

ภาคผนวก ข-17

ผลการตรวจวัด *Legionella* spp. ภายในหอหล่อเย็น



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2427619

Date Received : Mar 13, 2024
Date Reported : Mar 29, 2024
Report Number : 2951844-1

Page 1 of 1

Sample Number	2427619-1				
Sampled Date	Mar 13, 2024	10:00 AM			
Sample Description	Consumption Water				
Location	Cooling Tower				
Date Analysis Commenced	Mar 14, 2024				
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Yellow, some odour, solid and no turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
Legionella spp.	CFU/L	-	-	Not Detected**	Not Detected
Method	ISO 11731 (2017)				
Testing Location	Bangkok				

Guideline : Notification of Department of Health about Legionella Control in Cooling Tower B.E. 2544

Note : ** Not Detected mean Bacteria not found in agar plate.

Sampling By : Thanwa Jariya

Remark :

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

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) Private Limited Company. This report is not reproduced except in full.

Approved by

Sithichok T.

Sithichok Thongguguen
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2427619

Date Received : Mar 13, 2024
Date Reported : Mar 29, 2024
Report Number : 2951845-1

Page 1 of 1

Sample Number	2427619-2				
Sampled Date	Mar 13, 2024	9:40 AM			
Sample Description	Consumption Water				
Location	Room No. 0505				
Date Analysis Commenced	Mar 14, 2024				
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Method
Microbiological Testing					
Legionella spp.	CFU/L	-	-	<1	ISO 11731 (2017)
Testing Location	Bangkok				

Note : Microbiological Testing Result <1 mean Bacteria not found in agar plate.

Sampling By : Thanwa Jariya

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.

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Accreditation No. 1031/47

Analysis / Test Report

Lot ID: 2427619
Date Received :Mar 13, 2024
Date Reported :Mar 29, 2024
Report Number :2951846-1

Client : Piyasontat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330

P/O : PO17591

Product Name : Monitoring ETA

Page 1 of 1

Sample Number	2427619-3
Sampled Date	Mar 13, 2024 9:43 AM
Sample Description	Consumption Water
Location	Washroom : fifth Room No. 0505
Date Analysis Commenced	Mar 14, 2024
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property	Colorless, odourless, no solid and turbid
Analyte	UnitLODLOQ (LOR)ResultMethodTesting Location
Microbiological Testing	
Legionella spp.	CFU/L- <1ISO 11731 (2017)Bangkok

Note : Microbiological Testing Result <1 mean Bacteria not found in agar plate.

Note : Microbiological Test
Sampling By : Thanwa Jariva

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 accredited as an accredited laboratory complying with the ISO/IEC 17025.

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Sithichok Thongnueen
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Analysis / Test Report

Lot ID: 2443040
Date Received : May 06, 2024
Date Reported : May 27, 2024
Report Number : 2968594-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330

P/O : PO20428

Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 3

Sample Number	24-03040-1					
Sampled Date	May 08, 2024 9:08 AM					
Sample Description	Consumption Water					
Location	Cooling Tower					
Date Analysis Commenced	May 08, 2024					
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Physical Property	Yellow, odourless; no solid and turbid					
Analyte	Unit	LOD	LOQ (LOB)	Result	Method	Testing Location
Microbiological Testing						
<i>Legionella</i> spp.	CFU/L	-	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.

Sampling By : Chulladet Warin

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

Approved by

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Sithichok Thongnuean
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2443040
Date Received : May 08, 2024
Date Reported : May 27, 2024
Report Number : 2968594-1

Page 2 of 3

Sample Number 2443040-2
Sampled Date May 08, 2024 8:57 AM
Sample Description Consumption Water
Location แขวงพญาไท : แขวง พญาไท 2101
Date Analysis Commenced May 08, 2024
Condition of Sample Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Microbiological Testing						
Legionella spp.	CFU/L	-	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.
Sampling By : Chuladit Warin
Remark :
- LOD : Limit of Detection
- "C" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

Sithichok T.

Sithichok Thongtuen
Scientist (3)

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10364-237 EMAIL



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2443040
Date Received : May 08, 2024
Date Reported : May 27, 2024
Report Number : 2968594-1

Page 3 of 3

Sample Number 2443040-3
Sampled Date May 08, 2024 8:55 AM
Sample Description Consumption Water
Location แขวงพญาไท : แขวง พญาไท 2101
Date Analysis Commenced May 08, 2024
Condition of Sample Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Microbiological Testing						
Legionella spp.	CFU/L	-	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.
Sampling By : Chuladit Warin
Remark :
- LOD : Limit of Detection
- "C" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

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10364-237 EMAIL

ภาคผนวก ข-18

หนังสือรับรองผู้ประกอบการได้รับอนุญาตดำเนินการ
กำจัดสิ่งปฏิกูลหรือขยะมูลฝอย



หนังสือรับรองบุคคล

ที่ ปท ๗๔๒๐๕ / ๖๓

องค์การบริหารส่วนตำบลเชียงรากใหญ่
๘๘/๘ ม.๕ ตำบลเชียงรากใหญ่
อำเภอสามโคก จังหวัดปทุมธานี ๑๒๑๖๐

หนังสือฉบับนี้ให้ไว้เพื่อรับรองว่า บริษัท ดีดีซูเอจซัคชั่น จำกัด โดยมี นางสาวปรียาดา สุขสำราญ เป็นผู้ประกอบกิจการที่ได้รับใบอนุญาตดำเนินการรับกำจัดสิ่งปฏิกูลหรือขยะมูลฝอย เลขที่ ๐๕/๒๕๖๓ และได้รับอนุญาตให้ทิ้งสิ่งปฏิกูลหรือขยะมูลฝอยในที่ดินของ บริษัท สยามปทุมกรู๊ป จำกัด เลขที่โฉนดที่ดิน ๒๖๔๕๐ เลขที่ดิน ๘๗ (๓๓-๓-๕๕ ไร่) ม.๕ ตำบลเชียงรากใหญ่ อำเภอสามโคก จังหวัดปทุมธานี โดยมีเงื่อนไขให้ปฏิบัติ ตามข้อบัญญัติ เรื่องการกำจัดสิ่งปฏิกูล และขยะมูลฝอย พ.ศ.๒๕๕๓ องค์การบริหารส่วนตำบลเชียงรากใหญ่

ให้ไว้ ณ.วันที่ ๑๕ เดือน กุมภาพันธ์ พ.ศ. ๒๕๖๓

ขอแสดงความนับถือ



นายกองค์การบริหารส่วนตำบล อ.ปท.เชียงรากใหญ่

อบต.เชียงรากใหญ่

โทร. ๐๒-๑๙๙-๓๗๖๗

โทรสาร ๐๒-๑๙๙-๓๗๖๗ ต่อ ๒๖

[illegible]

Note: The plan may be adjusted as appropriate.

