

ภาคผนวก ค

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เอกสารประกอบมาตรการการติดตามตรวจสอบ

ผลกระทบสิ่งแวดล้อม



# ภาคผนวก ค-1

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ใบรับรองผลการวิเคราะห์



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## คุณภาพอากาศในบรรยากาศ



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 2470018-1  
Sampled Date Jul 01, 2024  
Sample Description Air Quality  
Location ริมขอบพื้นที่โรงงาน HDPE1 ด้านทิศเหนือ  
Date Analysis Commenced Jul 03, 2024  
Condition of Sample Drawn into one quartz filter paper (8x10 inch) placed in plastic bag, one 10-L air sampling bag and one sorbent tube, refrigerated  
Barometric Pressure 757 mmHg  
Atmospheric Temperature 29.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	01/07/24 - 02/07/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	01/07/24 - 02/07/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	01/07/24 - 02/07/24	mg/m3	-	0.002	0.008	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Anurak Tongkhajonsakda

### Remark :

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



TESTING  
No.0042

Lot ID: 2470018

Date Received : Jul 02, 2024

Date Reported : Jul 13, 2024

Report Number : 3029868-1

Page 1 of 2



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 2470018-2  
Sampled Date Jul 01, 2024  
Sample Description Air Quality  
Location ริมขอบพื้นที่โรงงาน HDPE1 ด้านทิศใต้  
Date Analysis Commenced Jul 03, 2024  
Condition of Sample Drawn into one quartz filter paper (8x10 inch) placed in plastic bag, one 10-L air sampling bag and one sorbent tube, refrigerated  
Barometric Pressure 757 mmHg  
Atmospheric Temperature 29.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	01/07/24 - 02/07/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	01/07/24 - 02/07/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	01/07/24 - 02/07/24	mg/m3	-	0.002	0.010	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Anurak Tongkhajonsakda

### Remark :

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TESTING  
No.0042

Lot ID: 2470018

Date Received : Jul 02, 2024

Date Reported : Jul 13, 2024

Report Number : 3029868-1

Page 2 of 2

Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report may be reproduced in any form without written consent from the laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

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Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 2479032

Date Received : Aug 09, 2024

Date Reported : Aug 22, 2024

Report Number : 3051036-1



TESTING  
No.0042

Page 1 of 2

Sample Number	2479032-1
Sampled Date	Aug 08, 2024
Sample Description	Air Quality
Location	บริเวณพื้นที่โรงงาน HDPE1 ตำบลทิดเหนือ
Date Analysis Commenced	Aug 10, 2024
Condition of Sample	Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and two sorbent tubes, refrigerated
Barometric Pressure	757 mmHg
Atmospheric Temperature	28.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	08/08/24 - 09/08/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	08/08/24 - 09/08/24	ppm	-	0.10	0.13	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	08/08/24 - 09/08/24	mg/m3	-	0.002	0.014	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Sathapron Thakarnw

### Remark :

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

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 2479032

Date Received : Aug 09, 2024

Date Reported : Aug 22, 2024

Report Number : 3051036-1



TESTING  
No.0042

Page 2 of 2

Sample Number	2479032-2
Sampled Date	Aug 08, 2024
Sample Description	Air Quality
Location	บริเวณพื้นที่โรงงาน HDPE1 ตำบลทิดเหนือ
Date Analysis Commenced	Aug 10, 2024
Condition of Sample	Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and two sorbent tubes, refrigerated
Barometric Pressure	757 mmHg
Atmospheric Temperature	28.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	08/08/24 - 09/08/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	08/08/24 - 09/08/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	08/08/24 - 09/08/24	mg/m3	-	0.002	0.012	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Sathapron Thakarnw

### Remark :

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Scientist (4)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 2495511-1  
Sampled Date Sep 03, 2024  
Sample Description Air Quality  
Location ริมขอบพื้นที่โรงงาน HDPE1 ด้านทิศเหนือ  
Date Analysis Commenced Sep 05, 2024  
Condition of Sample Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and one sorbent tube, refrigerated  
Barometric Pressure 752 mmHg  
Atmospheric Temperature 30.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	03/09/24 - 04/09/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	03/09/24 - 04/09/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	03/09/24 - 04/09/24	mg/m3	-	0.002	0.010	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Saknarin Jaraskay

### Remark :

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TESTING  
No.0042

Lot ID: 2495511

Date Received : Sep 04, 2024

Date Reported : Sep 14, 2024

Report Number : 3087114-1

Page 1 of 2



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 2495511-2  
Sampled Date Sep 03, 2024  
Sample Description Air Quality  
Location ริมขอบพื้นที่โรงงาน HDPE1 ด้านทิศใต้  
Date Analysis Commenced Sep 05, 2024  
Condition of Sample Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and one sorbent tube, refrigerated  
Barometric Pressure 752 mmHg  
Atmospheric Temperature 30.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	03/09/24 - 04/09/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	03/09/24 - 04/09/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	03/09/24 - 04/09/24	mg/m3	-	0.002	0.009	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Saknarin Jaraskay

### Remark :

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TESTING  
No.0042

Lot ID: 2495511

Date Received : Sep 04, 2024

Date Reported : Sep 14, 2024

Report Number : 3087114-1

Page 2 of 2

Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

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Approved by

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Thanita Kulsuriwong  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 24106856-1  
Sampled Date Oct 09, 2024  
Sample Description Air Quality  
Location ร่มรอบพื้นที่โรงงาน HDPE1 ด้านทิศเหนือ  
Date Analysis Commenced Oct 11, 2024  
Condition of Sample Drawn into one glass filter paper (8x10 inch) placed in plastic bag, one 10-L air sampling bag and one sorbent tube, refrigerated  
Barometric Pressure 757 mmHg  
Atmospheric Temperature 33.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	09/10/24 - 10/10/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	09/10/24 - 10/10/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	09/10/24 - 10/10/24	mg/m3	-	0.002	0.017	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Mongkon Phalathip

### Remark :

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TESTING  
No.0042

Lot ID: 24106856

Date Received : Oct 10, 2024

Date Reported : Oct 23, 2024

Report Number : 3112306-1

Page 1 of 2



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 24106856-2  
Sampled Date Oct 09, 2024  
Sample Description Air Quality  
Location ร่มรอบพื้นที่โรงงาน HDPE1 ด้านทิศใต้  
Date Analysis Commenced Oct 11, 2024  
Condition of Sample Drawn into one glass filter paper (8x10 inch) placed in plastic bag, one 10-L air sampling bag and one sorbent tube, refrigerated  
Barometric Pressure 757 mmHg  
Atmospheric Temperature 33.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	09/10/24 - 10/10/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	09/10/24 - 10/10/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	09/10/24 - 10/10/24	mg/m3	-	0.002	0.019	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Mongkon Phalathip

### Remark :

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TESTING  
No.0042

Lot ID: 24106856

Date Received : Oct 10, 2024

Date Reported : Oct 23, 2024

Report Number : 3112306-1

Page 2 of 2

Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

Thanita Kulsuriwong  
Scientist (4)



## Analysis / Test Report



TESTING  
No.0042

Lot ID: 24116888

Date Received : Nov 21, 2024  
Date Reported : Dec 03, 2024  
Report Number : 3134628-1

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 24116888-1  
Sampled Date Nov 19, 2024  
Sample Description Air Quality  
Location ริมถนนพื้นที่โรงงาน HDPE1 ตำบลโคกไผ่  
Date Analysis Commenced Nov 22, 2024  
Condition of Sample Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and two sorbent tubes, refrigerated  
Barometric Pressure 756 mmHg  
Atmospheric Temperature 30.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	19/11/24 - 20/11/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	19/11/24 - 20/11/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	19/11/24 - 20/11/24	mg/m3	-	0.002	0.018	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Anuwet Tema

### Remark :

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Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report



TESTING  
No.0042

Lot ID: 24116888

Date Received : Nov 21, 2024  
Date Reported : Dec 03, 2024  
Report Number : 3134628-1

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Sample Number 24116888-2  
Sampled Date Nov 19, 2024  
Sample Description Air Quality  
Location ริมถนนพื้นที่โรงงาน HDPE1 ตำบลโคกไผ่  
Date Analysis Commenced Nov 22, 2024  
Condition of Sample Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and two sorbent tubes, refrigerated  
Barometric Pressure 756 mmHg  
Atmospheric Temperature 30.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	19/11/24 - 20/11/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	19/11/24 - 20/11/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	19/11/24 - 20/11/24	mg/m3	-	0.002	0.020	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Anuwet Tema

### Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Scientist (4)

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24131531

Date Received : Dec 20, 2024

Date Reported : Jan 08, 2025

Report Number : 3169907-1

Page 1 of 2

Sample Number	24131531-1
Sampled Date	Dec 19, 2024
Sample Description	Air Quality
Location	บริเวณพื้นที่โรงงาน HDPE1 ด้านทิศเหนือ
Date Analysis Commenced	Dec 23, 2024
Condition of Sample	Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and one sorbent tube, refrigerated
Barometric Pressure	758 mmHg
Atmospheric Temperature	31.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	19/12/24 - 20/12/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	19/12/24 - 20/12/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	19/12/24 - 20/12/24	mg/m3	-	0.002	0.030	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Natthawut Duangpang

### Remark :

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

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24131531

Date Received : Dec 20, 2024

Date Reported : Jan 08, 2025

Report Number : 3169907-1

Page 2 of 2

Sample Number	24131531-2
Sampled Date	Dec 19, 2024
Sample Description	Air Quality
Location	บริเวณพื้นที่โรงงาน HDPE1 ด้านทิศใต้
Date Analysis Commenced	Dec 23, 2024
Condition of Sample	Drawn into one 10-L air sampling bag, one quartz filter paper (8x10 inch) placed in plastic bag and one sorbent tube, refrigerated
Barometric Pressure	758 mmHg
Atmospheric Temperature	31.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene *	19/12/24 - 20/12/24	ppm	-	1.0	<1.0	No Standard	Based on ASTM, D 2712-23	-	Bangkok
n-Hexane *	19/12/24 - 20/12/24	ppm	-	0.10	<0.10	No Standard	NIOSH (2003), 1500	-	Bangkok
Particulate matter as PM 10	19/12/24 - 20/12/24	mg/m3	-	0.002	0.032	0.12	US EPA 40 CFR Part 50, Appendix J	NEB No.24 Rayong	

### Guideline :

NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Natthawut Duangpang

### Remark :

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Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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# คุณภาพน้ำ





## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1



TESTING  
No.0042

Lot ID: 2469059  
Date Received : Jul 05, 2024  
Date Reported : Jul 12, 2024  
Report Number : 3027866-1

Page 1 of 1

Sample Number	2469059-1					
Sampled Date	Jul 05, 2024 10:00 AM					
Sample Description	Wastewater					
Location	เบ้ากักน้ำทิ้งของโรงงานพลาสติก TPE Site#1					
Date Analysis Commenced	Jul 05, 2024					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOB)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	107	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Sulfide *	mg/L	-	0.5	4.9	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S1 (C, F)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	644	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	91.4	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Norg (C), part NHD (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	72	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Sampling By : Phongthep Sithikh

Remark :  
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Chontichak  
Chonticha Subongkoch  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2469059  
Date Received : Jul 05, 2024  
Date Reported : Jul 12, 2024  
Report Number : 3027866-2

Page 1 of 1

Sample Number	2469059-1					
Sampled Date	Jul 05, 2024 10:00 AM					
Sample Description	Wastewater					
Location	เบ้ากักน้ำทิ้งของโรงงานพลาสติก TPE Site#1					
Date Analysis Commenced	Jul 06, 2024					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Settleable Solid	mL/L/hr	-	0.1	0.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Rayong

Sampling By : Phongthep Sithikh

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1



TESTING  
No.0042

Lot ID: 2469062  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027868-1

Page 1 of 2

Sample Number	2469062-1						
Sampled Date	Jul 05, 2024 10:30 AM						
Sample Description	Wastewater						
Location	เบ้ากักน้ำ API Separator ของโรงงาน HDPE#1						
Date Analysis Commenced	Jul 05, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment + preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	7.8	≤20	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	42	≤120	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	38.2	≤40	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	68	≤3000	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	50	≤50	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

Photchana S.  
Photchana Seada  
Scientist (4)  
โทรศัพท์ ๖323-๙9446

Approved by

Dj Changchon  
Dj Changchon  
Senior Manager  
โทรศัพท์ ๖323-๙9442

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1



TESTING  
No.0042

Lot ID: 2469062  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027868-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Phongthep Sithikh โทรศัพท์ ๖323-๙9023, Thanasson Namakuma โทรศัพท์ ๖323-๙9011

Remark :  
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Photchana Seada  
Scientist (4)  
โทรศัพท์ ๖323-๙9446

Approved by

Dj Changchon  
Dj Changchon  
Senior Manager  
โทรศัพท์ ๖323-๙9442

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 2469062  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027868-2

Page 1 of 1

Sample Number	2469062-1						
Sampled Date	Jul 05, 2024 10:30 AM						
Sample Description	Wastewater						
Location	น้ำเสียจาก API Separator โรงงาน HDPE#1						
Date Analysis Commenced	Jul 06, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOD)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
n-Hexane	mg/L	-	0.001	0.13	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 6200 B	Bangkok

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

Remark :  
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Siriluk P.  
Siriluk Bunnak  
Section Head

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2469064  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027873-1

Page 1 of 2

Page 3 of 2

Sample Number	2469064-1						
Sampled Date	Jul 05, 2024 10:05 AM						
Sample Description	Wastewater						
Location	น้ำเสียจาก API Separator โรงงาน HOPE#1						
Date Analysis Commenced	Jul 05, 2024						
Condition of Sample	Contained in one amber glass bottle, four glass vials and three plastic bottles, sample containers comply to pretreatment-preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	10	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	31.0	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	322	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	14	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

Photchanas S.  
Photchanas Seeda  
Scientist (4)  
โทรศัพท์ 7-323-9-9446

Approved by

Dej Changchon  
Senior Manager  
โทรศัพท์ 7-323-9-9442

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2469064  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027873-1

Page 2 of 2

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

**Sampling By :** Phongthep Sithiloh รหัสประจำตัว ๖-323-4-0023 , Thanasorn Namakunna รหัสประจำตัว ๖-204-4-0101

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

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

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180-202 ENGL 5 (Pages) AL GL (pt) (2.2349)





## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2469066  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027874-1

Page 1 of 2

Sample Number	2469066-1						
Sample Date	Jul 05, 2024 10:18 AM						
Sample Description	Wastewater						
Location	Final Check Pond ๒๐๖/๒๐๗๐๐ LDPE						
Date Analysis Commenced	Jul 05, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	29	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature °	Degree C	-	-	33.3	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2530 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	432	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	18	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

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Approved by

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Dej Changchon  
Senior Manager  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2469066  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027874-1

Page 2 of 2

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

Remark :

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

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Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 2469066  
Date Received : Jul 05, 2024  
Date Reported : Jul 13, 2024  
Report Number : 3027874-2

Page 1 of 1

Sample Number	2469066-1						
Sampled Date	Jul 05, 2024 10:18 AM						
Sample Description	Wastewater						
Location	Final Check Pond ๒๐๖/๒๐๗๐๐ LDPE						
Date Analysis Commenced	Jul 05, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment + preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	109	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - Cl (D)	Rayong
Flow rate	m3/s	-	-	0.016	No Standard	Flow meter	Rayong
Total Organic Carbon	mg/L	0.01	0.1	9.61	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5310 B	Bangkok

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

Remark :

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## Analysis / Test Report

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10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2469045  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051069-1

Page 1 of 1

Sample Number	2479045-1					
Sample Date	Aug 02, 2024 11:03 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำจากกระบวนการผลิต TPE Site#1					
Date Analysis Commenced	Aug 02, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply by pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	160	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	7	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.6	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Sulfide *	mg/L	-	0.5	0.8	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Total Dissolved Solids Dried at 180 degrees C	mg/L	-	5	496	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	86.8	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Horg (C), part NH3 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	42	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Sampling By : Paramet Sattayakun ๙๙๙๙๙๙๙๙ ๙-323-๙-9476

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Technical Management

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## Analysis / Test Report

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21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2479045  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051069-2

Page 1 of 1

Sample Number	2479045-1					
Sampled Date	Aug 02, 2024 11:03 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งจากโรงงานทอผ้า TPE Site#1					
Date Analysis Commenced	Aug 03, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Settleable Solid	mg/L/hr	-	0.1	0.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Rayong

Sampling By : Paramet Sattayakun

LOD : Limit of Detection  
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S (Paramet) AL Group (3-40M)



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 2479047  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051072-1

Page 1 of 2

Sample Number	2479047-1					
Sampled Date	Aug 02, 2024 10:38 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งจากโรงงานทอผ้า HDPE#1					
Date Analysis Commenced	Aug 02, 2024					
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D
Color (at Original pH)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B
pH at 25 degree C	-	-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B
Temperature °	Degree C	-	-	38.9	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	70	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	33	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D

Technical Management

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Photchana Seeda  
Scientist (4)  
โทรศัพท์ 323-9-9446

Approved by

D. Changdon  
Dej Changdon  
Senior Manager  
โทรศัพท์ 323-9-9442

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S (Paramet) AL Group (3-40M)



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 2479047  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051072-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Paramet Sattayakun โทรศัพท์ 323-9-9476, Pattarapol Savangjattam โทรศัพท์ 204-9-0002

Remark :  
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"C" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2479047  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051072-2

Page 1 of 1

Sample Number	2479047-1					
Sampled Date	Aug 02, 2024 10:38 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งจากโรงงานทอผ้า HDPE#1					
Date Analysis Commenced	Aug 03, 2024					
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method
Water Testing						
n-Hexane	mg/L	-	0.001	0.251	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 6200 B

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

Remark :  
LOD : Limit of Detection  
"C" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

Siriluk P.  
Siriluk Bumak  
Section Head

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Photchana Seeda  
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## Analysis / Test Report

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10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 2479048  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051075-1

Page 1 of 2

Sample Number	2479048-1						
Sampled Date	Aug 02, 2024 10:58 AM						
Sample Description	Wastewater						
Location	โรงงานแปรรูปเหล็ก TPE Site#1						
Date Analysis Commenced	Aug 02, 2024						
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment-preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	36	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	9	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (8)	Rayong
Temperature *	Degree C	-	-	33.8	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	420	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	17	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

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Scientist (4)  
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Dej Changchon

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 2479048  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051075-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Paramet Sattayakun , Pattarapol Sawangjittam via Quanao 0-2844-9002

Remark :  
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Technical Management

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10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2479048  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051075-2

Page 1 of 1

Sample Number	2479048-1						
Sampled Date	Aug 02, 2024 10:58 AM						
Sample Description	Wastewater						
Location	ท่าเรือบ้านใหม่ TPE Site#1						
Date Analysis Commenced	Aug 02, 2024						
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment-preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	106	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	6.89	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5310 B	Bangkok

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

Remark :  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
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Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 2479053  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051083-1

Page 1 of 2

Sample Number	2479053-1						
Sampled Date	Aug 02, 2024 10:46 AM						
Sample Description	Wastewater						
Location	Final Check Pond 101/10100 LDE						
Date Analysis Commenced	Aug 02, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	6	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (8)	Rayong
Temperature *	Degree C	-	-	34.1	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	464	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	21	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

Photchanas.

Photchanas Seeda  
Scientist (4)  
โทรศัพท์ 0-323-9-9446

Approved by

Dej Changchon

Dej Changchon  
Senior Manager  
โทรศัพท์ 0-323-9-9442

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## Analysis / Test Report



TESTING  
No.0042

Lot ID: 2479053  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051081-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Paramet Sattayakun วิจัยอุตสาหกรรม 3-323-9-9476, Pattarapol Savangsilatham วิจัยอุตสาหกรรม 3-323-9-9476

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



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2479053  
Date Received : Aug 02, 2024  
Date Reported : Aug 09, 2024  
Report Number : 3051081-2

Page 1 of 1

Sample Number : 2479053-1  
Sampled Date : Aug 02, 2024 10:46 AM  
Sample Description : Wastewater  
Location : Final Check Pond 100174747 LDPE  
Date Analysis Commenced : Aug 02, 2024  
Condition of Sample : Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	112	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	7.58	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5310 B	Bangkok

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

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

Technical Management

Photchanas S.

Photchanas Seeda  
Scientist (4)  
โทรศัพท์ 3-323-9-9446

Approved by

Dej Changchon

Senior Manager  
โทรศัพท์ 3-323-9-9442

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Approved by

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Photchanas Seeda  
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## Analysis / Test Report



TESTING  
No.0042

Lot ID: 2495516  
Date Received : Sep 12, 2024  
Date Reported : Sep 19, 2024  
Report Number : 3087122-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Sample Number : 2495516-1  
Sampled Date : Sep 12, 2024 9:45 AM  
Sample Description : Wastewater  
Location : 100174747 LDPE TPE Site #1  
Date Analysis Commenced : Sep 12, 2024  
Condition of Sample : Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 degree C)	mg/L	-	2.0	104	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.3	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Sulfide *	mg/L	-	0.5	13.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-SD (C, F)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	700	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	89.6	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Norg (C), part NHI (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	65	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Sampling By : Nattawut Athomprommarat

Remark :  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2495516  
Date Received : Sep 12, 2024  
Date Reported : Sep 19, 2024  
Report Number : 3087122-2

Sample Number : 2495516-1  
Sampled Date : Sep 12, 2024 9:45 AM  
Sample Description : Wastewater  
Location : 100174747 LDPE TPE Site #1  
Date Analysis Commenced : Sep 13, 2024  
Condition of Sample : Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Settleable Solid	mL/hr	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Rayong

Sampling By : Nattawut Athomprommarat

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Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2495519  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087124-1

Page 1 of 2

Sample Number	2495519-1					
Sampled Date	Sep 12, 2024 10:24 AM					
Sample Description	Wastewater					
Location	น้ำทิ้งจาก API Separator ของโรงงาน HDPE#1					
Date Analysis Commenced	Sep 12, 2024					
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D
Color (at Original pH)	ADME	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Color (at pH 7.0)	ADME	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B
pH at 25 degree C	-	-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)
Temperature *	Degree C	-	-	39.4	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	84	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	35	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D

Technical Management

Photchana S.

Photchana Seeda  
Scientist (4)  
โทรศัพท์ ๖-323-๖0028

Approved by

Dej Changchon

Dej Changchon  
Senior Manager  
โทรศัพท์ ๖-323-๖0001

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2495519  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087124-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Nattawat Athornprommarat โทรศัพท์ ๖-323-๖0006, Thanassorn Namakunnua โทรศัพท์ ๖-324-๖0001

Remark :

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

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Photchana Seeda  
Scientist (4)  
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Dej Changchon

Dej Changchon  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 2495519  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087124-2

Page 1 of 1

Sample Number	2495519-1					
Sampled Date	Sep 12, 2024 10:24 AM					
Sample Description	Wastewater					
Location	น้ำทิ้งจาก API Separator ของโรงงาน HDPE#1					
Date Analysis Commenced	Sep 13, 2024					
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method
Water Testing						
n-Hexane	mg/L	-	0.001	0.144	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 6200 B

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

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

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Approved by

Sumwim C.

Sumwim Charaengwut  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 2495520  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087129-1

Page 1 of 2

Sample Number	2495520-1					
Sampled Date	Sep 12, 2024 9:51 AM					
Sample Description	Wastewater					
Location	น้ำทิ้งจาก API Separator ของโรงงาน HDPE#1					
Date Analysis Commenced	Sep 12, 2024					
Condition of Sample	Contained in one amber glass bottle, four glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D
Color (at Original pH)	ADME	-	5	13	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Color (at pH 7.0)	ADME	-	5	12	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B
pH at 25 degree C	-	-	-	7.9	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)
Temperature *	Degree C	-	-	33.6	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	716	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	14	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D

Technical Management

Photchana S.

