completion section including the customer's and your signature.

Additional Instruction Notes

- Preventive maintenance is a factory recommended procedure designed to reduce the likelihood of electromechanical failures. Failure to perform preventive maintenance may reduce the long-term reliability of certain instruments and systems. **Two preventative maintenances (PMs) per year are recommended, the Major PM Service will be performed annually with an Interim PM performed 6 months after the Major PM.**

System Information

- ☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	5975C MSD
Instrument System Site and Location	SECOT Co., Ltd.

List System Component Product Numbers	List the Serial Numbers of each Component
1. G3172A	US74838080
2. N/A	N/A
3. N/A	N/A
4. N/A	N/A
5. N/A	N/A
6. N/A	N/A
7. N/A	N/A
8. N/A	N/A

Preparation

- ☒ Discuss any specific issues with the customer before starting.
- ☒ Review the instrument logbook for recorded problems and comments.
- ☒ Save instrument control settings before starting the procedure.
- ☒ Perform a general inspection of the system for cleanliness.
- ☒ Check for proper installation of parts, assemblies, sensors etc.
- ☒ Check system for required installation of components and settings as defined by current Service Notes
- ☒ Check for firmware updates and verify with customers if they would like them installed. Firmware update(s) are strongly recommended.

Customer Responsibilities

Customers should ensure that all necessary operating supplies, consumables, and usage-dependent items such as gases, vials, syringes, calibrant solution and solvents required for successful preventive maintenance are available. A customer representative should be available while the preventive maintenance is being performed.

Important notice for customers

The customer should complete the following before the Support Provider arrives on site:

- ✓ Perform an autotune and retain the printed tune report just prior to the start of the PM to verify performance of the equipment.

Note: It is recommended to have the customer run the autotune and tune evaluation prior to the PM and then start the vent cycle so that the instrument will be ready for the service representative.

Definition of the Task/Recommended items within the document

Task	Recommended				
Yes	No	Interim / Major / As needed			
✓	□	□	□	□	Yes selected means that the task was done or the part was required.
□	✓	□	□	□	No selected means that the task was not done or the part was not required.
□	□	✓	□	□	Interim selected means that this task is recommended to be done at 6-month intervals.
□	□	□	✓	□	Major selected means that this task is recommended to be done yearly; if the customer would like a service to be done at the 6-month interval then the service could be purchased.
□	□	□	□	✓	As needed selected means that the task was done or the part was used as needed. For example, there could be two types of filters that could be used and this was the one selected.

Preventive Maintenance Procedures

Yes/No	Interim/Major	Description
✓	□	Perform general inspection of system for cleanliness.
✓	□	Discuss any problems the customer is having with the instrument.
✓	□	Review customer maintenance records and exclude maintenance on recently serviced items.
✓	□	Review the most recent autotune report. This will give a starting point for evaluating spectral peaks, baseline noise, peak shape, mass assignments and resolution.

Yes/No	Interim/Major	GCMS
✓	□	Record Instrument model no.
✓	□	Record Instrument serial no.
✓	□	Record Rough Vacuum
✓	□	Record Manifold Vacuum
✓	□	Type of Column Installed

Yes/No	Interim/Major	System Checks
✓	□	Verify that calibration peaks were seen prior to starting the PM.
✓	□	Vent the instrument.
✓	□	Inspect vacuum hoses, pump, exhaust tubing, and power cords for excessive wear.
✓	□	Visually inspect calibrant levels – PFTBA PFDTD (if appl.), IRM (if appl.). Refill if available.
✓	□	Look for any obvious external damage or problems.
✓	□	Clean air intake(s). Cosmetic cover(s) may need to be removed.
✓	□	Verify system line voltage meets instrument specifications. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Yes/No	Interim/Major	Wet Mechanical vacuum pumps
✓	□	Check for evidence of oil leakage. Check pump gasket for leakage.
✓	□	Drain and replace mechanical pump oil.
✓	□	Replace Oil Mist Filter if applicable.
✓	□	Discuss with customer the need for more frequent oil changes if the oil is dirty.
✓	□	Don't use mist filters with Chemical Ionization.
✓	□	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed. Visually confirm that no oil returns up vacuum hose.
Yes/No	Interim/Major	Dry Mechanical vacuum pumps - Diaphragm
✓	□	Check for evidence of poor vacuum – Turbo power demand, poor manifold vacuum, etc.
✓	□	Clear air flow paths of dust.
✓	□	If vacuum is poor, then replace the diaphragm pump.
✓	□	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

Yes/No	Interim/Major	Dry Mechanical vacuum pumps - Scroll
✓	□	Replace the tips seal on the IDP pump.
✓	□	Check for evidence of poor vacuum – Turbo power demand, poor manifold vacuum, etc.
✓	□	Replace the Exhaust Filter if required.
✓	□	Discuss with customer the need for more frequent changes, if needed.
✓	□	Inform customer that pump gas ballast should be installed all the time.
✓	□	Perform anti-suckback valve test. Power on until side plate is held closed, power off and check that side plate holds closed.

Yes/No	Interim/Major	Cleaning System and Filters
✓	□	Fans
✓	□	Remove dust from fans and vent covers.
✓	□	Verify fans are functional and that there is enough space around the instrument for proper cooling.
✓	□	Source cleaning
✓	□	Open analyzer and remove the source.
✓	□	Disassemble, Clean, Re-assemble source.
✓	□	Re-install source and close analyzer.
✓	□	Filters
✓	□	Replace RMSH-2 Helium gas filter – if applicable.
✓	□	Replace RMSN-2 Nitrogen gas filter – if applicable.
✓	□	Replace RMSHY-2 Hydrogen gas filter – if applicable.
✓	□	CP17988 – Gas Clean Carrier Gas Kit for 7890 for Nitrogen or Helium; Bracket, Mount, and Filter – if applicable.
✓	□	CP17974 – Gas Clean Filter Kit GC/MS 1/8"; Mount and Filter – if applicable.
✓	□	CP17973 – Gas Clean Filter; Replacement Filter – if applicable.
✓	□	5190-9071 – Methane Gas Filter – if applicable.

Guidance: If gas filter is replaced, write the change date on the filter using a permanent marker.

Yes/No	Interim/Minor	Major	Description
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pump system back down. Wait until system stability has been achieved.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Verify system vacuum reading(s) via the gauge controller.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Leak Check
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Verify system in manual tune
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Compare against previous tune file report(s)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Change to Tune and verify that all temperatures, pressures, and gas flows reach method set points
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Check manually that you have calibration peaks.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EI Autotune Performed

Guidance: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument setup and checkout.

Service Review

- ☒ Attach available reports/printouts of all tests to this documentation.
- ☒ Record the Preventive Maintenance service activity in the customer's records/logbook. Record the PM event in the Smart Alerts logbook, if applicable.
- ☒ Update/reset instrument maintenance counters as appropriate.
- ☒ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☒ Complete the Service Engineer Comments section if there are additional comments.
- ☒ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comment box. Systems in a compliant environment may need additional documentation.

Agilent Test Results Table

Test Description	Expected Test Result	Actual Test Result
Atune and Evaluation	Pass	Pass
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Agilent Consumed Parts List Table

☐ Section not applicable

Part Description	Part Number	Product or Model# where used	Quantity consumed
Agilent Vacuum Fluid	5191-5851	Rough Pump	1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box

N/A

Service Completion

Service request number 6006807758 Date service completed 12 Jun 2024

Agilent signature Srinan Th Customer signature Srinan C

Total number of pages in this document 12

Parts – As needed as part of the PM

Common MS Filters and Seals – 5973/5975/5977/7000/7010/7200/7250 Series

Yes/No	Interim/Major/As needed	Supplies	Part number
<input type="checkbox"/>	<input type="checkbox"/>	Helium gas filter – if required	RMSH-2
<input type="checkbox"/>	<input type="checkbox"/>	Nitrogen gas filter – if required	RMSN-2
<input type="checkbox"/>	<input type="checkbox"/>	Big Universal Trap, 1/8" fittings, Hydrogen, if required	RMSHY-2
<input type="checkbox"/>	<input type="checkbox"/>	Gas Clean Carrier Gas Kit for 7890 for Nitrogen or Helium; Bracket, Mount and Filter – if required	CP17988
<input type="checkbox"/>	<input type="checkbox"/>	Gas Clean Filter Kit GC/MS 1/8 in (complete replacement kit) – if required	CP17974
<input type="checkbox"/>	<input type="checkbox"/>	Gas Clean GS/MS Filter – if required	CP17973
<input type="checkbox"/>	<input type="checkbox"/>	Chemical Ionization Gas Purifier (CI systems) – if required	5190-9071
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Agilent AVF Platinum, 1 quart	5191-5851

Gas filters need to be changed only if required

MS Maintenance Supplies for 5973/5975/5977 Series

Yes/No	Interim/Major/As needed	Supplies	Part number
<input type="checkbox"/>	<input type="checkbox"/>	Diffusion pump fluid (Diffusion Pump Models)	6040-0809 Qty 2
<input type="checkbox"/>	<input type="checkbox"/>	IDP-3 Tip Seal Replacement Kit (IDP-3 Dry Pump Models)	G7077-67018
<input type="checkbox"/>	<input type="checkbox"/>	IDP-3 Tip Seal Replacement Kit (no tools – CSD P/N)	5190-9561
<input type="checkbox"/>	<input type="checkbox"/>	IDP-3 Tip Seal Replacement Kit (no tools – VPD P/N)	IDP3TS
<input type="checkbox"/>	<input type="checkbox"/>	Filter element for IDP-3	REPLSLRFILTER2
<input type="checkbox"/>	<input type="checkbox"/>	DS42 Oil Mist Eliminator 3/4G & 3/8	SR03706556
<input type="checkbox"/>	<input type="checkbox"/>	Exhaust oil mist trap (thread) Edwards/Pfeiffer	G1099-80039

MS Maintenance Supplies for 7000/7010 Series

Yes/No	Interim/Major/As needed	Supplies	Part number
<input type="checkbox"/>	<input type="checkbox"/>	Nitrogen gas filter	RMSN-2
<input type="checkbox"/>	<input type="checkbox"/>	IDP-10 Tip Seal Replacement Kit (IDP-10 Dry Scroll Pump Models)	G7004-67023
<input type="checkbox"/>	<input type="checkbox"/>	IDP-10 Tip Seal Replacement Kit (no tools – VPD P/N)	X3807-67000
<input type="checkbox"/>	<input type="checkbox"/>	Oil Mist Filter RV5	G6600-80043
<input type="checkbox"/>	<input type="checkbox"/>	Filter element for the IDP-10	REPLSLRFILTER1

MS Maintenance Supplies for 7200/7250 Series

Yes/No	Interim/Major/As needed	Supplies	Part number
<input type="checkbox"/>	<input type="checkbox"/>	Nitrogen gas filter – if required	RMSN-2
<input type="checkbox"/>	<input type="checkbox"/>	RIS Probe Maintenance Kit (7200 Series only)	G7005-60170
<input type="checkbox"/>	<input type="checkbox"/>	DS202 Oil Mist Eliminator	SR03706800
<input type="checkbox"/>	<input type="checkbox"/>	IDP-15 Tip Seal Replacement Kit (IDP-15 Dry Pump Models)	5190-9613
<input type="checkbox"/>	<input type="checkbox"/>	IDP-15 Tip Seal Replacement Kit (no tools – VPD P/N)	X3815-67000
<input type="checkbox"/>	<input type="checkbox"/>	Filter element, for SH-110/SH-112/IDP-15 exhaust silencer	REPLSLRFILTER
<input type="checkbox"/>	<input type="checkbox"/>	DS 3/8 MAG. PLUG AND GASKET	SR03701824

MS Maintenance Supplies for JetClean

Yes/No	Interim/Major/As needed	Supplies	Part number
<input type="checkbox"/>	<input type="checkbox"/>		

☐ ☐ ☐ ☒ ☐ Big Universal Trap, 1/8" fittings, Hydrogen, if required RMSHY-2

Consumable Parts Reference – Purchasable by customer, not included as part of PM

Common MSD Maintenance Supplies 5973/5975/5977/7000/7010/7200/7250 Series

Yes/No	Interim/Major/As needed	Description	Part number
<input checked="" type="checkbox"/>	<input type="checkbox"/>	El High Temperature Filaments	G7005-60061 Qty 2
<input checked="" type="checkbox"/>	<input type="checkbox"/>	HES El Filaments	G7002-60001
<input checked="" type="checkbox"/>	<input type="checkbox"/>	LE-El Filaments	G3850-60021
<input checked="" type="checkbox"/>	<input type="checkbox"/>	CI High Temperature Filament – all MSDs	G7005-60072
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PFTBA GCMS Tuning Standard calibrant	05971-60571
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PFTD calibrant, 1 mL	8500-8510
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PFET, IRM calibrant for GC QTOF 0.5 mL	S190-0531

MSD Maintenance Supplies 5973/5975/5977 Series

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal (tip and spring combo)	G1999-60412
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal (tip only)	G3870-20542
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal spring (spring only)	G1999-20023
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Repeller insulator	G1099-20133 Qty 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lens insulator/holder (HES)	G7002-20074
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ring heater/sensor assembly (HES)	G7002-60043
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ceramic insulator for Extractor (HES)	G7002-20064
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Cap, Threaded	G3870-20547
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Base, Threaded	G3870-20548

MS Maintenance Supplies for 7000/7010 Series

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal - 7000	G1999-60412
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal - 7010	G7002-60412
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal (tip only)	G3870-20542
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Interface tip seal spring (spring only)	G1999-20023
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Repeller insulator - 7000	G1099-20133 Qty 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lens insulator/holder (HES)	G7002-20074
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ring heater/sensor assembly (HES)	G7002-60043
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ceramic insulator for Extractor (HES)	G7002-20064
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Cap, Threaded	G3870-20547
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Base, Threaded	G3870-20548

MS Maintenance Supplies for 7200 Series

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Extractor Lens Insulator	G7005-20133
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ion Focus Insulator	G7005-20442
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ring Heater/Sensor Assembly	G7005-60110
<input type="checkbox"/>	<input checked="" type="checkbox"/>	RIS Xfer Tip	G7005-20542
<input type="checkbox"/>	<input checked="" type="checkbox"/>	RIS Xfer Tip Spring	G7005-20024

MS Maintenance Supplies for 7250 Series

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lens insulator/holder (HES)	G7002-20074
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ring heater/sensor assembly (HES)	G7002-60043
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ceramic insulator for Extractor (HES)	G7002-20064
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Cap, Threaded	G3870-20547
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer-Line Tip Base, Threaded	G3870-20548
<input type="checkbox"/>	<input checked="" type="checkbox"/>	El Extractor Transfer Tip	G3870-20542
<input type="checkbox"/>	<input checked="" type="checkbox"/>	CI Tip Compression Spring	G1999-20023

MS Maintenance Supplies for Intuvo 9000 MS Systems

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Swaged MS Tail - Packaged	G4590-60009
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Swaged MS Tail (HES) - Packaged	G4590-60109

Common MS Maintenance Supplies

Yes/No	Interim/Major/As needed	Description	Part number
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Abrasive paper, 30 um	5061-5896
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alumina powder	393706201
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cloths, clean (pkg of 15)	05980-60051
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cloths, cleaning (pkg of 300)	9310-4828
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cotton swabs (pkg of 100)	5080-5400
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gloves, clean, large	8650-0030
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gloves, clean, small	8650-0029

Certificate of System Qualification

GC-OQ + GCMS-OQ

System ID: US2509MA07
Organization Name: Secot CO.,Ltd. (Head Office)
Organization Location: 239 Rimklongprapa Rd., Bangsue, Bangkok 10800

Date: April 10, 2025 3:59:29 PM
EQP Name: AgilentRecommended , AgilentRecommended