ภาคผนวก ค

ใบรับรองผลการตรวจวิเคราะห์

ภาคผนวก ค-1

คุณภาพอากาศในบรรยากาศโดยทั่วไป



Analysis / Test Report

Client : Piyasombati Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo
Lot ID: 2445127
Date Received : May 30, 2024
Date Reported : Jun 04, 2024
Report Number: 2972488-1

Page 1 of 1

Sample Description		Air Quality		
Location	Parameter	Measurement Date	Measurement by	
Hotel Indigo Bangkok : 11:00-12:00 PM	Nitrogen dioxide (ppm)	May 27, 2024 - May 30, 2024	Winyou Boontana	

Time		2445127-1	2445127-2	2445127-3
		May 27, 2024	May 28, 2024	May 29, 2024
10:00 AM - 11:00 AM		0.013	0.006	0.007
11:00 AM - 12:00 PM		0.012	0.007	0.006
12:00 PM - 01:00 PM		0.006	0.006	0.007
01:00 PM - 02:00 PM		0.008	0.007	0.008
02:00 PM - 03:00 PM		0.010	0.008	0.008
03:00 PM - 04:00 PM		0.011	0.009	0.008
04:00 PM - 05:00 PM		0.012	0.011	0.008
05:00 PM - 06:00 PM		0.010	0.011	0.007
06:00 PM - 07:00 PM		0.008	0.009	0.007
07:00 PM - 08:00 PM		0.007	0.007	0.006
08:00 PM - 09:00 PM		0.006	0.008	0.006
09:00 PM - 10:00 PM		0.006	0.007	0.005
10:00 PM - 11:00 PM		0.005	0.005	0.005
11:00 PM - 12:00 AM		0.003	0.004	0.004
12:00 AM - 01:00 AM		0.003	0.004	0.004
01:00 AM - 02:00 AM		0.004	0.005	0.003
02:00 AM - 03:00 AM		0.004	0.006	0.003
03:00 AM - 04:00 AM		0.003	0.006	0.003
04:00 AM - 05:00 AM		0.003	0.005	0.003
05:00 AM - 06:00 AM		0.003	0.004	0.003
06:00 AM - 07:00 AM		0.003	0.004	0.004
07:00 AM - 08:00 AM		0.003	0.004	0.004
08:00 AM - 09:00 AM		0.004	0.005	0.005
09:00 AM - 10:00 AM		0.005	0.007	0.006
Average		0.006	0.006	0.005
1hr - Maximum		0.013	0.011	0.008
Standard 1hr - Average		0.170	0.170	0.170

Standard : Notification of the National Environment Board No. 33, 2009 (B.E. 2552).

Reference Method : US EPA Method Part 50 App. F (Chemiluminescence)

Approved by

Orawan R.
Orawan Rakying
Scientist (3)

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10304-227 EMAIL



Analysis / Test Report

Client : Piyasombati Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo
Lot ID: 2445128
Date Received : May 30, 2024
Date Reported : Jun 04, 2024
Report Number: 2972492-1

Page 1 of 1

Sample Description		Air Quality		
Location	Parameter	Measurement Date	Measurement by	
Hotel Indigo Bangkok : 11:00-12:00 PM	Sulfur Dioxide (ppm)	May 27, 2024 - May 30, 2024	Winyou Boontana	

Time		2445128-1	2445128-2	2445128-3
		May 27, 2024	May 28, 2024	May 29, 2024
10:00 AM - 11:00 AM		<0.001	0.001	<0.001
11:00 AM - 12:00 PM		<0.001	<0.001	0.002
12:00 PM - 01:00 PM		<0.001	<0.001	0.002
01:00 PM - 02:00 PM		<0.001	<0.001	<0.001
02:00 PM - 03:00 PM		<0.001	<0.001	0.001
03:00 PM - 04:00 PM		<0.001	<0.001	0.002
04:00 PM - 05:00 PM		<0.001	<0.001	0.001
05:00 PM - 06:00 PM		<0.001	<0.001	<0.001
06:00 PM - 07:00 PM		<0.001	<0.001	<0.001
07:00 PM - 08:00 PM		<0.001	<0.001	<0.001
08:00 PM - 09:00 PM		<0.001	0.001	<0.001
09:00 PM - 10:00 PM		<0.001	0.001	0.002
10:00 PM - 11:00 PM		<0.001	0.001	<0.001
11:00 PM - 12:00 AM		<0.001	0.001	<0.001
12:00 AM - 01:00 AM		<0.001	0.001	<0.001
01:00 AM - 02:00 AM		<0.001	0.001	<0.001
02:00 AM - 03:00 AM		<0.001	0.001	<0.001
03:00 AM - 04:00 AM		<0.001	0.001	<0.001
04:00 AM - 05:00 AM		<0.001	0.001	<0.001
05:00 AM - 06:00 AM		<0.001	0.001	<0.001
06:00 AM - 07:00 AM		<0.001	0.001	<0.001
07:00 AM - 08:00 AM		<0.001	0.001	<0.001
08:00 AM - 09:00 AM		<0.001	0.001	0.001
09:00 AM - 10:00 AM		<0.001	0.001	<0.001
Average		<0.001	0.001	<0.001
1hr - Maximum		<0.001	0.001	0.002
Standard 1hr - Average		0.3	0.3	0.3

Standard 24 hrs - Average

Standard : Notification of the National Environment Board No.10, 1995 (B.E.2538), No. 21, 2001 (B.E.2544) and No.24, 2004 (B.E.2547).

Reference Method : US EPA Method Part 53 and 58

Approved by

Orawan R.
Orawan Rakying
Scientist (3)

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10304-227 EMAIL



Analysis / Test Report

TESTING
No.0009

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO21726
Project Name : Monitoring EIA
Project Location : Hotel Indigo
Lot ID: 2445129
Date Received : May 30, 2024
Date Reported : Jun 05, 2024
Report Number : 2972508-1

Page 1 of 2

Sample Number 2445129-1
Sampled Date May 27, 2024
Sample Description Air Quality
Location Hotel Indigo Bangkok : กรุงเทพมหานคร (กรุงเทพมหานคร) (GPS 47P 0667312, 1519502)
Date Analysis Commenced May 31, 2024
Condition of Sample Drawn into one 10-L air sampling bag, one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag
Barometric Pressure 756 mmHg
Atmospheric Temperature 33.1 °C

Analyte	Sampled Date/Time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline Testing Location
Air Testing								
Carbon Monoxide *	11:00 AM - 12:00 PM	ppm	-	0.10	0.18	30	EPA 40 CFR Part 50, Appendix C	NEB No.10 Bangkok
Particulate matter as PM ₁₀	27/05/24 - 28/05/24	mg/m ³	-	0.005	0.326	0.12	In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok
Total Hydrocarbon *	11:00 AM - 12:00 PM	ppm	-	1.0	3.2	No Standard	Analyzer (FID)	Bangkok
Total Suspended Particulate	27/05/24 - 28/05/24	mg/m ³	-	0.005	0.346	0.33	In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok

Guideline :
NEB No.10 : Notification of the National Environmental Board, No.10, 1995 (B.E.2538); (1) Guideline for 1 month Average value.
NEB No.24 : Notification of the National Environmental Board, No.24, 2004 (B.E.2547) dated September 22, 2004
Sampled By : Winyou Boontana

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
Orawan R.

Orawan Rakyoung
Scientist (3)

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10864-ZI BML



Analysis / Test Report

TESTING
No.0009

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO21726
Project Name : Monitoring EIA
Project Location : Hotel Indigo
Lot ID: 2445129
Date Received : May 30, 2024
Date Reported : Jun 05, 2024
Report Number : 2972508-1

Page 2 of 2

Sample Number 2445129-2
Sampled Date May 28, 2024
Sample Description Air Quality
Location Hotel Indigo Bangkok : กรุงเทพมหานคร (กรุงเทพมหานคร) (GPS 47P 0667312, 1519502)
Date Analysis Commenced May 31, 2024
Condition of Sample Drawn into one 10-L air sampling bag, one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag
Barometric Pressure 756 mmHg
Atmospheric Temperature 33.5 °C

Analyte	Sampled Date/Time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline Testing Location
Air Testing								
Carbon Monoxide *	11:00 AM - 12:00 PM	ppm	-	0.10	0.21	30	EPA 40 CFR Part 50, Appendix C	NEB No.10 Bangkok
Particulate matter as PM ₁₀	28/05/24 - 29/05/24	mg/m ³	-	0.005	0.023	0.12	In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok
Total Hydrocarbon *	11:00 AM - 12:00 PM	ppm	-	1.0	3.3	No Standard	Analyzer (FID)	Bangkok
Total Suspended Particulate	28/05/24 - 29/05/24	mg/m ³	-	0.005	0.043	0.33	In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok

Guideline :
NEB No.10 : Notification of the National Environmental Board, No.10, 1995 (B.E.2538); (1) Guideline for 1 month Average value.
NEB No.24 : Notification of the National Environmental Board, No.24, 2004 (B.E.2547) dated September 22, 2004
Sampled By : Winyou Boontana

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

Approved by
Orawan R.