Photchana Seeda  
Scientist (4)  
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Approved by

Dej Changchon

Dej Changchon  
Senior Manager  
โทรศัพท์ ๖-323-๖0001

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## Analysis / Test Report

## TESTING

No.0042

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2495520  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087129-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and  
Effluent standard for factories and industrial park set by Notification of the Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Nattawat Abhomprommarat วิศกรสุภาวดี 3-323-4-0006 , Thanassou Namakuntha วิศกรสุภาวดี 3-323-4-0101

Remark :  
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- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.  
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## Analysis / Test Report

## Lot ID: 2495520

Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087129-2

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Sample Number	2495520-1						
Sampled Date	Sep 12, 2024 9:51 AM						
Sample Description	Wastewater						
Location	โรงงานบำบัดน้ำเสีย TPE Site#1						
Date Analysis Commenced	Sep 12, 2024						
Condition of Sample	Contained in one amber glass bottle, four glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	119	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	9.83	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5310 B	Bangkok

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and  
Effluent standard for factories and industrial park set by Notification of the Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Nattawat Abhomprommarat วิศกรสุภาวดี 3-323-4-0006 , Thanassou Namakuntha วิศกรสุภาวดี 3-323-4-0101

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

Technical Management

Photchanas S.

Photchanas Seeda  
Scientist (4)  
วิศกรสุภาวดี 3-323-4-0026

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
วิศกรสุภาวดี 3-323-4-0001

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Swimon Chaiwangwut  
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## Analysis / Test Report

## TESTING

No.0042

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2495523  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087131-1

Page 1 of 2

Sample Number	2495523-1						
Sampled Date	Sep 12, 2024 9:41 AM						
Sample Description	Wastewater						
Location	Final Check Pond sau'saun LDPE						
Date Analysis Commenced	Sep 12, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Color (at Original pH)	ADME	-	5	6	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Color (at pH 7.0)	ADME	-	5	6	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.6	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	35.0	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	504	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 102-105 degree C	mg/L	-	5	20	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Technical Management

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Approved by

D. Changchon

Dej Changchon  
Senior Manager  
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## Analysis / Test Report

## TESTING

No.0042

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 2495523  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087131-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and  
Effluent standard for factories and industrial park set by Notification of the Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Nattawat Abhomprommarat วิศกรสุภาวดี 3-323-4-0006 , Thanassou Namakuntha วิศกรสุภาวดี 3-323-4-0101

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

Technical Management

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 2495523  
Date Received : Sep 12, 2024  
Date Reported : Sep 20, 2024  
Report Number : 3087131-2

Page 1 of 1

Sample Number	2495523-1						
Sampled Date	Sep 12, 2024 9:41 AM						
Sample Description	Wastewater						
Location	Final Check Pond ของโรงงาน LDPE						
Date Analysis Commenced	Sep 12, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	113	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-C (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	6.43	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5310 B	Bangkok

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

Sampling By : Nattavut Athornponnarat, Thanassou Namakunna  
Remark :  
- LOD : Limit of Detection  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107274  
Date Received : Oct 04, 2024  
Date Reported : Oct 11, 2024  
Report Number : 3113290-1

Page 1 of 1

Sample Number	24107274-1					
Sample Date	Oct 04, 2024 11:20 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งของโรงงานพลาสติก TPE Site#1					
Date Analysis Commenced	Oct 04, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	108	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	9	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 B	Rayong
pH at 25 degree C	-	-	-	7.5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Sulfide *	mg/L	-	0.5	7.3	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-S1 (C, F)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	540	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	90.8	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-Nitrogen (C), part 4500-N (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	71	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Paramet Sattayakun วิบูลย์สินธุ์ 3-323-n-0051

Remark :  
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)  
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.  
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Technical Management

**Photchanna S.**  
Photchanna Seeds  
Scientist (4)  
วิบูลย์สินธุ์ 3-323-n-0028

Approved by

**D. Chongchon**  
Dej Chongchon  
Senior Manager  
วิบูลย์สินธุ์ 3-323-n-0001

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107274  
Date Received : Oct 04, 2024  
Date Reported : Oct 11, 2024  
Report Number : 3113290-2

Page 1 of 1

Sample Number	24107274-1					
Sampled Date	Oct 04, 2024 11:20 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งของโรงงานพลาสติก TPE Site#1					
Date Analysis Commenced	Oct 05, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
Settleable Solid	ml/L/hr	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	Rayong

Sampling By : Paramet Sattayakun

Remark :  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107277  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113293-1

Page 1 of 2

Sample Number	24107277-1						
Sampled Date	Oct 04, 2024 10:45 AM						
Sample Description	Wastewater						
Location	บ่อกักเก็บ API Separator ใช้น้ำดิบ HDPE#1						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
pH at 25 degree C	-	-	-	7.6	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	37.9	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	83	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	26	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

**Photchanna S.**  
Photchanna Seeds  
Scientist (4)  
วิบูลย์สินธุ์ 3-323-n-0028

Approved by

**D. Chongchon**  
Dej Chongchon  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 24107277  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113299-1

Page 2 of 2

Guideline: Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Paramet Sattayakun vet@uauwpl 7-323-9-0051, Pattarapol Sawangjittam vet@uauwpl 7-204-9-0002

Remark :  
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)  
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107277  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113299-2

Page 1 of 1

Sample Number	24107277-1						
Sampled Date	Oct 04, 2024 10:45 AM						
Sample Description	Wastewater						
Location	น้ำเสีย API Separator วนที่ 1 HDPE#1						
Date Analysis Commenced	Oct 05, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
n-Hexane	mg/L	-	0.001	0.324	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 620 B	Bangkok

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

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

Technical Management

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Scientist (4)  
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Approved by

Dej Changchon

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Senior Manager  
vet@uauwpl 7-323-9-0001

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Approved by

Sunimon C.

Sunimon Chaiyavut  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 24107287  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113299-1

Page 2 of 2

Sample Number	24107287-1						
Sampled Date	Oct 04, 2024 11:06 AM						
Sample Description	Wastewater						
Location	ท่าขนานท่าเรือฝั่ง TPE Site#1						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 5500 - O-G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	15	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	14	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.8	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Temperature *	Degree C	-	-	31.0	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (8)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	576	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	6	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

Photchanas S.

Photchanas Seeda  
Scientist (4)  
vet@uauwpl 7-323-9-0028

Approved by

Dej Changchon

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Senior Manager  
vet@uauwpl 7-323-9-0001

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No.0042  
Lot ID: 24107287  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113299-1

Page 2 of 2

Page 4 of 10

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

**Sampling By:** Paramet Sattayakhon vet12duanw@v-323-0051, Pattarapol Sawangjalilam vet12duanw@v-204-0-0002

**Remarks:**

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

Guideline: Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Paramet Sattayakun vet@uauwpl 7-323-9-0051, Pattarapol Sawangjittam vet@uauwpl 7-204-9-0002

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

Technical Management

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Approved by

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107287  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113292-2

Page 1 of 1

Sample Number	24107287-1						
Sampled Date	Oct 04, 2024 11:06 AM						
Sample Description	Wastewater						
Location	ท่าประมงท่าประมง TPE Site#1						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	115	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	9.29	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5310 B	Bangkok

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

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

Approved by

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Scientist (4)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

TESTING  
No 0042  
Lot ID: 24107290  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113302-1

Page 1 of 2

Sample Number	24107290-1						
Sampled Date	Oct 04, 2024 10:52 AM						
Sample Description	Wastewater						
Location	Final Check Pond ท่าประมง LOPE						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	5	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	5	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	34.6	≤40	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	432	≤3000	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	19	≤50	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

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Scientist (4)

โทรศัพท์ 311-323-4-0028

Approved by

Dj Changchon

Dj Changchon  
Senior Manager  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107290  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113302-1

Page 2 of 2

Sample Number	24107290-1						
Sampled Date	Oct 04, 2024 10:52 AM						
Sample Description	Wastewater						
Location	Final Check Pond ท่าประมง LOPE						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	106	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	6.04	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5310 B	Bangkok

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

Remark :  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location: TPE Site 1

Lot ID: 24107290  
Date Received : Oct 04, 2024  
Date Reported : Oct 12, 2024  
Report Number : 3113302-2

Page 1 of 1

Sample Number	24107290-1						
Sampled Date	Oct 04, 2024 10:52 AM						
Sample Description	Wastewater						
Location	Final Check Pond ท่าประมง LOPE						
Date Analysis Commenced	Oct 04, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	106	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	6.04	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5310 B	Bangkok

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

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Approved by

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Scientist (4)





## Analysis / Test Report



## TESTING

No.0042

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24116899  
Date Received : Nov 08, 2024  
Date Reported : Nov 15, 2024  
Report Number : 3134647-1

Sample Number	24116899-1					
Sampled Date	Nov 08, 2024 10:36 AM					
Sample Description	Wastewater					
Location	บ่อกักเก็บน้ำทิ้งจากกระบวนการผลิต TPE Site#1					
Date Analysis Commenced	Nov 08, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	205	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	6	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Sulfide *	mg/L	-	0.5	5.5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-S2 (C, F)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	508	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	76.8	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-Nitrogen (C), part NHD (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Chainusorn Lertnathakunchai รหัสประจำตัว 3-323-4-0041

Remark :  
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Approved by

D. Changchon

Dej Changchon  
Senior Manager  
รหัสประจำตัว 3-323-4-0001



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24116899  
Date Received : Nov 08, 2024  
Date Reported : Nov 15, 2024  
Report Number : 3134647-2

Sample Number	24116899-1						Page 1 of 1
Sampled Date	Nov 08, 2024 10:36 AM						
Sample Description	Wastewater						
Location	บ่อกักเก็บน้ำทิ้งจากกระบวนการผลิต TPE Site#1						
Date Analysis Commenced	Nov 09, 2024						
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location	
Water Testing							
Settleable Solid	ml/L/hr	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	Rayong	

Sampling By : Chainusorn Lertnathakunchai

Remark :  
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## Analysis / Test Report



## TESTING

No.0042

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24116905  
Date Received : Nov 08, 2024  
Date Reported : Nov 15, 2024  
Report Number : 3134650-1

Sample Number	24116905-1						
Sampled Date	Nov 08, 2024 10:11 AM						
Sample Description	Wastewater						
Location	บ่อกักเก็บ API Separator น้ำทิ้งจาก HDPE#1						
Date Analysis Commenced	Nov 08, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O-G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.1	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	38.6	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	49	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	36	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

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Scientist (4)  
รหัสประจำตัว 3-323-4-0028

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
รหัสประจำตัว 3-323-4-0001



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

## TESTING

No.0042

Lot ID: 24116905  
Date Received : Nov 08, 2024  
Date Reported : Nov 15, 2024  
Report Number : 3134650-1

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Chainusorn Lertnathakunchai รหัสประจำตัว 3-323-4-0041, Pattarapol Sawangultham รหัสประจำตัว 3-324-4-0002  
Remark :  
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Technical Management

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รหัสประจำตัว 3-323-4-0001



## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24116905  
Date Received : Nov 08, 2024  
Date Reported : Nov 16, 2024  
Report Number : 3134630-2

Page 1 of 1

Sample Number	24116905-1						
Sampled Date	Nov 08, 2024 10:11 AM						
Sample Description	Wastewater						
Location	น้ำทิ้งจาก API Separator ของโรงงาน HDPE#1						
Date Analysis Commenced	Nov 12, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
n-Hexane	mg/L	-	0.001	0.200	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok

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

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

Approved by

*Nant Somb*

Nanthavadee Sombon  
Specialist 2

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 24116909  
Date Received : Nov 08, 2024  
Date Reported : Nov 16, 2024  
Report Number : 3134663-1

Page 1 of 2

Sample Number	24116909-1						
Sampled Date	Nov 08, 2024 10:31 AM						
Sample Description	Wastewater						
Location	ทางระบายน้ำจากพื้นที่ TPE Site#1						
Date Analysis Commenced	Nov 08, 2024						
Condition of Sample	Contained in one amber glass bottle, four glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOQ)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	31	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADME	-	5	8	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADME	-	5	6	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature °	Degree C	-	-	31.1	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2530 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	492	≤1000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	12	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

*Photchanas*

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*D. Changchon*

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No 0042  
Lot ID: 24116909  
Date Received : Nov 08, 2024  
Date Reported : Nov 16, 2024  
Report Number : 3134663-1

Page 2 of 2

<b>Guideline:</b> Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2548 (2017).	
<b>Sampling By:</b> Chalmers Lertmanthakunchul วุฒิสวณกุล 7-323-0041, Pattarapol Sawangsilaram วุฒิสวณกุล 7-204-0002.	
<b>Remark:</b>	
- LOD : Limit of Detection	
- * : lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)	
- Analyte(s) marked * were not included in scope of Accreditation ISO/IEC 17025.	
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.	

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

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

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
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Technical Management

*Photchanas*

Photchanas Seeda  
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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24116909  
Date Received : Nov 08, 2024  
Date Reported : Nov 16, 2024  
Report Number : 3134663-2

Page 1 of 1

Sample Number	24116909-1						
Sampled Date	Nov 08, 2024 10:31 AM						
Sample Description	Wastewater						
Location	โรงงานพลาสติก HDPE Site#1						
Date Analysis Commenced	Nov 09, 2024						
Condition of Sample	Contained in one amber glass bottle, four glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	126	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	8.29	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5310 B	Bangkok

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

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

Approved by

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Photchanas Seeda  
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## Analysis / Test Report

TESTING

No 0042

Lot ID: 24116915

Date Received : Nov 08, 2024

Date Reported : Nov 16, 2024

Report Number : 3134669-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 1 of 2

Sample Number	24116915-1						
Sampled Date	Nov 08, 2024 10:27 AM						
Sample Description	Wastewater						
Location	Final Check Pond สะพานปูน LDPE						
Date Analysis Commenced	Nov 08, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - 5 G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	6	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.6	5.5-9.0	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500 - 14 (B)	Rayong
Temperature *	Degree C	-	-	32.8	≤40	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	472	≤3000	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	14	≤50	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

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Approved by

D. Chongchon

Dej Chongchon  
Senior Manager  
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Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report may be reproduced in any form without written consent from the Laboratory.

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## Analysis / Test Report

TESTING

No 0042

Lot ID: 24116915

Date Received : Nov 08, 2024

Date Reported : Nov 16, 2024

Report Number : 3134669-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Chainusorn Lertnankhunchai รหัสประจำตัว ๖-323-๖-0041, Pattarapol Savangjittam รหัสประจำตัว ๖-204-๖-0002

Remark :

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

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## Analysis / Test Report

Lot ID: 24131538

Date Received : Nov 08, 2024

Date Reported : Nov 16, 2024

Report Number : 3134669-2

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 1 of 1

Sample Number	24116915-1						
Sampled Date	Nov 08, 2024 10:27 AM						
Sample Description	Wastewater						
Location	Final Check Pond สบู่บ้าน LDPE						
Date Analysis Commenced	Nov 08, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	111	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	6.45	No Standard	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5210 B	Bangkok

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

Sampling By : Chainusorn Lertnankhunchai , Pattarapol Savangjittam

Remark :

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

Approved by

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## Analysis / Test Report

TESTING

No 0042

Lot ID: 24131538

Date Received : Dec 11, 2024

Date Reported : Dec 18, 2024

Report Number : 3169914-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand  
21150  
P/O : PMM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 1 of 1

Sample Number	24131538-1					
Sampled Date	Dec 11, 2024 11:04 AM					
Sample Description	Wastewater					
Location	บ่อกักน้ำทิ้งระบบบำบัดน้ำเสีย TPE Site #1					
Date Analysis Commenced	Dec 11, 2024					
Condition of Sample	Contained in one amber glass bottle and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	228	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
Oil & Grease	mg/L	-	3	4	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.5	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500 - 14 (B)	Rayong
Settleable Solid *	mL/L/hr	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	Rayong
Sulfide *	mg/L	-	0.5	1.8	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	508	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	75.8	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 4500-Horg (C), part NH4 (D)	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	46	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Wasan Khunthi รหัสประจำตัว ๖-323-๖-0019

Remark :

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Technical Management

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Approved by

D. Chongchon

Dej Chongchon  
Senior Manager  
โทรศัพท์ ๖-323-๖-0001

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No.0042  
Lot ID: 24131542  
Date Received : Dec 11, 2024  
Date Reported : Dec 19, 2024  
Report Number : 3169915-1

Page 1 of 2

Sample Number	24131542-1						
Sampled Date	Dec 11, 2024 10:29 AM						
Sample Description	Wastewater						
Location	น้ำเสีย API Separator ของโรงงาน HDPE#1						
Date Analysis Commenced	Dec 11, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADMI	-	5	5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADMI	-	5	<5	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.8	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	37.3	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	81	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	35	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

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Approved by

Dj Changchon

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Scientist (4)  
วิจิตรวาทธรรม 3-323-0-0028

Dj Changchon  
Senior Manager  
วิจิตรวาทธรรม 3-323-0-0001

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No.0042  
Lot ID: 24131542  
Date Received : Dec 11, 2024  
Date Reported : Dec 19, 2024  
Report Number : 3169915-1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Wasan Khunburi, Samart Khumpliee, Watanaporn 3-323-0-0019, Samart Khumpliee 3-323-0-0084

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

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24131542  
Date Received : Dec 11, 2024  
Date Reported : Dec 19, 2024  
Report Number : 3169915-2

Page 1 of 1

Sample Number	24131542-1						
Sampled Date	Dec 11, 2024 10:29 AM						
Sample Description	Wastewater						
Location	น้ำเสีย API Separator ของโรงงาน HDPE#1						
Date Analysis Commenced	Dec 11, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
n-Hexane	mg/L	-	0.001	0.145	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6300 B	Bangkok

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

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

Approved by

Siriluk P.

Siriluk Bunrak  
Section Head

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ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

TESTING  
No.0042  
Lot ID: 24131543  
Date Received : Dec 11, 2024  
Date Reported : Dec 27, 2024  
Report Number : 3169916-1

Page 1 of 2

Sample Number	24131543-1						
Sampled Date	Dec 11, 2024 10:57 AM						
Sample Description	Wastewater						
Location	ทางระบายน้ำจาก TPE Site#1						
Date Analysis Commenced	Dec 11, 2024						
Condition of Sample	Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOB)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	31	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADME	-	5	12	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADME	-	5	12	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.8	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	31.9	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	640	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	18	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

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Approved by

Dj Changchon

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วิจิตรวาทธรรม 3-323-0-0001

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## Analysis / Test Report



## TESTING

No.0042

Lot ID: 24131543

Date Received : Dec 11, 2024

Date Reported : Dec 27, 2024

Report Number : 3169916-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Wasan Kinunt vnsuunawt 7-323-v-0019, Samart Khumplee vnsuunawt 7-204-v-0084

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



## Analysis / Test Report

Lot ID: 24131543

Date Received : Dec 11, 2024

Date Reported : Dec 27, 2024

Report Number : 3169916-2

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 1 of 1

Sample Number : 24131543-1  
Sampled Date : Dec 11, 2024 10:57 AM  
Sample Description : Wastewater  
Location : โรงงานพลาสติก TPE Site#1  
Date Analysis Commenced : Dec 11, 2024  
Condition of Sample : Contained in four glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	138	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 450-D (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	9.94	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 510 B	Bangkok

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Wasan Kinunt vnsuunawt 7-323-v-0019, Samart Khumplee

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

Technical Management

Photchanas.

Photchanas Seeda  
Scientist (4)  
vnsuunawt 7-323-v-0028

Approved by

Dej Changchon

Senior Manager  
vnsuunawt 7-204-v-0001

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## Analysis / Test Report



## TESTING

No.0042

Lot ID: 24131545

Date Received : Dec 11, 2024

Date Reported : Dec 27, 2024

Report Number : 3169916-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 1 of 2

Sample Number : 24131545-1  
Sampled Date : Dec 11, 2024 10:41 AM  
Sample Description : Wastewater  
Location : Final Check Pond สะพาน LDPE  
Date Analysis Commenced : Dec 11, 2024  
Condition of Sample : Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	25	≤120	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Color (at Original pH)	ADNI	-	5	9	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Color (at pH 7.0)	ADNI	-	5	7	≤300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2120 F	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	33.9	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	604	≤3000	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	19	≤50	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Technical Management

Photchanas.

Photchanas Seeda  
Scientist (4)  
vnsuunawt 7-323-v-0028

Approved by

Dej Changchon

Senior Manager  
vnsuunawt 7-204-v-0001

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## Analysis / Test Report

Lot ID: 24131545

Date Received : Dec 11, 2024

Date Reported : Dec 27, 2024

Report Number : 3169916-1

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PHM-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Page 2 of 2

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Wasan Kinunt vnsuunawt 7-323-v-0019, Samart Khumplee vnsuunawt 7-204-v-0084

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

Technical Management

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
P/O : PMH-23-11  
Project Name : Environmental Monitoring  
Project Location : TPE Site 1

Lot ID: 24131545  
Date Received : Dec 11, 2024  
Date Reported : Dec 27, 2024  
Report Number : 3169918-2

Page 1 of 1

Sample Number	24131545-1						
Sample Date	Dec 11, 2024 10:41 AM						
Sample Description	Wastewater						
Location	Final Check Pond subพื้นที่ LDPE						
Date Analysis Commenced	Dec 11, 2024						
Condition of Sample	Contained in two glass vials, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment-preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOD)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Chloride as Cl	mg/L	0.5	1	133	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2022, part 4500-Cl (D)	Rayong
Total Organic Carbon	mg/L	0.01	0.1	8.68	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2022, part 5310 B	Bangkok

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

Sampling By : Wasan Kiriunti , Samart Khumphee

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

Approved by

Photchana S.