EQP Revision: GC.02.55, GCMS.02.56
Overall Qualification Status: Pass

CDS Logon Verification - GC

Logon: No logon credentials required for customer CDS

System Inspection and Basic Safety and Operation

Name: 8890
Setpoint Status: Pass

Overall System Inspection and Basic Safety and Operation Test Status

Pass

Inlet Pressure Accuracy

Name: 8890
Front SSL

Setpoint Status: Pass

	Setpoint	Actual
Inlet Pressure:	25.0 psi	24.9 psi
Accuracy:		0.1 psi
Agilent Recommended:		<= 1.2

Overall Inlet Pressure Accuracy Test Status

Pass

Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

GC Oven Temperature Accuracy

Name: 8890
Setpoint Status: Pass
Zone: Oven
Setpoint/Actual
Temperature: 230.0 230.0 °C
Accuracy: 0.0 °C
Agilent Recommended: >= -1.0 % setpoint in K (-5.0 °C)
<= 1.0 % setpoint in K (5.0 °C)

Setpoint Status: Pass
Zone: Oven
Setpoint/Actual
Temperature: 100.0 100.0 °C
Accuracy: 0.0 °C
Agilent Recommended: >= -1.0 % setpoint in K (-3.7 °C)
<= 1.0 % setpoint in K (3.7 °C)

Overall GC Oven Temperature Accuracy Test Status

Pass

GC Oven Temperature Stability

Name: 8890
Setpoint Status: Pass
Setpoint/Average
Temperature: 100.0 100.05 °C
Stability: 0.1 °C
Agilent Recommended: <= 0.5

Overall GC Oven Temperature Stability Test Status

Pass

Log Amp

Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

Tested Combination1FrontSSL/ ExternalSQ

Name:5977C

Setpoint Status:Pass

Overall Log Amp Test Status

Pass

RFPA

Tested Combination1FrontSSL/ ExternalSQ

Name:5977C

Setpoint Status:Pass

Amu:1050m/zDrift After Five Minutes:31mVRFPA Voltage:510mV

Agilent Recommended:>= -100and<= 100<= 1100

Overall RFPA Test Status

Pass

Tune EI

Tested Combination1FrontSSL/ ExternalSQ

Name:5977C

Setpoint Status:Pass

Filament:1

Setpoint Status:Pass

Filament:2

Overall Tune EI Test Status

Pass

Scouting Run

Tested Combination1FrontSSL/ ExternalSQ

Manual Injection

Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

Name:Not applicable

Source:EI - Extractor

Setpoint Status:Completed

Injection Volume on Column:1.0µL

Overall Scouting Run Status

Completed

NOTE: This test's 1 comment(s) and 1 deviation(s) are available in the Attachments section.

Signal to Noise EI

Tested Combination1FrontSSL/ ExternalSQ

Name:5977C

Source:EI - ExtractorFilament:1

Setpoint Status:Pass

Signal to Noise:14338

Agilent Recommended:>= 4000

Source:EI - ExtractorFilament:2

Setpoint Status:Pass

Signal to Noise:8988

Agilent Recommended:>= 4000

Overall Signal to Noise EI Test Status

Pass

Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

Instrument Details

Purpose
This section describes the as found system configuration.

Details

System	
System ID	US2509MA07
Manufacturer	Agilent Technologies
Name	8890
Flow Data Input	Manual Data
Temperature Data Input	Manual Data or Other Data Logging
Tested Combination1	
Injection Technique	Manual Injection
Inlet	Front
Detector	External
LTM included?	No
Sampler 1	
Manufacturer	Agilent Technologies
Type	Manual Injection
Usage	Sample Injection
Syringe Volume (µL)	10
Mainframe 1	
Manufacturer	Agilent Technologies
Name	8890
Model Number	G3540A
Serial Number	CN2508A105
Firmware Revision	3.0.0.181
Oven Type	Standard

Inlet 1	
Manufacturer	Agilent Technologies
Name	8890
Type	SSL
Location	Front
Carrier Gas	Helium
Control Type	Electronic Pressure Control (EPC)
Purged Inlet	Yes
Detector 1	
Manufacturer	Agilent Technologies
Name	Mass Spectrometer
Type	Mass Spectrometer
Location	External
Mass Spectrometer 1	
Manufacturer	Agilent Technologies
Type	SQ
Name	S977C
Model Number	G7077C
Serial Number	US2509MA07
Firmware Revision	Not applicable
High Vacuum System	Turbo Pump
Liquid Injection Scouting Run Standard	OFN Std
MS EI Source 1	
Manufacturer	Agilent Technologies
Source Type	EI - Extractor
Number of filaments	2

Electronic Signature

Purpose

This signature page was created and published because the ACE sign-off action was executed, which is valid for the entire document, including attachments. The ACE sign-off is an electronic signature that requires two distinct identification components: unique username and personal password. The Agilent representative who has delivered this service understands the meaning and legal status of an electronic signature. As a trained official operator, the Agilent representative has a unique password and logon to access ACE and electronically sign this document. (Other e-signatures can be applied to this document using a Document Content Management or other suitable method defined in your data access and control procedures.)

Details

Full Name of Signer:

Nattapat Hengcharoen

Logged On User Name:

nattapat.hengcharoen@agilent.com

Signature Creation Date:

April 10, 2025

Reason for Signature:

Executed protocol and published this original version of document

ACE Self Qualification Status

The installed version of ACE used to deliver this service passed qualification; the results conform with expected values. The self qualification summary report is available in the session folder location SDS\ClearStore\AceSelfQualification.

Regulatory Disclaimer

This document provides a protocol to verify and record instrument configuration and evidence of proper operation. It has been prepared from our interpretation of applicable regulations as well as industry best practices. The document is designed to provide an important component of a complete compliance package. Validation depends upon many factors and use of this protocol alone does not assure compliance. Agilent Technologies makes no promises or representations as to its sufficiency for any specific regulatory program.

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Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 9:49:38 AM	Audit	SessionCreated	Session	Host Name: DESKTOP-ST5F4N3, Drive Serial Number: E842594E
April 10, 2025 9:49:38 AM	start	Configuration	Session	None
April 10, 2025 9:49:38 AM	Audit	Entitlement	Licensing	User Is FieldEngineer and does not require an unlock code
April 10, 2025 9:54:33 AM	Audit	EqpLoaded	Session	EQP details for primary technique [Gc] - File path: [ProtocolPacks\Gc\Configuration\02_55\Gc_02_55.eqp], EQP File Name: [Gc_02_55.eqp], EQP Name: [AgilentRecommended].Protocol Revision :[Gc_02_55] EQP details for hyphenated technique [GcMs] - File path: [ProtocolPacks\GcMs\Configuration\02_56\GcMs_02_56.eqp], EQP File Name: [GcMs_02_56.eqp], EQP Name: [AgilentRecommended]
April 10, 2025 9:54:45 AM	End	Configuration	Session	None
April 10, 2025 9:54:49 AM	start	Qualification	Session	IQ
April 10, 2025 9:54:49 AM	start	Qualification	Session	OQ
April 10, 2025 9:54:49 AM	start	Execution	Purchase Order Details - 8880: - None Purchase Order	
April 10, 2025 9:54:56 AM	End	Qualification	Session	IQ
April 10, 2025 9:54:56 AM	start	Qualification	Session	OQ

User Name: user@agilent.com

System ID: US2509MA07

Report Generated by Hostname: DESKTOP-ST5F4N3

Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 9:54:56 AM	start	Execution	CDS Logon Verification - GC - 8890: - Qualitative test	None
April 10, 2025 9:56:08 AM	End	Execution	CDS Logon Verification - GC - 8890: - Qualitative test	Run Count : 1
April 10, 2025 9:58:10 AM	start	Execution	System Inspection and Basic Safety and Operation - 8890: - Qualitative Test - No setpoints associated	None
April 10, 2025 9:58:25 AM	End	Execution	System Inspection and Basic Safety and Operation - 8890: - Qualitative Test - No setpoints associated	Run Count : 1
April 10, 2025 9:58:27 AM	start	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	None
April 10, 2025 9:57:28 AM	End	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	Run Count : 1
April 10, 2025 9:57:28 AM	start	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
April 10, 2025 9:58:03 AM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 10:00:25 AM	start	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None

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Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

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User Name: user@agilent.com

System ID: US2509MA07

Report Generated by Hostname: DESKTOP-ST5F4N3

Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 10:00:35 AM	Audit	Data	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
April 10, 2025 10:00:42 AM	End	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1
April 10, 2025 10:00:44 AM	start	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
April 10, 2025 10:18:14 AM	Audit	Data	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
April 10, 2025 10:18:19 AM	End	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1
April 10, 2025 10:19:26 AM	start	Execution	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	None
April 10, 2025 10:48:10 AM	Audit	Data	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Manual Data Entry
April 10, 2025 10:48:12 AM	End	Execution	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Run Count : 1
April 10, 2025 10:48:14 AM	start	Execution	Log Amp - 5977C SQ: - Source: EI - Extractor	None
April 10, 2025 10:55:30 AM	End	Execution	Log Amp - 5977C SQ: - Source: EI - Extractor	Run Count : 1

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Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

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User Name: nrtgpc@hpc.honeywell.com
Report Generated by Hostname: DESKTOP-ST5F4N3
System ID: US2509MA07
Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 10:55:32 AM	start	Execution	RFPA - 5977C SQ: - Source: EI None - Extractor	
April 10, 2025 10:57:39 AM	start	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: - EI - Extractor- Part of GCMS System Preparation	None
April 10, 2025 11:07:36 AM	start	Execution	RFPA - 5977C SQ: - Source: EI None - Extractor	
April 10, 2025 11:17:53 AM	End	Execution	RFPA - 5977C SQ: - Source: EI Run Count : 1 - Extractor	
April 10, 2025 11:17:55 AM	start	Execution	Tune EI - 5977C SQ: - Source: - None EI - Extractor Filament 1 (Qualitative - No setpoints associated)	
April 10, 2025 11:19:09 AM	End	Execution	Tune EI - 5977C SQ: - Source: - Run Count : 1 EI - Extractor Filament 1 (Qualitative - No setpoints associated)	
April 10, 2025 11:19:11 AM	start	Execution	Tune EI - 5977C SQ: - Source: - None EI - Extractor Filament 2 (Qualitative - No setpoints associated)	
April 10, 2025 11:19:24 AM	End	Execution	Tune EI - 5977C SQ: - Source: - Run Count : 1 EI - Extractor Filament 2 (Qualitative - No setpoints associated)	
April 10, 2025 11:19:25 AM	start	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: - EI - Extractor- Part of GCMS System Preparation	None

User Name: nrtgpc@hpc.honeywell.com
Report Generated by Hostname: DESKTOP-ST5F4N3
System ID: US2509MA07
Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 12:10:36 PM	start	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: - EI - Extractor- Part of GCMS System Preparation	None
April 10, 2025 12:10:59 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 12:11:04 PM	start	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: - EI - Extractor- Part of GCMS System Preparation	None
April 10, 2025 12:11:06 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 12:14:35 PM	Audit	AceClosed	Session	None
April 10, 2025 12:15:07 PM	Audit	AceRestarted	Session	Host Name: DESKTOP-ST5F4N3, Drive Serial Number: E842594E
April 10, 2025 2:31:58 PM	Audit	SessionReloaded	Session	None
April 10, 2025 2:31:59 PM	start	Qualification	Session	IQ
April 10, 2025 2:31:59 PM	start	Qualification	Session	DQ
April 10, 2025 2:31:59 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 2:32:02 PM	start	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: - EI - Extractor- Part of GCMS System Preparation	None

User Name: ngatlat hoo@hivision

System ID: US2509MA07

Report Generated by Hostname: DESKTOP-ST5F4N3

Print Date: April 10, 2025 3:59:30 PM

Secot_GCM6D Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 2:32:42 PM	Audit	Data	Scouting Run - Manual Injection, Front SSL, SQ: - Source: EI - Extractor-Part of GCMS System Preparation	Data files Path : D:\Projects\VOOQ2025\Data\OQ2025Set.d
April 10, 2025 2:33:06 PM	End	Execution	Scouting Run - Manual Injection, Front SSL, SQ: - Source: EI - Extractor-Part of GCMS System Preparation	Run Count : 1
April 10, 2025 2:33:09 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 2:46:56 PM	Audit	AcqClosed	Session	None
April 10, 2025 3:05:56 PM	Audit	AcqRestarted	Session	Host Name: DESKTOP-ST5F4N3, Drive Serial Number: E842594E
April 10, 2025 3:05:57 PM	Audit	SessionReloaded	Session	None
April 10, 2025 3:05:59 PM	start	Qualification	Session	IQ
April 10, 2025 3:05:59 PM	start	Qualification	Session	OQ
April 10, 2025 3:05:59 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 3:06:27 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	None
April 10, 2025 3:15:40 PM	Audit	Data	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	Manual Data Entry

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Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

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User Name: ngatlat hoo@hivision

System ID: US2509MA07

Report Generated by Hostname: DESKTOP-ST5F4N3

Print Date: April 10, 2025 3:59:30 PM

Secot_GCM6D Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 3:15:42 PM	End	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 1 - L: >= 4000	Run Count : 1
April 10, 2025 3:15:44 PM	start	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 2 - L: >= 4000	None
April 10, 2025 3:16:58 PM	Audit	Data	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 2 - L: >= 4000	Manual Data Entry
April 10, 2025 3:19:37 PM	End	Execution	Signal to Noise EI - Liquid Injection, Front SSL, SQ: - Source: EI - Extractor using Filament 2 - L: >= 4000	Run Count : 1
April 10, 2025 3:19:39 PM	End	Qualification	Session	OQ
April 10, 2025 3:19:39 PM	start	Reporting	Session	None
April 10, 2025 3:41:22 PM	End	Reporting	Session	None
April 10, 2025 3:41:22 PM	start	Qualification	Session	IQ
April 10, 2025 3:41:22 PM	start	Execution	Purchase Order Details - 8890: - Purchase Order	None
April 10, 2025 3:44:42 PM	start	Execution	Preparation and Installation Details - 8890: - Preparation	None
April 10, 2025 3:44:43 PM	End	Execution	Purchase Order Details - 8890: - Purchase Order	Run Count : 1
April 10, 2025 3:44:53 PM	start	Execution	Documentation - 8890: - Documentation	None
April 10, 2025 3:44:53 PM	End	Execution	Preparation and Installation Details - 8890: - Preparation	Run Count : 1

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Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

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User Name: nattapat.hengcharoen
Report Generated by Hostname: DESKTOP-ST5F4N3
System ID: US2509MA07
Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 3:45:08 PM	start	Execution	Product Quality Assurance Details - 8890: - Quality Assurance	None
April 10, 2025 3:45:06 PM	End	Execution	Documentation - 8890: - Documentation	Run Count : 1
April 10, 2025 3:45:12 PM	start	Execution	Startup - 8890: - Startup	None
April 10, 2025 3:45:12 PM	End	Execution	Product Quality Assurance Details - 8890: - Quality Assurance	Run Count : 1
April 10, 2025 3:45:15 PM	End	Execution	Startup - 8890: - Startup	Run Count : 1
April 10, 2025 3:45:16 PM	start	Execution	Instrument Check - External Mass Spectrometer: - Instrument Check	None
April 10, 2025 3:45:32 PM	End	Execution	Instrument Check - External Mass Spectrometer: - Instrument Check	Run Count : 1
April 10, 2025 3:45:33 PM	End	Qualification	Session	IQ
April 10, 2025 3:45:33 PM	start	Qualification	Session	OQ
April 10, 2025 3:45:36 PM	End	Qualification	Session	OQ
April 10, 2025 3:45:36 PM	start	Reporting	Session	None
April 10, 2025 3:46:12 PM	Audit	Reporting	Session	Report Generated : Certificate
April 10, 2025 3:46:29 PM	Audit	Reporting	Session	Report Generated : Report