Orawan Rakyoung
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P021726
Project Name : Monitoring EIA
Project Location : Hotel Indigo
Lot ID: 2445129
Date Received : May 30, 2024
Date Reported : Jun 06, 2024
Report Number : 2972508-1

Page 3 of 3

Sample Number 2445129-3
Sampled Date May 29, 2024
Sample Description Air Quality
Location Hotel Indigo Bangkok : กรุงเทพมหานคร (Bangkok) (GPS 17P 0667312, 1519502)
Date Analysis Commenced May 31, 2024
Condition of Sample Drawn into one 10-L air sampling bag, one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag
Barometric Pressure 756 mmHg
Atmospheric Temperature 32.5 °C

Analyte	Sampled Date/Time	Unit	LOD (LOQ)	Result	Guideline Limit	Method	Guideline Testing Location
Air Testing							
Carbon Monoxide *	11:00 AM - 12:00 PM	ppm	- 0.10	0.30	30	EPA 40 CFR Part 50, Appendix C	NEB No.10 Bangkok
Particulate matter as PM ₁₀	29/05/24 - 30/05/24	mg/m ³	- 0.005	0.023	0.12	In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50.4. Approved as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok
Total Hydrocarbon *	11:00 AM - 12:00 PM	ppm	- 1.0	3.4	No Standard	Total Hydrocarbon Analyzer (FID)	Bangkok
Total Suspended Particulate	29/05/24 - 30/05/24	mg/m ³	- 0.005	0.043	0.33	In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50.4. Approved as of July 1, 2008 (Include sampling)	NEB No.24 Bangkok

Guideline :
NEB No.10 : Notification of the National Environmental Board. No.10, 1995 (B.E.2538); (1) Guideline for 1 month Average value.
NEB No.24 : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004
Sampled By : Winyou Boontana

Remark :
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Approved by *Orawan R.*

Orawan Rakyong
Scientist (3)

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ภาคผนวก ค-2

คุณภาพน้ำทิ้ง



Analysis / Test Report



TESTING
No.0009

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 23149527

Date Received : Jan 10, 2024
Date Reported : Jan 17, 2024
Report Number : 2888218-1

Page 1 of 1

Sample Number 23149527-1
Sample Date Jan 10, 2024 9:40 AM
Sample Description Wastewater
Location กรุงเทพมหานคร (Effluent Tank)
Date Analysis Commenced Jan 11, 2024
Condition of Sample Contained in four plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Black, a lot of odour, solid and turbid

Analyte	Unit	LOD	Result	Method	Testing Location
Water Testing					
BOD (5 days at 20 degree C) *	mg/L	2.0	206	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, 4500 - O (C)	Bangkok
Oil & Grease	mg/L	3	10	In-house method : STM 04-014 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C			7.4	In-house method : STM 04-003 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Settleable Solid *	mL/L/hr	0.1	0.1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Bangkok
Sulfide *	mg/L	0.5	2.2	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S2 (C, F)	Bangkok
Total Dissolved Solids Dried at 103-105 degree C	mg/L	5	448	In-house method : STM 04-010 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Kjeldahl Nitrogen as N *	mg/L	0.15	55.9	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Horg (C)	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	5	102	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Bangkok

Sampling By : Pichai Boonyong

Remark :
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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by
Siriluk P.
Siriluk Puengpiang
Section Head

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Analysis / Test Report



TESTING
No.0009

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 23149527

Date Received : Jan 10, 2024
Date Reported : Jan 17, 2024
Report Number : 2888219-1

Page 1 of 2

Sample Number 23149527-2
Sample Date Jan 10, 2024 9:30 AM
Sample Description Wastewater
Location กรุงเทพมหานคร (Effluent Tank)
Date Analysis Commenced Jan 11, 2024
Condition of Sample Contained in four plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Yellow, some odour, a lot of solid and turbid

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Water Testing						
BOD (5 days at 20 degree C) *	mg/L	2.0	4.3	≤30	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, 4500 - O (C)	Bangkok
Oil & Grease	mg/L	3	5	≤20	In-house method : STM 04-014 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C			7.4	5.0-9.0	In-house method : STM 04-003 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Settleable Solid *	mL/L/hr	0.1	0.6	≤0.5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Bangkok
Sulfide *	mg/L	0.5	<0.5	≤1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S2 (C, F)	Bangkok
Total Dissolved Solids Dried at 103-105 degree C	mg/L	5	484	(1)	In-house method : STM 04-010 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Kjeldahl Nitrogen as N *	mg/L	0.15	15.1	≤35	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Horg (C)	Bangkok

Approved by
Siriluk P.
Siriluk Puengpiang
Section Head

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Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location: Hotel Indigo



TESTING
No.0009
Lot ID: 23149527
Date Received : Jan 10, 2024
Date Reported : Jan 17, 2024
Report Number: 2889219-1

Page 2 of 2

Sample Number 23149527-2
Sampled Date Jan 10, 2024 9:30 AM
Sample Description Wastewater
Location บริเวณจุดรับน้ำเสียในถังน้ำเสีย (Effluent Tank)
Date Analysis Commenced Jan 11, 2024
Condition of Sample Contained in four plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Yellow, some odour, a lot of solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	45	≤40	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 2540 D	Bangkok

Guideline : Notification of Ministry of Natural Resources and Environment November, 7, B.E. 2548 on Effluent Control Standard from Types and Size of Buildings, Type B.
Sampling By : Pichai Boonyong

Remark :
- LOD : Limit of Detection
- <LO : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by
Siriluk P.
Siriluk Puengpiang
Section Head

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Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location: Hotel Indigo



TESTING
No.0009
Lot ID: 2413892
Date Received : Feb 14, 2024
Date Reported : Feb 21, 2024
Report Number: 2916943-1

Page 1 of 1

Sample Number 2413892-1
Sampled Date Feb 14, 2024 9:41 AM
Sample Description Wastewater
Location บริเวณจุดรับน้ำเสียในถังน้ำเสีย (Effluent Tank)
Date Analysis Commenced Feb 15, 2024
Condition of Sample Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Yellow, a lot of odour, solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 degree C)	mg/L	-	2.0	176	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease	mg/L	-	3	22	In-house method : STM 04-014 based on Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C	-	-	-	7.2	In-house method : STM 04-003 based on Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 4500 - H (O)	Bangkok
Settleable Solid *	mL/L/hr	-	0.1	0.3	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 2540 F	Bangkok
Sulfide *	mg/L	-	0.5	2.4	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 4500-S2 (C, F)	Bangkok
Total Dissolved Solids Dried at 103-105 degree C	mg/L	-	5	512	In-house method : STM 04-010 based on Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 2540 C	Bangkok
Total Kjeldahl Nitrogen as N *	mg/L	0.15	1.0	55.8	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 4500-N (C)	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	78	Standard Methods for the Examination of Water and Wastewater, 23rd ed., 2017, part 2540 D	Bangkok

Sampling By : Thanwa Janya

Remark :
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- <LO : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by
Suwimon C.
Suwimon Chaiyapongwut
Scientist (3)

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Analysis / Test Report

TESTING
No.0009
Lot ID: 2413892
Date Received : Feb 14, 2024
Date Reported : Feb 21, 2024
Report Number : 2916944-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location: Hotel Indigo

Page 1 of 2

Sample Number 2413892-2
Sampled Date Feb 14, 2024 9:30 AM
Sample Description Wastewater
Location บริเวณจุดปล่อยน้ำจากถังบำบัดน้ำ (Effluent Tank)
Date Analysis Commenced Feb 15, 2024
Condition of Sample Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, some odour, a lot of solid and no turbid