Photchana Seeda  
Scientist (4)

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## Analysis / Test Report

**Client :** Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
**P/O :** PMM-23-11  
**Project Name :** Environmental Monitoring  
**Project Location:** TPE Site 1

**Lot ID: 24107281**  
Date Received : Oct 22, 2024  
Date Reported : Oct 30, 2024  
Report Number : 3151378-2

Page 1 of 1

Sample Number	24107281-1						
Sampled Date	Oct 22, 2024 12:30 PM						
Sample Description	Groundwater						
Location	ปล่องฝัง 1						
Date Analysis Commenced	Oct 23, 2024						
Condition of Sample	Contained in two glass vials, two amber glass bottles and one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Organic Compounds</b>							
n-Hexane	mg/L	-	0.001	<0.001	11	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Petroleum Hydrocarbons</b>							
TPH C>16-C35	mg/L	-	0.05	<0.05	0.1	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C>8-C16	mg/L	-	0.05	<0.05	1.7	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C5-C8	mg/L	-	0.01	<0.01	1.4	United States Environmental Protection Agency, EPA Method 5030 B and 8260 D	Bangkok

**Guideline :** Notification of the Ministry of Industry B.E. 2559 (2016) on Soil and Groundwater Contamination Criteria, Monitoring of Soil and Groundwater Quality, Report Submission and Report Preparation of Soil and Groundwater Quality, and Proposal Report of Soil and Groundwater Controlling and Reduction Measures

**Note :** TPH C5-C8 : Sum of n-Pentane, n-Hexane, n-Heptane and n-Octane  
TPH C>8-C16 : Sum of n-Nonane, n-Decane, n-Undecane, n-Dodecane, n-Tridecane, n-Tetradecane, n-Pentadecane and n-Hexadecane  
TPH C>16-C35 : Sum of n-Heptadecane, Pristane, n-Octadecane, Phytane, n-Nonadecane, n-Eicosane, n-Heneicosane, n-Docosane, n-Tricosane, n-Tetracosane, n-Pentacosane, n-Hexacosane, n-Heptacosane, n-Octacosane, n-Nonacosane, n-Triacontane, n-Hentriacontane, n-Dotriacontane, n-Tritriacontane, n-Tetracontane and n-Pentatriacontane  
Integration mode: Peak to Peak

**Sampling By :** Sansoen Khuiyoksui โทร 09-0005 , Samart Khumphlee โทร 09-0084

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

Technical Management

*Nant Somb*

Nanthawadee Somboon  
Specialist 2  
โทร 09-0010

Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Assistant General Manager  
โทร 09-0004

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## Analysis / Test Report

**Client :** Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
**P/O :** PMM-23-11  
**Project Name :** Environmental Monitoring  
**Project Location:** TPE Site 1

**Lot ID: 24107281**  
Date Received : Oct 22, 2024  
Date Reported : Oct 30, 2024  
Report Number : 3151379-2

Page 1 of 1

Sample Number	24107281-2						
Sampled Date	Oct 22, 2024 11:20 AM						
Sample Description	Groundwater						
Location	ปล่องฝัง 2						
Date Analysis Commenced	Oct 23, 2024						
Condition of Sample	Contained in two glass vials, two amber glass bottles and one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Organic Compounds</b>							
n-Hexane	mg/L	-	0.001	<0.001	11	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Petroleum Hydrocarbons</b>							
TPH C>16-C35	mg/L	-	0.05	<0.05	0.1	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C>8-C16	mg/L	-	0.05	<0.05	1.7	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C5-C8	mg/L	-	0.01	<0.01	1.4	United States Environmental Protection Agency, EPA Method 5030 B and 8260 D	Bangkok

**Guideline :** Notification of the Ministry of Industry B.E. 2559 (2016) on Soil and Groundwater Contamination Criteria, Monitoring of Soil and Groundwater Quality, Report Submission and Report Preparation of Soil and Groundwater Quality, and Proposal Report of Soil and Groundwater Controlling and Reduction Measures

**Note :** TPH C5-C8 : Sum of n-Pentane, n-Hexane, n-Heptane and n-Octane  
TPH C>8-C16 : Sum of n-Nonane, n-Decane, n-Undecane, n-Dodecane, n-Tridecane, n-Tetradecane, n-Pentadecane and n-Hexadecane  
TPH C>16-C35 : Sum of n-Heptadecane, Pristane, n-Octadecane, Phytane, n-Nonadecane, n-Eicosane, n-Heneicosane, n-Docosane, n-Tricosane, n-Tetracosane, n-Pentacosane, n-Hexacosane, n-Heptacosane, n-Octacosane, n-Nonacosane, n-Triacontane, n-Hentriacontane, n-Dotriacontane, n-Tritriacontane, n-Tetracontane and n-Pentatriacontane  
Integration mode: Peak to Peak

**Sampling By :** Sansoen Khuiyoksui โทร 09-0005 , Samart Khumphlee โทร 09-0084

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

Technical Management

*Nant Somb*

Nanthawadee Somboon  
Specialist 2  
โทร 09-0010

Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Assistant General Manager  
โทร 09-0004

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24107339

Date Received : Oct 22, 2024

Date Reported : Oct 30, 2024

Report Number : 3113395-2

Page 1 of 1

Sample Number	24107339-1						
Sampled Date	Oct 22, 2024 10:30 AM						
Sample Description	Groundwater						
Location	บ่อบาดาล						
Date Analysis Commenced	Oct 23, 2024						
Condition of Sample	Contained in two glass vials, two amber glass bottles and one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Organic Compounds</b>							
n-Hexane	mg/L	-	0.001	<0.001	11	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Petroleum Hydrocarbons</b>							
TPH C>16-C35	mg/L	-	0.05	<0.05	0.1	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C>8-C16	mg/L	-	0.05	<0.05	1.7	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C5-C8	mg/L	-	0.01	<0.01	1.4	United States Environmental Protection Agency, EPA Method 5030 B and 8260 D	Bangkok

**Guideline :** Notification of the Ministry of Industry B.E. 2559 (2016) on Soil and Groundwater Contamination Criteria, Monitoring of Soil and Groundwater Quality, Report Submission and Report Preparation of Soil and Groundwater Quality, and Proposal Report of Soil and Groundwater Controlling and Reduction Measures

**Note :** TPH C5-C8 : Sum of n-Pentane, n-Hexane, n-Heptane and n-Octane  
TPH C>8-C16 : Sum of n-Nonane, n-Decane, n-Undecane, n-Dodecane, n-Tridecane, n-Tetradecane, n-Pentadecane and n-Hexadecane  
TPH C>16-C35 : Sum of n-Heptadecane, Pristane, n-Octadecane, Phytane, n-Nonadecane, n-Eicosane, n-Heneicosane, n-Docosane, n-Tricosane, n-Tetracosane, n-Pentacosane, n-Hexacosane, n-Heptacosane, n-Octacosane, n-Nonacosane, n-Triacontane, n-Hentriacontane, n-Dotriacontane, n-Tritriacontane, n-Tetraatriacontane and n-Pentatriacontane  
Integration mode: Peak to Peak

**Sampling By :** Sansoen Khuiyoksui ทะเบียนเลขที่ 1-323-3-0005 , Samart Khumplhee ทะเบียนเลขที่ 1-204-3-0084

Remark :

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

Technical Management

*Nant Somb*

Nanthawadee Somboon

Specialist 2

ทะเบียนเลขที่ 1-204-3-0010

Approved by

*Kanokkom Anek*

Kanokkom Anek

Assistant General Manager

ทะเบียนเลขที่ 1-204-3-0004

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : LLDPE

Lot ID: 24107345

Date Received : Oct 22, 2024

Date Reported : Oct 30, 2024

Report Number : 3113417-2

Page 1 of 1

Sample Number	24107345-1						
Sampled Date	Oct 22, 2024 11:50 AM						
Sample Description	Groundwater						
Location	บ่อบาดาล						
Date Analysis Commenced	Oct 23, 2024						
Condition of Sample	Contained in two glass vials, two amber glass bottles and one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Organic Compounds</b>							
n-Hexane	mg/L	-	0.001	<0.001	11	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Petroleum Hydrocarbons</b>							
TPH C>16-C35	mg/L	-	0.05	<0.05	0.1	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C>8-C16	mg/L	-	0.05	<0.05	1.7	United States Environmental Protection Agency, EPA Method 3510 C and 8015 C	Bangkok
TPH C5-C8	mg/L	-	0.01	<0.01	1.4	United States Environmental Protection Agency, EPA Method 5030 B and 8260 D	Bangkok

**Guideline :** Notification of the Ministry of Industry B.E. 2559 (2016) on Soil and Groundwater Contamination Criteria, Monitoring of Soil and Groundwater Quality, Report Submission and Report Preparation of Soil and Groundwater Quality, and Proposal Report of Soil and Groundwater Controlling and Reduction Measures

**Note :** TPH C5-C8 : Sum of n-Pentane, n-Hexane, n-Heptane and n-Octane  
TPH C>8-C16 : Sum of n-Nonane, n-Decane, n-Undecane, n-Dodecane, n-Tridecane, n-Tetradecane, n-Pentadecane and n-Hexadecane  
TPH C>16-C35 : Sum of n-Heptadecane, Pristane, n-Octadecane, Phytane, n-Nonadecane, n-Eicosane, n-Heneicosane, n-Docosane, n-Tricosane, n-Tetracosane, n-Pentacosane, n-Hexacosane, n-Heptacosane, n-Octacosane, n-Nonacosane, n-Triacontane, n-Hentriacontane, n-Dotriacontane, n-Tritriacontane, n-Tetraatriacontane and n-Pentatriacontane  
Integration mode: Peak to Peak

**Sampling By :** Sansoen Khuiyoksui ทะเบียนเลขที่ 1-323-3-0005 , Samart Khumplhee ทะเบียนเลขที่ 1-204-3-0084

Remark :

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

Technical Management

*Nant Somb*

Nanthawadee Somboon

Specialist 2

ทะเบียนเลขที่ 1-204-3-0010

Approved by

*Kanokkom Anek*

Kanokkom Anek

Assistant General Manager

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ระดับเสียงโดยทั่วไป



## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176731-1

Page 1 of 1

Sample Number	24116890-1		
Parameter	Noise (Leq 24 hrs.)		
Location	อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)		
Measurement Date	Nov 13 - Nov 14, 2024		
Measurement by	Anuwet Tema		
Sound Level meter	Serial No. 597169		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	59.2	81.0	56.8
02:00 PM - 03:00 PM	59.0	74.7	57.0
03:00 PM - 04:00 PM	59.2	75.1	57.4
04:00 PM - 05:00 PM	60.2	81.5	58.1
05:00 PM - 06:00 PM	60.6	80.3	58.0
06:00 PM - 07:00 PM	59.7	75.9	58.3
07:00 PM - 08:00 PM	59.5	76.7	58.0
08:00 PM - 09:00 PM	60.0	77.7	58.5
09:00 PM - 10:00 PM	59.9	74.5	58.8
10:00 PM - 11:00 PM	59.0	74.5	57.6
11:00 PM - 12:00 AM	58.1	72.7	56.4
12:00 AM - 01:00 AM	59.1	83.6	57.9
01:00 AM - 02:00 AM	58.7	73.6	57.5
02:00 AM - 03:00 AM	59.0	66.2	58.3
03:00 AM - 04:00 AM	60.0	87.9	58.1
04:00 AM - 05:00 AM	59.8	83.7	58.6
05:00 AM - 06:00 AM	60.6	77.5	58.9
06:00 AM - 07:00 AM	61.4	78.1	59.5
07:00 AM - 08:00 AM	61.7	77.7	59.6
08:00 AM - 09:00 AM	62.4	82.1	60.6
09:00 AM - 10:00 AM	61.8	77.6	60.3
10:00 AM - 11:00 AM	61.2	79.7	59.3
11:00 AM - 12:00 PM	59.2	74.0	57.1
12:00 PM - 01:00 PM	59.6	81.2	57.4
Leq Average 24 hrs. (dB(A))	60.1		
Lmax (dB(A))		87.9	
L90 (dB(A))			58.1
Ldn (dB(A))	66.2		
Standard (dB(A))	70	115	
Reference Method : ISO1996-1 and 1996-2			
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป			
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ			
โรงงาน พ.ศ. 2548			
Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.			

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot Salamteh  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176732-1

Page 1 of 1

Sample Number	24116890-2		
Parameter	Noise (Leq 24 hrs.)		
Location	อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)		
Measurement Date	Nov 14 - Nov 15, 2024		
Measurement by	Anuwet Tema		
Sound Level meter	Serial No. 597169		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	64.6	87.2	58.8
02:00 PM - 03:00 PM	61.2	86.8	59.1
03:00 PM - 04:00 PM	61.6	89.3	59.4
04:00 PM - 05:00 PM	61.3	81.6	59.4
05:00 PM - 06:00 PM	65.3	90.1	59.6
06:00 PM - 07:00 PM	63.3	87.8	59.9
07:00 PM - 08:00 PM	60.9	73.1	59.6
08:00 PM - 09:00 PM	60.2	82.2	59.1
09:00 PM - 10:00 PM	60.2	75.6	59.1
10:00 PM - 11:00 PM	59.6	75.7	58.4
11:00 PM - 12:00 AM	60.6	72.4	58.8
12:00 AM - 01:00 AM	60.0	75.6	58.9
01:00 AM - 02:00 AM	59.8	80.0	58.3
02:00 AM - 03:00 AM	59.6	71.2	58.6
03:00 AM - 04:00 AM	59.6	68.7	58.2
04:00 AM - 05:00 AM	59.8	69.7	58.8
05:00 AM - 06:00 AM	60.6	78.5	58.9
06:00 AM - 07:00 AM	61.7	76.1	59.7
07:00 AM - 08:00 AM	61.2	76.7	58.8
08:00 AM - 09:00 AM	60.5	75.6	58.7
09:00 AM - 10:00 AM	59.9	78.6	57.5
10:00 AM - 11:00 AM	59.9	72.9	57.7
11:00 AM - 12:00 PM	58.9	75.5	56.8
12:00 PM - 01:00 PM	59.7	79.7	57.8
Leq Average 24 hrs. (dB(A))	61.2		
Lmax (dB(A))		90.1	
L90 (dB(A))			58.8
Ldn (dB(A))	66.8		
Standard (dB(A))	70	115	
Reference Method : ISO1996-1 and 1996-2			
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป			
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ			
โรงงาน พ.ศ. 2548			
Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.			

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot Salamteh  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176733-1

Page 1 of 1

Sample Number	24116890-3
Parameter	Noise (Leq 24 hrs.)
Location	อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)
Measurement Date	Nov 15 - Nov 16, 2024
Measurement by	Anuwet Tema
Sound Level meter	Serial No. 597169

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	59.5	78.3	57.5
02:00 PM - 03:00 PM	59.4	80.7	57.0
03:00 PM - 04:00 PM	59.9	80.0	57.6
04:00 PM - 05:00 PM	59.8	71.7	58.0
05:00 PM - 06:00 PM	59.8	75.6	58.0
06:00 PM - 07:00 PM	59.4	77.5	57.3
07:00 PM - 08:00 PM	59.4	78.6	57.6
08:00 PM - 09:00 PM	59.2	72.5	57.9
09:00 PM - 10:00 PM	59.7	80.4	58.7
10:00 PM - 11:00 PM	59.3	74.1	58.0
11:00 PM - 12:00 AM	58.9	74.5	57.5
12:00 AM - 01:00 AM	59.3	76.3	57.8
01:00 AM - 02:00 AM	59.7	76.7	58.3
02:00 AM - 03:00 AM	58.8	80.0	57.6
03:00 AM - 04:00 AM	59.4	69.4	58.6
04:00 AM - 05:00 AM	59.4	67.2	58.3
05:00 AM - 06:00 AM	60.3	74.4	59.0
06:00 AM - 07:00 AM	61.1	74.2	59.3
07:00 AM - 08:00 AM	60.9	74.8	58.7
08:00 AM - 09:00 AM	59.8	75.7	58.3
09:00 AM - 10:00 AM	59.1	70.5	57.3
10:00 AM - 11:00 AM	58.2	77.4	56.4
11:00 AM - 12:00 PM	57.7	71.2	56.0
12:00 PM - 01:00 PM	58.9	73.2	56.6

Leq Average 24 hrs. (dB(A))	59.5		
Lmax (dB(A))		80.7	
L90 (dB(A))			57.8
Ldn (dB(A))	66.0		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.  
Supot Salamteh  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176734-1

Page 1 of 1

Sample Number	24116890-4
Parameter	Noise (Leq 24 hrs.)
Location	อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)
Measurement Date	Nov 16 - Nov 17, 2024
Measurement by	Anuwet Tema
Sound Level meter	Serial No. 597169

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	57.6	75.2	56.0
02:00 PM - 03:00 PM	58.7	73.6	57.1
03:00 PM - 04:00 PM	59.1	76.8	56.3
04:00 PM - 05:00 PM	58.9	71.3	57.0
05:00 PM - 06:00 PM	58.7	70.6	56.9
06:00 PM - 07:00 PM	58.8	73.6	57.5
07:00 PM - 08:00 PM	58.6	71.4	57.2
08:00 PM - 09:00 PM	58.0	75.0	56.8
09:00 PM - 10:00 PM	57.9	68.6	56.7
10:00 PM - 11:00 PM	58.4	72.6	56.9
11:00 PM - 12:00 AM	58.7	70.5	57.4
12:00 AM - 01:00 AM	58.6	65.5	57.8
01:00 AM - 02:00 AM	58.5	66.5	57.5
02:00 AM - 03:00 AM	58.5	71.9	57.2
03:00 AM - 04:00 AM	58.9	76.4	57.4
04:00 AM - 05:00 AM	58.6	70.1	57.3
05:00 AM - 06:00 AM	60.3	71.6	58.8
06:00 AM - 07:00 AM	60.4	78.0	58.4
07:00 AM - 08:00 AM	60.4	83.1	58.7
08:00 AM - 09:00 AM	60.6	83.9	58.2
09:00 AM - 10:00 AM	60.4	71.7	58.9
10:00 AM - 11:00 AM	60.8	81.7	57.8
11:00 AM - 12:00 PM	59.7	81.7	57.4
12:00 PM - 01:00 PM	58.7	78.6	56.3

Leq Average 24 hrs. (dB(A))	59.2		
Lmax (dB(A))		83.9	
L90 (dB(A))			57.3
Ldn (dB(A))	65.5		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.  
Supot Salamteh  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176735-1

Page 1 of 1

Sample Number 24116890-5  
Parameter Noise (Leq 24 hrs.)  
Location อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)  
Measurement Date Nov 17 - Nov 18, 2024  
Measurement by Anuwet Tema  
Sound Level meter Serial No. 597169

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	59.2	80.8	57.2
02:00 PM - 03:00 PM	58.4	70.2	56.3
03:00 PM - 04:00 PM	63.3	94.0	56.6
04:00 PM - 05:00 PM	61.8	82.3	59.9
05:00 PM - 06:00 PM	60.8	80.4	59.4
06:00 PM - 07:00 PM	60.4	75.0	59.4
07:00 PM - 08:00 PM	60.3	73.0	59.3
08:00 PM - 09:00 PM	60.4	69.0	59.6
09:00 PM - 10:00 PM	60.7	84.0	59.4
10:00 PM - 11:00 PM	60.8	81.2	59.7
11:00 PM - 12:00 AM	60.1	75.7	58.5
12:00 AM - 01:00 AM	60.0	76.3	59.1
01:00 AM - 02:00 AM	59.5	68.8	58.4
02:00 AM - 03:00 AM	59.8	71.0	58.6
03:00 AM - 04:00 AM	60.0	73.3	58.8
04:00 AM - 05:00 AM	60.7	70.3	59.8
05:00 AM - 06:00 AM	61.9	73.0	60.5
06:00 AM - 07:00 AM	62.2	74.9	60.2
07:00 AM - 08:00 AM	61.3	78.1	59.5
08:00 AM - 09:00 AM	60.6	77.7	59.2
09:00 AM - 10:00 AM	60.2	78.7	58.9
10:00 AM - 11:00 AM	59.6	74.8	57.8
11:00 AM - 12:00 PM	59.5	78.2	58.1
12:00 PM - 01:00 PM	59.2	76.6	57.5

Leq Average 24 hrs. (dB(A)) 60.6  
Lmax (dB(A)) 94.0  
L90 (dB(A)) 59.1  
Ldn (dB(A)) 67.0  
Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.  
Supot Salamteh  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176736-1

Page 1 of 1

Sample Number 24116890-6  
Parameter Noise (Leq 24 hrs.)  
Location อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)  
Measurement Date Nov 18 - Nov 19, 2024  
Measurement by Anuwet Tema  
Sound Level meter Serial No. 597169

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	59.3	75.0	57.7
02:00 PM - 03:00 PM	59.2	72.8	57.0
03:00 PM - 04:00 PM	59.3	73.3	57.3
04:00 PM - 05:00 PM	59.6	77.4	57.2
05:00 PM - 06:00 PM	60.5	80.3	58.9
06:00 PM - 07:00 PM	60.0	72.3	58.6
07:00 PM - 08:00 PM	60.3	75.8	59.0
08:00 PM - 09:00 PM	60.6	77.6	59.4
09:00 PM - 10:00 PM	60.6	75.9	59.4
10:00 PM - 11:00 PM	60.2	72.6	59.0
11:00 PM - 12:00 AM	60.3	74.9	59.1
12:00 AM - 01:00 AM	60.2	82.3	59.0
01:00 AM - 02:00 AM	59.5	71.1	58.1
02:00 AM - 03:00 AM	60.0	68.8	59.2
03:00 AM - 04:00 AM	60.0	68.8	59.1
04:00 AM - 05:00 AM	60.7	71.4	59.4
05:00 AM - 06:00 AM	61.3	72.1	59.9
06:00 AM - 07:00 AM	61.8	74.5	60.4
07:00 AM - 08:00 AM	61.5	80.1	60.1
08:00 AM - 09:00 AM	61.2	78.7	59.6
09:00 AM - 10:00 AM	60.1	77.0	58.4
10:00 AM - 11:00 AM	59.8	71.4	58.3
11:00 AM - 12:00 PM	59.6	73.8	58.2
12:00 PM - 01:00 PM	59.7	69.2	58.3

Leq Average 24 hrs. (dB(A)) 60.3  
Lmax (dB(A)) 82.3  
L90 (dB(A)) 59.0  
Ldn (dB(A)) 66.9  
Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

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Supot Salamteh  
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## Analysis / Test Report

TESTING  
No.0042

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : TPE Site 1

Lot ID: 24116890

Date Received : Nov 21, 2024

Date Reported : Nov 26, 2024

Report Number: 3176737-1

Page 1 of 1

Sample Number : 24116890-7  
Parameter : Noise (Leq 24 hrs.)  
Location : อาคารสำนักงานของกลุ่มโรงงาน TPE Site#1 (GPS 47P 0731760, 1404872)  
Measurement Date : Nov 19 - Nov 20, 2024  
Measurement by : Anuwet Tema  
Sound Level meter : Serial No. 597169

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	60.2	74.8	58.5
02:00 PM - 03:00 PM	60.5	81.9	58.6
03:00 PM - 04:00 PM	60.5	81.7	58.5
04:00 PM - 05:00 PM	59.4	75.3	57.3
05:00 PM - 06:00 PM	60.5	81.2	58.7
06:00 PM - 07:00 PM	60.9	80.1	59.1
07:00 PM - 08:00 PM	60.7	78.0	59.3
08:00 PM - 09:00 PM	60.7	80.5	59.1
09:00 PM - 10:00 PM	60.7	72.9	59.7
10:00 PM - 11:00 PM	60.1	73.3	58.6
11:00 PM - 12:00 AM	60.4	78.0	59.1
12:00 AM - 01:00 AM	60.4	78.3	59.3
01:00 AM - 02:00 AM	60.7	76.6	59.7
02:00 AM - 03:00 AM	60.8	75.2	59.7
03:00 AM - 04:00 AM	60.4	68.5	59.4
04:00 AM - 05:00 AM	60.3	72.3	59.3
05:00 AM - 06:00 AM	62.0	74.2	60.6
06:00 AM - 07:00 AM	62.2	73.2	60.9
07:00 AM - 08:00 AM	61.7	80.0	59.7
08:00 AM - 09:00 AM	61.3	77.4	60.0
09:00 AM - 10:00 AM	61.3	86.9	59.6
10:00 AM - 11:00 AM	66.6	87.1	59.5
11:00 AM - 12:00 PM	60.5	88.5	58.5
12:00 PM - 01:00 PM	60.4	76.4	58.8

Leq Average 24 hrs. (dB(A))

61.3

Lmax (dB(A))

88.5

L90 (dB(A))

59.3

Ldn (dB(A))

67.4

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.

Supot Salamteh  
Section Head

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S:\Reports\Air Noise.rpt ( 5:20PM)

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## คุณภาพอากาศภายในสถานประกอบการ





## Analysis / Test Report

**Client :** Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
**P/O :** PMM-23-11  
**Project Name :** Environmental Monitoring  
**Project Location :**

**Lot ID: 2479039**  
Date Received : Aug 09, 2024  
Date Reported : Aug 22, 2024  
Report Number : 3051065-1

Page 1 of 3

**Sample Number** 2479039-1  
**Sampled Date** Aug 08, 2024  
**Sample Description** Air Quality  
**Location** หน่วยผลิต C201 โรงงาน HDPE1  
**Date Analysis Commenced** Aug 10, 2024  
**Condition of Sample** Drawn into one 10-L air sampling bag  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 32.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene	10:00 AM - 12:00 PM	ppm	-	1.0	<1.0	200	Based on ASTM, D 2712-18	ACGIH	Bangkok

### Guideline :

ACGIH : The American Conference of Governmental Industrial Hygiene, The 6th edition of the Documentation of the Threshold Limit Values and Biological Exposure Indices (2023).