User Name: nattapat.hengcharoen
Report Generated by Hostname: DESKTOP-ST5F4N3
System ID: US2509MA07
Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 3:47:30 PM	Audit	Reporting	Session	Report Signed : Certificate PDF Name: Secot_GCMSD_20250410_Certificate_1.pdf User Name: nattapat.hengcharoen@agilent.com Full Name of Signer: Nattapat Hengcharoen Reason for signature: Executed protocol and published this original version of document
April 10, 2025 3:47:58 PM	Audit	Reporting	Session	Report Signed : Report PDF Name: Secot_GCMSD_20250410_IQ Report_1.pdf User Name: nattapat.hengcharoen@agilent.com Full Name of Signer: Nattapat Hengcharoen Reason for signature: Executed protocol and published this original version of document
April 10, 2025 3:49:28 PM	Audit	AccClosed	Session	None
April 10, 2025 3:50:07 PM	Audit	AccRestarted	Session	Host Name: DESKTOP-ST5F4N3, Drive Serial Number: E842594E
April 10, 2025 3:50:08 PM	Audit	SessionReloaded	Session	None
April 10, 2025 3:50:09 PM	start	Qualification	Session	IQ
April 10, 2025 3:50:09 PM	start	Qualification	Session	OQ
April 10, 2025 3:58:09 PM	Audit	Reporting	Session	Report Generated : Certificate

User Name: natapat bongkharoon
Report Generated by Hostname: DESKTOP-ST3F4N3

System ID: US2509MA07
Print Date: April 10, 2025 3:59:30 PM

Secot_GCMSD Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 10, 2025 3:58:31 PM	Audit	Reporting	Session	Report Generated : Report

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Date: April 10, 2025 3:59:29 PM
System ID: US2509MA07

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SHEET No.: 2386_0125



NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	2386

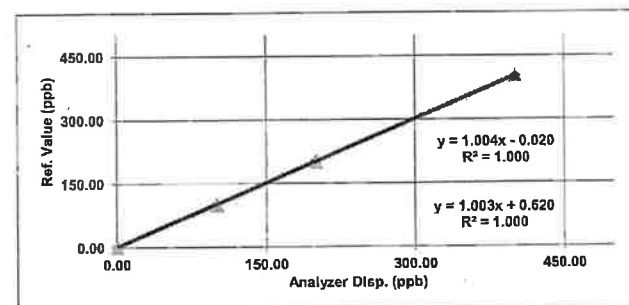
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	0.10	0.30	1.004
Span	450.0	447.6	446.50	1.004

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	0.10	0.30	-	-
100.00	101.10	99.70	1.1	0.3
200.00	202.00	201.00	1.0	0.5
400.00	401.40	401.40	0.3	0.3
		Average Diff (%)	0.8	0.4



Calibrated by: Witteyan K.

Approved by:



NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

Analyzer Type :	Nox
Brand :	API
Model :	200A
S/N :	1505

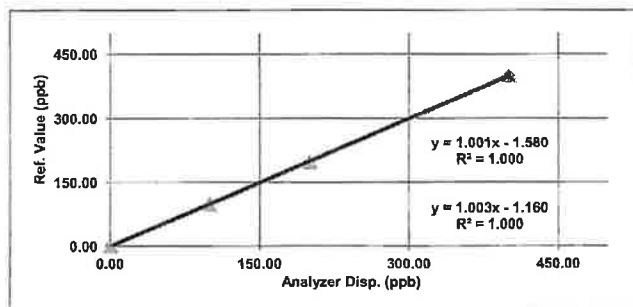
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

Supply Gas	Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Slope - Offset
Zero	0.0	1.00	0.30	1.001
Span	450.0	455.7	456.10	1.001

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	1.00	0.30	-	-
100.00	97.60	97.00	2.4	3.0
200.00	197.30	197.10	1.3	1.5
400.00	401.30	399.90	0.3	0.0
		Average Diff (%)	1.4	1.5

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

NOX-NO Analyzer Performance Test

Date : 8 Jan 25

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

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

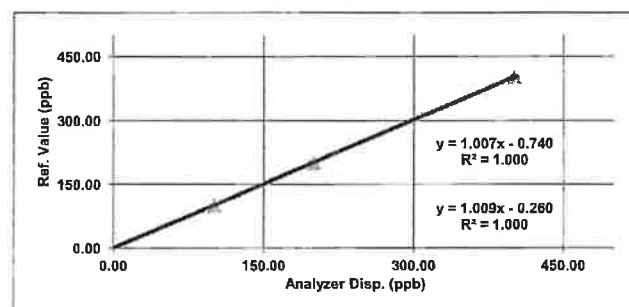
Dilutor :	Teledyne T700 1367
Zero Air :	M701 S/N 1044
STD GAS :	D869358

NOX-NO Single Point Calibration

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

NOX-NO MultiPoint Calibration

Ref Value	NOX Analyzer Disp.	NO Analyzer Disp.	Output Difference	
			NOx Percent Diff abs.	NO Percent Diff abs.
0.00	-0.30	-0.30	-	-
100.00	100.90	99.70	0.9	0.3
200.00	201.30	200.30	0.7	0.2
400.00	403.50	402.50	0.9	0.6
		Average Diff (%)	0.8	0.4

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

CERTIFICATE OF ANALYSIS Grade of Product: EPA Protocol

Part Number: E04NI99E15AC084
 Cylinder Number: EB0102328
 Laboratory: 124 - Riverton (SAP) - NJ
 PGVP Number: B52019
 Gas Code: CO,NO,NOX,SO2,BALN

Reference Number: 82-401409170-1
 Cylinder Volume: 144.4 CF
 Cylinder Pressure: 2015 PSIG
 Valve Outlet: 660
 Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2027

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

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

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

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13080206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1098237	8.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004487	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.871 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	48.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

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

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

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

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


ACCREDITED

TESTING CERT No. 3082.05

Approved for Release

Page 1 of 82-401409170-1

Sheet No. : CAL-M5006/01/25



CONTROL UNIT CALIBRATION (Metric units, mm)

Date 6 Jan 25

Initial Final Average
 Barometric press, Pb 758 758 758 mmHg

Dry Gas Meter Data
Reference Dry Gas Meter Data

Console No. M50-06
 Serial No. 358794
 Metering System ID Model S110
 DGM Number 917415
 Correction factor (Yr) 1.0077
 DGM Model MST-C2-1
 Last Calibration Date 25 Oct 24
 Calibrated by: Montri P.

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r , Liters	DGM Volume V _m Liters	Temperature (°C)				Time θ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.0	99.8	25	25	24	24.5	8.92	1.0071	43.1453
25.0	100.2	100.4	25	25	24	24.5	6.13	1.0020	42.5581
50.0	100.0	100.9	25	25	24	24.5	4.33	0.9923	42.6407
76.0	100.1	102.5	25	25	24	24.5	3.53	0.9756	43.0400
100.0	100.1	102.2	25	25	24	24.5	3.53	0.9755	43.5926
150.0	100.0	101.5	25	25	24	24.5	2.53	0.9774	43.7294

Average 0.9883 43.4510

Approved by:



PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 04-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-02

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.0	20.5	0.8468	-0.0035
2	15.0	20.5	0.8468	-0.0035
3	15.0	20.0	0.8574	0.0070

C_{P(A),avg} = 0.8504

B Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.0	20.5	0.8468	0.0034
2	15.0	21.0	0.8367	-0.0068
3	15.0	20.5	0.8468	0.0034

C_{P(B),avg} = 0.8435

|Cp(A) - Cp(B)| = 0.0069

C_{P(Avg)} = 0.8469

Approved by :

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

CONTROL UNIT CALIBRATION
(Metric units, mm)

Date : 6 Jan 25

Barometric press, Pb

Initial	Final	Average
758	758	758

 mmHg

Dry Gas Meter Data

Console No. M50-07

Metering System ID

DGM Number 90331

DGM Model MST-C2-1

Calibrated by Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0077

Last Calibration Date 25 Oct 24

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r , Liters	DGM Volume V _m Liters	Temperature (°C)				Time Θ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.1	101.0	25	25	24	24.5	8.67	0.9958	42.5842
25.0	99.9	100.8	25	25	24	24.5	6.23	0.9946	44.2514
50.0	100.0	100.9	25	25	24	24.5	4.62	0.9920	48.4414
76.0	100.1	99.3	25	25	24	24.5	3.63	1.0074	45.4868
100.0	100.2	100.7	25	25	24	24.5	3.63	0.9921	47.7831
150.0	99.9	99.4	25	25	24	24.5	2.62	0.9970	46.7598

Average 0.9965 45.8844

Approved by :

Sheet No. : CAL-PI-LL10-01/2025



PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 04-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.0	21.0	0.8367	-0.0068
2	15.0	20.5	0.8468	0.0034
3	15.0	20.5	0.8468	0.0034

$C_{p(A),avg}$ 0.8435

B Side Calibration

Run No.	ΔP_{std} (mm H ₂ O)	ΔP_s (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.0	20.5	0.8468	0.0034
2	15.0	21.0	0.8367	-0.0068
3	15.0	20.5	0.8468	0.0034

$C_{p(B),avg}$ 0.8435

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

$C_{p(Avg)}$ = 0.8435

Approved by :

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

Sheet No. : CR-515-2025-111



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Apr 21, 25

ACOUSTIC CALIBRATOR

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

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
15	Cirrus	CR162B	G300769	94.4	-0.7
19	Cirrus	CR162B	G300990	93.0	0.7
20	Cirrus	CR162B	G301014	94.3	-0.6
43	Cirrus	CR162B	G302741	93.7	0.0
49	Cirrus	CR162B	G302330	93.7	0.0
50	Cirrus	CR162B	G302333	93.7	0.0

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Apr 10, 25

ACOUSTIC CALIBRATOR

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

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET	ST-21D	820722	93.8	0.0
2	SCARLET	ST-21D	820723	93.8	0.0
4	SCARLET	ST-21D	820725	93.8	0.0
5	SCARLET	ST-21D	820726	93.8	0.0
6	SCARLET	ST-21D	820727	93.8	0.0
7	SCARLET	ST-21D	820728	93.8	0.0

Calibrated by :

Approved by :

ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

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

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

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



Certificate No.: CP20240363EA

Operation No.: CP2024090339

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: Cirrus Research Plc

Model/Type: CR:515

Serial No.: 97097

ID No.:

Customer: SECOT Co.,Ltd.

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

Received Date: 30 September 2024

Calibrated Date: 2 October 2024

Issued Date: 4 October 2024

Calibrated by: Ms. Juntapom Kunhakom

Approved by:

(Mr. Sittichai Swaksuriyawong)
Group Manager

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

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



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20240363EA

Calibration Report

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

Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

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

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

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

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

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

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

Result of Calibration:-

1. Function : Sound pressure level

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

2. Function : Frequency

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



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FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20240363EA

Calibration Report

3. Function : Total distortion + noise

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

Uncertainty of measurement

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

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

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

-- End of Report --



PinAAcle 900T Preventive Maintenance Report

Company Name: Secot.co.th
Instrument Location: Instrument room
239 Rimkhlong Prapa Road, Bang Sue, Bangkok 10800
Instrument Serial No.: PTDS23051001
Date: 01-Oct-2024

PinAAcle 900T Preventive Maintenance (PM)

Company Name:	Secot.co.th		
Address (Instrument Location):	Instrument room, 239 Rimkhlong Prapa Road, Bang Sue, Bangkok 10800		
Serial Number:	PTDS23051001	PM Number:	2 OF 2 W
Customer Name (if applicable):	K.Araya	Telephone Number:	0-2959-3600
Customer Support Engineer Name:	K.Piyawit	Service Order Number:	WO-02939269
Date PM Performed: (DD-MMM-YYYY)	01-Oct-2024	Next PM Due Date: (DD-MMM-YYYY)	01-Apr-2025
Standard Labor Hours to Complete PM :		5 hours	

Part Number	Release	Publication Date	
09370143 Rev.9	A	January 2018	

Scope

The purpose of this PM is to ensure the continued functionality of the PinAAcle 900T by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.

The customer should save their method before the PM begins.

General Instructions:

The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM. Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files. The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer. Update the PM sticker and instrument logbook as required.

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Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle900T	PTDS23051001	Syngistix V.5.1.0

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	N/A
B3002013	THGA Contact Cylinders	N/A
B3141064	Glycerol for THGA Cooling	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	27-39CRY1	30-Apr-2025
N9300244	GFAAS Mixed Standard	AR	60-004CRY1	28-Feb-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO ₃	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MGO-672
N1013002	1.0A Neutral density filter	1	MG2-864
B3100652 Or N9307029	Electronic Flow Meter	1	MY2231FC07
B0505495	Test Jig	1	N/A
03030997	System 2 EDL Driver	1	03030997
N3050605	As System 2 EDL	1	16148
N3050121	Cu Lumina HCL	1	092216-010130
N3050109	Ba Lumina HCL	1	102416-040160
N3050139	K Lumina HCL	1	110716-010060
N3050152	Ni Lumina HCL	1	100516-030190
N3050119	Cr Lumina HCL	1	030621-020190

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. General:

- ☒ Review the instrument performance with the customer and document any recent problems.
- ☒ Inspect the customer log book and make any appropriate PM entries.
- ☒ Perform general inspection of system for cleanliness.

2. PC Instrument Software:

- ☒ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. Mechanical:

- ☒ Inspect and clean all fans and filters. Replace filters if necessary
- ☒ Inspect all gas and water lines for leaks and/or wear. Replace if needed. Thoroughly inspect all quick connects. Replace the Y connector, P/N 09921079, if needed.
- ☒ Clean exterior of the instrument.

3.1 Flame Technique

- ☒ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
- ☒ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking slot width. Replace if out of specification
- ☒ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
- ☒ Check the drain system for signs of wear. Replace worn or damaged parts.
- ☒ Visually check for proper flame conditions when igniting the Air-C₂H₂ and N₂O-C₂H₂ flames (if applicable).

3.2 THGA Technique

- ☒ Inspect the pole pieces and clean where the pole pieces contact the furnace. Replace the pole piece p-rings as needed, P/N's B0501018 & B0501250. Grease the O-rings as needed with Apiezon L grease, P/N 09905148
- ☒ Inspect the four insulation pads on the front contact housing of the THGA in furnace. If the pads are missing replace the THGA furnace or replace the insulator pads on the furnace.
- ☒ Inspect the graphite tube and clean the contact cylinders. Replace if necessary.
- ☒ Check internal and external gas flows with the Electronic Gas Flow Meter and the Gas Flow Test Probe as described in the Service Manual. Correct if necessary.
- ☒ Check furnace open/close function.
- ☒ Verify the operation of the GFTV Camera for proper operation and viewing alignment in the furnace camera Tube View window. Align if needed.
- ☒ Check the operation of the Halogen Light ASSY for the GFTV Camera. Replace if needed.
- ☒ Check the water level/quality in the recirculation (if applicable). Add distilled water if necessary.
- ☒ Check the cooling system fluid flow rate with the FCS In-Line Flow Meter for proper levels if needed. Refer to SDB# COSY008.STN

- ☒ Perform Cooling System maintenance if needed per SDB# COSY005.STN.
- ☒ Check auto sampler operation.
- ☒ Perform an auto sampler check valve test as described in the Service Manual.
- ☒ Lubricate the spindles of the auto sampler pumps and all moving parts of the tray mechanics as described in the Service Manual.
- ☒ Inspect the auto sampler sampling capillary as described in the Service Manual. Replace if necessary.

4. Electrical:

- ☒ Inspect PC boards. Clean if necessary.
- ☒ Carefully check all internal and external cable connections.
- ☒ Check instrument-firmware revisions upgrade-to-current-levels (if necessary)
- ☒ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. Optics:

- ☒ Inspect and clean the sample compartment windows, if needed.
- ☒ Inspect and clean the furnace windows, if needed.
- ☒ Inspect and clean the GFTV camera lens, if needed.
- ☒ Inspect optics. Clean or replace if necessary.

6. Gasses:

- ☐ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
- ☒ Verify that the air filter element is dry. Replace if necessary.