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Water Testing						
BOD (5 days at 20 degree C)	mg/L	-	2.0	≤30	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4510 - O G	Bangkok
Oil & Grease	mg/L	-	3	≤20	In-house method : STM 04-014 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C	-	-	7.3	5.0-9.0	In-house method : STM 04-003 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Settleable Solid *	mg/L/hr	-	<0.1	≤0.5	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 F	Bangkok
Sulfide *	mg/L	-	<0.5	≤1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S2 (C, F)	Bangkok
Total Dissolved Solids Dried at 103-105 degree C	mg/L	-	5	(1)	In-house method : STM 04-010 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Kjeldahl Nitrogen as N *	mg/L	0.15	1.0	≤35	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Norg (C)	Bangkok

Approved by
Suwimon C.
Suwimon Chaiwangwut
Scientist (3)

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Analysis / Test Report

TESTING
No.0009
Lot ID: 2413892
Date Received : Feb 14, 2024
Date Reported : Feb 21, 2024
Report Number : 2916944-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location: Hotel Indigo

Page 2 of 2

Sample Number 2413892-2
Sampled Date Feb 14, 2024 9:30 AM
Sample Description Wastewater
Location บริเวณจุดปล่อยน้ำจากถังบำบัดน้ำ (Effluent Tank)
Date Analysis Commenced Feb 15, 2024
Condition of Sample Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, some odour, a lot of solid and no turbid

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	≤40	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Bangkok

Guideline : Notification of Ministry of Natural Resources and Environment November 7, B.E. 2548 on Effluent Control Standard from Types and Size of Buildings, Type B.
(1) : The values are in addition to the Total Dissolved Solids of the water used not more than 500 mg/L.
Sampling By : Thanwa Janya

Remarks :
- LOD : Limit of Detection
- <L : Lower than LOQ (Limit of Quantitation) / LOQ (Limit of Reporting)
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Approved by
Suwimon C.
Suwimon Chaiwangwut
Scientist (3)

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ภาคผนวก ค-3

คุณภาพน้ำสระว่ายนํ้า



Analysis / Test Report

TESTING
No.0009
Lot ID: 23149528
Date Received : Jan 04, 2024
Date Reported : Jan 24, 2024
Report Number : 2877148-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 1

Sample Number 23149528-1
Sampled Date Jan 04, 2024 9:00 AM
Sample Description Swimming Pool
Location โรงแรมอินดิโก
Date Analysis Commenced Jan 04, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 b, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Water Testing							
Residual Free Chlorine *	mg/L	-	0.1	1.3	0.6-1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9200-d (F)	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :
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- "L" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by
Sithichok T.
Sithichok Thongpuean
Scientist (3)

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Analysis / Test Report

TESTING
No.0009
Lot ID: 23149530
Date Received : Jan 17, 2024
Date Reported : Jan 31, 2024
Report Number : 2877156-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 1

Sample Number 23149530-1
Sampled Date Jan 17, 2024 9:00 AM
Sample Description Swimming Pool
Location โรงแรมอินดิโก
Date Analysis Commenced Jan 17, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 b, F	Bangkok
Standard Plate Count	CFU/mL	-	-	63	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	>23	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :
- LOD : Limit of Detection
- "L" : 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
Sithichok T.
Sithichok Thongpuean
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Sample Number 23149531-1

Sample Date Jan 24, 2024 12:00 PM
Sample Description Swimming Pool
Location ห้างสรรพสินค้า

Date Analysis Commenced Jan 25, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Physical Property	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Analyte						
Microbiological Testing						
<i>Escherichia coli</i>	In 100 mL	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Standard Plate Count	CFU/mL	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
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Approved by

Sithichok Thongnguen
Scientist (3)

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10584-22/ ENAIL

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO14699
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Sample Number 23149532-1

Sample Date Jan 31, 2024 10:19 AM
Sample Description Swimming Pool
Location ห้างสรรพสินค้า

Date Analysis Commenced Feb 01, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing						
<i>Escherichia coli</i>	In 100 mL	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F	Bangkok
Standard Plate Count	CFU/mL	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
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Approved by

Sithichok Thongnguen
Scientist (3)

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S:\Report_Lab_GL_01\1 (23196)



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location : Hotel Indigo



TESTING
No.0009
Lot ID: 2414329
Date Received : Feb 07, 2024
Date Reported : Feb 17, 2024
Report Number : 2903299-1

Page 1 of 1

Sample Number 2414329-1
Sample Date Feb 07, 2024 9:29 AM
Sample Description Swimming Pool
Location บ้านสวนอิน
Date Analysis Commenced Feb 08, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid, and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :
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Approved by

Suwannee Chuanikaw
Section Head

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location : Hotel Indigo



TESTING
No.0009
Lot ID: 2414332
Date Received : Feb 14, 2024
Date Reported : Feb 24, 2024
Report Number : 2903303-1

Page 1 of 1

Sample Number 2414332-1
Sample Date Feb 14, 2024 9:45 AM
Sample Description Swimming Pool
Location บ้านสวนอิน
Date Analysis Commenced Feb 15, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Thanwa Janya

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Approved by

Sithichok T.
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO16237
Project Name : Monitoring EIA
Project Location: Hotel Indigo

TESTING
No.0009
Lot ID: 2414333
Date Received : Feb 21, 2024
Date Reported : Mar 04, 2024
Report Number: 2903302-1

Page 1 of 1

Sample Number	2414333-1						
Sampled Date	Feb 21, 2024 10:30 AM						
Sample Description	Swimming Pool						
Location	ห้างสุรินทร์						
Date Analysis Commenced	Feb 22, 2024						
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
	Colorless, odourless, no solid and turbid						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	13	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :

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Approved by

Tuanjai Thungklang
Manager

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
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P/O : PO16237
Project Name : Monitoring EIA
Project Location: Hotel Indigo

TESTING
No.0009
Lot ID: 2414334
Date Received : Feb 28, 2024
Date Reported : Mar 06, 2024
Report Number: 2903300-1

Page 1 of 1

Sample Number	2414334-1						
Sampled Date	Feb 28, 2024 8:35 AM						
Sample Description	Swimming Pool						
Location	ห้างสุรินทร์						
Date Analysis Commenced	Feb 28, 2024						
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Physical Property	Colorless, odourless, no solid and turbid						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :

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Approved by

Sithichok T.
Sithichok Thongquien
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo



TESTING
No.0009
Lot ID: 2425625
Date Received : Mar 06, 2024
Date Reported : Mar 16, 2024
Report Number : 2927143-1

Page 1 of 1

Sample Number	2425625-1				
Sample Date	Mar 06, 2024 10:19 AM				
Sample Description	Swimming Pool				
Location	โรงแรมริมน้ำ				
Date Analysis Commenced	Mar 07, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected
Standard Plate Count	CFU/mL	-	-	<1	Not Detected
Total Coliform	MPN/100mL	-	-	<1.1	<10

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

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

Sithichok T.

Sithichok Thongpueen
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2427619
Date Received : Mar 13, 2024
Date Reported : Mar 29, 2024
Report Number : 2951844-1

Page 1 of 1

Sample Number	2427619-1				
Sample Date	Mar 13, 2024 10:00 AM				
Sample Description	Consumption Water				
Location	Cooling Tower				
Date Analysis Commenced	Mar 14, 2024				
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Yellow, some odour, solid and no turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Legionella</i> spp.	CFU/L	-	-	Not Detected**	Not Detected

Guideline : Notification of Department of Health about Legionella Control in Cooling Tower B.E. 2544

Note : ** Not Detected mean Bacteria not found in agar plate.

Sampling By : Thanwa Jariya

Remark :
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Sithichok T.