**Sampled By :** Nattakarn Vonginyoo

### Remark :

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

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

**Client :** Thai Polyethylene Co., Ltd.  
10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150  
**P/O :** PMM-23-11  
**Project Name :** Environmental Monitoring  
**Project Location :**

**Lot ID: 2479039**  
Date Received : Aug 09, 2024  
Date Reported : Aug 22, 2024  
Report Number : 3051065-1

Page 2 of 3

**Sample Number** 2479039-2  
**Sampled Date** Aug 08, 2024  
**Sample Description** Air Quality  
**Location** หน่วยผลิต C201 โรงงาน HDPE1  
**Date Analysis Commenced** Aug 10, 2024  
**Condition of Sample** Drawn into one sorbent tube, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 32.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
n-Hexane	10:00 AM - 12:00 PM	ppm	-	0.03	0.08	500	NIOSH (2003), 1500	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Nattakarn Vonginyoo

### Remark :

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

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location :

Lot ID: 2479039

Date Received : Aug 09, 2024

Date Reported : Aug 22, 2024

Report Number : 3051065-1

Page 3 of 3

Sample Number	2479039-3
Sampled Date	Aug 08, 2024
Sample Description	Air Quality
Location	หน่วยผลิต Catalyst D110 โรงงาน HDPE1
Date Analysis Commenced	Aug 10, 2024
Condition of Sample	Drawn into one sorbent tube, refrigerated
Barometric Pressure	758 mmHg
Atmospheric Temperature	32.2 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
n-Hexane	10:00 AM - 12:00 PM	ppm	-	0.03	0.05	500	NIOSH (2003), 1500	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

Sampled By : Nattakarn Vonginyoo

### Remark :

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

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : HDPE#1

Lot ID: 24116895

Date Received : Nov 15, 2024

Date Reported : Nov 26, 2024

Report Number : 3134639-1

Page 1 of 3

Sample Number	24116895-1
Sampled Date	Nov 14, 2024
Sample Description	Air Quality
Location	หน่วยผลิต C201 โรงงาน HDPE1
Date Analysis Commenced	Nov 19, 2024
Condition of Sample	Drawn into one 10-L air sampling bag
Barometric Pressure	756 mmHg
Atmospheric Temperature	33.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ethylene	09:00 AM - 11:00 AM	ppm	-	1.0	<1.0	200	Based on ASTM, D 2712-18	ACGIH	Bangkok

### Guideline :

ACGIH : The American Conference of Governmental Industrial Hygiene, The 6th edition of the Documentation of the Threshold Limit Values and Biological Exposure Indices (2023).

Sampled By : Nantawat Sarin

### Remark :

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

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : HDPE#1

Lot ID: 24116895

Date Received : Nov 15, 2024

Date Reported : Nov 26, 2024

Report Number : 3134639-1

Sample Number 24116895-2  
Sampled Date Nov 14, 2024  
Sample Description Air Quality  
Location หน่วยผลิต C201 โรงงาน HDPE1  
Date Analysis Commenced Nov 18, 2024  
Condition of Sample Drawn into one sorbent tube, refrigerated  
Barometric Pressure 756 mmHg  
Atmospheric Temperature 33.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
Air Testing									
n-Hexane	09:00 AM - 11:00 AM	ppm	-	0.03	0.09	500	NIOSH (2003), 1500	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

Sampled By : Nantawat Sarin

### Remark :

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

Approved by

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Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

Client : Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

P/O : PMM-23-11

Project Name : Environmental Monitoring

Project Location : HDPE#1

Lot ID: 24116895

Date Received : Nov 15, 2024

Date Reported : Nov 26, 2024

Report Number : 3134639-1

Sample Number 24116895-3  
Sampled Date Nov 14, 2024  
Sample Description Air Quality  
Location หน่วยผลิต C201 โรงงาน HDPE1  
Date Analysis Commenced Nov 18, 2024  
Condition of Sample Drawn into one sorbent tube, refrigerated  
Barometric Pressure 756 mmHg  
Atmospheric Temperature 33.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
Air Testing									
n-Hexane	09:00 AM - 11:00 AM	ppm	-	0.03	0.16	500	NIOSH (2003), 1500	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

Sampled By : Nantawat Sarin

### Remark :

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

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## ระดับเสียงภายในสถานประกอบการ



## Analysis / Test Report

**Client :** Thai Polyethylene Co., Ltd.

10, Map Ta Phut Industrial Estate I-1 Road, Map Ta Phut, Muang District, Rayong  
Thailand 21150

**P/O :** PMM-23-11

**Project Name :** Environmental Monitoring

**Project Location :** HDPE#1

**Lot ID: 24116896**

Date Received : Nov 15, 2024

Date Reported : Nov 19, 2024

Report Number : 3134641-1

Page 1 of 1

<b>Sample Number</b>	24116896-1
<b>Sampled Date</b>	Nov 14, 2024
<b>Sample Description</b>	Noise Dose
<b>Location</b>	พนักงานทุกคนที่ปฏิบัติงานในพื้นที่ที่มีเสียงดัง (บริเวณส่วนการผลิตโพลีเอทิลีน)
<b>Personal Sampling</b>	คุณเทิดเกียรติ อินันชัย
<b>Date Analysis Commenced</b>	Nov 19, 2024

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Noise Dose (12 hrs.) (Calculated from Lavg)	07:30 AM - 07:30 PM	%	-	1	18.6	No Standard	MOL, Department Labour Protection and Welfare (B.E.2561)	MOL	Rayong
Noise Dose (8 hrs.)	07:30 AM - 07:30 PM	%	-	1	17.8	No Standard	MOL, Department Labour Protection and Welfare (B.E.2561)	MOL	Rayong
TWA (12 hrs.) (Calculated from Lavg)	07:30 AM - 07:30 PM	dB(A)	-	-	75.7	83*	MOL, Department Labour Protection and Welfare (B.E.2561)	MOL	Rayong
TWA (8 hrs.)	07:30 AM - 07:30 PM	dB(A)	-	-	77.5	85	MOL, Department Labour Protection and Welfare (B.E.2561)	MOL	Rayong

### Guideline :

- MOL : 1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)  
2. Notification of Department of Labour Protection and Welfare on the Standard of Time Weighted Average (TWA) Noise Level (B.E. 2561)  
\* MOL: Recommended guideline limit for 12 working hours should not be over 83 dB(A)

**Sampled By :** Amnat Wongsakhen

### Remark :

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

Approved by

Supot Salamteh  
Section Head

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## ภาคผนวก ค-2

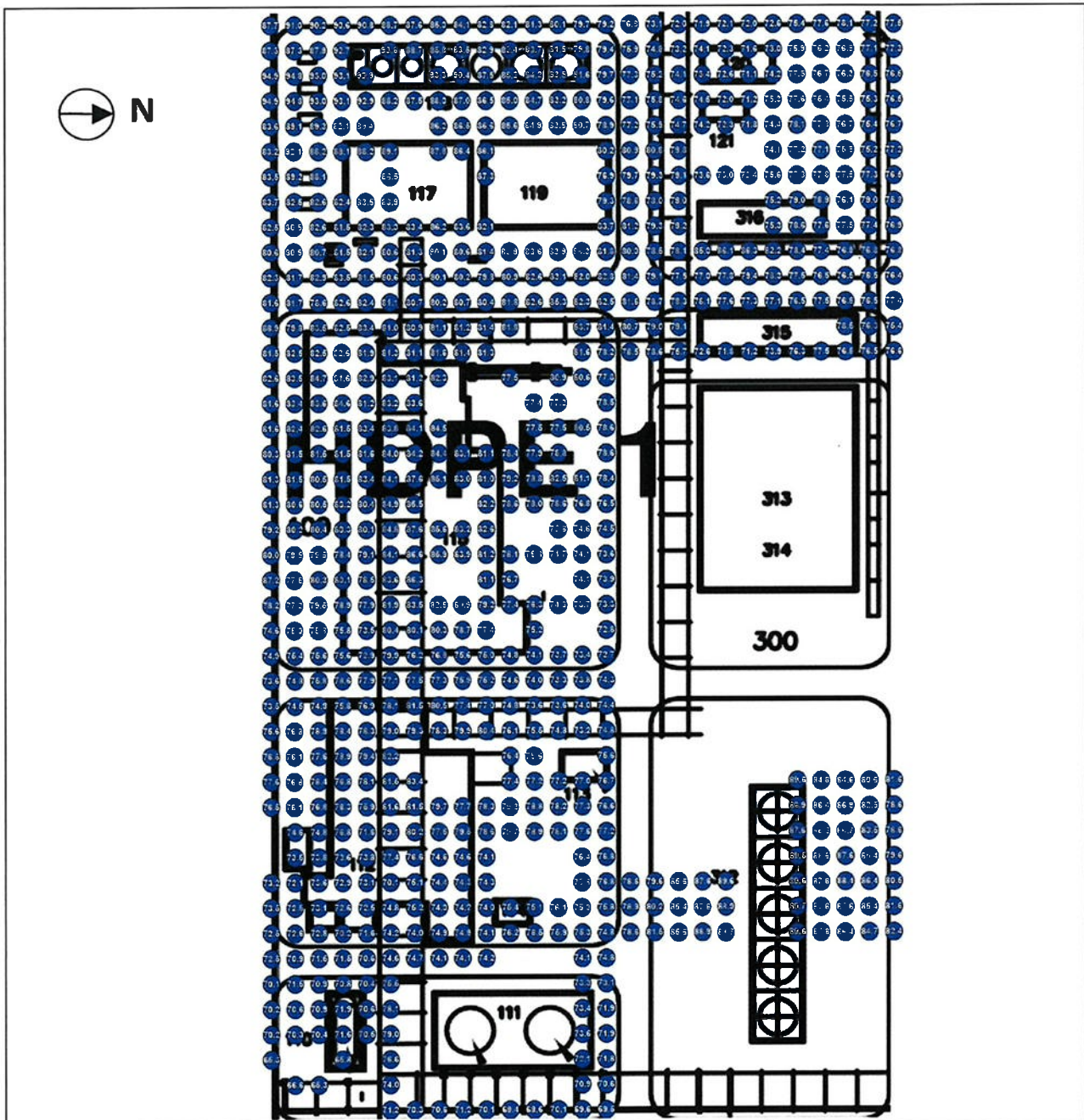
---

แผนผังแสดงเส้นเสียง (Noise Contour Map)





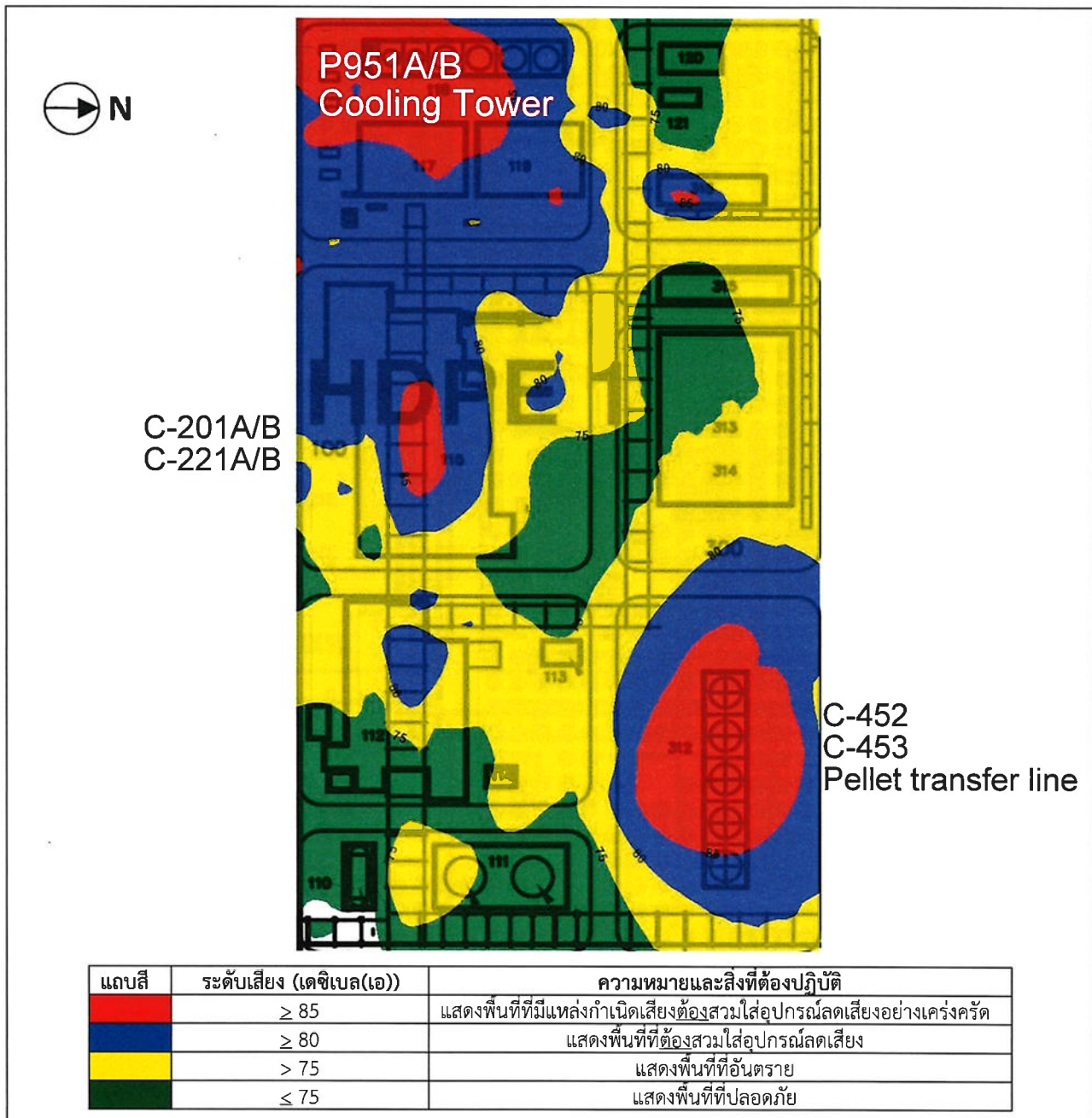
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right partner.



รูปที่ 1 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ บริเวณพื้นที่กระบวนการผลิต  
โรงงานผลิตเม็ดพลาสติกโพลีเอททีลีน ชนิดความหนาแน่นสูง (HDPE#1)



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รูปที่ 2 แผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณพื้นที่กระบวนการผลิต  
โรงงานผลิตเม็ดพลาสติกโพลีเอททิลีน ชนิดความหนาแน่นสูง (HDPE#1)



## ภาคผนวก ค-3

---

การสำรวจสภาพเศรษฐกิจ-สังคม



สรุปผลการสำรวจ ความคิดเห็น  
สภาพเศรษฐกิจ-สังคมที่มีต่อ

โครงการโรงงานผลิตเม็ดพลาสติกโพลิเอททีลีน  
ชนิดความหนาแน่นสูง โรงงานที่ 1 (HDPE1)  
ในปี พ.ศ. 2567

โดย บริษัท ซันริเซอช จำกัด

Sunrise

สารบัญ

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5.1 สรุปผลการสำรวจสภาพเศรษฐกิจ สังคม และความคิดเห็นของกลุ่มประชาชนตัวแทนครัวเรือน	12
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การสำรวจสภาพเศรษฐกิจ สังคม และค วามค ิดเห็นของกลุ่มประชาชนตัวแ ทนคว ัวเรื อน กลุ่มผู้ น ำชุมชน กลุ่มหน่วยงานราชการท้องถิ่น กลุ่มหน่วยงานในพื้นที่อื่นโ หว และกลุ่มสถานประกอบการใกล้เคียง โดยสำรวจในช่วง ปี พ.ศ. 2567 ของ โครงการโรงงานผลิตเม็ดพลาสติกโพลิเอทิลีน ชนิดความหนาแน่นสูง โรงงานที่ 1 (HDPE1)ในปี พ.ศ. 2567 ได้ทำการสำรวจความคิดเห็นของกลุ่มประชาชนตัวแ ทนคว ัวเรื อน กลุ่มผู้ น ำชุมชน กลุ่มหน่วยงานราชการท้องถิ่น กลุ่ม หน่วยงานในพื้นที่อื่นโ หว และกลุ่มสถานประกอบการใกล้เคียง โดยดำเนินการเก็บแบบสอบถามกับกลุ่มเป้าหมายดังกล่าว ในพื้นที่ศึกษา 5 กิโลเมตร รอบรั้วของโครงการฯ เพื่อบ ำข้อมูลที่ได้รับจากการสำรวจผลกระทบจากการดำเนินการของโครงการฯ รวมทั้งข้อเสนอแนะต่างๆ ไปปรับปรุงแก้ไขมาตรการป้องกันและแก้ไขผลกระทบสิ่งแวดล้อมและปรับปรุงการดำเนินงานให้มี ประสิทธิภาพและสอดคล้องกับความคิดเห็นในแต่ละกลุ่มเป้าหมายมากที่สุด

### 1. พื้นที่ศึกษา

การสำรวจสภาพเศรษฐกิจ สังคม และค วามค ิดเห็นของกลุ่มประชาชนตัวแ ทนคว ัวเรื อน กลุ่มผู้ น ำชุมชน กลุ่มหน่วยงานราชการท้องถิ่น กลุ่มหน่วยงานในพื้นที่อื่นโ หว และกลุ่มสถานประกอบการใกล้เคียง ในปี พ.ศ. 2567 ของโครงการโรงงานผลิตเม็ดพลาสติกโพลิเอทิลีน ชนิดความหนาแน่นสูง โรงงานที่ 1 (HDPE1)ครอบคลุมพื้นที่ศึกษา 5 กิโลเมตรรอบรั้วของโครงการฯ โดยครอบคลุมพื้นที่ของกลุ่มเป้าหมาย และแสดงดังตารางที่ 1.1

### 2. วิธีการศึกษา

การกำหนดลักษณะของกลุ่มตัวอย่างประชากรมีสองประการหลัก คือ กลุ่มตัวอย่างต้องเป็นตัวแ ทนที่ติดของประชากร ในพื้นที่ศึกษา และกลุ่มตัวอย่างต้องมีความเหมาะสมเพียงพอกในการคัดเลือกตัวแ ทนที่ติดของประชากรนั้น การวางแผนการ คัดเลือกตัวอย่างเริ่มต้นโดยการสุ่มพื้นที่เป้าหมายก่อนเพื่อศึกษาภาพรวมลักษณะของการรวมตัวของประชากร ซึ่งพบว่า ชุมชนที่อยู่ในพื้นที่มีลักษณะการรวมตัวของประชากรที่คล้ายคลึงกัน ไม่แตกต่างกันมากนัก ซึ่งวิธีการศึกษาสำหรับการจัดทำ รายงานการวิเคราะห์ผลกระทบสิ่งแวดล้อมของโครงการฯ ได้แบ่งออกเป็น 2 ส่วน คือ การศึกษาข้อมูลทุติยภูมิ และการศึกษา ข้อมูลปฐมภูมิ อธิบายได้ดังนี้

2.1 การศึกษาข้อมูลทุติยภูมิ โดยเก็บรวบรวมข้อมูลเอกสารเกี่ยวกับสภาพเศรษฐกิจ สังคม ในพื้นที่ศึกษาจาก หน่วยงานระดับจังหวัด ระดับอำเภอ และระดับตำบล

2.2 การศึกษาข้อมูลปฐมภูมิ ได้สำรวจความคิดเห็นของประชากรในพื้นที่ศึกษาในระดับคว ัวเรื อน และการ ดำเนินการสำรวจความคิดเห็นรายคว ัวเรื อนและรายหน่วยงานซึ่งแบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูลในด้าน ต่างๆ ซึ่งวิธีการสำรวจข้อมูล และการกำหนดขนาดตัวอย่าง อธิบายได้ดังนี้

ก. กำหนดขนาดตัวอย่าง การกำหนดขนาดตัวอย่างและกลุ่มตัวอย่าง คือ การสุ่มตัวแ ทน ประชากรจากจำนวนประชากรทั้งหมด เพื่อนำข้อมูลมาวิเคราะห์ เพื่อสะท้อนความคิดเห็นของประชากรในพื้นที่ โดย ครอบคลุมของพื้นที่ศึกษาทั้งหมด การศึกษาครั้งนี้จึงกำหนดกลุ่มตัวอย่าง 5 กลุ่ม คือ กลุ่มประชาชนตัวแ ทนคว ัวเรื อน กลุ่ม ผู้ น ำชุมชน กลุ่มหน่วยงานราชการท้องถิ่น กลุ่มหน่วยงานในพื้นที่อื่นโ หว และกลุ่มสถานประกอบการใกล้เคียง อธิบายได้ดังนี้

สรุปผลการสำรวจความคิดเห็น สภาพเศรษฐกิจ สังคม ที่มีต่อโครงการ โรงงานที่ 1 (HDPE1) ในปี พ.ศ. 2567

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- การกำหนดขนาดกลุ่มตัวอย่างของกลุ่มประชาชนตัวแ ทนคว ัวเรื อน สำหรับกลุ่มประชาชน ตัวแ ทนคว ัวเรื อนในพื้นที่ระยะใกล้โครงการ และพื้นที่ระยะไกลโครงการ ได้กำหนดขนาดกลุ่มตัวอย่างของกลุ่มประชาชน ตัวแ ทนคว ัวเรื อน ที่ความเชื่อมั่น 95% โดยให้สัดส่วนน ำมาพิจารณาความหนาแน่นในพื้นที่ กำหนดให้ระยะรัศมี 0 - 3 กิโลเมตร สัดส่วนความหนาแน่นอยู่ที่ 60% และระยะรัศมี 3 - 5 กิโลเมตร สัดส่วนความหนาแน่นอยู่ที่ 40% รายละเอียดการกำหนด จำนวนตัวอย่างกลุ่มประชาชน สรุปได้ดังนี้

- ขั้นที่ 1 การคำนวณหาขนาดตัวอย่างที่เหมาะสมของแต่ละโครงการ สูตรการคำนวณของ Taro Yamane โดยยอมให้ค่าความคลาดเคลื่อนได้ไม่เกินร้อยละ 5 หรือ 0.05 ดังสมการ

$$n = \frac{N}{1+N e^2}$$

โดยที่ n คือ จำนวนคว ัวเรื อนตัวอย่างรวมทุกชุมชนของพื้นที่ศึกษา

N คือ จำนวนคว ัวเรื อนทั้งหมดทุกชุมชนของพื้นที่ศึกษา

e ค่าสัมประสิทธิ์ความคลาดเคลื่อนหรือค่าความเชื่อมั่น

ยกตัวอย่าง กลุ่มประชาชนตัวแ ทนคว ัวเรื อน ในปี พ.ศ. 2567

ในปี พ.ศ. 2567 มีจำนวนคว ัวเรื อนในพื้นที่ศึกษาทั้งหมด 39,895 คว ัวเรื อน (N = 39,895)

โดยในระยะรัศมี 0 - 3 กม. มีจำนวนคว ัวเรื อนรวมทั้งหมด 6,697 คว ัวเรื อน (N<sub>1</sub> = 6,697)

มีจำนวนคว ัวเรื อนในชุมชนวัดโลกน 1,027 คว ัวเรื อน (n = 1,027)

แทนค่าในสมการที่ 1 จำนวนคว ัวเรื อนทั้งหมดชุมชนของพื้นที่ศึกษา

$$n = \frac{39,895}{1+(39,895 \times (0.05)^2)}$$

$$= 396.029$$

ดังนั้น ขนาดกลุ่มตัวอย่างกลุ่มประชาชนตัวแ ทนคว ัวเรื อน ที่ใช้ในการสำรวจครั้งนี้ ต้องไม่น้อยกว่า 396.029 ตัวอย่าง ซึ่งในปี พ.ศ. 2567 กลุ่มประชาชนตัวแ ทนคว ัวเรื อนรอบโครงการฯ ได้ทำการสำรวจขนาดตัวอย่างทั้งหมด 412 ตัวอย่าง

- ขั้นที่ 2 กำหนดขนาดตัวอย่างของแต่ละระยะรัศมีตามสัดส่วนความหนาแน่นของพื้นที่ โดยให้ สัดส่วนน ำหนักอยู่ที่ ระยะรัศมี 0 - 3 กม. สัดส่วนความหนาแน่นอยู่ที่ 60% และระยะรัศมี 3 - 5 กม. สัดส่วนความหนาแน่น อยู่ที่ 40% ดังสมการ