7. Flame Interlock Check:

Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C ₂ H ₂ Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C ₂ H ₂ Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C ₂ H ₂ Flame correctly shuts down	Active	Passed
C ₂ H ₂ Pressure Sensor	Air/C ₂ H ₂ Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C ₂ H ₂ Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. After PM Performance tests [Flame]:

8.1 Detector Linearity with Barium

Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	1.0154	0.9910	Passed
0.2 A ND Filter	± 5% from Cert.	0.1806	0.1955	Passed

8.2 Baseline Noise at 1.0 Absorbance with Barium

Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0022	Passed

8.3 AA Baseline Noise with Copper

Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0005	Passed

8.4 D₂ Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0005	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0005	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (If applicable)	> 0.250 Abs.	N/A	Not Applicable
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.3155	Passed

9. After PM Performance tests [THGA]:

9.1 Furnace Gas Flows

Description: Ensures the flow rates are within specification.

Parameter	Specification	Test Results	Pass/Fail
Internal Flow Rate	250 mL/min ± 25 mL/min	250	Passed
External Flow Rate	100 mL/min ± 10 mL/min	99	Passed

9.2 Chromium Baseline Noise

Description: Signal to noise check.

Parameter	Specification	Results	Pass/Fail
Baseline Noise	≤ 0.005 Abs.	0.0003	Passed
Standard Deviation	≤ 0.005	0.0001	Passed

9.3 Chromium Characteristic Mass and Precision

Description: Calculate the characteristic mass using the characteristic mass tool and precision from the integrated absorbance values.

Parameter	Specification	Results	Pass/Fail
Cr mg Results	≤ 7.0 pg/0.0044 A-s	4.60	Passed
Precision	≤ 2.0 %	1.30	Passed

9.4 Copper Characteristic Mass and Zeeman Ratio

Description: Calculate the characteristic mass using the characteristic mass tool and check the Zeeman Ratio.

Parameter	Specification	Results	Pass/Fail
Cu m ₀ Result	≤ 16.5 pg/0.0044 A-s	14.30	Passed
Zeeman Ratio	0.52 ± 0.04	0.5417	Passed

10. Review:

- ☒ Review with the customer PM work performed.
- ☒ Review with the customer routine maintenance procedures.
- ☒ Discuss recommended customer supplied materials to have on hand.
- ☒ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Zeeman Ratio

Atomic Signal (Peak area)

Atomic Signal (Peak area) + Background Signal (Peak area)

0.1610

0.1610+0.1362

0.5417

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900T have been completed.

This PinAAcle 900T

Passes ☒

Fails ☐

 the preventive maintenance.

Review of Preventive Maintenance:

Authorized PerkinElmer Representative:

Piyawit S.

Date: 01-Oct-2024

(DD-MMM-YYYY)

Authorized Customer Representative:

Date: 01-Oct-2024

(DD-MMM-YYYY)

Agilent CrossLab Start Up Services

Agilent 5100 5110 ICP-OES Preventive Maintenance



Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Important Customer Web Links

- To access **Agilent University**, visit <http://www.agilent.com/crosslab/university/> to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit <https://www.agilent.com/en-us/agilentresources>. The following information topics are available:
 - Sample Prep and Containment
 - Chemical Standards
 - Analysis
 - Service and Support
 - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit <https://community.agilent.com/welcome>
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at <https://www.youtube.com/user/agilent>
- **Need to place a service call?** Flexible Repair Options | Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check "**Service not applicable**" check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Instrument Maintenance

System Information

- ☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	G8019A / MY16230003
Instrument System Site and Location	SECOT CO LTD

List System Component Product Numbers	List the Serial Numbers of each Component
1. G8019A	MY16230003
2. G8481A	3B1641345
3.	
4.	
5.	
6.	
7.	
8.	
9.	

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	SeaSpray OneNeb Conikal Other
Spray Chamber	Cyclonic Single Pass Cyclonic Double Pass Other
Torch	Radial Dual View Other
Torch Type	One Piece Semi Demountable Fully Demountable Other
Injector Diameter	2.4mm 1.8mm 1.4mm 0.8mm Other
Injector Material	Quartz Ceramic Other

Preparation

- ☒ Discuss any specific issues with the customer before starting.
- ☒ Review the instrument logbook for recorded problems and comments.
- ☒ Save instrument control settings before starting the procedure.
- ☒ Perform a general inspection of the system for cleanliness.
- ☒ Check for proper installation of parts, assemblies, sensors etc.
- ☒ Check system for required installation of components and implementation of Service Notes
- ☐ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☒ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☒ Run Instrument Performance test.
- ☒ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☒ Look for any obvious external damage or problems.
- ☒ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☒ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☒ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☒ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☒ Replace the polychromator purge filter.
- ☒ Replace the radial pre-optics window
- ☒ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☒ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☒ Replace air inlet dust filter.
- ☒ Replace high capacity air inlet dust filter element if installed.
- ☒ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☒ Drain cooling fluid and remove any particles from the chiller reservoir
- ☒ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☒ Re fill with Agilent Cool Clear cooling fluid.
- ☒ Clean the cooling system Air filter and the condenser.

SPS 3 Auto Sampler

- ☒ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☒ **Service not applicable**
- ☐ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☐ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☐ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☐ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☐ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☐ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☒ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

ADS 2 Advanced Dilution System (5110 only)

- ☒ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☒ Check position of Zn peak, adjust if required.
- ☒ Check Argon Ratio, adjust to specified value if required.
- ☒ Perform Detector Calibration.
- ☒ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☒ Run Instrument Performance test.
- ☒ Record results in Instrument Performance Test Results Table - Post PM.
- ☒ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
 - ☒ Subsystem Communications Test
 - ☒ Air Flow
 - ☒ Water Flow
 - ☒ Gas Flows
 - ☒ RF Generator
 - ☒ Camera Test
 - ☒ Optics Test
 - ☒ Nebulizer Test
- ☒ Record the result in the Instrument Test Results Table

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☒ Attach available reports/printouts of all tests to this documentation.
- ☒ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☒ Record the PM event in the Smart Alerts logbook, if applicable.
- ☒ Update/reset instrument maintenance counters as appropriate.
- ☒ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☒ Complete the Service Engineer Comments section if there are additional comments.
- ☒ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☒ Complete the Signature Page with both Service Engineer and Customer signatures.

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

Pre PM Sensitivity Check		Post PM Sensitivity Check	
Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	44981.4	219168.3	46565.2
Mn 257.610 nm SRBR	149305.7	1201937.7	144201.8
Al 396.152 nm SBR	29292.3	211651.3	31022.6
K 766.491 nm SBR	59246.0	1787886.3	61673.7
			1951197.1

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode	Plasma On
Mains Voltage	219.182 VAC	217.296 VAC
Mains Current	0.263 A	0.299 A
Instrument Temperature	22.8 °C	24.8 °C
RF Air Flow (sensor speed)	8.0 Hz	18.0 Hz
Plasma Exhaust Temperature	No measurement	38.8 °C
Water Flow Oscillator	No measurement	1.42 L/min
Water Flow Detector	0.0 L/min	1.11 L/min
Water Inlet Temperature	28.2 °C	16.6 °C
Polychromator Temperature	30.3 °C	35.0 °C
CCD Temperature	35.1 °C	-39.7 °C
Thermal Stabilizer	29.6 °C	32.1 °C
Argon Supply Pressure	635.26 kPa	588.21 kPa
Purge Gas Supply Pressure*1	634.49 kPa	624.41 kPa
Option Gas Supply Pressure*1	~ kPa	~ kPa
Nebulizer Flow	No measurement	0.40 L/min
Nebulizer Back Pressure	No measurement	311.00 kPa
Plasma Gas Flow	No measurement	11.40 L/min
Auxiliary Gas Flow	No measurement	1.00 L/min
RF Power	No measurement	1198.4 W
RF Supply Current	No measurement	8.209 A
RF Supply Voltage	No measurement	194.357 V

*1 If option installed

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing, 8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference
(Purchased by customer, not included as part of PM)☐ Section Not Applicable.

Part Description	Part Number	Product or Model# where used	Quantity consumed
------------------	-------------	------------------------------	-------------------

Part Description	Part Number	Product or Model# where used	Quantity consumed
------------------	-------------	------------------------------	-------------------

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

Service Verification

Service Request Number:

6007091956

Date Service Completed:

01 Aug 2024

Service Engineer Name:

Simon Oukhom

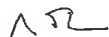
Customer Name:

N/A

Service Engineer Signature:

Simon O.

Customer Signature:



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CERTIFICATE OF ANALYSIS

Agilent Product Name: Wavelength Calibration Solution for ICP-OES & MP AES, 5 mg/L, 500mL

Agilent Part No: 6810030100

Lot No: 001374/621

Product Specifications

Analyte	Starting Material	CAS #	Certified Conc.	Analyte	Starting Material	CAS #	Certified Conc.
Al	Al(NO ₃) ₃	7761-27-2	4.930 ± 0.025 mg/L	Mn	Mn	7439-96-5	4.930 ± 0.025 mg/L
As	As	7440-38-2	4.930 ± 0.025 mg/L	Mo	(NH ₄) ₂ MoO ₄	13106-76-8	4.930 ± 0.025 mg/L
Ba	Ba(NO ₃) ₂	10022-31-8	4.930 ± 0.025 mg/L	Ni	Ni	7440-02-0	4.930 ± 0.025 mg/L
Cd	Cd	7440-43-9	4.930 ± 0.025 mg/L	Pb	Pb	7439-92-1	4.930 ± 0.025 mg/L
Co	Co	7440-48-4	4.930 ± 0.025 mg/L	Se	Se	7782-40-2	4.930 ± 0.025 mg/L
Cr	Cr(NO ₃) ₃	13548-38-4	4.930 ± 0.025 mg/L	Sr	Sr(NO ₃) ₂	10042-76-9	4.930 ± 0.025 mg/L
Cu	Cu	7440-50-8	4.930 ± 0.025 mg/L	Zn	Zn	7440-66-6	4.930 ± 0.025 mg/L
K	KNO ₃	7757-79-1	49.30 ± 0.25 mg/L				

Matrix: 5% HNO₃

Intended Use: This solution is intended for use as a certified reference material or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), atomic absorption spectroscopy (flame AAS or GFAAS), microwave plasma atomic emission spectroscopy (MP-AES), inductively coupled plasma fluorescence spectroscopy (ICP-AES), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured under a quality management system that is registered to ISO 9001, ISO 17034 and ISO/IEC 17025. This CRM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to the NIST SRMs listed below. This solution was stabilized using high purity nitric acid (HNO₃) and diluted with filtered (0.22µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against NIST SRMs: 3101a, 3103a, 3104a, 3108, 3113, 3112a, 3114, 3141a, 3132, 3134, 3136, 3128, 3149, 3153a, and 3168a. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: Agilent recommends that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy the analyst should: (1) use only pre-cleaned containers and transference, (2) avoid pipetting directly from the CRM's original container, (3) use a minimum sub-sample size of 500µL, (4) make dilutions using calibrated balances or certified volumetric class A flasks and pipettes, (5) dilute to volume using the same matrix as the original CRM, and (6) never pour used product back into the original container. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity.

 Simon O.
 01 Aug 24



Period of Validity. Agilent ensures the accuracy of this solution until the expiration date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Sample lot approval:

Chuck Gouffreau

Chuck Gouffreau, Certifying Officer

Date of release: 3 August 2023

Date of expiration: 28 February 2025

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Hazard Information: Refer to the Safety Data Sheet (SDS), which can be obtained at www.agilent.com/chem/ids

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO 17024 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity in accordance with OSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the instructions for use, as doing so will invalidate the certified values and uncertainties.

Further Information: Please contact Agilent for further information about the CRM.

Quality Certifications: This CRM was prepared under a quality management system that is

- Registered to ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. Reg. No. 14 100 1556231)
- Accredited to ISO 17024 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 294931)
 - ISO 17024 references additional requirements specified in ISO Guide 31 and ISO Guide 35
- Accredited to ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 284631)
- ISO Standards 27001, 27002, 27005, 27006, 27007, 27008, 27009, 27010, 27011, 27012, 27013, 27014, 27015, 27016, 27017, 27018, 27019, 27020, 27021, 27022, 27023, 27024, 27025, 27026, 27027, 27028, 27029, 27030, 27031, 27032, 27033, 27034, 27035, 27036, 27037, 27038, 27039, 27040, 27041, 27042, 27043, 27044, 27045, 27046, 27047, 27048, 27049, 27050, 27051, 27052, 27053, 27054, 27055, 27056, 27057, 27058, 27059, 27060, 27061, 27062, 27063, 27064, 27065, 27066, 27067, 27068, 27069, 27070, 27071, 27072, 27073, 27074, 27075, 27076, 27077, 27078, 27079, 27080, 27081, 27082, 27083, 27084, 27085, 27086, 27087, 27088, 27089, 27090, 27091, 27092, 27093, 27094, 27095, 27096, 27097, 27098, 27099, 27100, 27101, 27102, 27103, 27104, 27105, 27106, 27107, 27108, 27109, 27110, 27111, 27112, 27113, 27114, 27115, 27116, 27117, 27118, 27119, 27120, 27121, 27122, 27123, 27124, 27125, 27126, 27127, 27128, 27129, 27130, 27131, 27132, 27133, 27134, 27135, 27136, 27137, 27138, 27139, 27140, 27141, 27142, 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27858, 27859, 27860, 27861, 27862, 27863, 27864, 27865, 27866, 27867, 27868, 27869, 27870, 27871, 27872, 27873, 27874, 27875, 27876, 27877, 27878, 27879, 27880, 27881, 27882, 27883, 27884, 27885, 27886, 27887, 27888, 27889, 27890, 27891, 27892, 27893, 27894, 27895, 27896, 27897, 27898, 27899, 27900, 27901, 27902, 27903, 27904, 27905, 27906, 27907, 27908, 27909, 27910, 27911, 27912, 27913, 27914, 27915, 27916, 27917, 27918, 27919, 27920, 27921, 27922, 27923, 27924, 27925, 27926, 27927, 27928, 27929, 27930, 27931, 27932, 27933, 27934, 27935, 27936, 27937, 27938, 27939, 27940, 27941, 27942, 27943, 27944, 27945, 27946, 27947, 27948, 27949, 27950, 27951, 27952, 27953, 27954, 27955, 27956, 27957, 27958, 27959, 27960, 27961, 27962, 27963, 27964, 27965, 27966, 27967, 27968, 27969, 27970, 27971, 27972, 27973, 27974, 27975, 27976, 27977, 27978, 27979, 27980, 27981, 27982, 27983, 27984, 27985, 27986, 27987, 27988, 27989, 27990, 27991, 27992, 27993, 27994, 27995, 27996, 27997, 27998, 27999, 28000, 28001, 28002, 28003, 28004, 28005, 28006, 28007, 28008, 28009, 28010, 28011, 28012, 28013, 28014, 28015, 28016, 28017, 28018, 28019, 28020, 28021, 28022, 28023, 28024, 28025, 28026, 28027, 28028, 28029, 28030, 28031, 28032, 28033, 28034, 28035, 28036, 28037, 28038, 28039, 28040, 28041, 28042, 28043, 28044, 28045, 28046, 28047, 28048, 28049, 28050, 28051, 28052, 28053, 28054, 28055, 28056, 28057, 28058, 28059, 28060, 28061, 28062, 28063, 28064, 28065, 28066, 28067, 28068, 28069, 28070, 28071, 28072, 28073, 28074, 28075, 28076, 28077, 28078, 28079, 28080, 28081, 28082, 28083, 28084, 28085, 28086, 28087, 28088, 28089, 28090, 28091, 28092, 28093, 28094, 28095, 28096, 28097, 28098, 28099, 28100, 28101, 28102, 28103, 28104, 28105, 28106, 28107, 28108, 28109, 28110, 28111, 28112, 28113, 28114, 28115, 28116, 28117, 28118, 28119, 28120, 28121, 28122, 28123, 28124, 28125, 28126, 28127, 28128, 28129, 28130, 28131, 28132, 28133, 28134, 28135, 28136, 28137, 28138, 28139, 28140, 28141, 28142, 28143, 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28573, 28574, 28575, 28576, 28577, 28578, 28579, 28580, 28581, 28582, 28583, 28584, 28585, 28586, 28587, 28588, 28589, 28590, 28591, 28592, 28593, 28594, 28595, 28596, 28597, 28598, 28599, 28600, 28601, 28602, 28603, 28604, 28605, 28606, 28607, 28608, 28609, 28610, 28611, 28612, 28613, 28614, 28615, 28616, 28617, 28618, 28619, 28620, 28621, 28622, 28623, 28624, 28625, 28626, 28627, 28628, 28629, 28630, 28631, 28632, 28