Sithichok Thongpueen
Scientist (3)

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Accreditation No. 103147

Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2427619
Date Received : Mar 13, 2024
Date Reported : Mar 29, 2024
Report Number : 2951845-1

Page 1 of 1

2427619-2					
Sample Number	Sampled Date	Sample Description	Location	Date Analysis Commenced	Condition of Sample
2427619-2	Mar 13, 2024 9:40 AM	Consumption Water	Hotel Indigo : 81 Wireless Road No. 0505	Mar 14, 2024	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	Result	Method	Testing Location
Microbiological Testing					
Legionella spp.	CFU/L	-	<1	ISO 11731 (2017)	Bangkok

Note : Microbiological Testing Result <1 mean Bacteria not found in agar plate.

Sampling By : Thanwa Jariya

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Approved by

Sithichok T.
Sithichok Thongnuean
Scientist (3)

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Accreditation No. 103147

Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2427619
Date Received : Mar 13, 2024
Date Reported : Mar 29, 2024
Report Number : 2951846-1

Page 1 of 1

2427619-3					
Sample Number	Sampled Date	Sample Description	Location	Date Analysis Commenced	Condition of Sample
2427619-3	Mar 13, 2024 9:43 AM	Consumption Water	Hotel Indigo : 81 Wireless Road No. 0505	Mar 14, 2024	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	Result	Method	Testing Location
Microbiological Testing					
Legionella spp.	CFU/L	-	<1	ISO 11731 (2017)	Bangkok

Note : Microbiological Testing Result <1 mean Bacteria not found in agar plate.

Sampling By : Thanwa Jariya

Remark :
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Approved by

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Sithichok Thongnuean
Scientist (3)

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Analysis / Test Report

Client : Piyasombhat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P017591
Project Name : Monitoring EIA
Project Location : Hotel Indigo



TESTING
No.0009
Lot ID: 2427621
Date Received : Mar 13, 2024
Date Reported : Mar 20, 2024
Report Number : 2932058-1

Page 1 of 1

Sample Number 2427621-1
Sample Date Mar 13, 2024 9:20 AM
Sample Description Swimming Pool
Location ช้างเผือก
Date Analysis Commenced Mar 14, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	In 100 mL	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Thaniwa Janya

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Approved by

Sithichok T.

Sithichok Thongpuean
Scientist (3)

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Analysis / Test Report

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81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P017591
Project Name : Monitoring EIA
Project Location : Hotel Indigo



TESTING
No.0009
Lot ID: 2427622
Date Received : Mar 20, 2024
Date Reported : Mar 30, 2024
Report Number : 2932056-1

Page 1 of 1

Sample Number 2427622-1
Sample Date Mar 20, 2024 10:20 AM
Sample Description Swimming Pool
Location ช้างเผือก
Date Analysis Commenced Mar 21, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	In 100 mL	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :

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

Sithichok T.

Sithichok Thongpuean
Scientist (3)

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Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO17591
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2427623
Date Received : Mar 27, 2024
Date Reported : Apr 05, 2024
Report Number : 2932055-1

Page 1 of 1

Sample Number	2427623-1				
Sample Date	Mar 27, 2024	1:05 PM			
Sample Description	Swimming Pool				
Location	โรงแรมอินดิโก				
Date Analysis Commenced	Mar 28, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Colorless, odourless, no solid, and turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected
Standard Plate Count	CFU/mL	-	-	<1	Not Detected
Total Coliform	MPN/100mL	-	-	<1.1	<10

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
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Approved by
Sithichok T.
Sithichok Thongniguen
Scientist (3)

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Analysis / Test Report

Client : Phasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O :
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2436685
Date Received : Apr 03, 2024
Date Reported : Apr 13, 2024
Report Number : 2951688-1

Page 1 of 1

Sample Number	2436685-1				
Sample Date	Apr 03, 2024	11:10 AM			
Sample Description	Swimming Pool				
Location	โรงแรมอินดิโก				
Date Analysis Commenced	Apr 03, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected
Standard Plate Count	CFU/mL	-	-	23	Not Detected
Total Coliform	MPN/100mL	-	-	16.0	<10
Water Testing					
Residual Free Chlorine *	mg/L	-	0.1	0.4	0.6-1

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :
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Sithichok T.
Sithichok Thongniguen
Scientist (3)

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Analysis / Test Report

TESTING
No.0009
Lot ID: 2436687
Date Received : Apr 11, 2024
Date Reported : Apr 25, 2024
Report Number : 2951698-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO19510
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 1

Sample Number 2436687-1
Sample Date Apr 11, 2024 9:20 AM
Sample Description Swimming Pool
Location โรงแรมอินดิโก
Date Analysis Commenced Apr 11, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid, and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 b, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :

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Suwannee Chuankeaw

Suwannee Chuankeaw
Section Head

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Analysis / Test Report

TESTING
No.0009
Lot ID: 2436688
Date Received : Apr 18, 2024
Date Reported : Apr 26, 2024
Report Number : 2951706-1

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO19510
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 1

Sample Number 2436688-1
Sample Date Apr 18, 2024 8:45 AM
Sample Description Swimming Pool
Location โรงแรมอินดิโก
Date Analysis Commenced Apr 18, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Naruebet Permpon

Remark :

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Suwannee Chuankeaw

Suwannee Chuankeaw
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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
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P/O : PO19510
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 1

Sample Number	2436689-1				
Sampled Date	Apr 24, 2024 8:40 AM				
Sample Description	Swimming Pool				
Location	โรงแรมอินดิโก				
Date Analysis Commenced	Apr 24, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Analyte	Unit	LOD	Result	Guideline / Specification	Method
Microbiological Testing					
<i>Escherichia coli</i>	in 100 mL	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F
Standard Plate Count	CFU/mL	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B
Total Coliform	MPN/100mL	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2550
Sampling By : Pichai Boonyong
Remark :
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Suwannee Chuankeaw
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S/Report_ML_GS_01 (10-2009)



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Page 1 of 3

Sample Number	2443040-1				
Sampled Date	May 08, 2024 9:08 AM				
Sample Description	Consumption Water				
Location	Cooling Tower				
Date Analysis Commenced	May 08, 2024				
Condition of Sample	Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Yellow, odourless, no solid and turbid				
Analyte	Unit	LOD	Result	Method	Testing Location
Microbiological Testing					
<i>Legionella</i> spp.	CFU/L	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.
Sampling By : Chulaliet Wain
Remark :
- LOD : Limit of Detection
- LOQ : Lower than LOQ (Limit of Quantitation) / LOQ (Limit of Reporting)

Approved by
Sithichok T.
Sithichok Thongpueen
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
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P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2443040
Date Received : May 08, 2024
Date Reported : May 27, 2024
Report Number : 2968594-1

Page 2 of 3

Sample Number 2443040-2
Sampled Date May 08, 2024 8:57 AM
Sample Description Consumption Water
Location วังใหม่ : ถนนใหม่ 2101
Date Analysis Commenced May 08, 2024
Condition of Sample Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Microbiological Testing						
Legionella spp.	CFU/L	-	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.

Sampling By : Chuladit Warin

Remark :

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

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Sithichok T.

Sithichok Thongnguen
Scientist (3)

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Analysis / Test Report

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81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Lot ID: 2443040
Date Received : May 08, 2024
Date Reported : May 27, 2024
Report Number : 2968594-1

Page 3 of 3

Sample Number 2443040-3
Sampled Date May 08, 2024 8:55 AM
Sample Description Consumption Water
Location วังใหม่ : ถนนใหม่ 2101
Date Analysis Commenced May 08, 2024
Condition of Sample Contained in two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Microbiological Testing						
Legionella spp.	CFU/L	-	-	Not Detected**	ISO 11731 (2017)	Bangkok

Note : ** Not Detected mean Bacteria not found in agar plate.