ระยะรัศมี 0 - 3 กม. สัดส่วนความหนาแน่นอยู่ที่ 60%	ระยะรัศมี 3 - 5 กม. สัดส่วนความหนาแน่นอยู่ที่ 40%
$n_A = \frac{n(60)}{100}$	$n_A = \frac{n(40)}{100}$

สรุปผลการสำรวจความคิดเห็น สภาพเศรษฐกิจ สังคม ที่มีต่อโครงการ โรงงานที่ 1 (HDPE1) ในปี พ.ศ. 2567

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1. กลุ่มประชาชนตัวแ ทนคว ัวเรื อน ในปี พ.ศ. 2567 ได้กำหนดขนาดตัวอย่างครอบคลุมรัศมีพื้นที่ ที่ได้รับผลกระทบจากโครงการฯ โดยแบ่งพื้นที่การศึกษาตามระยะห่างจากขอบเขตพื้นที่โครงการดังนี้

1.1 กลุ่มประชาชนตัวแ ทนคว ัวเรื อนในพื้นที่ระยะประชิดโครงการ 100 เมตร

โดยพื้นที่ระยะประชิดโครงการดำเนินการเก็บตัวอย่างคว ัวเรื อนทั้งหมดที่มีผู้อยู่อาศัย ซึ่งโครงการโรงงานผลิตเม็ดพลาสติก โพลิเอทิลีน ชนิดความหนาแน่นสูง โรงงานที่ 1 (HDPE1)ไม่มีคว ัวเรื อนที่อาศัยอยู่ในพื้นที่ระยะประชิดโครงการ 100 เมตร

1.2 กลุ่มประชาชนตัวแ ทนคว ัวเรื อนในพื้นที่ระยะใกล้โครงการ (พื้นที่ที่อยู่ใกล้โครงการ

ในรัศมี 0 - 3 กิโลเมตร) และพื้นที่ระยะไกลโครงการ (พื้นที่ที่อยู่ไกลโครงการในรัศมี 3 - 5 กิโลเมตร) โดยได้กำหนดขนาด กลุ่มตัวอย่างกลุ่มประชาชนตัวแ ทนคว ัวเรื อน โดยใช้สูตรของ Taro Yamane ความเชื่อมั่น Confidence Level (CL) ณ ระดับโรงงาน 95% โดยกำหนดสัดส่วนของกลุ่มประชาชนตัวแ ทนคว ัวเรื อนตามความหนาแน่นของพื้นที่ โดยให้สัดส่วน น ำหนัก ดังนี้

- ระยะรัศมี 0 - 3 กิโลเมตร สัดส่วนความหนาแน่นอยู่ที่ 60%

- ระยะรัศมี 3 - 5 กิโลเมตร สัดส่วนความหนาแน่นอยู่ที่ 40%

และทำการสุ่มตัวอย่างแบบแบ่งชั้นหลายขั้นตอนตามสัดส่วน (Stratified Multi-Stage Proportional Sampling Design) ในรายชุมชน

2 กลุ่มผู้ น ำชุมชน ในปี พ.ศ. 2567 ได้กำหนดขนาดกลุ่มตัวอย่างแบบเฉพาะเจาะจง (Purposive Sampling Design) และแบ่งกลุ่มผู้ น ำชุมชนในพื้นที่ศึกษาออกเป็น 2 กลุ่ม ได้แก่ กลุ่มผู้ น ำชุมชนในพื้นที่ที่อยู่ใกล้โครงการใน รัศมี 0 - 3 กิโลเมตร และกลุ่มผู้ น ำชุมชนในพื้นที่ระยะไกลโครงการในรัศมี 3 - 5 กิโลเมตร โดยพิจารณาตามโครงสร้างการ จัดตั้งคณะกรรมการชุมชน ประกอบด้วย ประธานกรรมการชุมชน 1 คน และรองประธานกรรมการชุมชน 1 / หัวหน้าฝ่าย / หัวหน้ากลุ่ม 2 คน รวมทั้งหมดจำนวน 3 รายต่อ 1 ชุมชน

3. กลุ่มหน่วยงานราชการท้องถิ่น การสำรวจความคิดเห็นด้านเศรษฐกิจ-สังคม โดยใช้วิธีการ กำหนดจำนวนตัวอย่างแบบเฉพาะเจาะจง (Purposive Sampling Design) พิจารณาจากผู้ที่มีหน้าที่บริหารจัดการในพื้นที่ โดยตรงใน ด้านสิ่งแวดล้อม ด้านสาธารณสุข ด้านพลังงาน ด้านการปกครอง ที่อยู่ใกล้โครงการฯ ในพื้นที่รัศมี 5 กิโลเมตร รวมทั้งหมดจำนวน 3 รายต่อ 1 หน่วยงาน

4. กลุ่มหน่วยงานในพื้นที่อื่นโ หว การสำรวจความคิดเห็นด้านเศรษฐกิจ-สังคม โดยใช้วิธีการ กำหนดจำนวนตัวอย่างแบบเฉพาะเจาะจง (Purposive Sampling Design) พิจารณาจากผู้ที่มีหน้าที่ได้รับผลกระทบเป็นการ เฉพาะโดยกลุ่มพื้นที่อื่นโ หว ประกอบด้วย โรงพยาบาล/สถานพยาบาล ศาสนสถาน สถานศึกษา และกลุ่มผู้ที่อาจจะได้รับ ผลกระทบเป็นการเฉพาะ เช่น กลุ่มผู้เช่าหรือผู้เช่าบ้าน ที่อยู่ใกล้โครงการฯ ในพื้นที่รัศมี 5 กิโลเมตร รวมทั้งหมดจำนวน 3 รายต่อ 1 หน่วยงาน โดยแบ่งกลุ่มออกเป็น 3 กลุ่ม ได้แก่ กลุ่มหน่วยงานในระยะประชิดโครงการ กลุ่มหน่วยงานใน ระยะใกล้โครงการ (พื้นที่ที่อยู่ใกล้โครงการในรัศมี 0 - 3 กิโลเมตร) และกลุ่มหน่วยงานในระยะไกลโครงการ (พื้นที่ที่อยู่ไกล โครงการในรัศมี 3 - 5 กิโลเมตร) ซึ่งโครงการโรงงานผลิตเม็ดพลาสติกโพลิเอทิลีน ชนิดความหนาแน่นสูง โรงงานที่ 1 (HDPE1)ไม่มีกลุ่มหน่วยงานในพื้นที่อื่นโ หวที่อยู่ในพื้นที่ระยะประชิดโครงการ 100 เมตร

5. กลุ่มสถานประกอบการใกล้เคียง การสำรวจความคิดเห็นด้านเศรษฐกิจ-สังคม โดยใช้วิธีการ กำหนดจำนวนตัวอย่างแบบเฉพาะเจาะจง (Purposive Sampling Design) พิจารณาจากผู้บริหารหรือพนักงาน และเจ้าหน้าที่ในสถานประกอบการ จากสถานประกอบการธุรกิจฯ ขนาดใหญ่ ที่อยู่ใกล้โครงการฯ ในพื้นที่รัศมี 5 กิโลเมตร รวมทั้งหมดจำนวน 3 รายต่อ 1 หน่วยงาน

สรุปผลการสำรวจความคิดเห็น สภาพเศรษฐกิจ สังคม ที่มีต่อโครงการ โรงงานที่ 1 (HDPE1) ในปี พ.ศ. 2567

2 *Siri Jirachath*

ยกตัวอย่าง กลุ่มประชาชนตัวแ ทนคว ัวเรื อนระยะรัศมี 0 - 3 กม. ปี พ.ศ. 2567

แทนค่าในสมการที่ 2 จำนวนคว ัวเรื อนทั้งหมดชุมชนในระยะรัศมี 0 - 3 กม.

โดยที่ n<sub>1</sub> คือ จำนวนคว ัวเรื อนตัวอย่างรวมทุกชุมชนในระยะรัศมี 0 - 3 กม.

n คือ จำนวนคว ัวเรื อนตัวอย่างรวมทุกชุมชน

$$n_1 = \frac{397(60)}{100}$$

$$= 238.200$$

ดังนั้น ขนาดกลุ่มตัวอย่างกลุ่มประชาชนในระยะรัศมี 0 - 3 กม. ที่ใช้ในการสำรวจครั้งนี้ ต้องไม่ น้อยกว่า 238.200 ตัวอย่าง ซึ่งในปี พ.ศ. 2567 กลุ่มประชาชนตัวแ ทนคว ัวเรื อนในระยะรัศมี 0 - 3 กม. ได้ทำการสำรวจขนาด ตัวอย่างทั้งหมด 242 ตัวอย่าง

- ขั้นที่ 3 กำหนดขนาดตัวอย่างของแต่ละชุมชนตามสัดส่วนจำนวนคว ัวเรื อน เพื่อให้มีการกระจาย ของกลุ่มตัวอย่างอย่างทั่วถึงและมีโอกาสในการเลือกในสัดส่วนเท่า ๆ กันในแต่ละชุมชน โดยใช้สมการ

$$n_{xi} = \frac{n_A(N_{xi})}{N_A}$$

ยกตัวอย่าง ชุมชนวัดโลกน ในปี พ.ศ. 2567

โดยที่ n<sub>xi</sub> คือ จำนวนคว ัวเรื อนตัวอย่างของรายชุมชน i

n<sub>A</sub> คือ จำนวนคว ัวเรื อนตัวอย่างของกลุ่มประชาชนคว ัวเรื อนในระยะรัศมี 0 - 3 กม.

N<sub>xi</sub> คือ จำนวนคว ัวเรื อนของรายชุมชน i

N<sub>A</sub> คือ จำนวนคว ัวเรื อนทั้งหมดทุกชุมชนในระยะรัศมี 0 - 3 กม.

แทนค่าในสมการที่ 3 จำนวนคว ัวเรื อนรายชุมชนของพื้นที่ศึกษา

$$n_i = \frac{239(1,027)}{6,697}$$

$$= 36.651$$

ดังนั้น ขนาดกลุ่มตัวอย่างกลุ่มประชาชนตัวแ ทนคว ัวเรื อนในชุมชนวัดโลกน ปี พ.ศ. 2567 ที่ต้อง ไม่น้อยกว่า 36.651 ตัวอย่าง ซึ่งในปี พ.ศ. 2567 กลุ่มประชาชนตัวแ ทนคว ัวเรื อนในชุมชนวัดโลกน ได้ทำการสำรวจขนาด ตัวอย่างทั้งหมด 37 ตัวอย่าง

สรุปขนาดกลุ่มตัวอย่าง – กลุ่มประชาชนตัวแ ทนคว ัวเรื อน และกลุ่มผู้ น ำชุมชน ปี พ.ศ. 2567 มีรายละเอียด ดังตารางที่ 1.1

สรุปผลการสำรวจความคิดเห็น สภาพเศรษฐกิจ สังคม ที่มีต่อโครงการ โรงงานที่ 1 (HDPE1) ในปี พ.ศ. 2567

4 *Siri Jirachath*

ภาคผนวก ง

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ใบรับรองการสอบเทียบเครื่องมือ



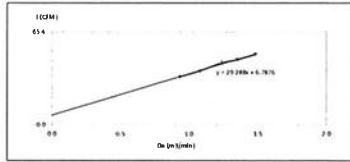




## High Volume Air Sampler Calibration Worksheet

Project Site:	Thai Polyethylene Co., Ltd.	Barometric Pressure (mm Hg):	754.8
Calibration Location:	Thailand/Chiang Mai/1001/1/1/1/1/1	Temperature (°C):	33.1
Calibration Date:	16 Jan 24	High Volume ID:	RYG_P50295
Calibration Sheet No.:	C-191124-RYG_P50295	High Volume Model:	RYG_P50295
Calibrator ID:	RYG_P50295	High Volume S/N:	5712
Calibrator Model:	TE-50295	Calibrator Slope:	0.9787
Calibrator S/N:	1583	Calibrator Intercept:	-0.0152

Test No.	Delta H <sub>2</sub> O (inches)	Q <sub>a</sub> (m <sup>3</sup> /min)	F Chart (CFM)	Linear Regression
1	1.8	6.132	39	Slope: 29.2801
2	2.4	8.075	50	Intercept: 6.2876
3	3.3	1.339	64	Correlation Coefficient: 0.9957
4	3.8	1.249	66	
5	4.4	1.489	68	



Calibrated by: Mongkon Ph.  
(Mr. Mongkon Phakphai)  
Field Service (1)

Approved by: [Signature]  
(Mr. Supat Salameh)  
RYG-Field Service Section Head

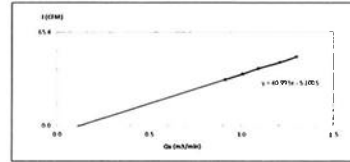
FORM NO. F-04-074 REVISION NO. 2 DATE DATE 25/11/22



## High Volume Air Sampler Calibration Worksheet

Project Site:	Thai Polyethylene Co., Ltd.	Barometric Pressure (mm Hg):	754.1
Calibration Location:	Thailand/Chiang Mai/1001/1/1/1/1/1	Temperature (°C):	30.1
Calibration Date:	16 Jan 24	High Volume ID:	RYG_P50189
Calibration Sheet No.:	C-191124-RYG_P50189	High Volume Model:	TE-50295
Calibrator ID:	RYG_P50295	High Volume S/N:	4707
Calibrator Model:	TE-50189	Calibrator Slope:	0.95561
Calibrator S/N:	1166	Calibrator Intercept:	-0.07266

Test No.	Delta H <sub>2</sub> O (inches)	Q <sub>a</sub> (m <sup>3</sup> /min)	F Chart (CFM)	Linear Regression
1	1.8	0.712	32	Slope: 63.9940
2	2.2	1.095	36	Intercept: -1.7405
3	2.6	1.071	40	Correlation Coefficient: 0.9910
4	3.2	1.289	44	
5	3.7	1.377	48	



Calibrated by: [Signature]  
(Mr. Wichai Pongmanee)  
RYG-Field Service Section Head

Approved by: [Signature]  
(Mr. Supat Salameh)  
RYG-Field Service Section Head

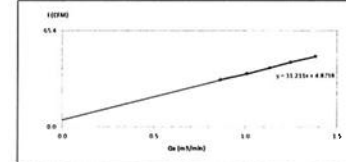
FORM NO. F-04-074 REVISION NO. 2 DATE DATE 25/11/22



## High Volume Air Sampler Calibration Worksheet

Project Site:	Thai Polyethylene Co., Ltd.	Barometric Pressure (mm Hg):	752.5
Calibration Location:	Thailand/Chiang Mai/1001/1/1/1/1/1	Temperature (°C):	31.2
Calibration Date:	16 Jan 24	High Volume ID:	RYG_P50665
Calibration Sheet No.:	C-191124-RYG_P50665	High Volume Model:	TE-50295
Calibrator ID:	RYG_P50295	High Volume S/N:	6761
Calibrator Model:	TE-50189	Calibrator Slope:	0.95561
Calibrator S/N:	1166	Calibrator Intercept:	-0.07266

Test No.	Delta H <sub>2</sub> O (inches)	Q <sub>a</sub> (m <sup>3</sup> /min)	F Chart (CFM)	Linear Regression
1	1.8	0.613	32	Slope: 31.3111
2	2.2	1.096	36	Intercept: 1.8738
3	2.6	1.370	40	Correlation Coefficient: 0.9907
4	3.4	0.245	44	
5	4.2	0.370	48	



Calibrated by: [Signature]  
(Mr. Wichai Pongmanee)  
RYG-Field Service Section Head

Approved by: [Signature]  
(Mr. Supat Salameh)  
RYG-Field Service Section Head

FORM NO. F-04-074 REVISION NO. 2 DATE DATE 25/11/22

Sartorius (Thailand) Co., Ltd.  
179 Rama 9 Road, Bangkok, Thailand 10110  
Tel: +66 2612 8214, e-mail: service@ Sartorius.co.th



## Certificate of Calibration

Model Number: LA1305-F  
Description: Analytical Balance  
Serial Number: 25400864  
ID No.: RYG\_EN0001  
Manufacturer: Sartorius

Certificate No.: 24BC0086  
Issued Date: Friday, February 23, 2024  
Reference No.: 228106

Customer Name: ALS Laboratory Group (Thailand) Co., Ltd. (Rajabong Branch)  
616/10 Moo 5 T. Maenam Khu, A. Phrak Daeng, Rayong 21140, Thailand

Calibrated Place: ALS Laboratory Group (Thailand) Co., Ltd. (Rajabong Branch)  
616/10 Moo 5 T. Maenam Khu, A. Phrak Daeng, Rayong 21140, Thailand

Calibrated By: Mr. Chonchai Inthara  
Calibration Date: Thursday, February 22, 2024

Calibration Procedure No.: This calibration was conducted by  
Using In-house calibration procedure number (W-003)  
Based on UKAS LAB 14 : 2019

Metrological data: Capacity: 150 g Residuality: 0.0001 g  
Ambient Conditions: Temperature: 23.6 °C ± 0.0 °C  
Humidity: 54.0 % RH ± 10.0 % RH  
Pressure: ±

Reasons for calibration: ☐ new installation ☐ service / repair ☐ re-calibration / re-verification ☐ good opening ☐ re

Measurement Method: UKAS Publication Ref: Lab 14  
The measurement uncertainty stated in the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which makes the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came from list of Sartorius Metrological Specifications.

Traceability: 

Model Number	Description	Traceability	Certificate No.	Due Date
YC5011-522-00	Sartorius weight set 1mg-5000g F2 YC5011-522-00	TCS	M23081975	23-Aug-2025
M48-3825D	Humidity/temperature/Temp. Lutron MH18-3825D	DISH	C19231845	23-Aug-2024

This certificate is valid and apply this is valid only  
This certificate may not be reproduced other than in full except with  
the prior written approval of the Verification Operation Division  
Sartorius (Thailand) Co., Ltd.

Signature: [Signature]  
Mr. Chonchai Inthara (Technical Manager)

Signature: [Signature]  
Mr. Supat Salameh

Signature: [Signature]  
Mr. Wichai Pongmanee

Signature: [Signature]  
Mr. Supat Salameh

Signature: [Signature]  
Mr. Wichai Pongmanee

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Mr. Supat Salameh

Signature: [Signature]  
Mr. Wichai Pongmanee

Signature: [Signature]  
Mr. Supat Salameh







Request No: Req 2024 1652

Temperature (°C)	Pressure (kPa)	STD ( $\mu\text{m/s}$ )	UVC ( $\mu\text{m/s}$ )	Error ( $\mu\text{m/s}$ )	Uncertainty ( $\mu\text{m/s}$ )	SD ( $\mu\text{m/s}$ )	Result
23.70	100.02	20	70.182	3.2	1.2	0.2	N/A
24.70	100.01	190	98.823	-0.1	2.8	1.0	N/A
24.70	100.94	210	266.7	-0.3	5.6	2.0	N/A
24.73	100.67	748	306.3	2.1	8.4	3.0	N/A
24.73	100.99	815	100.1	-4	11	4.0	N/A
24.73	101.05	852	177.6	-6	6.9	4.1	N/A

$$Q_{\text{meas}} = Q_{\text{ref}} \times \frac{P_{\text{ref}}}{P_{\text{meas}}} \times \frac{T_{\text{meas}}}{T_{\text{ref}}}$$

$\alpha$  = Area     $Q$  = Flow Rate     $P$  = Absolute Pressure     $T$  = Absolute Temperature  
 Mean = Meanstream Condition    ref = Standard Condition

MFE = Maximum Feasible Error (given in Manufacturer's specification)

NA = Not Available (test/res does not require a statement of form)

The authors warrant that the work is original. The authors shall not be responsible for any article that is later withdrawn upon approval of the Executive Director(s) (i.e., 1-10).

Certificate No.: 24-AFM-177  
Revised No.: Rev. 10/24/1967


**ROTA METER CALIBRATION RESULT JULY 2024**

Retainer ID	Calibration Date	Regression Result	Coefficient (R <sup>2</sup> )
BK_F_00507	01 Jul 24	$Y = 1.0201x + 0.433$	1.0003
BK_F_00508	01 Jul 24	$Y = 1.0556x - 2.7974$	1.0000
BK_F_00508	02 Jul 24	$Y = 1.0315x + 3.0033$	0.9988
BK_F_00507	02 Jul 24	$Y = 1.0298x + 0.71$	1.0000
BK_F_00548	01 Jul 24	$Y = 0.9755x + 5.6452$	0.9919
BK_F_00591	01 Jul 24	$Y = 1.0035x + 3.7003$	1.0000
BK_F_90592	02 Jul 24	$Y = 1.0702x + 14.273$	1.0000
BK_F_00594	02 Jul 24	$Y = 1.0030x + 7.0095$	1.0000
BK_F_00595	01 Jul 24	$Y = 1.0078x - 114.87$	0.9185
BK_F_01004	02 Jul 24	$Y = 0.9406x + 13.51$	0.9919
BK_F_01005	02 Jul 24	$Y = 1.0217x - 0.5633$	0.9997
BK_F_01006	02 Jul 24	$Y = 1.1469x - 1.0422$	0.9961
BK_F_01007	02 Jul 24	$Y = 1.1161x + 3.3550$	0.9904
BK_F_01008	02 Jul 24	$Y = 1.1273x + 0.4837$	0.9999
BK_F_01009	02 Jul 24	$Y = 1.1044x - 0.8245$	1.0000
BK_F_01017	02 Jul 24	$Y = 1.0844x + 2.2027$	0.9995
BK_F_01018	02 Jul 24	$Y = 1.1021x + 0.9697$	0.9999
BK_F_01019	02 Jul 24	$Y = 1.0023x + 5.619$	1.0000
BK_F_01026	04 Jul 24	$Y = 1.077x - 2.4554$	1.0000
BK_F_01027	01 Jul 24	$Y = 1.0104x - 4.4788$	0.9919
BK_F_01028	01 Jul 24	$Y = 1.0099x - 3.7255$	1.0000
BK_F_01029	01 Jul 24	$Y = 1.1188x - 4.4431$	0.9985
BK_F_01030	01 Jul 24	$Y = 1.0159x - 6.395$	1.0000
BK_F_01031	01 Jul 24	$Y = 0.9073x + 5.3271$	0.9999
BK_F_01039	02 Jul 24	$Y = 0.9192x + 9.4833$	0.9992
BK_F_01040	01 Jul 24	$Y = 1.0034x - 2.5343$	1.0000
BK_F_01041	02 Jul 24	$Y = 1.0515x + 1.1272$	0.9999
BK_F_01042	02 Jul 24	$Y = 1.0076x + 10.387$	0.9965
BK_F_01043	01 Jul 24	$Y = 0.9165x + 9.3743$	1.0000
BK_F_01044	01 Jul 24	$Y = 1.1237x - 0.4231$	0.9981
BK_F_01200	01 Jul 24	$Y = 1.0337x - 0.1016$	0.9994
BK_F_01201	01 Jul 24	$Y = 0.8717x + 5.0931$	0.9985
BK_F_01202	01 Jul 24	$Y = 0.7978x + 301.39$	0.9334
PH_F_00002	02 Jul 24	$Y = 1.0722x + 3.4395$	0.9988
PH_F_00003	02 Jul 24	$Y = 1.0254x + 0.54$	0.9999
PH_F_00029	02 Jul 24	$Y = 0.919x + 12.73$	1.0000
RYO_F00197	01 Jul 24	$Y = 1.0045x + 10.291$	1.0000
RYO_F00198	01 Jul 24	$Y = 1.0556x + 1.8883$	1.0000
RYO_F00199	01 Jul 24	$Y = 1.0029x + 3.2381$	0.9990

Page 1 of 2

of 3

Page 1 of 2

### At-Home Laboratory Group

N.A. = Not Applicable; Company does not report a statement of cash flows.

The views in this paper are those of the author. The publication of this paper for the European Commission is not an endorsement of the views of the Commission or of the European Union.

The results shown in only in the form indicated. The size of the shell will be reproduced exactly in full, without serious approval of the limitations of the system. For more information, see the full text of the paper.

The authors warrant that the data presented in this manuscript have not been previously published, without written approval of the American Psychological Association.