Report Summary

Instrument Model	Agilent 5100/5110 VDV ICP-OES
Instrument ID	G8011A/G8015A
Instrument Serial Number	MY16230003
Software Version	7.3.0.8799
Firmware Version	3354
Tested By	suwan onkhom
Test Completed On	8/1/2024 10:00:11 AM

Result Summary

Subsystem Communications Test	Skipped
Air Flow Test	Skipped
Water Flow Test	Skipped
Gas Flows Test	Skipped
RF Generator Test	Skipped
Camera Test	Skipped
Optics Test	Skipped
Advanced Valve System Test	Skipped
Resolution Test	Pass
Sensitivity Test	Pass
Precision Test	Pass

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Resolution Test**Pass**

Element Wavelength	Specification	Width
N (174.213 nm)	≤ 9.40	6.96
As (188.980 nm)	≤ 8.20	6.41
C (193.027 nm)	≤ 11.50	9.02
Mo (202.032 nm)	≤ 8.20	6.60
Cr (206.158 nm)	≤ 13.40	9.74
Zn (213.857 nm)	≤ 8.70	6.65
Pb (220.353 nm)	≤ 9.50	6.77
Co (228.615 nm)	≤ 17.20	13.09
Ba (230.424 nm)	≤ 9.40	7.53
Mn (257.610 nm)	≤ 13.30	10.49
Mn (260.568 nm)	≤ 20.30	15.78
Cr (267.716 nm)	≤ 11.00	8.55
Cu (324.754 nm)	≤ 25.00	20.67
Cu (327.395 nm)	≤ 14.20	11.37
Sr (338.071 nm)	≤ 33.50	26.39
Ba (455.403 nm)	≤ 44.00	35.57
Sr (460.733 nm)	≤ 36.00	21.36
Ba (493.408 nm)	≤ 36.00	24.06
Ba (614.171 nm)	≤ 42.00	24.54
Ar (675.283 nm)	≤ 74.00	53.58
K (766.491 nm)	≤ 80.00	57.73

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Sensitivity Test			Pass		
Radial					
Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 46.0	SRBR	154.5	1413.4	175.0
Se (196.026 nm)	≥ 41.0	SRBR	80.2	816.3	83.5
Zn (213.857 nm)	≥ 1421.0	SRBR	3488.6	44981.4	165.0
Pb (220.353 nm)	≥ 46.0	SRBR	172.0	2486.9	180.0
Mn (257.610 nm)	≥ 3518.0	SRBR	8373.9	179305.7	456.2
Al (396.152 nm)	≥ 3.4	SBR	7.0	29292.3	3654.5
Ba (493.408 nm)	≥ 34.0	SBR	108.2	1096622.7	10041.7
K (766.491 nm)	≥ 1.8	SBR	2.6	59246.0	16569.2
Axial					
Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 208.0	SRBR	379.7	6009.9	231.6
Se (196.026 nm)	≥ 159.0	SRBR	226.4	3947.1	264.6
Zn (206.200 nm)	≥ 234.0	SRBR	1195.4	14358.1	141.4
Zn (213.857 nm)	≥ 1743.0	SRBR	8803.2	219168.3	616.4
Cd (214.439 nm)	≥ 4227.0	SRBR	7423.0	139750.0	352.7
Pb (220.353 nm)	≥ 320.0	SRBR	653.9	17645.2	673.7
Mn (257.610 nm)	≥ 10625.0	SRBR	29180.0	1201937.7	1691.9
Cr (267.716 nm)	≥ 1048.0	SRBR	5464.9	247814.5	2022.9
Cu (324.754 nm)	≥ 19.0	SBR	45.4	227484.3	4901.6
Al (396.152 nm)	≥ 6.0	SBR	17.9	211651.3	11221.7
Ba (493.408 nm)	≥ 60.0	SBR	229.6	6957089.5	30175.5
K (766.491 nm)	≥ 24.0	SBR	43.1	1787886.3	40587.6

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Precision Test

Pass

Radial

Element Wavelength	Specification	Measured Value % RSD
As (188.980 nm)	≤ 2.60	0.80
Se (196.026 nm)	≤ 2.60	0.93
Zn (213.857 nm)	≤ 1.50	0.33
Pb (220.353 nm)	≤ 2.60	0.50
Mn (257.610 nm)	≤ 1.50	0.26
Al (396.152 nm)	≤ 1.50	0.23
Ba (493.408 nm)	≤ 1.50	0.63
K (766.491 nm)	≤ 1.50	0.15

Axial

Element Wavelength	Specification	Measured Value % RSD
As (188.980 nm)	≤ 1.50	0.54
Se (196.026 nm)	≤ 1.50	0.36
Zn (206.200 nm)	≤ 1.50	0.42
Zn (213.857 nm)	≤ 1.50	0.30
Cd (214.439 nm)	≤ 1.50	0.43
Pb (220.353 nm)	≤ 1.50	0.30
Mn (257.610 nm)	≤ 1.50	0.76
Cr (267.716 nm)	≤ 1.50	0.21
Cu (324.754 nm)	≤ 1.50	0.45
Al (396.152 nm)	≤ 1.50	0.25
Ba (493.408 nm)	≤ 1.50	1.15
K (766.491 nm)	≤ 1.50	0.53

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Report Summary

Instrument Model	Agilent 5100/5110 VDV ICP-OES
Instrument ID	G8011A/G8015A
Instrument Serial Number	MY16230003
Software Version	7.3.0.8799
Firmware Version	3354
Tested By	suwan onkhom
Test Completed On	8/1/2024 11:13:23 AM

Result Summary

Subsystem Communications Test	Skipped
Air Flow Test	Skipped
Water Flow Test	Skipped
Gas Flows Test	Skipped
RF Generator Test	Skipped
Camera Test	Skipped
Optics Test	Skipped
Advanced Valve System Test	Skipped
Resolution Test	Pass
Sensitivity Test	Pass
Precision Test	Pass

*Simon O.
01 Aug 24***Resolution Test****Pass**

Element Wavelength	Specification	Width
N (174.213 nm)	≤ 9.40	6.90
As (188.980 nm)	≤ 8.20	6.33
C (193.027 nm)	≤ 11.50	8.79
Mo (202.032 nm)	≤ 8.20	6.35
Cr (206.158 nm)	≤ 13.40	9.66
Zn (213.857 nm)	≤ 8.70	6.93
Pb (220.353 nm)	≤ 9.50	6.87
Co (228.615 nm)	≤ 17.20	12.81
Ba (230.424 nm)	≤ 9.40	7.18
Mn (257.610 nm)	≤ 13.30	10.36
Mn (260.568 nm)	≤ 20.30	15.88
Cr (267.716 nm)	≤ 11.00	8.26
Cu (324.754 nm)	≤ 25.00	20.66
Cu (327.395 nm)	≤ 14.20	11.11
Sr (338.071 nm)	≤ 33.50	26.73
Ba (455.403 nm)	≤ 44.00	35.87
Sr (460.733 nm)	≤ 36.00	19.01
Ba (493.408 nm)	≤ 36.00	25.15
Ba (614.171 nm)	≤ 42.00	24.12
Ar (675.283 nm)	≤ 74.00	54.77
K (766.491 nm)	≤ 80.00	58.36

*Simon O.
01 Aug 24*

Sensitivity Test			Pass		
Radial					
Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 46.0	SRBR	149.8	1385.5	76.4
Se (196.026 nm)	≥ 41.0	SRBR	79.7	834.5	87.8
Zn (213.857 nm)	≥ 1421.0	SRBR	3602.1	46565.2	165.9
Pb (220.353 nm)	≥ 46.0	SRBR	174.6	2530.0	181.0
Mn (257.610 nm)	≥ 3518.0	SRBR	9000.1	194201.8	463.4
Al (396.152 nm)	≥ 3.4	SBR	7.2	31022.6	3798.3
Ba (493.408 nm)	≥ 34.0	SBR	105.3	1073096.3	10095.7
K (766.491 nm)	≥ 1.8	SBR	2.7	61673.7	16888.8
Axial					
Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 208.0	SRBR	378.2	5964.0	229.9
Se (196.026 nm)	≥ 159.0	SRBR	234.4	4108.6	268.4
Zn (206.200 nm)	≥ 234.0	SRBR	1141.8	13683.2	140.7
Zn (213.857 nm)	≥ 1743.0	SRBR	9264.5	228606.8	605.7
Cd (214.439 nm)	≥ 4227.0	SRBR	7735.4	144378.7	346.7
Pb (220.353 nm)	≥ 320.0	SRBR	682.6	18182.4	659.0
Mn (257.610 nm)	≥ 10625.0	SRBR	31468.8	1310696.6	1730.2
Cr (267.716 nm)	≥ 1048.0	SRBR	5812.5	262608.6	2010.1
Cu (324.754 nm)	≥ 19.0	SBR	45.5	241749.8	5197.4
Al (396.152 nm)	≥ 6.0	SBR	18.5	224589.4	11530.6
Ba (493.408 nm)	≥ 60.0	SBR	228.4	6882412.4	30007.1
K (766.491 nm)	≥ 24.0	SBR	46.0	1951197.1	41478.8

Suman O.
61 Aug 24

Simon O.
61 Aug 14

Precision Test			Pass
Radial			
Element Wavelength	Specification	Measured Value % RSD	
As (188.980 nm)	≤ 2.60	1.04	
Se (196.026 nm)	≤ 2.60	0.80	
Zn (213.857 nm)	≤ 1.50	0.30	
Pb (220.353 nm)	≤ 2.60	0.44	
Mn (257.610 nm)	≤ 1.50	0.43	
Al (396.152 nm)	≤ 1.50	0.35	
Ba (493.408 nm)	≤ 1.50	0.61	
K (766.491 nm)	≤ 1.50	0.19	
Axial			
Element Wavelength	Specification	Measured Value % RSD	
As (188.980 nm)	≤ 1.50	0.66	
Se (196.026 nm)	≤ 1.50	0.57	
Zn (206.200 nm)	≤ 1.50	0.41	
Zn (213.857 nm)	≤ 1.50	0.39	
Cd (214.439 nm)	≤ 1.50	0.46	
Pb (220.353 nm)	≤ 1.50	0.34	
Mn (257.610 nm)	≤ 1.50	0.77	
Cr (267.716 nm)	≤ 1.50	0.28	
Cu (324.754 nm)	≤ 1.50	0.35	
Al (396.152 nm)	≤ 1.50	0.28	
Ba (493.408 nm)	≤ 1.50	0.64	
K (766.491 nm)	≤ 1.50	0.67	

Simon O.
07 Aug 84

Simon O.
61 Aug 14

Report Summary

Instrument Model	Agilent 5100/5110 VDV ICP-OES
Instrument ID	G8011A/G8015A
Instrument Serial Number	MY16230003
Software Version	7.3.0.8799
Firmware Version	3354
Tested By	suwan onkhom
Test Completed On	8/1/2024 11:28:36 AM

Result Summary

Subsystem Communications Test	Pass
Air Flow Test	Pass
Water Flow Test	Pass
Gas Flows Test	Pass
RF Generator Test	Pass
Camera Test	Pass
Optics Test	Pass
Advanced Valve System Test	Skipped
Resolution Test	Skipped
Sensitivity Test	Skipped
Precision Test	Skipped

Subsystem Communications Test Pass

Air Flow Test Pass

30% Air Flow (relative speed)	75% Air Flow (relative speed)
12.00	18.00

Water Flow Test Pass

RF Water Flow(L/min)	Camera Water Flow (L/min)	Water Inlet Temperature (°C)
1.40	1.12	21.28

Simon O.
01 Aug 24

Gas Flows Test

Pass

Nebulizer Target Flow	Actual Flow	Back Pressure	Auxiliary Target Flow	Actual Flow	Back Pressure
0.70	0.71	302.49	2.00	1.99	114.98

Makeup Target Flow	Actual Flow	Back Pressure	Plasma Target Flow	Actual Flow	Back Pressure
2.00	1.99	122.88	18.00	17.97	23.89

RF Generator Test

Pass

RF Power Supply Test	Passed
RF Power Supply (V)	147.513

RF Oscillator Test	Passed
RF Oscillator Frequency (MHz)	25.776
Work Coil Current (A)	46.364
RF Power Supply Current (A)	2.001

Camera Test

Pass

	Integration Time (ms)	Standard Deviation	Status
Electronic Offset Test	1000	8.726	Passed
Dark Current Test	6000	0.844	Passed
Array Test	5	0.015	Passed
Linearity Test		0.069	Passed

Optics Test

Pass

	Radial	Axial
Intensity	2591000	2331609
Wavelength	737.212	737.212

Simon O.
01 Aug 24

CERTIFICATE OF CALIBRATION

ISSUED BY **Noisemeters**

DATE OF ISSUE **26 February 2025**

CERTIFICATE NUMBER **234084**

NoiseMeters

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

Page 1 of 2

Approved signatory
N.Smith
Electronically signed:



doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Cirrus Research plc

Notes:

Model: RC:110A

Serial number: 95167

Class: 2

Test summary

Date of calibration: 21 February 2025

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

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

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

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

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

Notes:

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



Certificate of Completion

Learner Name:

Suwan Onkhom

Title Of Course:

ANV-CE-ICPOES-2-024-A: Agilent 5100 5110 ICP-OES Support Add On Training

Completion Date:

26 2567

Certified By Company:

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Sumon O.
21 Feb 24

CERTIFICATE OF CALIBRATION

Certificate Number:

234084

Page 2 of 2

Environmental conditions

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

Before Pressure: 99.38 kPa Temperature: 25.0 °C Humidity: 40.4 %
After Pressure: 99.39 kPa Temperature: 25.1 °C Humidity: 37.9 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	1063074
Environmental Monitor	Comet	T7510	21962628

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.79	113.78	113.79	113.79	-0.21	±0.75	0.11 dB
Distortion (%)	< 4.00	1.52	0.51	0.51	0.84	0.84	+4.00	0.13 %
Frequency (Hz)	1000.0	990.4	990.4	990.3	990.4	-9.6	±20.0	0.1 Hz

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

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.97	113.97	113.97	113.97	-0.03	±0.75	0.11 dB
Distortion (%)	< 4.00	0.51	0.50	0.51	0.51	0.51	+4.00	0.13 %
Frequency (Hz)	1000.0	990.3	990.3	990.3	990.3	-9.7	±20.0	0.1 Hz

Functionality Results

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

End of results

CERTIFICATE OF CALIBRATION

ISSUED BY Noisemeters

DATE OF ISSUE 02 April 2025

CERTIFICATE NUMBER 237347

NoiseMeters

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

Page 1 of 2

Approved signatory
N.Smith
Electronically signed:



doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Pulsar Instruments

Notes:

Model: Model 22R

Serial number: 79781

Class: 2

Test summary

Date of calibration: 01 April 2025

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

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

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

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

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

Notes:

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

CERTIFICATE OF CALIBRATION

Certificate Number:

237347

Page 2 of 2

Environmental conditions

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

Before Pressure: 102.23 kPa Temperature: 22.3 °C Humidity: 34.7 %

After Pressure: 102.23 kPa Temperature: 22.3 °C Humidity: 35 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	1053426
Environmental Monitor	Comet	T7510	21962628

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	114.07	114.07	114.06	114.07	0.07	±0.75	0.11 dB
Distortion (%)	< 4.00	0.50	0.50	0.49	0.50	0.50	+4.00	0.13 %
Frequency (Hz)	1000.0	998.9	998.9	998.9	998.9	-1.1	±20.0	0.1 Hz

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

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.99	113.99	114.00	113.99	-0.01	±0.75	0.11 dB
Distortion (%)	< 4.00	0.49	0.49	0.49	0.49	0.49	+4.00	0.13 %
Frequency (Hz)	1000.0	998.9	998.9	998.9	998.9	-1.1	±20.0	0.1 Hz

Functionality Results

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

End of results



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-68/0279

MTC.No.23-68/0279-01

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 160100

Model : Defender 520-L

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

Subdivision : (0.001, 0.01) ml/mln

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2025 **Condition of measured item :** Normal

Calibration date : 24 February 2025

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 0811/67	3-Jul-26	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 117982	MW-0034-23	11-Jun-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by : Ms.Kirana Luanghirun

(Ms.Kirana Luanghirun)

Director

Mechanical Engineering Standards Laboratory

Ref. 2013268021300656001

Issued Date 28 February 2025

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FM.BL.MTC.002 Rev.5

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-68/0279

2/2

MTC.No.23-68/0279-01

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

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

Atmospheric pressure (1010±13) hPa

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

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

Measurement data :

UUC Value (ml/min)	Standard Value (ml/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
20.473*	20.340	24.275	1011.42	+0.65	0.94
49.952	50.732	24.057	1011.52	-1.54	0.95
99.449	99.622	24.102	1011.62	-0.17	0.93
200.34	199.94	24.133	1011.77	+0.20	0.93
401.89	397.98	24.140	1012.07	+0.98	0.93

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

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

The end of calibration certificate.