Sampling By : Chuladit Warin

Remark :

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Sithichok Thongnguen
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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P020428
Project Name : Monitoring EIA
Project Location: Hotel Indigo

Page 1 of 1

Sample Number 2443041-1
Sample Date May 02, 2024 11:27 AM
Sample Description Swimming Pool
Location ห้างสรรพสินค้า
Date Analysis Commenced May 02, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid, and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

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Approved by

Signature of Pichai Boonyong

Tuanjai Thangklang
Manager

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10364-22 (BAIL)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P020428
Project Name : Monitoring EIA
Project Location: Hotel Indigo

Page 1 of 1

Sample Number 2443042-1
Sample Date May 08, 2024 8:51 AM
Sample Description Swimming Pool
Location ห้างสรรพสินค้า
Date Analysis Commenced May 08, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Property Colorless, odourless, no solid and turbid

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	380000	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	>23	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Chuladit Wain

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Signature of Chuladit Wain

Sithichok T.

Sithichok Thongpueen
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
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P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2443043
Date Received : May 15, 2024
Date Reported : May 27, 2024
Report Number : 2968599-1

Page 1 of 1

Sample Number : 2443043-1
Sample Date : May 15, 2024 10:00 AM
Sample Description : Swimming Pool
Location : สระว่ายน้ำ
Date Analysis Commenced : May 16, 2024
Condition of Sample : Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

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Sithichok Thongnguan
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Analysis / Test Report

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P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2443044
Date Received : May 23, 2024
Date Reported : May 31, 2024
Report Number : 2968598-1

Page 1 of 1

Sample Number : 2443044-1
Sample Date : May 23, 2024 8:10 AM
Sample Description : Swimming Pool
Location : สระว่ายน้ำ
Date Analysis Commenced : May 23, 2024
Condition of Sample : Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing <i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater: APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

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.

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Approved by

Suwannee Chumkarn
Section Head

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10364-22/1940L

S:\Report\AL_GL-011 (6.12P9)



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO20428
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2443045
Date Received : May 29, 2024
Date Reported : Jun 08, 2024
Report Number : 2568597-1

Page 1 of 1

Sample Number	2443045-1				
Sample Date	May 29, 2024 1:10 PM				
Sample Description	Swimming Pool				
Location	โรงแรมอินดิโก				
Date Analysis Commenced	May 30, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected
Standard Plate Count	CFU/mL	-	-	<1	Not Detected
Total Coliform	MPN/100mL	-	-	<1.1	<10

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by
Sithichok T.
Sithichok Thongrueang
Scientist (3)

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S (Report)_AL_Gr.int (1115940)



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : PO21726
Project Name : Monitoring EIA
Project Location : Hotel Indigo

Accreditation No. 103147

Lot ID: 2461871
Date Received : Jun 05, 2024
Date Reported : Jun 15, 2024
Report Number : 3008703-1

Page 1 of 1

Sample Number	2461871-1				
Sample Date	Jun 05, 2024 12:00 PM				
Sample Description	Swimming Pool				
Location	โรงแรมอินดิโก				
Date Analysis Commenced	Jun 06, 2024				
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)				
Physical Property	Colorless, odourless, no solid and turbid				
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification
Microbiological Testing					
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected
Standard Plate Count	CFU/mL	-	-	<1	Not Detected
Total Coliform	MPN/100mL	-	-	<1.1	<10

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
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Approved by
Sithichok T.
Sithichok Thongrueang
Scientist (3)

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S (Report)_AL_Gr.int (115940)



Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P021726
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2461872
Date Received : Jun 12, 2024
Date Reported : Jun 21, 2024
Report Number : 3008702-1

Page 1 of 1

Sample Number 2461872-1
Sample Date Jun 12, 2024 9:16 AM
Sample Description Swimming Pool
Location น้ําสวน
Date Analysis Commenced Jun 13, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Thanwa Jariya

Remark :
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Sithichok T.
Sithichok Thongpueen
Scientist (3)

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Analysis / Test Report

Client : Piyasombat Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P021726
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2461873
Date Received : Jun 19, 2024
Date Reported : Jun 27, 2024
Report Number : 3008698-1

Page 1 of 1

Sample Number 2461873-1
Sample Date Jun 19, 2024 9:45 AM
Sample Description Swimming Pool
Location น้ําสวน
Date Analysis Commenced Jun 20, 2024
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	In 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Panupong Homewong

Remark :
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Sithichok T.
Sithichok Thongpueen
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Analysis / Test Report

Client : Piyasombal Property Co., Ltd.
81, Wireless Road, Lumpini, Phatumwan, Bangkok Thailand 10330
P/O : P021726
Project Name : Monitoring EIA
Project Location : Hotel Indigo

TESTING
No.0009
Lot ID: 2461874
Date Received : Jun 26, 2024
Date Reported : Jul 06, 2024
Report Number : 3008694-1

Page 1 of 1

Sample Number : 2461874-1
Sample Date : Jun 26, 2024 9:20 AM
Sample Description : Swimming Pool
Location : ห้างสรรพสินค้า
Date Analysis Commenced : Jun 27, 2024
Condition of Sample : Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Microbiological Testing							
<i>Escherichia coli</i>	in 100 mL	-	-	Not Detected	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B, F	Bangkok
Standard Plate Count	CFU/mL	-	-	<1	Not Detected	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<10	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok

Guideline : BMA : Regulation of Bangkok about Swimming Pool, B.E.2530

Sampling By : Pichai Boonyong

Remark :

- LOD : Limit of Detection
- LOQ : Lower than LOQ (Limit of Quantitation) / LOQ (Limit of Reporting)
- Analyte(s) marked as "not detected" in accordance with ISO/IEC 17025
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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Approved by