Agilent CrossLab Compliance System

---

Setuppoint Status: Completed

Injection Volume on Column: 1.0 μL

Overall Scoring Run Status  
Completed

---

Mixer and Drift

Tested Combination: Front SBL I Front FID

Name: 780A

Setuppoint Status: Pass

Base Signal: 02.7 pA

ADTM Noise                      Drift

<p>pA</p> <p style="text-align: center;">0.06</p> <p>cc = 0.10</p>	<p>pA/hr</p> <p style="text-align: center;">0.05</p> <p>cc = 2.50</p>
--	---

Agilent Recommended:

Status: Pass Pass

---

Overall Noise and Drift Test Status

Pass

---

Injection Precision

Tested Combination: Front SBL I Front FID

Name: 780DA

Setuppoint Status: Pass

Injection Volume on Column: 1.0 μL

Area RSD: 0.32 %     Retention Time RSD: 0.67 %

Agilent Recommended: cc = 3.00  cc = 1.00

Overall Injection Precision Test Status

Pass

---

Signal to Role

---

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Agilent CrossLab Compliance Results

---

Tested Combination: Front BSL / Front FID

Name: 7810

Setup/Port Status: Pass

Signal to Noise: 721755

Agilent Recommended: <= 300,000

Open/11 Signal to Noise Test Status

Pass

---

Bleeding Run

Tested Combination: Back BSL / Back FID

Name: 7810A

Setup/Port Status: Completed

Injection Volume on Column: 1.0 µL

Open/11 Bleeding Run Status

Completed

---

Noise and Drift

Tested Combination: Back BSL / Back FID

Name: 7810

Setup/Port Status: Pass

Base Signal: 22.6 pA

ASTM Noise		Drift	
pA	µA36	pA36	µA36
0.07	0.09		
<= 0.13	2.50		

Agilent Recommended:

Status: Pass

Sample 2	
Manufacturer	Agilent Technologies
Type	Injection Tower
Name	7052A
Model Number	G4513A
Serial Number	CN182501128
Firmware Revision	A.10.09
Usage	Sample Injection
Location	Flow
Syringe Volume (uL)	10
Sample 3	
Manufacturer	Agilent Technologies
Type	Injection Tower
Name	7052A
Model Number	G4513A
Serial Number	CN105040103
Firmware Revision	A.10.09
Usage	Sample Injection
Location	Back
Syringe Volume (uL)	10
Methstream 1	
Manufacturer	Agilent Technologies
Name	7890
Model Number	G3462A
Serial Number	CN114810066
Firmware Revision	Version 4.27
Oven Type	Standard

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Inlet 1		
Manufacturer	Agilent Technologies	
Name	T890	
Type	SSL	
Location	Front	
Carrier Gas	Helium	
Control Type	Electronic Pressure Control (EPC)	
Purged Inlet	Yes	
Inlet 2		
Manufacturer	Agilent Technologies	
Name	T890	
Type	SSL	
Location	Back	
Carrier Gas	Helium	
Control Type	Electronic Pressure Control (EPC)	
Purged Inlet	Yes	
Detector 1		
Manufacturer	Agilent Technologies	
Name	T890	
Type	FID	
Adapter	Capillary	
Control Type	Electronic Pressure Control (EPC)	
Location	Front	
Makeup Gas	Nitrogen	
Detector 2		
Manufacturer	Agilent Technologies	
Name	T890	
Type	FID	
Adapter	Capillary	
Control Type	Electronic Pressure Control (EPC)	
Location	Back	
Makeup Gas	Nitrogen	

**Overall Noise and Drift Test Status**

Pass

---

**Injection Precision**

Tested Combination	Bach	SSL	/ Back	FID
Name:	7803A			
Endpoint Error:	Pass			
Injection Volume on Column:	1.0	1.28	%	
Aria ISO:			%	
Agent Recommended:	<= 3.90			
			Retention Time RSD:	0.83 % <= 1.00

**Overall Injection Precision Test Status**

Pass

---

**Signal to Noise**

Tested Combination	Bach	SSL	/ Back	FID
Name:	Injection Tower			
Endpoint Status:	Pass			
Signal to Noise:		2104.386		
Agent Recommended:	>= 300000			

**Overall Signal to Noise Test Status**

Pass

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<h2>Instrument Details</h2>		
<b>Purpose</b>		
This section describes the as found system configuration.		
<b>Details</b>		
<b>System</b>		
System ID	CN11481056	
Manufacturer	Agilent Technologies	
Name	7890	
Flow Data Input	Manual Data	
Temperature Data Input	Manual Data or Other Data Logging	
<b>Tested Combination1</b>		
Injection Technique	Injection Tower	
Sampler Model/ID	Sampler 2	
Inlet	Front	
Detector	Front	
LTM Indicator?	No	
<b>Tested Combination2</b>		
Injection Technique	Injection Tower	
Sampler Model/ID	Sampler 3	
Inlet	Back	
Detector	Back	
LTM Indicator?	No	
<b>Sampler 1</b>		
Manufacturer	Agilent Technologies	
Type	Twin	
Name	7890A	
Model Number	G4544A	
Serial Number	CN15388030	
Firmware Revision	A.11.0.1	
Valve Heater	Not Installed	

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Agilent OneLab Compliance Review

Electronic Signature

Persons

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Saengchai Tanak  
saengchai.tanak@oneagilent.com  
April 21, 2023  
Executed protocol and published this original version of document

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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 ensure compliance. Agilent Technologies makes no promises or representations as to be sufficient for any specific regulatory purposes.

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Date: \_\_\_\_\_  
Signed By: \_\_\_\_\_

April 21, 2023 9:28:38 PM  
C311461006

Page 17/23

[illegible]











Date: October 22, 2024 9:27:25 AM  
System ID: GC-8\_CH11461268

Date: October 27, 2024 9:27:05 AM  
System ID: GC-8\_CN11451066

Date: October 17, 2024 9:27:03 AM  
System ID: OC-6\_C211481096

Date: October 22, 2024 9:27:05 A  
System ID: GC-8\_CN11481288

Date: October 22, 2024 9:27:03 AM  
Sys ID: OC-6\_CNF1451056

Date: October 22, 2024 9:27:05 AM  
System ID: OC-8\_CN11481060

Date: October 22, 2024 9:27:08 AM  
System ID: GC-B\_CVT1481068

Date: October 22, 2024 9:27:05 AM  
System ID: OC-0\_CH11451256

CERTIFICATE OF CALIBRATION

ISSUED BY  
Cirus Research plc

DATE OF ISSUE  
04 September 2024

CERTIFICATE NUMBER  
221730

REVIEW BY  
*[Signature]*

APPROVED BY  
*[Signature]*

EXT. CAL. DATE  
*[Signature]*

Page 1 of 2

Approved signatory  
N.Smith  
Electronically signed  
*[Signature]*

Cirus Research plc  
Acoustic House  
Brillington Road  
Hummby  
North Yorkshire  
YO14 0PP  
United Kingdom

doseBadge Reader : IEC 60942:2003

Instrument Information  
Manufacturer: Cirus Research plc  
Model: RC 110A  
Serial number: 76052  
Class: 2

Test summary  
Date of calibration: 04 September 2024

The dosebadge reader detailed above has been calibrated to the published data as described in the operating manual and in the method configuration. The procedures and techniques used are as described in IEC 60942:2003 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 V52F condenser microphone type MK224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.3 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 (w) tested, 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 performance of the dosebadge Reader to the requirements of IEC 60942:2003.

Notes

CERTIFICATE OF CALIBRATION

Certificate Number  
221730

Page 2 of 2

Environmental conditions

The following conditions were recorded at the time of the test  
Before Pressure: 101.13 kPa Temperature: 22.1 °C Humidity: 55.1 %  
After Pressure: 101.10 kPa Temperature: 22.2 °C Humidity: 55.8 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Kentech	2015	1053426
Acoustic Calibrator	Briel and Kjaer	4231	2610257
Environmental Monitor	Comet	77510	21912028

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	114.06	114.06	114.07	114.06	0.06	±0.75	0.11 dB
Distortion (%)	< 4.00	0.25	0.28	0.28	0.25	0.25	±4.00	0.13 %
Frequency (Hz)	1000.0	1009.5	1009.5	1009.5	1009.5	9.5	±200.0	0.1 Hz

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

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.99	114.02	114.02	114.01	0.01	±0.75	0.11 dB
Distortion (%)	< 4.00	0.25	0.26	0.25	0.25	0.25	±4.00	0.13 %
Frequency (Hz)	1000.0	1009.5	1009.5	1009.5	1009.5	9.5	±200.0	0.1 Hz

Functionality Results

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

End of results

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

471-4715 Sathorn Road Bangkok 10120 Thailand  
Tel: +66 2 673 9330 Email: calibration@sithiporn.com

SITHIPORN ASSOCIATES

ISO 17025

ACCREDITED

Cert. No.: ACC24038

Job No.: YC67AC0140

Pages: 1 of 3

Calibration Certificate

Equipment: SOUND CALIBRATOR

Manufacturer: RION

Model: RC-34

Serial No.: 341814

ID No.: RYC T50216

Condition As Found: GOOD

Customer: ALS LABORATORY GROUP (THAILAND) CO. LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHUET SUAN LIANG,  
BANGKOK, 10250 THAILAND.

Location: ( 23.0 ± 3.3 ) °C  
Ambient Temperature: ( 100.3 ± 3.3 ) °F  
Pressure: ( 510.9 ± 20.3 ) hPa  
Relative Humidity: 100.0 %  
Received Date: 09 AUGUST 2024  
Calibration Date: 23 AUGUST 2024  
Date of Issue: 26 AUGUST 2024

REVIEW BY  
*[Signature]*

APPROVED BY  
*[Signature]*

EXT. CAL. DATE  
*[Signature]*

Calibrated by: Natchanon Petchum

Approved by: T. Petchum  
( Thanakul Petchum )

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T. Petchum

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

471-4715 Sathorn Road Bangkok 10120 Thailand  
Tel: +66 2 673 9330 Email: calibration@sithiporn.com

SITHIPORN ASSOCIATES

ISO 17025

ACCREDITED

Cert. No.: ACC24038

Job No.: YC67AC0140

Pages: 2 of 3

Calibration Procedure: CP-AC-03

Calibration Method: This equipment was calibrated by follow on IEC-60942:2003 Standard.

The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference microphone.

Condition of this result of calibration: 1. Reference Standard Instruments:

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33511B	MY52302742	EF-0009-24	05-11-24
Digital Multimeter	33461A	MY53220104	EF-0009-24	13-11-24
Digital Multimeter	33461A	MY53220676	EF-0009-24	15-11-24
Digital Multimeter	33461A	MY60024273	EF-0009-24	15-11-24
Programmable Attenuator	MAT-1070	62100114	EF-0009-24	05-11-24
Condenser Microphone	4180	2977900	AA-1001-24	12-11-24
Measuring Amplifier	NA-22CA	34565695	AA-2001-24	05-11-24
Audio Analyzer	AVR-3300A	V74165909	EF-0009-24	08-11-24

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

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

3.1 National Institute of Metrology (Thailand)

3.2 Thailand Institute of Scientific and Technological Research (TISTR)

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

471-4715 Sathorn Road Bangkok 10120 Thailand  
Tel: +66 2 673 9330 Email: calibration@sithiporn.com

SITHIPORN ASSOCIATES

ISO 17025

ACCREDITED

Cert. No.: ACC24038

Job No.: YC67AC0140

Pages: 3 of 3

Result of calibration:

1. Sound pressure level

Specified sound pressure level (dB)	Measured value (dB)	Deviated value (dB)	Uncertainty (dB)	Acceptance limit (dB)
94	94.17	0.17	0.80	0.40

2. Frequency

Specified Frequency (Hz)	Measured value (Hz)	Deviated value (%)	Uncertainty (%)	Acceptance limit (%)
1000	1005.3	0.5	0.1	1.0

3. Total distortion

Measured value (%)	Uncertainty (%)	Acceptance limit (%)
2.16	0.10	3.0

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

End of Calibration Certificate

T. Petchum

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

471-4715 Sathorn Road Bangkok 10120 Thailand  
Tel: +66 2 673 9330 Email: calibration@sithiporn.com

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ACCREDITED

Cert. No.: ACC24038

Job No.: YC67AC0140

Pages: 1 of 8

Calibration Certificate

Equipment: SOUND LEVEL METER

Manufacturer: RION

Model: NI-42 / Microphone UC-52 / Preamplifier NI-24

Serial No.: 00597169 / 154770 / 34370

ID No.: RYC T50216

Condition As Found: GOOD

Customer: ALS LABORATORY GROUP (THAILAND) CO. LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHUET SUAN LIANG,  
BANGKOK, 10250 THAILAND.

Location: ( 23.0 ± 3.3 ) °C  
Ambient Temperature: ( 100.3 ± 3.3 ) °F  
Pressure: ( 510.9 ± 20.3 ) hPa  
Relative Humidity: 100.0 %  
Received Date: 23 SEPTEMBER 2024  
Calibration Date: 09 OCTOBER 2024  
Date of Issue: 09 OCTOBER 2024

REVIEW BY  
*[Signature]*

APPROVED BY  
*[Signature]*

EXT. CAL. DATE  
*[Signature]*

Calibrated by: Natchanon Petchum

Approved by: T. Petchum  
( Thanakul Petchum )

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

T. Petchum

A 0061696







Equipment : Low Temp. Incubator  
Condition As-Received : Used Item  
Reference : 2405-09MOC-2  
Result of Calibration : ( ) Without Adjustment  
Function of UUC : Temperature Source  
Fresh air setting : Close

Cert. No.: 24TM162  
Page: 3 of 3

Calibration Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor
20.0	20.0	20.0	0.01	0.22	1.0	2

Calibration Point (°C)	Measured Temperature (°C)	Uncertainty (± °C)
20.0	19.547 19.780 19.487 19.579 19.400 20.120 20.112 20.436 20.116	0.30

Average\*: The average of 30 values in each position.  
Temperature stability: One-half of the greatest maximum difference of measured temperature at any one sensor.  
Temperature uniformity: The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location, which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.  
Overall Variation: The Difference of the maximum and minimum measured temperatures throughout observation.  
UUC\*: Unit Under Calibration.  
Note: The reported uncertainty of measurement was included stability and excluded uniformity.

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

-0.01

1165120



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES  
324/4 PATTANAKARN ROAD SOI 18, SUAN LUANG, SUAN LUANG BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2718-9484

IBC-MRA



## Certificate of Calibration

Cert. No.: 24TM163  
Page: 1 of 3

Equipment : Low Temp. Incubator

Manufacturer : Memmert

Model : WP750

Serial No.: V818.0084

ID No.: RYG\_EN0154

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd. Rong Branch  
616/10 Moo 5, T. Maenam Khu, A. Phukdaeng,  
Rayong 21140, Thailand  
800 Room

Location :

Received Order : 01 November 2024

Calibration Date : 01 November 2024

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (56 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Krida Nabe

Approved by : Kunchit

Approved Signature

Issue Date : 07 November 2024

The Uncertainties are for a confidence probability of approximately 95 %

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01/05/26

Thanitak

D



Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaywang, Huaywang, Bangkok 10310  
Tel: +66 2642 8361-6, e-mail: service.thailand@sartorius.com



## Certificate of Calibration

Model Number : MSE2245-100-DU

Description : Analytical Balance

Serial Number : 0020207036

ID No.: RYG\_EN0002

Manufacturer : Sartorius

Customer Name : ALS Laboratory Group (Thailand) Co., Ltd. (Rong Branch)

616/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand

Calibrated Place : ALS Laboratory Group (Thailand) Co., Ltd. (Balance Room)

616/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand

Calibrated By : M. Chonchai Inthana

Calibration Date : Thursday, February 22, 2024

Calibration Procedure No.: This calibration was conducted by using in-house calibration procedure number (01-003) Based on UKAS LAB 14:2019

Ambient Conditions:

Temperature : 24.2 °C ± 5.0 °C

Humidity : 87.0 % RH ± 10.0 % RH

Pressure : ± 0.0001 g

Reasons for calibration

☐ New Installation ☐ Service / Repair ☐ Recalibration Requirement

Equipment Condition: ☐ Good ☐ Poor

Measurement Method : UKAS Publication Ref: Lab 14

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which results in the unit of measurement according to the International System of Units (SI). Report of Tolerance came from IRI of Sartorius Metrological Specifications.

Traceability:

Model Number : Description : Traceability : Certificate No. : Due Date :

YCS011-522-02 : Sartorius weight set, 1mg - 5000g EX.YCS011-522-02 : TCS : M23081978 : 23-Aug-2025

MHS-382SD : Humidity/Balometer/Temp. 1 station MHS-382SD : DKSH : C1931845 : 23-Aug-2024

50P FM 33 03 February 2022

This certificate refers and apply the equipment only.

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Approved Signature

Issue Date : 22 March 2024

The Uncertainties are for a confidence probability of approximately 95 %

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Approved Signature

Issue Date : 22 March 2024

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The Uncertainties are for a confidence probability of approximately 95 %

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Approved Signature

Issue Date : 22 March 2024

The Uncertainties are for a confidence probability of approximately 95 %

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Approved Signature

Issue Date : 22 March 2024

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaywang, Huaywang, Bangkok 10310  
Tel: +66 2642 8361-6, e-mail: service.thailand@sartorius.com

SARTORIUS

## Certificate of Calibration

Model Number : MSE2245-100-DU

Description : Analytical Balance

Serial Number : 0020207036

ID No.: RYG\_EN0002

Manufacturer : Sartorius

Customer Name : Sartorius (Thailand) Co., Ltd. (Rong Branch)

616/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand

Calibrated Place : Sartorius (Thailand) Co., Ltd. (Balance Room)

616/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand

Calibrated By : M. Chonchai Inthana

Calibration Date : Friday, February 23, 2024

Calibration Procedure No.: This calibration was conducted by using in-house calibration procedure number (01-003) Based on UKAS LAB 14:2019

Ambient Conditions:

Temperature : 24.2 °C ± 5.0 °C

Humidity : 87.0 % RH ± 10.0 % RH

Pressure : ± 0.0001 g

Reasons for calibration

☐ New Installation ☐ Service / Repair ☐ Recalibration Requirement

Equipment Condition: ☐ Good ☐ Poor

Measurement Method : UKAS Publication Ref: Lab 14

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which results in the unit of measurement according to the International System of Units (SI). Report of Tolerance came from IRI of Sartorius Metrological Specifications.

Traceability:

Model Number : Description : Traceability : Certificate No. : Due Date :

YCS011-522-02 : Sartorius weight set, 1mg - 5000g EX.YCS011-522-02 : TCS : M23081978 : 23-Aug-2025

MHS-382SD : Humidity/Balometer/Temp. 1 station MHS-382SD : DKSH : C1931845 : 23-Aug-2024

50P FM 33 03 February 2022

This certificate refers and apply the equipment only.

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Issue Date : 22 March 2024

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Approved Signature

Issue Date : 22 March 2024

The Uncertainties are for a confidence probability of approximately 95 %

Certificate No.: 24BC0068

Issue Date: Friday, February 23, 2024

Reference No.: 226168

Page No.: 2 of 2

## Calibration Results: Without Adjustment

Repeatability

The repeatability is the ability of a weighing instrument to display nearly identical results when converted to conditions when the same load is measured under identical conditions of the weighing pan in the same manner. The standard deviation is used to express repeatability quantitatively.

Normal Value : (Low Load)

20 g

0.0001 g





Equipment : Hot Air Oven  
Condition As-Received : Used Item  
Reference : 2403-0503OC-1  
Result of Calibration : (\*) Without Adjustment  
Function of UUC : Temperature Source  
Fresh air setting : Close

Cert.No.: 24TM512  
Page : 3 of 3

Calibration Point (°C)	UUC <sup>a</sup> Setting (°C)	UUC <sup>a</sup> Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor
104.0	104.0	104.0	0.051	0.59	0.62	2
180.0	180.0	180.0	0.15	1.3	1.7	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (± °C)
	1	2	3	4	5	6	7	8	9 (ref.)	
104.0	103.921	103.785	103.757	103.719	103.590	103.817	104.213	103.672	103.673	0.42
180.0	179.614	179.270	179.145	179.599	180.000	180.423	180.293	180.639	179.429	1.1

Average<sup>a</sup>: The average of 30 values in each position.

Temperature stability: One-half of the greatest maximum difference of measured temperature at any one sensor.  
Temperature uniformity: The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.  
Overall Variation: The Difference of the maximum and minimum measured temperatures throughout observation.  
UUC<sup>a</sup>: Unit Under Calibration.

Note: The reported uncertainty of measurement was included stability and excluded uniformity.

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95%.

-000-



Equipment : Hot Air Oven  
Condition As-Received : Used Item  
Reference : 2403-0503OC-3  
Procedure Used :>

Cert.No.: 24TM534  
Page : 2 of 3

Calibration was conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector (RTD) and Thermocouple Type T.

The temperature scale used was based on ITS-90.

Condition of this result of calibration:

1. Reference standard instrument:

Instrument Serial No. Cert. No. Traceable Due Date  
1. Data Acquisition MY5701311 22.04.15 TPA 11 Jul 2024

2. This certificate is valid only to the item calibrated on date and place of calibration.

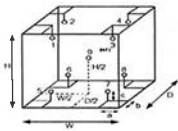
3. This certificate is traceable to the International System of Unit.

Remark: TPA: Technology Promotion Association (Thailand - Japan)

Result of Calibration: (\*) Without Adjustment

Function of UUC: Temperature Source

Fresh air setting: Close



Probe Installation Data: Dimension of Chamber:  
a = 5.0 cm D = 0.40 m  
b = 5.0 cm W = 0.58 m  
c = 5.0 cm H = 0.48 m  
Capacity = 0.11 m<sup>3</sup>

Environment during calibration		
	Beginning	Finished
Temp. (°C)	27	27
REL Humid. (%)	59	59
AC Supply (V <sub>eff</sub> )	224	223

Ref. Std. ID No.: 41		Calibration Point	
Position:	(180) °C	(104) °C	
1	18-18TC-01	18-18RTD-01	
2	18-18TC-02	18-18RTD-02	
3	18-18TC-03	18-18RTD-03	
4	18-18TC-04	18-18RTD-04	
5	18-18TC-05	18-18RTD-05	
6	18-18TC-06	23-18RTD-06	
7	18-18TC-07	18-18RTD-07	
8	18-18TC-08	23-18RTD-08	
9 (ref.)	18-18TC-09	18-18RTD-09	



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES  
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2718-9484



## Certificate of Calibration

Cert.No.: 24TM534  
Page : 1 of 3

Equipment : Hot Air Oven

Manufacturer : Mammet

Model : UF 110

Serial No. : B423.0853

ID No. : RYG\_EN0213

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
610/10 Moo 5, T. Maenam Khu,  
A. Phakdaeng,  
Rayong 21140 Thailand

Location : Oven Room

Received Order : 21 March 2024

Calibration Date : 21 - 22 March 2024

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

Calibrated by : Man Pattanasongpolboon

Approved by :   
Approved Signatory

( ) Pomthippa Tamayakul  
( ) Umaphol Harachai  
✓ Suwit Imjai

Issue Date : 23 March 2024

The Uncertainties are for a confidence probability of approximately 95%.

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TEL 0-2717-3000-29 FAX 0-2718-9484



## Certificate of Calibration

Cert.No.: 24TM535  
Page : 1 of 3

Equipment : Water Bath

Manufacturer : Mammet

Model : WNB22

Serial No. : LS13.0548

ID No. : RYG\_EN0061

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
610/10 Moo 5, T. Maenam Khu,  
A. Phakdaeng,  
Rayong 21140 Thailand

Location : Wet Chemistry Lab

Received Order : 21 March 2024

Calibration Date : 21 March 2024

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

Calibrated by : Man Pattanasongpolboon

Approved by :   
Approved Signatory

( ) Pomthippa Tamayakul  
( ) Umaphol Harachai  
✓ Suwit Imjai

Issue Date : 23 March 2024

The Uncertainties are for a confidence probability of approximately 95%.