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-68/0279

MTC.No.23-68/0279-02

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

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

Subdivision : (0.0001, 0.001) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2025

Condition of measured item : Normal

Calibration date : 25 February 2025

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 0811/67	3-Jul-26	TISTR
Molbox/Pressure Transducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 119216	MW-0035-23	31-May-25	NIMT

Calibrated by :

Terasak Panna

(Mr.Terasak Panna)

Approved by :

Ms. Kirana Luanghitrin

Director

Mechanical Engineering Standards Laboratory

Ref. 2013268021300656002

Issued Date 28 February 2025

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

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

Request No.23-68/0279

2/2

MTC.No.23-68/0279-02

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

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

Atmospheric pressure (1010±13) hPa

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

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

Measurement data :

UUC Value (L/min)	Standard Value (L/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
1.5010	1.4862	24.354	1011.40	+0.99	0.91
5.0202	4.9882	24.364	1013.95	+0.64	0.89
9.9989	9.9228	24.319	1020.22	+0.77	0.89
15.033	14.819	24.342	1030.37	+1.44	0.89
25.136	24.152	24.331	1061.30	+4.08	0.89

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

The end of calibration certificate.

The results relate only to the items tested/calibrated or value assigned.
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GC 7890B

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Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Important Customer Web Links

- For more Information about **Agilent Technologies services**, please visit our website using the following URL: <http://www.agilent.com/en-us/products/crosslab-instrument-services/service-repair>
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit <https://community.agilent.com/welcome>.
- To access **Agilent University**, visit <http://www.agilent.com/crosslab/university/> to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- A useful **Agilent Resource Center** web page is available, which includes short videos on maintenance, quick lists of consumables for new instruments, and other valuable information. Check out the Resource Page here: <https://www.agilent.com/en-us/agilentresources>.
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- **Videos** about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at <https://www.youtube.com/user/agilent>.
- **7890B Manuals** are also available on Agilent.com:
 - **Safety**
https://www.agilent.com/cs/library/usermanuals/public/7890B_Safety.pdf
 - **Installation and First Startup**
https://www.agilent.com/cs/library/usermanuals/Public/7890B_Installation.pdf
 - **Operation Manual**
https://www.agilent.com/cs/library/usermanuals/Public/7890B_Operation.pdf
 - **Maintaining Your GC**
https://www.agilent.com/cs/library/usermanuals/public/G3430-90052%207890B_Maintaining%20Guide.pdf

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check "**Section not applicable**" check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Completion section including the customer's and your signature.**

Additional Instruction Notes

- Check for any active service notes for this unit. If there are any applicable "Safety" or "Modification Recommended" Service notes, plan to implement the changes on this unit before doing any qualification service.
- Do not implement firmware updates, unless you get approval from the customer and are sure that they are compatible with the instrument control software.

System Information

- ☐ Check this box if an instrument configuration report is attached instead of completing the table below.

Instrument System Name and ID	7890A GC System
Instrument System Site and Location	SECOT CO., LTD.

List System Component Product Numbers	List the Serial Numbers of each Component
1. G3440B	CN15343147
2. G4513A	CN11350133
3. G4514A	CN13080006
4. N/A	N/A
5. N/A	N/A
6. N/A	N/A
7. N/A	N/A
8. N/A	N/A
9. N/A	N/A
10. N/A	N/A

Preparation

- ☒ Discuss any specific issues with the customer before starting.
- ☒ Review the instrument logbook for recorded problems and comments.
- ☒ Save instrument control settings before starting the procedure.
- ☒ Perform a general inspection of the system for cleanliness.
- ☒ Check for proper installation of parts, assemblies, sensors etc.
- ☒ Check system for required installation of components, settings as defined by current Service Notes.
- ☒ Check for required firmware updates and verify with customers if they would like them installed.
- ☐ Before starting the following procedures, record the Detector Signal Output(s) in the results table. If the GC is turned OFF or in a service mode, comparing the detector outputs before and after the service is not possible.

Preventive Maintenance Procedure

Clean and inspect GC

- ☒ Unplug power cord from the power source.
- ☒ Open GC covers and vacuum/remove any dust/debris. Pay particular attention to cooling fans.
- ☒ Inspect internal connectors for proper contact and placement.
- ☒ Reconnect Power to the GC. Power the GC on and verify the power on self-test passed.
- ☒ Verify oven motor spins freely and turns on with the oven door closed; off when the door is opened.
- ☒ Verify operation of all other fans - the inlet and EPC cooling fans.
- ☒ Verify oven intake/outlet flap assembly is operating smoothly while heating and cooling the oven

Inlet and detector consumable replacement

- ☒ For the inlets installed, perform inlet maintenance as defined in the 7890 manual – "Maintaining Your GC" - for the inlet(s) installed.
- ☒ Replace the split vent trap cartridge filter on units with these inlets: Split/Splitless Capillary (SSL), Multi-Mode Inlet (MMI), Programmed Temperature Vaporizer (PTV), Volatiles Interface (VI).
- ☒ If the inlet system is used in Split Mode with viscous samples, inspect and clean the split vent tube on the inlet and flush or replace the tubing between the inlet and the split vent trap.
- ☒ If the GC includes a Flame Ionization Detector (FID), replace the jet. If the ignitor shows any buildup of sample or corrosion, replace the ignitor. Examine the FID collector and castle assemblies for contamination – clean as necessary.

Zero Sensors and Leak test

- ☒ Zero all pressure sensors per the procedure in the 7890 "Advanced User Guide".
- ☒ Perform inlet pressure decay test(s) as defined in the 7890 "Troubleshooting Manual". If the PM is done in preparation for an Operational Qualification, then the pressure decay test defined within that protocol can be used for the PM.
- ☒ Record if test passed or failed in the results table.

ALS Maintenance

- ☐ **Section NOT applicable**
- ☒ Check all cabling and configuration settings between GC, tray, and injectors.
 - ☒ Vacuum or remove any dust, especially around fans.
 - ☒ Check operation of all fans.
 - ☒ Check syringe for smooth plunger operation.
 - ☒ Check for smooth operation of the needle support – clean if necessary

Restore Instrument

- ☒ Restore the normal operating conditions or customer method using the Data System.
- ☒ Purge the system with carrier flow for 15 minutes
- ☒ Bake out the system, then restore the normal operating conditions
- ☒ After equilibration, check and record the post PM detector signal output values.
Results should be similar or lower than the detector outputs recorded prior to PM.
- ☒ Perform a chemical checkout. If this is a routine PM, inject the customer's sample using the ALS if applicable. This will act as a final checkout of both the ALS and the GC.

Note: If the PM Service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Signature Page

Service Review

- ☒ Attach available reports/printouts of all tests to this documentation.
- ☒ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☒ Update/reset instrument maintenance counters as appropriate.
- ☒ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☒ Complete the Service Engineer Comments section if there are additional comments.
- ☒ Review with the customer this service, parts replaced, and test results obtained.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box or if necessary, in the customer's IQ records.
- ☐ Supply the customer with a copy of the Smart Alerts flyer.
- ☐ Describe Smart Alerts to the customer.
- ☐ Install Smart Alerts if requested.

7890 GC Test Results Table

Detector Signal Outputs	Before PM Service	After PM Service
Front detector output uECD	-	180
Back detector output FID	-	15
AUX detector output	N/A	N/A
Pressure decay test	Expected test result	Actual test result
Front inlet pressure decay test	Pass	Pass
Back inlet pressure decay test	Pass	Pass

7890 Parts List Table

The following kits are recommended for capillary and purged packed inlets. If this is a general PM and the customer has a preferred set of consumables, you may use the customer's consumables.

Part description	Part number	Product or model# where used	Quantity consumed
SSL Capillary Inlet PM kit, Splitless	5188-6497	7890A/B	2
SSL Capillary Inlet PM kit, split	5188-6496	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Low Pressure Drop Split Liner - with Glass Wool	5190-2295	7890A/B	N/A
PP Inlet PM kit	5188-6498	7890A/B	N/A
Split vent trap PM kit, single cartridge (for MMI, PTV & VI)	5188-6495	7890A/B	N/A
MMI Cleaning Kit	G3510-60820	7890A/B	N/A
PTV Septumless Head Rebuild Kit	5182-9747	7890A/B	N/A
PTV Septumless Head Teflon Guide	5182-9748	7890A/B	N/A
Ignitor (glow plug) assembly with O-ring	19231-60680	7890A/B	1
FID Collector Rebuild/Cleaning Kit	G1531-67000	7890A/B	N/A
Standard .011-inch FID Jet for capillary FID base	G1531-80560	7890A/B	N/A
High Temperature .018-inch FID Jet for capillary FID base	G1531-80620	7890A/B	N/A
Standard .018-inch FID Jet for packed column with packed FID base	18710-20119	7890A/B	N/A
Standard .011-inch FID Jet for capillary column with packed/adaptable FID base	19244-80560	7890A/B	N/A
High Temperature .018-inch FID Jet for capillary column with packed/adaptable FID base	19244-80620	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID	G1534-80580	7890A/B	N/A
NPD Jet, universal fit, .011-inch ID Extended tip	G1534-80590	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	7890A/B	N/A
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	7890A/B	N/A
**FID Collector Replacement Kit, if needed	G1531-67001	7890A/B	N/A

Service Engineer Comments

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write include them in this box.

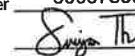
N/A

Service Completion

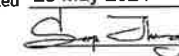
Service request number 6006786001

Date service completed 23 May 2024

Agilent signature



Customer signature



Total number of pages in this document 10

Do not include this section/page in the published, customer-facing PDF version.

This page is only relevant for Agilent source documents for document control purposes and is NOT intended for customer viewing. Refer to the SPIFPM checklist Authoring Guide for more information.

Document Control Logs

Revision Log

Revision	Date	Author	Reason for update
Revision of document	Date of issuance	Author of document	Author to describe main features/changes made for this specific revision
1.0 Draft	4-Mar-2011	Dave Park	Migrated the content of revision A.01.05 to the new Agilent template. Reviewed by subject matter expert, Dave Park.
1.1 Draft	20-Jan-2015	Dave Park	Added Split Vent trap to MMI, PTV and VE - also PTV and FID PM Parts
1.2 Draft	31-March-2015	Dave Park	Added Ultra Inert Gold Seal and Liner to SS Consumables
A.01.11	10-Dec-2015	Dave Park	Added step to perform maintenance on the Split Vent Tube and .018" FID Jet part numbers - Fixed broken web links
2.00	30-Dec-2020	Gary Boardman	Updated New Template and terminology change: Familiarization to Introduction. Create New Agile Document Number: D0007063

Approval Log

Revision	Approver	Title of approver
Add revision number	Add approver name here	Add approver's function or title here
A.01.06	Don Gage	Product support manager
A.01.09	Kai Meng	Product support manager
A.01.10	Suneetha Tippireddy	Product support manager
A.01.11	Suneetha Tippireddy	Product support manager
2.00	Josh Roark	GC Product Support Manager

Designated Evaluation Log

Revision	Designated Evaluator (DE)	Title of DE	DE Number
Add revision number	Add name	Add function or title	Add DE number here
2.00	Michael Zumwalt	CrossLab Start Up Services Application Consulting Lead	44166.7597222222

Certificate of System Qualification

GC-OQ

System ID: US10943001
Organization Name: Secot Co.,Ltd. (Head Office)
Organization Location: 239 Rimklongprapa Rd., Bangsue, Bangkok 10800

Date: April 24, 2025 10:16:55 AM
EQP Name: AgilentRecommended

EQP Revision: GC.02.55

Overall Qualification Status: Pass

CDS Logon Verification - GC

Logon: No logon credentials required for customer CDS

System Inspection and Basic Safety and Operation

Name: 7890

Setpoint Status: Pass

Overall System Inspection and Basic Safety and Operation Test Status

Pass

Inlet Pressure Decay

Name: 7890

Front

SSL

Setpoint Status: Pass

Pressure: 25.0 psi

Pressure Change: -0.1 psi /5 minutes

Agilent Recommended: ≥ -2.0 and ≤ 0.5

Overall Inlet Pressure Decay Test Status

Pass

Inlet Pressure Accuracy

Name: 7890
Front SSL

Setpoint Status: Pass

Setpoint Actual
Inlet Pressure: 25.0 psi 24.9 psi
Accuracy: 0.1 psi
Agilent Recommended: <= 1.2

Overall Inlet Pressure Accuracy Test Status

Pass

Inlet Pressure Decay

Name: 7890
Back SSL

Setpoint Status: Pass

Pressure: 25.0 psi
Pressure Change: -0.1 psi /5 minutes
Agilent Recommended: >= -2.0 and <= 0.5

Overall Inlet Pressure Decay Test Status

Pass

Inlet Pressure Accuracy

Name: 7890
Back SSL

Setpoint Status: Pass

Setpoint Actual
Inlet Pressure: 25.0 psi 24.9 psi
Accuracy: 0.1 psi
Agilent Recommended: <= 1.2

Overall Inlet Pressure Accuracy Test Status

Pass

Detector Flow Accuracy

Name: 7890
Front FID

Setpoint Status: Pass

Flow Type: Fuel
Setpoint: 30.0 mL/min Measured Flow: 29.9 mL/min
Accuracy: 0.1 mL/min
Agilent Recommended: <= 10.0 % setpoint (3.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Pass

Flow Type: Oxidizer
Setpoint: 400.0 mL/min Measured Flow: 399.8 mL/min
Accuracy: 0.2 mL/min
Agilent Recommended: <= 10.0 % setpoint (40.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Pass

Flow Type: Makeup
Setpoint: 25.0 mL/min Measured Flow: 24.8 mL/min
Accuracy: 0.2 mL/min
Agilent Recommended: <= 10.0 % setpoint (2.5 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Overall Detector Flow Accuracy Test Status

Pass

Detector Flow Accuracy

Name: 7890
Back FPD

Filter: P-Mode

Setpoint Status: Pass

Flow Type: Fuel

Setpoint: 75.0 mL/min Measured Flow: 74.9 mL/min

Accuracy: 0.1 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (7.5 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Filter: P-Mode

Setpoint Status: Pass

Flow Type: Oxidizer

Setpoint: 100.0 mL/min Measured Flow: 99.8 mL/min

Accuracy: 0.2 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (10.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Filter: P-Mode