Suwannee Chuankraow
Section Head

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ภาคผนวก ง

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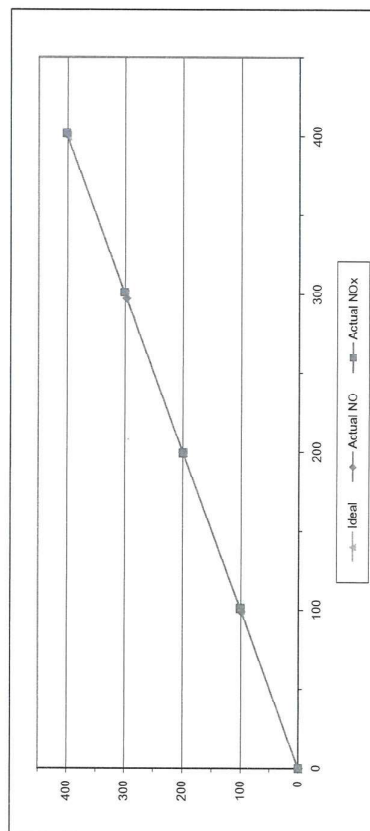
Sample Name	Parameter	Equipment Name	D No.	Calibrated Date	Next Cal	Freq. Calibrate (Months)
Ambient	Nitrogen Dioxide	NO _x analyzer	BKK_F50776	3-Jan-24	3-Jul-24	6
Ambient	Sulfur Dioxide	SO ₂ analyzer	BKK_F50775	3-Jan-24	3-Jul-24	6
Ambient	Particulate Matter (PM-1.0)	High Volume	BKK_F50389	8-Jun-23	8-Jun-24	On site Calibration
Ambient	Particulate Matter (PM-10)	Digital Balance	BKK_EN0403	8-Jun-23	8-Jun-24	12
Ambient	Total Suspended Particulate	High Volume	BKK_F51059	8-Jun-23	8-Jun-24	12
Ambient	Total Suspended Particulate	Digital Balance	BKK_EN0403	11-Dec-23	11-Jun-24	18
Ambient	Total Hydrocarbon	Total Hydrocarbon Analyzer	BKK_F51068	3-Aug-23	3-Aug-24	12
Ambient	Carbon Monoxide	CO Analyzer	BKK_EN0375	15-Nov-23	16-May-25	18
Water Lab	BOD	DO Meter	BKK_EN0017	22-Mar-24	20-Mar-25	12
Water Lab	BOD	Incubator	BKK_EN0304	27-Feb-24	27-Aug-25	18
Water Lab	Oil & Grease	Eurette	BKK_EN0171	9-Aug-23	9-Aug-24	12
Water Lab	Oil & Grease	Electronic Top-Loading Balance	BKK_EN0003	4-Jul-23	4-Jan-25	18
Water Lab	pH at 25 °C	Water Bath	BKK_EN0198	27-Oct-23	27-Oct-24	12
Water Lab	pH at 25 °C	pH meter	BKK_EN0342	6-Dec-23	6-Jun-25	18
Water Lab	Settleable Solids	Chamber (Cooling Room)	BKK_EN0167	27-Feb-24	27-Aug-25	18
Water Lab	Sulfide	Eurette	BKK_EN0171	6-Dec-23	6-Jun-25	18
Water Lab	Sulfide	Chamber (Cooling Room)	BKK_EN0167	9-Aug-23	9-Aug-24	12
Water Lab	Total Dissolved Solids 103-105°C	Electronic Top-Loading Balance	BKK_EN0003	6-Nov-23	6-Nov-24	12
Water Lab	Total Dissolved Solids 103-105°C	Oven	BKK_EN0425	21-Apr-24	21-Apr-25	12
Water Lab	Total Kjeldahl Nitrogen	Digestion Unit	BKK_EN0366	12-Jul-23	2-Jul-24	12
Water Lab	Total Kjeldahl Nitrogen	Discrete analyzer	BKK_EN0037	5-Aug-23	9-Aug-24	12
Water Lab	Total Suspended Solids	Electronic Top-Loading Balance	BKK_EN0003	6-Nov-23	6-Nov-24	12
Water Lab	Total Suspended Solids	Oven	BKK_EN0425	17-Jul-23	17-Jan-25	18
Water Lab	Total Coliform	Autoclave	BKK_ML0037	17-Jul-23	17-Jan-25	18
Water Lab	Total Coliform	Incubator	BKK_ML0010	17-Jul-23	17-Jan-25	18
Water Lab	Total Coliform	Hot Air Oven	BKK_ML0013	23-Apr-24	23-Oct-25	18
Water Lab	Escherichia coli	Autoclave	BKK_ML0037	17-Jul-23	17-Jan-25	18
Water Lab	Escherichia coli	Incubator	BKK_ML0010	17-Jul-23	17-Jan-25	18
Water Lab	Escherichia coli	Hot Air Oven	BKK_ML0013	23-Apr-24	23-Oct-25	18
Water Lab	Escherichia coli	Water Bath	BKK_ML0056	14-Mar-24	1-Mar-25	12
Water Lab	Standard Plate Count	Autoclave	BKK_ML0037	17-Jul-23	17-Jan-25	18
Water Lab	Standard Plate Count	Incubator	BKK_ML0010	17-Jul-23	17-Jan-25	18
Water Lab	Standard Plate Count	Hot Air Oven	BKK_ML0013	23-Apr-24	23-Oct-25	18
Water Lab	Legionella spp.	Balance	BKK_ML0001	23-Jan-24	23-Jan-25	12
Water Lab	Legionella spp.	Autoclave	BKK_ML0001	4-Oct-23	4-Apr-25	18
Water Lab	Legionella spp.	Incubator	BKK_ML0189	3-Oct-23	3-Oct-24	12
Water Lab	Legionella spp.	Hot Air Oven	BKK_ML0013	23-Apr-24	23-Oct-25	18



MULTIPOINT CALIBRATION REPORT

Calibration Date	3-Jan-24	Equipment Name	NO _x Analyzer
Manufacturer	Teledyne API	Model	200E
Serial No.	4379	Equipment ID	BKK_FS0776
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947	Cylinder No.	GN0027222
Std. Gas Concentration (PPM)	55.88	Certified By	Airgas Inc.
Cylinder Pressure (psi)	1800	Expired Date	9-Feb-30
Certified Date	9-Feb-22		

CALIBRATION RESULTS						
Point	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	%Error NOx
ZERO	0.00	0.10	0.10	0.10	0.10	0.10
1	100.00	99.20	-0.80	-0.80	101.20	1.20
2	200.00	199.30	-0.70	-0.35	199.50	-0.25
3	300.00	297.30	-2.70	-0.90	301.30	0.43
4	400.00	401.50	1.50	0.38	402.10	0.53
AVERAGE (%)			-0.31		0.40	



Calibrated By

(Mr. Jirawat Sakarn)

Field Environmental Scientist (3)

Approved By

(Mr. Sarayuth Jitranont)

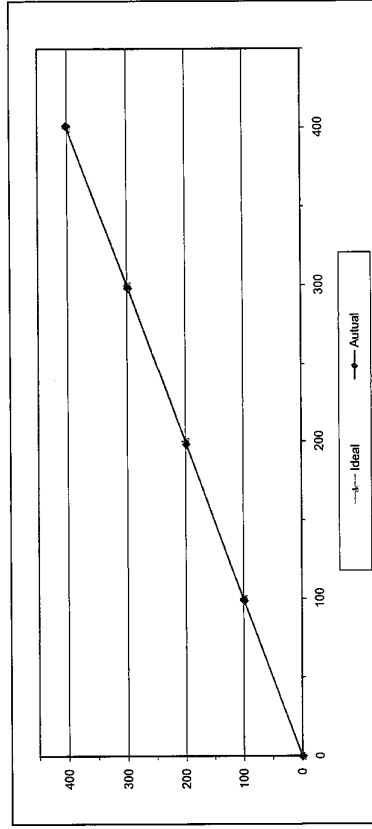
Assistant General Manager



MULTIPOINT CALIBRATION REPORT

Calibration Date	3-Jan-24	Equipment Name	SO2 Analyzer
Manufacturer	Teledyne API	Model	100E
Serial No.	3469	Equipment ID	BKK_FSD775
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947	Cylinder No.	GN007222
Std. Gas Concentration (PPM)	56.3	Certified By	Airgas Inc.
Cylinder Pressure (psi)	1800	Expired Date	9-Feb-30
Certified Date	9-Feb-22		

CALIBRATION RESULTS				
Point	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	99.00	-1.00	-1.00
2	200.00	198.10	-1.90	-0.95
3	300.00	298.30	-1.70	-0.57
4	400.00	401.30	1.30	0.33
AVERAGE (%)				-0.42



Calibrated By

(Mr. Jirawat Sakam)
Field Environmental Scientist (3)

Approved By

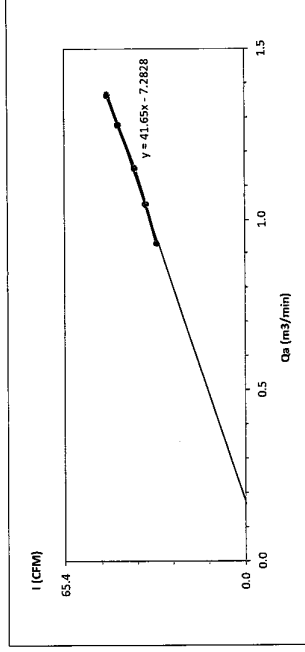
(Mr. Sarayuth Jitranont)
Assistant General Manager