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services & Equipment Calibration and Testing Services.



Equipment : Water Bath  
Condition As-Received : Used Item  
Reference : 2403-0503OC-4  
Procedure Used :>

Cert.No.: 24TM535  
Page : 2 of 3

Calibration was conducted using in-house calibration procedure CP-OT04 Based on ASTM E715 according to direct measurement method with Data Acquisition which connected with Industrial Platinum Resistance Thermometer (IPRT).

The temperature scale used was based on ITS-90.

Condition of this result of calibration:

1. Reference standard instrument:

Instrument Serial No. Cert. No. Traceable Due Date  
1. Data Acquisition MY5701311 23.04.15 TPA 11 Jul 2024

2. This certificate is valid only to the item calibrated on date and place of calibration.

3. This certificate is traceable to the International System of Unit.

Remark: TPA: Technology Promotion Association (Thailand - Japan)

Result of Calibration: (\*) Without Adjustment

Function of UUC: Temperature Source

Heat transfer medium used: Water

Beginning of Calibration	Environmental			AC Voltage Supply		
	(°C)	(°C)	(V <sub>eff</sub> )	(V <sub>eff</sub> )	(V <sub>eff</sub> )	(V <sub>eff</sub> )
25	25	55	223	223	223	223

Position		Ref. Std. ID No.	
1	4803988-001	1	4803988-001
2	4803988-002	2	4803988-002
3	4803988-003	3	4803988-003
4	4803988-004	4	4803988-004
5 (ref.)	4803988-005	5 (ref.)	4803988-005

Front



## Metrology

SCC ECO Services Company Limited  
302 Moo 3, T. Bangpa, A. Kawengkhut, Saraburi 19112, Thailand  
Saraburi Tel: +66 3622 3196 Fax: +66 3627 3190  
Bangkok Tel: +66 2 625 4751 +66 2 625 4752  
Website: www.sccc.co.th E-Mail: sccc@th.sccc.com



Certificate No. 1241130

Page 1 of 4

## Certificate of Calibration

Equipment : Chamber ( Cold Room )

Manufacturer : MODULAR

Model : IREVCOU000

Serial No. : C 00351459

Customer Code : RYG\_EN0184

ID No. : T1939A5

Customer : ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)

610/10 Moo 5, T. Maenam Khu,

A. Phakdaeng, Rayong 21140

Customer Location : Laboratory

Date of Receipt : 5 June 2024

Calibrated By : Sujjar Naknukred (Site Calibration Manager)

Approved By :   
Preecha Phichasumthikul (Temperature Calibration Manager)

Date of Issue : 17 JUN 2024

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation as granted by the Thai Laboratory Accreditation Scheme which has assessed the measure and capability of the laboratory and its capability to recognize national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology.

RECEIVED







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TEL: 0-2717-3000-29 FAX: 0-2719-5484



## Certificate of Calibration

Equipment: pH Meter  
Manufacturer: Mettler Toledo  
Model: SevenGo S2  
Serial No.: C232548422  
ID No.: RYG\_F50607  
Condition As Received: Used Item  
Received Date: 04 December 2023  
Calibration Date: 06 December 2023  
Reference: 2312-0710DSC-3  
Submitted by: ALS Laboratory Group (Thailand) Co. Ltd. Rayong Branch  
816/10 Moo 5, T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand  
Ambient Temperature: (23 ± 2.5) °C  
Relative Humidity: (50 ± 10) %  
Calibration Procedure: In-house method  
- CP-CHS by 2-point measurement with standard voltage electrode and direct measurement with certified reference material (CRM)  
Calibrated by: Waratorn Lomphairat  
Approved by:   
( ) Somphong Pannam  
( ) Waratorn Lomphairat  
( ) Pongpan Pannam  
Issue Date: 8 December 2023

The Uncertainty is for a confidence probability of approximately 95 %  
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A 0051470



Condition of this calibration result

1) Reference Standard Instrument  
Instrument: Document Process Calibrator  
Serial No.: 54033401  
ID No.: 133021116  
Cert. No.: 2307809  
Due Date: 27 Aug 2024  
This calibration is traceable to the International System of Unit undertaken through:  
- Technology Promotion Association (Thailand-Japan)  
2) Certified Reference Materials  
The measurement results are traceable to SI through CPA chem Ltd.  
ANISO ASD National Accreditation Board, Accredited No. AN-1835  
Buffer Solution Manufacturer Lot No. Exp. date  
pH 4.008 CPA chem 913516 14 July 2025  
pH 6.985 CPA chem 913596 14 July 2024  
pH 9.197 CPA chem 940126 02 Nov 2024

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function: mV Measurement  
Performing standard curve by Fluke at pH (4.7,16)

Unit Under Calibration	Nominal Value		Standard Voltage Input		Actual Reading		Uncertainty of Measurement		Coverage factor k
	pH	mV	mV	pH	mV	pH	(mV)		
pH Meter S/N: C23258422	4.00	177.48	178	4.03	0.98	0.98	0.08	2.00	
	7.00	0.00	0	7.03	0.68	0.68	0.08	2.00	
	10.00	-177.48	-177	10.03	0.98	0.98	0.08	2.00	

Function: pH Measurement  
Performing three buffers standard curve by using buffer nominal pH (4.7,16)

Unit Under Calibration	Standard pH Buffer Solution		Actual pH Reading		Uncertainty of pH measurement		Coverage factor k
	pH	mV	pH	mV	(pH)		
pH Electrode S/N: 2465870	4.008	4.01	4.01	0.0071	0.0071	2.00	
	6.985	0.99	2	0.0096	0.0096	2.00	
	9.197	10.01	-173	0.0095	0.0095	2.00	

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

-00-

Sc. Ship

a 1192692



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53/44 PATTANAKARN ROAD SOI 18, SUKHUMVIT, SUKUMVIT 15, BANGKOK 10110  
TEL: 0-2717-3000-29 FAX: 0-2719-5484



## Certificate of Calibration

Equipment: pH Meter with Sensor  
Manufacturer: Mettler Toledo  
Model: SevenGo S2  
Serial No.: C232548422  
ID No.: RYG\_F50607  
Submitted by: ALS Laboratory Group (Thailand) Co. Ltd. Rayong Branch  
816/10 Moo 5, T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand  
Location: TPA On Site Calibration Laboratory  
Received Order: 04 December 2023  
Calibrated Date: 06 December 2023  
Ambient Temperature: (25 ± 1.0) °C  
Relative Humidity: (50 ± 30) %  
AC Line Voltage: (220 ± 22) V  
Calibrated by: Nid Nattapet Rungruang  
Approved by:   
( ) Somphong Pannam  
( ) Waratorn Lomphairat  
( ) Pongpan Pannam  
Issue Date: 15 December 2023

The Uncertainty is for a confidence probability of approximately 95 %  
This certificate may be reproduced after the date of issue only if the prior written approval of the head of Corporate Services 3: Equipment Calibration and Testing Services

A 0061519



Equipment: pH Meter with Sensor  
Condition As Received: Used Item  
Reference: 2312-007DSC-4  
Procedure Used: -

Calibration was conducted using in-house calibration procedure CP-0701 according to comparison with National Institute of Standards and Technology (NIST) Type B Temperature Bath.  
The temperature acids used were based on ITS-90

Condition of this result of calibration

1) Reference Standard Instrument  
Instrument: Serial No. Cert. No. Traceable Due Date  
1) Digital Thermometer AT9363 23121 TPA 04 Jan 2024  
2) This certificate is valid only to the item calibrated on date and place of calibration.  
3) This calibration is traceable to the International System of Unit.  
Remark: TPA - Technology Promotion Association (Thailand - Japan)  
Result of Calibration: (\*) Without Adjustment  
Function: Temperature measurement

This instrument was connected with temperature sensor, S/N: 2465870

Calibration Point (°C)	Immersion Depth (mm)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty (± °C)	Coverage Factor k
25.0	100	25.000	25.2	0.197	0.16	2.00
30.0	100	30.004	30.2	0.196	0.16	2.00
40.0	100	40.003	40.2	0.197	0.16	2.00
50.0	100	50.005	50.2	0.195	0.16	2.00

UUC\*: Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

-00-

PC

a 1193732



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53/44 PATTANAKARN ROAD SOI 18, SUKHUMVIT, SUKUMVIT 15, BANGKOK 10110  
TEL: 0-2717-3000-29 FAX: 0-2719-5484



## Certificate of Calibration

Equipment: pH Meter  
Manufacturer: Mettler Toledo  
Model: SevenGo S2  
Serial No.: C232584422  
ID No.: RYG\_F50607  
Condition As Received: Used Item  
Received Date: 27 November 2024  
Calibration Date: 28 November 2024  
Reference: 2411-0871DSC-3  
Submitted by: ALS Laboratory Group (Thailand) Co. Ltd. Rayong Branch  
816/10 Moo 5, T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand  
Ambient Temperature: (25 ± 2.5) °C  
Relative Humidity: (50 ± 15) %  
Calibration Procedure: In-house method  
- CP-CHS by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM)  
- CP-CHS by comparison with temperature standard  
Calibrated by: Watsat Sirhan  
Approved by:   
( ) Unnophol Hanchal  
( ) Pongpan Pannam  
( ) Somphong Pannam  
Issue Date: 30 November 2024

The Uncertainty is for a confidence probability of approximately 95 %  
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Calibration Results

Function: pH Measurement  
Performing three buffers standard curve by using buffer nominal pH (4.7,16)

Unit Under Calibration	Standard pH Buffer Solution		Actual pH Reading		Uncertainty of pH Measurement		Coverage factor k
	pH	mV	pH	mV	(pH)		
pH Electrode S/N: 2465870	4.008	4.01	190	0.0071	0.0071	2.00	
	6.985	0.99	-16	0.0085	0.0085	2.00	
	10.010	10.01	-187	0.0085	0.0085	2.00	

Function: Temperature Measurement

(\*) Without adjustment

This equipment was connected with Temperature Probe:

- Model: InLab Smart OneHM

- Serial No.: 2465870

Dimension of probe

- Length: 120 mm

- Diameter: 12 mm

- Immersion Depth: 100 mm

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor k
25.0	25.000	25.2	0.200	0.13	2.00
45.0	45.001	45.3	0.300	0.13	2.00

Remark: - UUC\*: Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

-00-



Condition of this calibration result

1) Reference Standard Instrument  
Instrument: Document Process Calibrator  
Serial No.: 54033401  
ID No.: 133021116  
Cert. No.: 24E2759  
Due Date: 25 Aug 2025  
2) Ref. Standard Thermometer  
Serial No.: 4952054  
ID No.: 1109C044  
Cert. No.: 24E757  
Due Date: 14 July 2025  
- This Calibration is traceable to SI through Technology Promotion Association (Thailand - Japan)  
2) Certified Reference Materials  
The measurement results are traceable to SI through Hach Lange GmbH Ltd.  
Deutsche Akkreditierungsstelle, Accredited No. DA-AM-15184-01-00  
The measurement results are traceable to SI through CPA chem Ltd.  
ANISO ASD National Accreditation Board, Accredited No. AN-1835  
Buffer Solution Manufacturer Lot No. Exp. date  
pH 4.008 CPA chem 1034203 27 Sep 2025  
pH 6.985 Hach Lange GmbH 003145 28 Feb 2026  
pH 10.010 CPA chem 1034205 27 Sep 2025

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function: mV Measurement

Performing standard curve by Document Process Calibrator at pH (4.7,16)

Unit Under Calibration	Nominal Value		Standard Voltage Input		Actual Reading		Uncertainty of Measurement		Coverage factor k
	pH	mV	mV	pH	mV	pH	(mV)		
pH Meter S/N: C232584422	4.00	177.48	178	4.00	0.58	0.58	0.08	2.00	
	7.00	0.00	0	7.00	0.56	0.56	0.08	2.00	
	10.00	-177.48	-177	10.00	0.58	0.58	0.08	2.00	



## Certificate of Calibration

Equipment: SPECTROPHOTOMETER  
Model: D96000  
Serial No. (or ID): 1627645 (RYG\_EN0037)  
Manufacturer: HACH  
Condition: In Condition  
Customer: ALS Laboratory Group (Thailand) Co. Ltd. (Rayong Branch)  
816/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand.  
Environment Condition: Temperature: 23.9 °C ± 0.4  
Humidity: 85.3 %RH ± 1.4  
Calibration Place: ALS Laboratory Group (Thailand) Co. Ltd. (Rayong Branch) (Wat Chemistry)  
816/10 Moo 5 T. Maenam Khu, A. Phukdaeng, Rayong 21140, Thailand.  
Calibration By: M/ Nattapet Rungruang  
Calibration Date: 15 September 2023  
The Method used: In-house method, CAL-WA-24, based on ASTM E 275-08 and ASTM E 387-04  
Traceability: The certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Fluke Scientific Limited.  
The standard for Wavelength Certificate No. 111583 and 111584  
The standard for Photometric Certificate No. 9114864 and 111585  
The standard for Stray light Certificate No. 111586 and 111585  
The standard for Spectral resolution Certificate No. 111587

(Mr. Nattapet Rungruang)  
Person in charge

(Mr. Nidun Sirhan)  
Authorized signatory

This certificate is based on the work of measurement according to the International System of Units (SI). It provides traceability of measurement to International or national standards or other recognized national standard laboratories.

The measurement uncertainty stated in the reported uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95 %. It is expressed in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report need not be reproduced except in full without written approval of DKSH Technology Limited.

DKSH Technology Limited  
255 Sukhvit Road, Bangkok, Thailand 10110  
Tel: +662-662-8888, Fax: +662-662-8889, Email: info@dksh.com

Following Growth - in Asia and Beyond

Cal-M-306-19 11 Sep 2022







[illegible]

Instrument : Automatic Sample Injector      Measuring : Vial 40 mL  
 Model : ASI-L      Place of Installation :-  
 Serial No. : H574J5200789      Department : LABORATORY  
 Manufacture : Shimadzu

Customer : ALS Laboratory Group (Thailand) Co., Ltd.  
 104 Phatthanakan 40, Phatthanakan Rd.,  
 Khwaeng Suan Luang, Khet Suan Luang,  
 Bangkok 10250 Thailand

Date of Maintenance : 26 / 06 / 2024

Ambient Condition : Temperature 25.5 ± 0.1 °C  
 Humidifier 50 ± 15 %RH

Maintenance By : T. Femi  
 (Mr. Teerawat Sorul)  
 Technician

Approved By : [Signature]  
 (Mr. Nipon Phongsomkarn)  
 Technican Manager

RECEIVED Mod. 3  
 APPROVED BY Sinlita P  
 RECEIVED DATE 25/6/24

User Name : Sinlita P

Breed No. : M.E. 399/04

## List of Consumable Maintenance parts

Result	Exchange	Recommended In
O.K.	✓	1 time per year

3.	034-03067-02	Spring, 6422, Arm Drive	O.K.	1 time per year
4.	042-00495-11	Pump Head, for ASI Rinse	O.K.	Depending on condition
		Pump (only ASV 24ml, 40ml)		Depending on condition
6.	638-14480-01	Sed. Needle Type 24ml, 40ml* (for tube 2, 1x1.6l) Searge needle	N/A	Depending on condition
6.	616-14486-02	Sed. Needle Type 125ml* (for tube 2, 3x1.6)	N/A	Depending on condition
6.	631-1660-03	Flare Pipe 2x1.5x100mm* (for Standard Needle Type 24ml, 40ml, 125ml)	O.K.	Depending on condition (only cut to orig length 600mm)
6.	658-14500-01	Needle for Suspended Particles* (0.8mm (only ASV 24ml, 40ml)	N/A	Depending on condition
9.	618-14500-01	Sed. Needle Type 225ml* (for tube 1.4x0.9)	N/A	Depending on condition
10.	638-14472-01	Sed. Needle Type 24ml, 40ml* (for tube 1.4x0.9)	O.K.	Depending on condition
11.	631-1660-02	Flare Pipe 1.4x0.9x600mm* (for Suspended + Needle Type2)	O.K.	Depending on condition
13.	631-14489-01	Double Needle, only 24ml, 40ml, (semiautomatic sarge type)*	N/A	Depending on condition
13.	631-1660-01	Flare Pipe 1.1x0.6x600mm* for Double Needle 24ml, 40ml	N/A	Depending on condition

Inspection by : T. Pong  
(Mr. Tawatchai Somri  
Technician)

SHIMADZU ANALYZER  
1/3

Report No. : A/E 446/94

**Maintenance Sheet**

Model : <u>TOD-LCSH</u>		Serial No. <u>H54425300418</u>	
Item	Carry out maintenance work	Result	Exchange
1.	Check functionality of the device Check furnace temperature (Standard cat. 680 °C / for TN cat. 720 °C)	O.K.	

	Check the entire flow line related to leakage	O.K.	
	Check baseline status (OK)	O.K.	
	Check carrier gas pressure (200 ± 10 kPa)	O.K.	
	Check carrier gas flow rate (150 mL/min)	O.K.	
2.	Tubes		

necessary clean them			
Check all tubing for tight connection	OK		

Check filling of dilution water and acid container	O.K.		
Place Dosing Bot. in front of acid fill station	O.K.		

4.	Check if cut-off flow is in proper conditions	O.K.	
	IC and IC Injection		
	Clean injector Block	O.K.	
	Check injector Block for wear	O.K.	
	Check injection tube adjustment	O.K.	

5.	IC Measurement ( N-type )			
	Check acidification in syringe			
	Check sparging in syringe			
6.	Eye check of 8-Port valve, for sample residues or moist spots that indicate	O.K.		

7.	Check and if necessary exchange consumable, Maintenance parts	O.K.	See list of consumable maintenance parts
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Inspection by : T. P. P.

SHIMADZU ANALYZER  
3/4



## Automation Service Co.,Ltd.

Head Office: 405-8951 Soei Yamaguchi 30,  
Fukushima-ward, Saitama Prefecture  
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Rental & Service Center  
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Branch: 118 M-1, Maebashi, Saitama Prefecture  
Tel: 03-319-8554 Fax: 03-319-8555

MTOC: L-0613/2024

Report No.: ALS-416/01

Item	Carry out maintenance work	Result	Exchange	Comment
8.	Due to instrument condition, clean the instrument inside and outside.	O.K.		
9.	After checking the system and exchanging of consumable and maintenance parts a new 1-3 point calibration have to be done.	O.K.		Addition test 1.
10.	After wards the calibration perform check sample measurement.	O.K.		Addition test 2.

### Addition test

Test no.	Test conditions	Meas. value	Result
1.	Calibration TC standard solution at 0.0, 0.1, 0.5, 1, 5, 10, 20 Injection volume 50 µL No. of measurement 2 times (Max.3) Criteria: R <sup>2</sup> = 0.995 or more	Attachment: ALS-416/01 Page 2/4 ~ 3/4 0.9995	Pass
2.	Measurement of reagent water and TC standard solution at 5.0 mg/L Injection volume 50 µL No. of measurement 2 times (Max.3) and calculate accuracy by: Meas. of TC standard - Meas. of Reagent water Criteria: Accuracy %Recovery 10% or less	Attachment: ALS-416/01 Page 3/4 ~ 4/4 5.216 - 0.2800 = 4.936 ppm	Pass

Inspection by: T. Imai  
(Mr. Tawatchai Somri)  
Technician

SHIMADZU ANALYZER  
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## Automation Service Co.,Ltd.

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Branch: 118 M-1, Maebashi, Saitama Prefecture  
Tel: 03-319-8554 Fax: 03-319-8555

MTOC: L-0613/2024

Report No.: ALS-416/01

### List of Consumable, Maintenance parts

No.	Part Number	Part Name	Result	Exchange	Recommended Interval
1.	036-11209-04	O-ring, 4D P10A (Viton, for TC-IC Slider)	O.K.	✓	1 time per year, Depending on condition
2.	036-11219-04	O-ring, 4D P20 (for sealing TC-Combustion tube)	O.K.	✓	1 time per year, Depending on condition
3.	636-16025	O-ring, PTFE (for TC-IC Slider)	O.K.	✓	1 time per year, Depending on condition
4.	630-00105-01	Platinum net, (20cc-set) (to support catalyst)	O.K.	✓	6 month same time as catalyst exchange
5.	630-00567	Silica Wool (to support catalyst)	O.K.	✓	6 month same time as catalyst exchange
6.	630-00992	Metalogen Scrubber	O.K.	✓	6 month
7.	630-00986	High Sensitivity TC Catalyst (When installed)	N/A		Depending on condition
8.	636-80110	Regular Catalyst (33g)	O.K.	✓	6 month
9.	636-68261-01	S-Port valve rotor	O.K.	✓	1 time per year
10.	636-41523	TC-Combustion Tube	O.K.	✓	6 month same time as catalyst exchange
11.	631-43404-01	Packing, gasket slider (for TC-Injection tube)	O.K.	✓	1 time per year, Depending on condition
12.	636-59296	Syringe 5mL	O.K.	✓	Depending on condition
13.	636-59296-01	Plunger Tip (for syringe 5mL)	O.K.	✓	6 month
14.	042-00405-11	IC reagent supply pump head	O.K.	✓	1 time per year
15.	630-00999	CO <sub>2</sub> Absorber (for cell space purge)	O.K.	✓	1 time per year
16.	630-00964	Molecular Sieves 13x	O.K.	✓	1 time per year

Note: Table indicates the guidelines replacement periods when NPOC measurement is performed on sample that are comparatively as clean as tap water, use standard catalyst and at a rate of about 500 sample per month (operating five days a week)

Inspector By: T. Imai  
(Mr. Tawatchai Somri)  
Technician

SHIMADZU ANALYZER  
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## TOC-Control L Report

Inspection Report

Sample Name

Sample No.

Sample Date

Sample Time

Sample Result

Sample Result

Sample Result

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## TOC-Control L Report

Inspection Report

Sample Name

Sample No.

Sample Date

Sample Time

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สำเนาหนังสืออนุญาตขึ้นทะเบียน

ห้องปฏิบัติการวิเคราะห์



ที่ อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๑๐๐

๒ ๐ พฤศจิกายน ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๔ สิงหาคม ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผน  
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผน  
๓. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผน

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔-๙-๐๐๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐  
ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด  
ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑  
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ ๑๘๑ ราย ตามสิ่งที่ส่งมาด้วย ๒  
ค. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล  
หรือวัสดุที่ไม่ใช่แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะมีผลภายในวันที่ ๒ กันยายน ๒๕๖๗ หากประสงค์จะต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ  
กรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายจิระ จันทน์ศิลป์)

ปลัดกระทรวงอุตสาหกรรม  
ผู้บัญชาการกองวิจัยและพัฒนาผลิตภัณฑ์และทะเบียนห้องปฏิบัติการ  
ปฏิบัติการกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๖ ต่อ ๒๓๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๖ ต่อ ๒๓๐๕๕

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวหน้า ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



สิ่งที่ส่งมาด้วย ๒

เอกสารแนบท้ายหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๒๐๔

ที่ อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘ ลงวันที่ ๒ ๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๘๑ ราย

- ๑) นายกาญจน์พิศ ภูคิตกวนิชย์
- ๒) นายภัทรพล สว่างใจธรรม
- ๓) นายธนวิทย์ เทือกขันธ์
- ๔) นายศิริโชค พงษ์ประสม
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- ๖) นางสาวจินดา ไชยธรรม
- ๗) นางสาวศิริวิทย์ ร้อยเอี่ยม
- ๘) นางสาวชณัฐกาญจน์ สิมข
- ๙) นางสาววันวิมล สายเส่ง
- ๑๐) นางสาวนันทา สมบูรณ์
- ๑๑) นางสาวศรียา เจริญเจริญ
- ๑๒) นางสาวณิชากร มงคลจิราวัฒน์
- ๑๓) นางสาวศิริลักษณ์ ปูนาค
- ๑๔) นายเทพพงศ์ จันทร์พันธุ์
- ๑๕) นายบรรณรักษ์ โกมลย์
- ๑๖) นายชินวรา จริญญา
- ๑๗) นางสาวนันทพร แก้วมื่น
- ๑๘) นางสาวสุวิมล ชัยเรืองวุฒิ
- ๑๙) นางสาวสุชาดา ธรรมถาวร
- ๒๐) นางสาวเป็ภา ชัยเดชมงคล
- ๒๑) นางสาวศศิธร พูลสวัสดิ์
- ๒๒) นางสาวเลวลักษณ์ ภูมิกำแหง
- ๒๓) นายอภิสิทธิ์ สิงห์
- ๒๔) นายศักดิ์สิทธิ์ ไพศาลพิสุทธิ
- ๒๕) ว่าที่ร้อยตรีหญิง พรรณีภา ขำเจริญ
- ๒๖) นางจิตตา คำแก้ว
- ๒๗) นางสาวอรพรรณ รักยง
- ๒๘) นางสาววันรัตน์ แยมกรณต์
- ๒๙) นายจุลเดช วาวิรินทร์
- ๓๐) นางสาวดาวิรัตน์ ร้องคำ
- ๓๑) นายพรมณ์ ศรีปิตบุตร
- ๓๒) นายสุทธิ อุ่นสิน
- ๓๓) ว่าที่ร้อยตรี เฉลิมเกียรติ อมรินทร์เสริม
- ๓๔) นางสาววิสา สร้างนา
- ๓๕) นายอนุพงศ์ วันศรีประเสริฐ

- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๑
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๒
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๓
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๕
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๖
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๘
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๐๙
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๑๘
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๑๙
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๒๒
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๒๓
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๒๕
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๓๔
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๓๕

31

๓๖) นางสาวจุฑารัตน์...