Setpoint Status: Pass

Flow Type: Makeup

Setpoint: 50.0 mL/min Measured Flow: 49.9 mL/min

Accuracy: 0.1 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (5.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Overall Detector Flow Accuracy Test Status

Pass

GC Oven Temperature Accuracy

Name: 7890

Date: April 24, 2025 10:16:55 AM
System ID: US10943001

Setpoint Status: Pass

Zone: Oven

Setpoint/Actual

Temperature: 230.0 230.0 °C

Accuracy: 0.0 °C

Agilent Recommended: ≥ -1.0 % setpoint in K (-5.0 °C)
≤ 1.0 % setpoint in K (5.0 °C)

Setpoint Status: Pass

Zone: Oven

Setpoint/Actual

Temperature: 100.0 100.0 °C

Accuracy: 0.0 °C

Agilent Recommended: ≥ -1.0 % setpoint in K (-3.7 °C)
≤ 1.0 % setpoint in K (3.7 °C)

Overall GC Oven Temperature Accuracy Test Status

Pass

GC Oven Temperature Stability

Name: 7890

Setpoint Status: Pass

Setpoint/Average

Temperature: 100.0 100.0333 °C

Stability: 0.1 °C

Agilent Recommended: ≤ 0.5

Overall GC Oven Temperature Stability Test Status

Pass

Scouting Run

Tested Combination1 Front SSL / Front FID

Injection Tower

Name: 7693A

Date: April 24, 2025 10:16:55 AM
System ID: US10943001

Setpoint Status: Completed

Injection Volume on Column: 1.0 uL

Overall Scouting Run Status

Completed

Noise and Drift

Tested Combination1 Front SSL / Front FID

Name: 7890

Setpoint Status: Pass

Base Signal: 10.03 pA

ASTM Noise

pA

0.04

<= 0.10

Drift

pA/h

0.10

<= 2.50

Agilent Recommended:

Status: Pass

Overall Noise and Drift Test Status

Pass

Injection Precision

Tested Combination1 Front SSL / Front FID

Name: 7693A

Setpoint Status: Pass

Injection Volume on Column: 1.0 uL

Area RSD: 0.68 % Retention Time RSD: 0.19 %

Agilent Recommended: <= 3.00 <= 1.00

Overall Injection Precision Test Status

Pass

Signal to Noise

Date: April 24, 2025 10:16:55 AM
System ID: US10943001

Tested Combination1 Front SSL / Front FID

Injection Tower

Name: 7890

Setpoint Status: Pass

Signal to Noise: 1672441

Agilent Recommended: >= 300000

Overall Signal to Noise Test Status

Pass

Scouting Run

Tested Combination2 Back SSL / Back FPD

Manual Injection

Name: Not applicable

Setpoint Status: Completed

Injection Volume on Column: 1.0 uL

Mode: P-Mode

Overall Scouting Run Status

Completed

Noise and Drift

Tested Combination2 Back SSL / Back FPD

Name: 7890

Date: April 24, 2025 10:16:55 AM
System ID: US10943001

Setpoint Status:	Pass		
Mode:	P-Mode		
Base Signal:	29	150 pA	
	ASTM Noise		Drift
	DU		DU/h
	1.79		0.27
Agilent Recommended:	<= 5.00		<= 5.00
Status:	Pass	Pass	

Overall Noise and Drift Test Status

Pass

NOTE: This test's 0 comment(s) and 1 deviation(s) are available in the Attachments section.

Signal to Noise

Tested Combination2

Back

SSL

/ Back

FPD

Manual Injection

Name: 7890

Mode: P-Mode

Setpoint Status: Pass

Signal to Noise: 4617

Agilent Recommended: ≥ 1000

Overall Signal to Noise Test Status

Pass

Instrument Details

Purpose

This section describes the as found system configuration.

Details	
System	
System ID	US10943001
Manufacturer	Agilent Technologies
Name	7890
Flow Data Input	Manual Data
Temperature Data Input	Manual Data or Other Data Logging
Tested Combination1	
Injection Technique	Injection Tower
Inlet	Front
Detector	Front
LTM Included?	No
Tested Combination2	
Injection Technique	Manual Injection
Inlet	Back
Detector	Back
LTM Included?	No
Sampler 1	
Manufacturer	Agilent Technologies
Type	Injection Tower
Name	7693A
Model Number	G4513A
Serial Number	CN10110080
Firmware Revision	A.10.06
Usage	Sample Injection
Location	Front
Syringe Volume (µL)	10

Sampler 2

Manufacturer	Agilent Technologies
Type	Manual Injection
Usage	Sample Injection
Syringe Volume (µL)	10

Sampler 3

Manufacturer	Agilent Technologies
Type	Tray
Name	7693A
Model Number	G4514A
Serial Number	CN93901235
Firmware Revision	A.10.11
Vial Heater	Not installed

Mainframe 1

Manufacturer	Agilent Technologies
Name	7890
Model Number	G3440A
Serial Number	US10943001
Firmware Revision	A.01.16
Oven Type	Standard

Inlet 1

Manufacturer	Agilent Technologies
Name	7890
Type	SSL
Location	Front
Carrier Gas	Helium
Control Type	Electronic Pressure Control (EPC)
Purged Inlet	Yes

Inlet 2

Manufacturer	Agilent Technologies
Name	7890
Type	SSL
Location	Back
Carrier Gas	Helium
Control Type	Electronic Pressure Control (EPC)
Purged Inlet	Yes

Detector 1

Manufacturer	Agilent Technologies
Name	7890
Type	FID
Adapter	Capillary
Control Type	Electronic Pressure Control (EPC)
Location	Front
Makeup Gas	Nitrogen

Detector 2

Manufacturer	Agilent Technologies
Name	7890
Type	FPD
Adapter	Capillary
Control Type	Electronic Pressure Control (EPC)
Location	Back
Makeup Gas	Nitrogen
First Filter Tested	P-Mode

Electronic Signature

Purpose

This signature page was created and published because the ACE sign-off action was executed, which is valid for the entire document, including attachments. The ACE sign-off is an electronic signature that requires two distinct identification components: unique username and personal password. The Agilent representative who has delivered this service understands the meaning and legal status of an electronic signature. As a trained official operator, the Agilent representative has a unique password and logon to access ACE and electronically sign this document. (Other e-signatures can be applied to this document using a Document Content Management or other suitable method defined in your data access and control procedures.)

Details

Full Name of Signer:

Nattapat Hengcharoen

Logged On User Name:

nattapat.hengcharoen@agilent.com

Signature Creation Date:

April 24, 2025

Reason for Signature:

Executed protocol and published this original version of document

ACE Self Qualification Status

The installed version of ACE used to deliver this service passed qualification; the results conform with expected values. The self qualification summary report is available in the session folder location SDS\ClearStore\AceSelfQualification.

Regulatory Disclaimer

This document provides a protocol to verify and record instrument configuration and evidence of proper operation. It has been prepared from our interpretation of applicable regulations as well as industry best practices. The document is designed to provide an important component of a complete compliance package. Validation depends upon many factors and use of this protocol alone does not assure compliance. Agilent Technologies makes no promises or representations as to its sufficiency for any specific regulatory program.

Warranty

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US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 10:31:32 AM	Audit	SessionCreated	Session	Host Name: AG-SCG2350YH0, Drive Serial Number: 2A984E77
April 23, 2025 10:31:32 AM	start	Configuration	Session	None
April 23, 2025 10:31:32 AM	Audit	Entitlement	Licensing	User is FieldEngineer and does not require an unlock code
April 23, 2025 10:36:35 AM	Audit	EqpLoaded	Session	EQP details for primary technique [Gc] - File path: [ProtocolPacks\Gc\Configurat ions\02.55\Gc.02.55.eqp], EQP File Name: [Gc.02.55.eqp], EQP Name: [AgilentRecommended],Prolo col Revision :[Gc.02.55]
April 23, 2025 10:36:44 AM	End	Configuration	Session	None
April 23, 2025 10:38:50 AM	start	Qualification	Session	OQ
April 23, 2025 10:36:50 AM	start	Execution	CDS Logon Verification - GC - 7890: - Qualitative test	None
April 23, 2025 10:42:45 AM	End	Execution	CDS Logon Verification - GC - 7890: - Qualitative test	Run Count : 1
April 23, 2025 10:42:47 AM	start	Execution	System Inspection and Basic Safety and Operation - 7890: - Qualitative Test - No setpoints associated	None
April 23, 2025 10:47:15 AM	End	Execution	System Inspection and Basic Safety and Operation - 7890: - Qualitative Test - No setpoints associated	Run Count : 1

User Name: nattapathhengcharoen
Report Generated by Hostname: AG-5CG2350YN0

System Id: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 10:47:16 AM	start	Execution	Inlet Pressure Decay - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and ≤ 0.5 psi	None
April 23, 2025 10:55:26 AM	End	Execution	Inlet Pressure Decay - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and ≤ 0.5 psi	Run Count : 1
April 23, 2025 10:55:27 AM	start	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: ≤ 1.2 psi	None
April 23, 2025 10:57:08 AM	End	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: ≤ 1.2 psi	Run Count : 1
April 23, 2025 10:57:10 AM	start	Execution	Inlet Pressure Decay - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and ≤ 0.5 psi	None
April 23, 2025 11:04:12 AM	End	Execution	Inlet Pressure Decay - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and ≤ 0.5 psi	Run Count : 1
April 23, 2025 11:04:13 AM	start	Execution	Inlet Pressure Accuracy - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: ≤ 1.2 psi	None
April 23, 2025 11:07:09 AM	End	Execution	Inlet Pressure Accuracy - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: ≤ 1.2 psi	Run Count : 1
April 23, 2025 11:07:09 AM	start	Execution	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: ≤ 10.0% setpoint	None

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User Name: nattapathhengcharoen
Report Generated by Hostname: AG-5CG2350YN0

System Id: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 11:08:42 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: ≤ 10.0% setpoint	Manual Data Entry
April 23, 2025 11:08:47 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: ≤ 10.0% setpoint	Run Count : 1
April 23, 2025 11:08:48 AM	start	Execution	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: ≤ 10.0% setpoint	None
April 23, 2025 11:12:25 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: ≤ 10.0% setpoint	Manual Data Entry
April 23, 2025 11:12:27 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: ≤ 10.0% setpoint	Run Count : 1
April 23, 2025 11:12:30 AM	start	Execution	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: ≤ 10.0% setpoint	None
April 23, 2025 11:16:31 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: ≤ 10.0% setpoint	Manual Data Entry
April 23, 2025 11:16:33 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: ≤ 10.0% setpoint	Run Count : 1
April 23, 2025 11:16:34 AM	start	Execution	Detector Flow Accuracy - Back FPD: - Type : Fuel - S: 75.0 mL/min - L: ≤ 10.0% setpoint	None
April 23, 2025 11:25:22 AM	start	Execution	Detector Flow Accuracy - Back FPD: - Type : Fuel - S: 75.0 mL/min - L: ≤ 10.0% setpoint	None
April 23, 2025 11:25:40 AM	Audit	Data	Detector Flow Accuracy - Back FPD: - Type : Fuel - S: 75.0 mL/min - L: ≤ 10.0% setpoint	Manual Data Entry

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User Name: nattiapal.hengcharoen
Report Generated by MacName: AG-SCG235RYMB

System Id: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 11:25:44 AM	End	Execution	Detector Flow Accuracy - Back FPD: - Type : Fuel - S: 75.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
April 23, 2025 11:25:45 AM	start	Execution	Detector Flow Accuracy - Back FPD: - Type : Oxidizer - S: 100.0 mL/min - L: <= 10.0% setpoint	None
April 23, 2025 11:28:42 AM	Audit	Data	Detector Flow Accuracy - Back FPD: - Type : Oxidizer - S: 100.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
April 23, 2025 11:28:44 AM	End	Execution	Detector Flow Accuracy - Back FPD: - Type : Oxidizer - S: 100.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
April 23, 2025 11:28:49 AM	start	Execution	Detector Flow Accuracy - Back FPD: - Type : Makeup - S: 50.0 mL/min - L: <= 10.0% setpoint	None
April 23, 2025 11:30:20 AM	start	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	None
April 23, 2025 11:30:27 AM	start	Execution	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	None
April 23, 2025 11:34:12 AM	start	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	None
April 23, 2025 11:36:02 AM	start	Execution	Detector Flow Accuracy - Back FPD: - Type : Makeup - S: 50.0 mL/min - L: <= 10.0% setpoint	None

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User Name: nattiapal.hengcharoen
Report Generated by MacName: AG-SCG235RYMB

System Id: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 11:36:18 AM	Audit	Data	Detector Flow Accuracy - Back FPD: - Type : Makeup - S: 50.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
April 23, 2025 11:36:21 AM	End	Execution	Detector Flow Accuracy - Back FPD: - Type : Makeup - S: 50.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
April 23, 2025 11:38:23 AM	start	Execution	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
April 23, 2025 11:40:36 AM	Audit	Data	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
April 23, 2025 11:40:37 AM	End	Execution	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1
April 23, 2025 11:40:42 AM	start	Execution	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
April 23, 2025 11:57:56 AM	Audit	Data	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
April 23, 2025 11:57:57 AM	End	Execution	GC Oven Temperature Accuracy - 7890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1
April 23, 2025 11:58:02 AM	start	Execution	GC Oven Temperature Stability - 7890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	None

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Date: April 24, 2025 10:16:55 AM
System ID: US10943001

Date: April 24, 2025 10:16:55 AM
System ID: US10943001

User Name: natlapat.hengcharoen
Report Generated by Hostname: AG-BUS35UYNU

System ID: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 12:28:22 PM	Audit	Data	GC Oven Temperature Stability - 7690: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Manual Data Entry
April 23, 2025 12:28:28 PM	End	Execution	GC Oven Temperature Stability - 7880: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Run Count : 1
April 23, 2025 1:40:45 PM	start	Execution	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	None
April 23, 2025 2:18:25 PM	Audit	Data	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\ISC_FID_1.D\FID1A.ch
April 23, 2025 2:18:44 PM	End	Execution	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	Run Count : 1
April 23, 2025 2:18:46 PM	start	Execution	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	None
April 23, 2025 2:19:22 PM	Audit	Data	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Data files Path : D:\Secot_FPD\OQ2025\ND_FID_000001.D\FID1A.ch
April 23, 2025 2:19:45 PM	End	Execution	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Run Count : 1

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User Name: natlapat.hengcharoen
Report Generated by Hostname: AG-BUS35UYNU

System ID: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 2:19:51 PM	start	Execution	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	None
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_2.D\FID1A.ch
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_3.D\FID1A.ch
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_4.D\FID1A.ch
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_5.D\FID1A.ch
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_6.D\FID1A.ch
April 23, 2025 2:20:21 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : D:\Secot_FPD\OQ2025\DEF_GC 2025-04-23_13-00-13\IP_FID_7.D\FID1A.ch

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User Name: nattapat.hengcharoen
Report Generated by: Microsoft Word 2025-04-24

System Id: US10943001
Print Date: April 24, 2025 10:16:55 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 2:20:32 PM	End	Execution	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Run Count : 1
April 23, 2025 2:20:39 PM	start	Execution	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	None
April 23, 2025 2:20:50 PM	Audit	Data	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	Data files Path : D:\Secol_FPD\IOQ2025\DEF_GC 2025-04-23 13-00-13\SN_FID_1.D\FID1A.ch
April 23, 2025 2:21:00 PM	End	Execution	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	Run Count : 1
April 23, 2025 2:21:04 PM	start	Execution	GC Scouting Run - Manual Injection, Back SSL, Back FPD: - Part of System Preparation - No limits associated	None
April 23, 2025 3:35:46 PM	start	Execution	GC Scouting Run - Manual Injection, Back SSL, Back FPD: - Part of System Preparation - No limits associated	None
April 23, 2025 3:36:38 PM	Audit	Data	GC Scouting Run - Manual Injection, Back SSL, Back FPD: - Part of System Preparation - No limits associated	Data files Path : D:\Secol_FPD\IOQ2025\SC_FPD_000001.D\FPD2B.ch
April 23, 2025 3:37:05 PM	End	Execution	GC Scouting Run - Manual Injection, Back SSL, Back FPD: - Part of System Preparation - No limits associated	Run Count : 1

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User Name: nattapat.hengcharoen
Report Generated by: Microsoft Word 2025-04-24

System Id: US10943001
Print Date: April 24, 2025 10:16:55 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 23, 2025 3:37:07 PM	start	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	None
April 23, 2025 3:37:21 PM	Audit	Data	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	Data files Path : D:\Secol_FPD\IOQ2025\IND_F000001.D\FPD2B.ch
April 23, 2025 3:37:43 PM	End	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	Run Count : 1
April 23, 2025 4:23:31 PM	Audit	AceClosed	Session	None
April 24, 2025 9:14:36 AM	Audit	AceRestarted	Session	Host Name: AG-SCG2350YN0, Drive Serial Number: 2A984E77
April 24, 2025 9:36:58 AM	Audit	SessionReloaded	Session	None
April 24, 2025 9:37:03 AM	start	Qualification	Session	OQ
April 24, 2025 9:38:08 AM	Audit	TestUnlocked	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	Deviation filed for Run Count : 1
April 24, 2025 9:38:08 AM	start	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	None
April 24, 2025 9:40:45 AM	Audit	Data	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	Data files Path : D:\Secol_FPD\IND\FPD_000001.D\FPD2B.ch

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User Name: nattapa.jhengcharoen
Report Generated by Hostname: AG-5UGZ35UYN9

System Id: US10943001
Print Date: April 24, 2025 10:16:57 AM

US10943001 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
April 24, 2025 9:40:51 AM	End	Execution	Noise and Drift - Back FPD: - Detector FPD P-Mode - L (Noise): <= 5.00 150 pA - L (Drift): <= 5.00 150 pA/hour	Run Count : 2
April 24, 2025 9:40:57 AM	start	Execution	Signal to Noise - Manual Injection, Back SSL, Back FPD: - Detector FPD - L: >= 1000	None
April 24, 2025 10:00:17 AM	start	Execution	Signal to Noise - Manual Injection, Back SSL, Back FPD: - Detector FPD - L: >= 1000	None
April 24, 2025 10:00:41 AM	Audit	Data	Signal to Noise - Manual Injection, Back SSL, Back FPD: - Detector FPD - L: >= 1000	Data files Path : D:\Secot_FPD\SNFPD_0000 01.DIFPD2B.ch
April 24, 2025 10:00:49 AM	End	Execution	Signal to Noise - Manual Injection, Back SSL, Back FPD: - Detector FPD - L: >= 1000	Run Count : 1
April 24, 2025 10:00:53 AM	End	Qualification	Session	OQ
April 24, 2025 10:00:53 AM	start	Reporting	Session	None
April 24, 2025 10:15:30 AM	Audit	Reporting	Session	Report Generated : Certificate
April 24, 2025 10:16:01 AM	Audit	Reporting	Session	Report Generated : Report

ภาคผนวก จ

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒ ๐ กรกฎาคม ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๗ เมษายน ๒๕๖๖

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

ตามหนังสือที่อ้างถึง บริษัท ซีคอฟ จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙-ค-๐๐๐๓๔ สถานที่ ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอฟ จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

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

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

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม ดำรงพงษ์)

กองวิจัยและเตือนภัยมลพิษโรงงาน
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”



ส่งที่ส่งมาด้วย ๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖

ลงวันที่ ๒ ๐ กรกฎาคม ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

- ๑) นายชรรชัย เกรียงไกรอุดม
- ๒) นางสมฤดี เกรียงไกรอุดม
- ๓) นางสาวอารยา ทิพรัักษ์
- ๔) นางสาวเชมชุตตา อินทร์ศร
- ๕) นางสาวปรีดา สมใจ
- ๖) นางสาวอรัญญา มาตา
- ๗) นางสาวลดาวัลย์ วงศ์เจริญ
- ๘) นางสาวมณีนวรัตน์ เกตะวันดี
- ๙) นางสาวนริสา ภูวสรเพ็ชญ์
- ๑๐) นางสาวศิริวรรณ ฉิมสง่า

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

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอฟ จำกัด เลขทะเบียน ว-๒๓๓๙
ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖ ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย

๑) นางสาวสุดาพร สุนทร	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๑
๒) นางสาวสุธาทิพย์ เทียนเตี้ย	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๓
๓) นางสาวสุนันท์ ทิรวุฒินานนท์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๔
๔) นายบวร ศิขัยยะ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๕
๕) นางสาวเกศรินทร์ วรเดชวิทยา	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๖
๖) นายอนันต์ ภูมิวันนา	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๗
๗) นายชิตพล สมประสงค์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๘
๘) นางสาวศศิธร พรหมประเสริฐ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๐๙
๙) นายศิวะนนท์ กุลวงษ์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๐
๑๐) นางสาวอลิษา คณิรานนท์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๑
๑๑) นางสาวสิริวรรณ แก้วชิงดวง	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๒
๑๒) นางสาวปัทมวรรณ สุวรรณวิโรจน์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๓
๑๓) นางสาวกนิษฐา เจริญเชื้อ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๔
๑๔) นายวัชรกานต์ ประมาคเต	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๕
๑๕) นายทอง เฮงสวัสดิ์กุล	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๖
๑๖) นางสาวกฤษณา จันทุม	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๗
๑๗) นางสาวพรนภา บุตรธรรม	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๘
๑๘) นางสาวธาริณี อาจปสิ่ว	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๑๙
๑๙) นายธนโชติ ช่างล้อ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๐
๒๐) นางสาวพัชรา สมานฉันท์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๑
๒๑) นางสาวจุฬารัตน์ แจ่มเรือน	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๒
๒๒) นางสาวจณิสตา กุ้ยอ่อน	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๓
๒๓) นายกิตติพงศ์ ตะเกิงสุข	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๔
๒๔) นายจิรวัฒน์ โคตรคำหาญ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๕
๒๕) นายชนะพล อัครผล	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๖
๒๖) นางสาวทิพย์สุดา วรรณการ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๗
๒๗) นายสิทธิชัย สว่างวงศ์ไชย	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๘
๒๘) นายพิษณุ สีนามเพ็ง	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๒๙
๒๙) นายรัตนชัย ขอบทำกิจ	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๐
๓๐) นายธนวุฒิ ค่วนแสง	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๑
๓๑) นายณัฐชัย ไชยโคตร	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๒
๓๒) นายณัฐดนัย กฤษณะโสม	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๓
๓๓) นายศุภชัย สุขใหม่	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๔
๓๔) นายรอมฎอน เหลี่ยมมามา	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๕
๓๕) นางสาวสุภาวดี บัวแก้ว	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๖
๓๖) นางสาวมาเรียณี อาแว	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๗
๓๗) นางสาววิระยา ปังนิมบุรณ์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๘
๓๘) นางสาวศลิษา อินริย์	ทะเบียนเลขที่ ว-๒๓๓๙-จ-๐๐๓๙

31/7/2566

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอฟ จำกัด เลขทะเบียน ว-๒๓๓๙
ที่ อก ๐๓๑๐(๑)/ ๑๑ ๐๑ ๖ ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖
ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๕ รายการ

น้ำเสีย จำนวน 45 รายการ

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

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

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

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

3) Digestion...

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

น้ำใต้ดิน จำนวน 125 รายการ

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

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

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

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

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

2) Liquid-Liquid...

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

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4]
81	Lead	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
82	Manganese	1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4]
83	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4]
84	Methanol	Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4]
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method ^[4]
86	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method ^[4]

87 Methylene chloride...

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

99 Phenanthrene...

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

2) Separatory...

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

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

อากาศเสีย (ปล่อยระบาย) จำนวน 27 รายการ

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

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

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

สิ่งปฏิกูล...

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

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

2) Waste Extraction...

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

3) Digestion...

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

13 2,4-D...

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

17 Dieldrin...

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

3) Digestion...

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

24 Molybdenum...

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

4) Digestion...

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

ดิน จำนวน 124 รายการ

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

2 Acetone...

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

14 Benzo(a)pyrene...

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

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

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

54 1,2-Dichloropropane...

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

67 Fluoranthene...

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

78 Hexachloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
78	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
79	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
80	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,27]
81	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
82	Manganese	1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[29] 2) Digestion, Inductively Coupled Plasma Method ^[7,14]
84	Methanol	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^[11,21]
85	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,27]
86	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
87	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,26]
88	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,27]
89	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,27]

90 Methyl tert-butyl ether...

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

2) Digestion...

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

114 2,4,5-Trichlorophenol...

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

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ที่ อก ๐๓๑๐(๑)/ ๕๐ ๕๔



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๗ พฤษภาคม ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคोट จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๑ พฤษภาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท ซีคोट จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๔
สถานที่ตั้งเลขที่ ๒๓๔ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร
ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๒ ราย ได้แก่

- | | |
|---------------------------|----------------------------|
| ๑) นายวัชรภานต์ ประมาคะเต | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๑๔ |
| ๒) นายรัตนชัย ขอบทำกิจ | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๓๐ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายพรต กลั่นกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๔

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ที่ อก ๐๓๑๐(๑)/ ๑๑ ๕๔ ๗



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๑ พฤศจิกายน ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคोट จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๕ พฤศจิกายน ๒๕๖๗

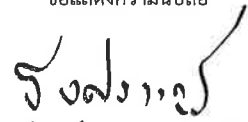
ตามคำขอที่อ้างถึง บริษัท ซีคोट จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๔
สถานที่ตั้งเลขที่ ๒๓๔ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอยกเลิกบุคลากร
ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๓ ราย ได้แก่

- | | |
|--------------------------|----------------------------|
| ๑) นางสาวพัชรา สมานฉันท์ | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๒๑ |
| ๒) นางสาวสุภาวดี บัวแก้ว | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๓๖ |
| ๓) นางสาวมารียามณี ฮาแว | ทะเบียนเลขที่ ว-๒๓๔-จ-๐๐๓๗ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายธีรทัศน์ อิศรางกูร ณ อยุธยา)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๔

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ภาคผนวก ข

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



แบบ กมช./สมอ.๒
Form NSC/TISI 2

ใบรับรองเลขที่ 24-LB0026
(Certificate No.)

ใบรับรองระบบงาน (Certificate of Accreditation)

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

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้
(Issues this certificate to)

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

ตั้งอยู่เลขที่
(Address)

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

ได้รับการรับรองความสามารถ
(Certificate of competence)

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

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

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔
(Accreditation No. Testing 0394)

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

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

(นายวีระศักดิ์ เพ็งหล่ง)

ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ

ปฏิบัติราชการแทน

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



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

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



รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)



ชื่อห้องปฏิบัติการ
(Laboratory Name)

หมายเลขการรับรองที่
(Accreditation No.)

ฉบับที่ 02
(Issue No.02)

สถานภาพห้องปฏิบัติการ
(Laboratory status)

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

ทดสอบ 0394
(Testing 0394)

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

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

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

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field)		
1. น้ำและน้ำเสีย (water and wastewater)	<ul style="list-style-type: none">โลหะหนัก (heavy metals)สารหนู (Arsenic, As) 0.000 5 mg/L ถึง 0.090 0 mg/Lสารหนู (Arsenic, As) 0.05 mg/L ถึง 4.50 mg/Lแบเรียม (Barium, Ba) 0.02 mg/L ถึง 4.50 mg/Lแคดเมียม (Cadmium, Cd) 0.01 mg/L ถึง 4.50 mg/Lโครเมียม (Chromium, Cr) 0.01 mg/L ถึง 4.50 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 CStandard Methods for the Examination of Water and Wastewater, APHA , AWWA, WEF, 23rd edition , 2017, Part 3030 E and Part 3120 B

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

หน้า 1/9

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 24-LB0026

(Certification No. 24-LB0026)



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☐นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
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(Mobile)

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(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

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



ฉบับที่ 02
(Issue No.02)

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

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

สถานภาพห้องปฏิบัติการ
(Laboratory status)

☒ถาวร
(Permanent)

☒นอกสถานที่
(Site)

☐ชั่วคราว
(Temporary)

☐เคลื่อนที่
(Mobile)

☐หลายสถานที่
(Multisite)

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

ภาคผนวก ข

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน
จากกรมสวัสดิการและคุ้มครองแรงงาน



ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้ บริษัท ซีคอน จำกัด

เลขทะเบียนนิติบุคคล ๐๙๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนนิมิตคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๔ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริม ความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๕ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

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

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม:

୧୨-୧୧-୦୫-୦୫-୦୫-୦୫-୦୫

(ลงนาม)..... (นายทะเบียน)

(นายศักดิ์ศิลป์ ตลาธร)

ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

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

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

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพนธ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

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

- | | |
|-------------------|-------------|
| ๑. นางสาวศลิษา | อินริย์ |
| ๒. นางสาวมาริยาณี | ฮานว |
| ๓. นางสาววิระยา | ปัจฉิมบุญณ์ |

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มกราคม พ.ศ. ๒๕๖๖



(นายสมพนธ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

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

๑. นายพงศ์ศิริ จักรแก้ว

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

ให้ไว้ ณ วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘



(นายศักดิ์ศิลป์ ตูลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน



แบบ กบ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

อนุญาตให้ บริษัท ซีคอฟ จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวง
กำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้น
ของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับ
กฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อม
ในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน
พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคोट จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๔

๑. นายชิตพล	สมประสงค์
๒. นายอนิวัฒน์	พิมพ์วันนา
๓. นายศิวัชนนท์	กุลวงษ์
๔. นายวัชรกานต์	ประมาคเต
๕. นายธนโชติ	ช่างลือ
๖. นายกิตติพงศ์	กะเกิงสุข
๗. นายจิรวัฒน์	โคตรคำหาญ
๘. นายศุภกิจ	ติะมูกา
๙. นางสาวธัญลักษณ์	โยธา
๑๐. นางสาวทิพย์สุดา	วรรณการ
๑๑. นางสาวสายธาร	ภูเขียว
๑๒. นายภาคภูมิ	แพนไทย
๑๓. นายธนารุณี	ถ้วนแสง
๑๔. นายรัตนชัย	ชอบทำกิจ

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพจน์ กววงแก้ว)

รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม

ข-๑๑-๐๒๐๑-๐๔๔-๐๓-๖๕

(ลงนาม).....(นายทะเบียน)

(นายศักดิ์ศิลป์ ตูลาธร)

ผู้อำนวยการกองความปลอดภัยแรงงาน



ใบอนุญาต

ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

อนุญาตให้ บริษัท ซี้คอห จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๔๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนนริมิตรลงประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวง กำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕

Seni

(นายสมพงษ์ กวางแก้ว)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม

ପି-ନେ-ରସ-ରସ-ଗଣ-ଦଳ-ବନ୍ଧୁ

(ลงนาม)

...(นายทะเบียณ)

(นายกักตี่ศิลป์ ตูลาธร)

ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

๑. นางสาวนริสา	ภูวสรเพ็ญ
๒. นางอารยา	ทิพย์รักษ์
๓. นางสาวศิริวรรณ	ฉิมสง่า
๔. นางสาวสุภาทิพย์	เทียนเตี้ย
๕. นางสาวพรนภา	บุตรธรรม
๖. นางสาวธารินี	อาจปลิว
๗. นางสาวกฤษณา	จันทุม
๘. นางสาวพัชรา	สมานฉันท
๙. นางสาวจณิสตา	ก้อยอ่อน
๑๐. นางสาวศศิภา	ใจดี
๑๑. นางสาวจุฑารัตน์	แจ่มเรือน
๑๒. นางสาวณัฐศิริ	เลิศธีรพัฒน์
๑๓. นางสาวสัญญาลักษณ์	อินทรประสิทธิ์
๑๔. นางสาวสุดาพร	สุนทร

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕



(นายสมพงษ์ กวางแก้ว)

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