- ๒ -

- ๓๖) นางสาวจุฑารัตน์ โอบสันเทียะ
- ๓๗) นางสาวจารุวรรณ พิมพ์กิจกัญญา
- ๓๘) นางสาวประคัตติพงษ์ กิจไพศาลศักดิ์
- ๓๙) นางสาวเดือนใจ ทางกลาง
- ๔๐) นางสาวจิราพร ศิริเวช
- ๔๑) นายวรกร ภูกริกษ์
- ๔๒) นายพนม วิริยะสกลกิจ
- ๔๓) นายอนันต์ เจนจบ
- ๔๔) นายคณิศร ชำเพชร
- ๔๕) นายภูวิช พรหมสอาด
- ๔๖) นายอนุเดช โกลาพิพัฒน์
- ๔๗) นายชกฤษณ์ วงษ์จันทร์
- ๔๘) นายอาทิตย์ ศรีเสน
- ๔๙) นายเจตตินพ คงศักดิ์ไทย
- ๕๐) นายชัช บุญชัย
- ๕๑) นายธนวัฒน์ เอนก
- ๕๒) นายอภิวัฒน์ พุ่มพู่
- ๕๓) นางสาวสุภาวดี มาก
- ๕๔) นางสาวทิพย์ ขวาลสมบุรณ์
- ๕๕) นางสาวธิดา บุญเพ็ง
- ๕๖) นางสาวภาณุมาศ นามวัฒน์
- ๕๗) นางสาวอุไรรัตน์ ตั้งสร้างเป็น
- ๕๘) นายธีรวัฒน์ ปงสุข
- ๕๙) นายอภิพล ชาญ
- ๖๐) นายประพนธ์ วรรณสุขชัย
- ๖๑) นายชยธร พงษ์ทิพย์
- ๖๒) นางสาวกนกวรรณ จันทบาล
- ๖๓) นายสิทธิโชค ธงเงิน
- ๖๔) นางศศิวรรณ ใจบุญ
- ๖๕) นางสาวพรหมธิศา พุ่มคง
- ๖๖) นายเนวินทร์ ศรีวิริยะ
- ๖๗) นายสุวิชัย ทองอ่อน
- ๖๘) นายวิญญู บุณยะชัย
- ๖๙) นายสมบุรณ์ บุตรจันทร์
- ๗๐) นายวิรัตน์ ไชยเมธา
- ๗๑) นายณณพศน์ เทพบุณ
- ๗๒) นายจิรณัฐ ขาวทอง
- ๗๓) นายอัสนี นามบุรี
- ๗๔) นายอัสนีร์ จอสภา

- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๓๖
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๓๗
- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๓๘
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- ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๗๔

31

๗๕) นายประเสริฐ...

๑๑๔) นายอนันต์ชัย...

๑๕๓) ปรากฏข้อมูล...

3/10/20

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
6	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
7	$\alpha$ -BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
8	$\beta$ -BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
9	$\delta$ -BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
10	$\gamma$ -BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method <sup>[4]</sup> 2) 5-Day BOD Test, Membrane Electrode Method <sup>[4]</sup>
12	Carbaryl	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
13	Carbofuran	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method <sup>[4]</sup> 2) Closed Reflux, Titrimetric Method <sup>[4]</sup>
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
17	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
18	Color	ADM1 Weighted-Ordinate Spectrophotometric Method <sup>[4]</sup>



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
20	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
21	2,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	2,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
24	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	2,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Formaldehyde	Distillation, Colorimetric Method <sup>(3)</sup>
34	Free Chlorine	1) DPD Ferrous Titrimetric Method <sup>(4)</sup> 2) DPD Colorimetric Method <sup>(4)</sup>
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
36	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Hexavalent Chromium	Colorimetric Method <sup>(4)</sup>
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
39	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>

40 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass spectrometric Method <sup>(4)</sup>
42	Methiocarb	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	Methomyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
45	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method <sup>(4)</sup> 2) Soxhlet Extraction Method <sup>(4)</sup>
47	Oxamyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
48	Propoxur	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
49	pH	Electrometric Method <sup>(4)</sup>
50	Phenols	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup>
51	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
52	Sulfide	Iodometric Method <sup>(4)</sup>
53	Temperature	Laboratory and Field Methods <sup>(4)</sup>
54	Total Dissolved Solids	Dried at 180 °C <sup>(4)</sup>
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method <sup>(4)</sup>
56	Total Phosphorous	Digestion, Colorimetric Method <sup>(4)</sup>
57	Total Suspended Solids	Dried from 103-105 °C <sup>(4)</sup>
58	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
60	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>

น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 126 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

18 Bis(2-ethylhexyl)phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
35	Chromium (VI)	Colorimetric Method <sup>(4)</sup>

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

56 1,3-Dichloropropene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
63	Di-n-octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

76 γ-HCH...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
83	Mercury	1) Digestion, Cold Vapor Atomic Absorption Spectrometric Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
84	Methanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
86	Methyl bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
87	Methylene chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
90	Methyl tert-butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

94 N-Nitrosodiphenylamine...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1260	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
98	pH	Electrometric Method <sup>(4)</sup>
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
100	Phenol	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup> 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
102	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
103	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
109	TPH (C <sub>8</sub> -C <sub>9</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4,23)</sup>

110 TPH (C<sub>8</sub>-C<sub>10</sub>)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH (C <sub>8</sub> -C <sub>16</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>(9,22)</sup>
111	TPH (C <sub>16</sub> -C <sub>33</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>(9,22)</sup>
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
126	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>

อากาศเสีย...

อากาศเสีย (ปล่องระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
2	Arsenic	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
3	Beryllium	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
4	Cadmium	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
5	Carbon Monoxide	1) Instrumental Analyzer Method <sup>(5)</sup>
6	Chlorine	2) Sampling Bag Non-Dispersive Infrared Method <sup>(5)</sup> 1) Adsorption Sampling, Ion Chromatographic Method <sup>(5)</sup>
7	Chromium	2) Isokinetic Sampling, Ion Chromatographic Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
8	Cobalt	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
9	Copper	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> 1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup>
10	Cresol	2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup> Adsorption Sampling, Gas Chromatographic Method <sup>(5)</sup>
11	Dioxins	Isokinetic Sampling <sup>(5)</sup>
12	Hydrogen Chloride	1) Adsorption Sampling, Ion Chromatographic Method <sup>(5)</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>(5)</sup>
13	Hydrogen Fluoride	1) Adsorption Sampling, Ion Chromatographic Method <sup>(5)</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>(5)</sup>
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method <sup>(5)</sup>

15 Lead...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	Lead	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
16	Manganese	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
17	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(5)</sup>
18	Nickel	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
19	Opacity	Ringelmann's Method <sup>(2)</sup>
20	Oxides of Nitrogen	1) Adsorption Sampling, Phenoldisulfonic Acid Method <sup>(5)</sup> 2) Adsorption Sampling, Alkaline Permanganate/Colorimetric Method <sup>(5)</sup> 3) Instrumental Analyzer Method <sup>(5)</sup>
21	Selenium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
22	Sulfur Dioxide	1) Adsorption Sampling, Barium-Thorin Titrimetric Method <sup>(5)</sup> 2) Instrumental Analyzer Method <sup>(5)</sup>
23	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method <sup>(5)</sup>
24	Tellurium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
25	Tin	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
26	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method <sup>(5)</sup> 2) Paired Train, Isokinetic Sampling, Gravimetric Method <sup>(5)</sup>

27 Vanadium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>(5)</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(5)</sup>
28	Xylene	Adsorption Sampling, Gas Chromatographic Method <sup>(5)</sup>

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

5 Beryllium...



ลำดับที่	สารเคมี	วิธีวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1.6.16.19)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1.6.17.19)</sup> 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7.16.19)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7.17.19)</sup>

10 Chromium (VI)...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method <sup>(1.6.19)</sup> 2) Alkaline Digestion, Colorimetric Method <sup>(8.19)</sup>
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup>

2) Soxhlet...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup> 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>

22 Mercury...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(1.6.20)</sup> 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(1.6.30)</sup> 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(30)</sup> 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method <sup>(21)</sup>
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11.26)</sup>
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.6.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.6.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7.16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7.17)</sup>
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1.9.26)</sup> 2) Soxhlet Extraction, Gas Chromatographic Method <sup>(10.26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic Method <sup>(11.26)</sup>

- 2-Chlorobiphenyl...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
28	- 2-Chlorobiphenyl - 2,3-Dichlorobiphenyl - 2,2',5-Trichlorobiphenyl - 2,4',5-Trichlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6-Heptachlorobiphenyl - 2,2',3,4,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl Pentachlorophenol	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup> Electrometric Method <sup>(23,24)</sup>
29	pH	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup>
30	Selenium	2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

31 Silver...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

ดิน...

## ดิน จำนวน 125 รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
2	Acetone	1) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method <sup>(13)</sup>
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
9	Benzo(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>

11 Benzo(b)fluoranthene

ลำดับที่	สารเคมี	วิธีวิเคราะห์
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
21	Butanol	Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method <sup>(13,25)</sup>
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,24)</sup>

23 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,25)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,14,15)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,17,19)</sup>
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method <sup>(8,19)</sup>

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
37	Cyanide	Extraction, Distillation, Colorimetric Method <sup>(27,28,29)</sup>
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

49 1,2-Dichloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

63 Di-n-Octyl Phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,31)</sup>

73 n-Hexane...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
74	$\alpha$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
75	$\beta$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
76	$\gamma$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry <sup>(21)</sup> 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(20)</sup>

84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4,6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5'-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6'-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6'-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>

99 Phenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
101	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
102	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,24)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,24)</sup>
108	TPH (C <sub>5</sub> -C <sub>8</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
109	TPH (C <sub>9</sub> -C <sub>16</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(11,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(22,31)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(11,22)</sup>
110	TPH (C <sub>17</sub> -C <sub>35</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(11,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(22,31)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(22,31)</sup>
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

115 2,4,5-Trichlorophenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
115	2,4,5-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
116	2,4,6-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
117	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
121	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
122	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
123	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>
125	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

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ที่ ออ ๐๓๐๓(๖)/ ๔ ๑ ๒ ๑

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๒ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๒๕ เมษายน ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอรัล กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขณิฉนการผลพิของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒๙ มีนาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอรัล กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้อยู่เลิกจ้างหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย

๑) นางสาวพรพรรณ นิ่มนุช ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๒) นายไฉย สุทธะ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๓) นางสาวศุภรดา ปิ่นมธุระ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๒. ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๑๒ ราย

๑) นางสาวฐานิตา กลิ่นเขียว ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๒) นางสาวณิษฐา นิ่มนุช ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๓) นางสาวณิษฐา นิ่มนุช ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๔) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๕) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๖) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๗) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๘) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๙) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๑๐) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๑๑) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

๑๒) นายอานาจ วงศาเคน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕

อนึ่ง หนังสือฉบับนี้จะมาโดยทางด่วนหรือหนังสือด่วนพิเศษนี้เพื่อบังคับให้ปฏิบัติตามระเบียบการนี้  
ในวันที่ ๒ กันยายน ๒๕๖๕

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรหม กิ่งทอง)  
รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและพัฒนาผลิตภัณฑ์โรงงาน  
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบผลิตภัณฑ์และทะเบียนห้องปฏิบัติการ  
โทร. ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๖๓-๕  
โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๕๙  
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ที่ อก ๐๓๑๐(๑)/๑๒๓๖ ๘

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๑๘ ธันวาคม ๒๕๖๕

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์นอก  
สถานที่ ลงวันที่ ๒ ธันวาคม ๒๕๖๕

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์นอกสถานที่ เลขทะเบียน ๖-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๕๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์  
จำนวน ๘ ราย ได้แก่

- ๑) นายประจักษ์ วรรณชัย
- ๒) นายจิรณัฐ ขวาลอ
- ๓) นายพิพัฒน์ คำคำ
- ๔) นางสาวอริยา ศักดิ์สง
- ๕) นายกิตติพงศ์ แซ่ลี
- ๖) นายจิรณัฐ ประเสริฐศิริพงษ์
- ๗) นายภัทรพงษ์ มณฑาทอง
- ๘) นางสาวจารุวรรณ กระจำพันธ์

- ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๐  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๑  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๒  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๓  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๔  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๕  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๖  
ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๗

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีรภัทร อัครางกูร ณ อยุธยา)  
รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

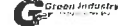
กองวิจัยและพัฒนาผลิตภัณฑ์โรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบผลิตภัณฑ์และทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๖๓-๕

โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๑๕๙

ไปรษณีย์อิเล็กทรอนิกส์ sarabak@dw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ อก ๐๓๑๐/ ๗๕๓ ๘

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๐๘ สิงหาคม ๒๕๖๕

เรื่อง ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์นอก

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์  
นอกสถานที่ ลงวันที่ ๒๗ พฤษภาคม ๒๕๖๕

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์นอก  
บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด จำนวน ๓ แผ่น

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุ  
หนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์นอกสถานที่ เลขทะเบียน ๖-๒๐๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕  
ตำบลแม่ไม้คู อำเภอหางดง จังหวัดเชียงใหม่ ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย)  
จำกัด ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์นอกสถานที่ โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมห้องปฏิบัติการวิเคราะห์นอก

- ๑) นายเดช ช้างชน
- ๒) นางสาววิมล บรรณิษฐ์
- ๓) นายสุพจน์ สลามะ

- ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๑  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๓

ข. เจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์นอก

- ๑) นายอัมรินทร์ เพ็ชรวงษา
- ๒) นางสาวกัญญ์พรรัตน์ รัตติ
- ๓) นางสาวจุฑาทิพย์ สีทองสง
- ๔) นางสาวจิตติมา ประเทืองสุข
- ๕) นายสุรเชษฐ์ คุ้มภัย
- ๖) นายณัฐวัฒน์ อุดมพรพร
- ๗) นายจิตรกร สีระสา
- ๘) นายสิทธิพรชัย สุวรรณรัตน์
- ๙) นายสิทธิพรชัย เสนาธิ์
- ๑๐) นายอนุวัฒน์ เมา
- ๑๑) นายสุรวิทย์ นราพงษ์
- ๑๒) นายณัฐพล เจริญวิวัฒน์
- ๑๓) นายชานนท์ บุญชัย
- ๑๔) นายณัฐกานต์ วงศ์อินทร์
- ๑๕) นายอานนท์ โพธิ์พระทอง

- ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๑  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๓  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๔  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๕  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๖  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๗  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๘  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๐๙  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๐  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๕  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๖

๑๖) นายณัฐพล ...

- ๑๖) นายณัฐพล ...
- ๑๗) นายสุกัญญา พิทยพันธ์
- ๑๘) นายสันติ คินันท์
- ๑๙) นายวิญญู อิมพาลี
- ๒๐) นายสุกัญญา สุกกิตติมงคล
- ๒๑) นายเอกชัย ...
- ๒๒) นายพงษ์เทพ สีทิละ
- ๒๓) นายทิมกร กุมภา
- ๒๔) นางสาวณิชา บุญชัย
- ๒๕) นายสิทธิชัย อัมพมา
- ๒๖) นางสาวปภาณิศา ทอดทอง
- ๒๗) นางสาวพจนา สิตา
- ๒๘) นางสาวณิศา กุลศิริวงศ์
- ๒๙) นายทิพย์ ทองแดง
- ๓๐) นางสาวชลิษา สุนท
- ๓๑) ว่าที่ร้อยตรี ธนชัย ม่วงมา
- ๓๒) นายวรวิทย์ ทัพพา
- ๓๓) นายศักดิ์รินทร์ จรัสกาย
- ๓๔) นายสุรศักดิ์ สาขิน
- ๓๕) นายสุภาพร ภาแก้ว
- ๓๖) นายสุภากร อดิเรก
- ๓๗) นายวิมล ทัพพะเนาว์
- ๓๘) นางสาวนาถิ์ เจริญพรกุล
- ๓๙) นายธนสิทธิ์ วงศ์ไชย
- ๔๐) นายชัยสุนทร เลิศนันทกุลชัย
- ๔๑) นายสุวิทย์ เพ็ชรแสง
- ๔๒) นายณัฐวัฒน์ มณีสัมพันธ์
- ๔๓) นายธนากร อธิกร
- ๔๔) นายสุกัญญา วงศ์สุริยฉาย
- ๔๕) นายโสภณ ...
- ๔๖) นางสาวกัญญา สุกกิตติมงคล
- ๔๗) นางสาวจิตติมา ประเทืองสุข
- ๔๘) นายพิพัฒน์ นิพัทธ์เศรษฐ์
- ๔๙) นายศิริวิทย์ เรืองสม
- ๕๐) นายปรานม สัตยาคุณ
- ๕๑) นายณัฐกานต์ วงศ์อินทร์
- ๕๒) นางสาวกัญญา ...

- ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๗  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๘  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๑๙  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๐  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๓  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๔  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๖  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๒๙  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๐  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๑  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๓  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๔  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๕  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๖  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๗  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๓๘  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๐  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๑  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๓  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๔  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๕  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๖  
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ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๔๙  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๕๐  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๕๑  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๕๒  
ทะเบียนเลขที่ ๖-๒๐๓-๖-๐๐๕๓

๕๓) นายพชรกร...



๕๒) นายพรกร เจ็งเจริญ  
๕๓) นายพิวกร เชื้อมาก  
๕๔) นายอนุวัช ทองขจรศักดิ์  
๕๕) นายอภิชาติ วิลาศ  
๕๖) นายจักรวรรดิ ศรีรักษา  
๕๗) นายประสาธน์ เจริญพร  
๕๘) นายภาณุวัฒน์ วังบง  
๖๐) นายสันติ ชัยชนะ  
๖๑) นายกันกร กุลชาติ

ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๔  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๕  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๖  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๗  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๘  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๕๙  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๖๐  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๖๑  
ทะเบียนเลขที่ ๖-๑๖๓-๖-๐๐๖๒

ค. ขอบข่ายนิคมสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย ตามสิ่งส่งมาด้วย

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒๕ มิถุนายน ๒๕๖๓ หากประสงค์จะต่ออายุหนังสือ รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๖๐ วัน ก่อนวันสิ้นอายุของหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

  
(นายพรพศ ภิเษการอง)  
ผู้อำนวยการนิคมอุตสาหกรรม  
นิคมอุตสาหกรรมบางพลี

ศูนย์วิจัยและเลื่อนถ่ายมลพิษโรงงานภาคตะวันออก

โทร. ๐ ๒๖๒๖ ๖๐๕๕ ต่อ ๕๐๐๓-๖

ไปรษณีย์อิเล็กทรอนิกส์ [env@vpi.go.th](mailto:env@vpi.go.th)



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า รวมกันพัฒนา อุตสาหกรรมสีเขียว"



เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๑๖๓ ที่ ๐๓๒๐/ ๗ ๕๓ ๘ ลงวันที่ ๐๔ สิงหาคม ๒๕๖๓

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๒๔ รายการ น้ำเสีย จำนวน 14 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Biochemical Oxygen Demand	1) 5 Day BOD Test, Membrane Electrode Method <sup>21</sup> 2) 5 Day BOD Test, Azide Modification Method <sup>21</sup>
2	Chemical Oxygen Demand	1) Open Reflux, Titrimetric Method <sup>21</sup> 2) Closed Reflux, Colorimetric Method <sup>21</sup> 3) Closed Reflux, Titrimetric Method <sup>21</sup>
3	Color	ADMI Weighted-Ordinate Spectrophotometric Method <sup>21</sup>
4	Cyanide	Distillation, Colorimetric Method <sup>21</sup>
5	Formaldehyde	Distillation, Colorimetric Method <sup>21</sup>
6	Free Chlorine	DPD Ferrous Titrimetric Method <sup>21</sup>
7	Oil and Grease	Liquid Liquid, Partition Gravimetric Method <sup>21</sup>
8	pH	Electrometric Method <sup>21</sup>
9	Phenols	1) Distillation, Chloroform Extraction Method <sup>21</sup> 2) Distillation, Direct Photometric Method <sup>21</sup>
10	Sulfide	ZnS Precipitation, Iodometric Method <sup>21</sup>
11	Temperature	Field Method <sup>21</sup>
12	Total Dissolved Solids	Dried at 180 °C <sup>21</sup>
13	Total Kjeldahl Nitrogen	Semi-Macro Kjeldahl Method <sup>21</sup>
14	Total Suspended Solids	Dried at 103 105 °C <sup>21</sup>

น้ำใต้ดิน จำนวน 3 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Cyanide	Distillation, Colorimetric Method <sup>21</sup>
2	pH	Electrometric Method <sup>21</sup>
3	Phenols	Distillation, Direct Photometric Method <sup>21</sup>

อากาศเสีย...

อากาศเสีย (ปล่อยระบาย) จำนวน 7 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Carbon Monoxide	1) Sampling Bag, Non-Dispersive Infrared Method <sup>51</sup> 2) Instrumental Analyzer Method <sup>51</sup>
2	Hydrogen Sulfide	Absorption Sampling, Iodometric Method <sup>51</sup>
3	Opacity	Ringelmann's Method <sup>13,41</sup>
4	Oxide of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method <sup>51</sup> 2) Instrumental Analyzer Method <sup>11,51</sup>
5	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Acid Method <sup>51</sup> 2) Instrumental Analyzer Method <sup>11,51</sup>
6	Sulfuric Acid	Isokinetic Sampling, Barium - Titrimetric Method <sup>61</sup>
7	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method <sup>71</sup>

เอกสารอ้างอิง

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๐๙ ตุลาคม ๒๕๖๙

เรื่อง แก้อำนาจเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท แอลแอล แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง หนังสือ บริษัท แอลแอล แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขที่ Env 2024/005  
ลงวันที่ ๓๐ สิงหาคม ๒๕๖๙

ตามหนังสือที่อ้างถึง บริษัท แอลแอล แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕ ตำบลแม่ป่าไผ่ อำเภอปลวกแดง จังหวัดระยอง ขอแก้ไขเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน เนื่องจากมีความคลาดเคลื่อน ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรม ได้รับทราบและดำเนินการแก้ไขรายชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๕ ราย ตามที่แจ้งเรียบร้อยแล้ว เป็นดังนี้

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จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

น

(นายพรยศ ภานุกรอง)  
รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

ศูนย์วิจัยและเคลื่อนย้ายสิ่งของโรงงานภาคตะวันออก  
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