High Volume Air Sampler Calibration Worksheet

Project Site:	Piyasombat Property Co., Ltd. Hotel Indigo Bangkok (พิกัด: 13.756, 100.531)	Barometric Pressure (mm Hg):	756
Calibrate Location:		Temperature (°C):	33.1
Calibrate Date:	27-May-24	High Volume ID:	BKK_FS0389
Calibration Sheet No.:	C-270524-BKK_FS0389	High Volume Model:	TE-5009X
Calibrator ID:	BKK_FS0624	High Volume S/N:	5329
Calibrator Model:	TE-5028A	Calibrator Slope:	1.0303
Calibrator S/N:	2584	Calibrator Intercept:	-0.01606

Test No.	Delta H ₂ O (inches)	Qa (m ³ /min)	I: Chart (CFM)	Linear Regression
1	2.2	0.930	32	Slope: 41.6496
2	2.8	1.047	36	Intercept: -7.2828
3	3.4	1.152	40	Correlation Coefficient: 0.9975
4	4.2	1.278	46	
5	4.8	1.366	50	



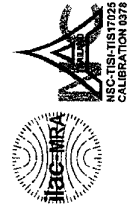
Calibrated by

Winyou B

(Mr. Winyou Bontana)
Field Scientist(2)

Approved by:

(Mr. Noppong Juntarapan)
Enviro Field Coordinator Scientist (3)



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PLAY SOLUTION TECHNOLOGY COMPANY LIMITED
179/75 Nawong Pracha Pattana Road, Silkan, Donmuang, Bangkok 10210
Tel.: +66 2 011 0505, Fax: +66 2 010 7700
www.playstotec.com

CERTIFICATE OF CALIBRATION

Result of Calibration : Without Adjustment

Certificate no. PST-0120-23

Page no. 2 of 3

: ALS LABORATORY GROUP (THAILAND) CO., LTD.
 : 104 Phatthanakan 40, Phatthanakan Road, Khwaeng Phatthanakan,
 : Khet Suan Luang, Bangkok
 : 10750

Device	
Equipment	: Electronic Balance
Manufacturer	: CHAUS
Model	: EX25SD/AD
Serial No.	: C309774648
	Capacity : 120 / 220 g
	Readability : 0.00001 / 0.0001 g
	ID No. : BKK-EN0403

Environment Conditions

Location of Calibration	: Environment Lab
Ambient Temperature	: 21.9 (°C)
Relative Humidity	: 61.3 (%RH)
Barometric Pressure	: 1007.6 (mba)
Calibration Procedure	: The Calibration was conducted by using in-house calibration procedure number CH-M-001 base on "UKAS LAB 14"
Comment	

Date of Receipt	: June 8, 2023
Date of Calibration	: June 8, 2023
Issue Date	: June 8, 2023

Calibrated by : Mr. Kittchal Rattanatham Approved by (Mr. Kittchal Rattanatham)
Calibrator Approved Signature

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The reported measurement result relates only to the measurand and applies only at the time of measurement.

This Certificate is issued in accordance with the conditions of accreditation granted by The Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and is traceability to recognize national standards and to the unit 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 prior written approval of the calibration center, Play Station Technology Co., Ltd

F-039 REV.02 15/08/65



PLAY SOLUTION



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Tel.: +66 2 011 0505, Fax: +66 2 010 7700
www.playstotec.com

CERTIFICATE OF CALIBRATION

Result of Calibration

1. Repeatability

Weighting Rang 1	(g)	Normal Value	(g)	Standard Deviation	(g)
Max.capacity	200	50		0.00008	
		200		0.000048	

Weighting Rang 2	(g)	Normal Value	(g)	Standard Deviation	(g)
Max.capacity					

2. Linearity, Departure of Indication from nominal value

Weighing Range 1

Normal Value (g)	Standard Value (g)	Indication (g)	Error of Indication (g)	Expanded Uncertainty (g)	Factor k
0.01	0.01000	0.01000	-0.000001	0.000082	2.87
0.1	0.10001	0.10000	-0.000006	0.000082	2.87
0.5	0.50000	0.50000	0.000002	0.000083	2.87
1	1.00001	1.00000	-0.000007	0.000084	2.87
5	5.00002	5.00000	-0.000021	0.000078	2.52
10	9.99999	9.99997	-0.000021	0.000080	2.43
50	50.00001	49.99998	-0.000027	0.00010	2.08
100	100.00002	99.99998	-0.000036	0.00016	2.00
150	150.00002	150.00000	-0.000023	0.00023	2.00
200	200.00003	200.00000	-0.000032	0.00030	2.00

Weighing Range 2

[illegible]

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by cover factor k as per listed in table above, which corresponds to a confidence level of about 95%

F-039

REV.02 15/08/65

REV. 02 15/08/65



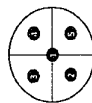
PLAY SOLUTION TECHNOLOGY COMPANY LIMITED
179/75 Nawong Pracha Pattana Road, Sikan, Donmuang, Bangkok 10210
Tel.: +66 2 011 0505, Fax: +66 2 010 7700
www.playotec.com



CERTIFICATE OF CALIBRATION

Result of Calibration
Certificate no. PST-0120-23
Page no. 3 of 3

3. Eccentricity
Test load at least 1/3 of the maximum capacity, typically placed between 1/2 and 1/3 of the distance from the centre of the load receptor to the edge.



Weighting Range 1

Test Load: 100 [g]

Position	Indication [g]
1	99.99998
2	100.00000
3	99.99998
4	99.99997
5	99.99998
Max Deviation	0.00000

Weighting Range 2

Test Load: [g]

Position	Indication [g]
1	1.1889
2	1.3330
3	1.4377
4	1.5586
5	1.6489
Max Deviation	

Standard method

The calibration was performed by using calibration laboratory's in-house calibration method: CP-M-001 based on "UKAS LAB 14: Calibration of weighing machine", edition 6 | October 2019

Reference standards instrument

Instrument	OIML Class	S/N	Certificate No.	Due Date
Standard Weight Set	E2	4000021952	22-128715	November 30, 2024
Standard Weight Set	-	-	-	-
Standard Weight Set	-	-	-	-
Standard Weight Set	-	-	-	-

Measurement Uncertainty

The given measurement uncertainty is the standard of the measurement multiplied by an extension factor k which corresponds to a confidence level of about 95% for a normal distribution. The standard uncertainty was calculated according to M3003

Traceability: The measurement is traceable to national standard, which realize the physical unit of measurement (SI)
- Through the reference calibration laboratory of Asia Medical and Agricultural Laboratory and Research Center Co., Ltd

END OF REPORT

F-039

REV.02.15/08/65



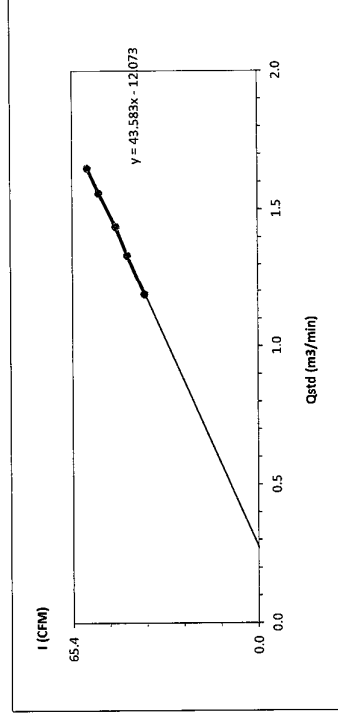
High Volume Air Sampler Calibration Worksheet

Project Site: Piyasombat Property Co. Ltd.
Hotel Indigo Bangkok: อาคารโรงแรมอินดิโก
ศูนย์การค้า (บางกอก-ปิ่นเกล้า)

Calibrate Location: 27-May-24
Calibrate Date: C-270524-BKK_FS1059
Calibration Sheet No.: BKK_FS0624
Calibrator ID: TE-5028A
Calibrator Model: 2584

Barometric Pressure (mm Hg): 756
Temperature (°C): 33.1
High Volume ID: BKK_FS1059
High Volume Model: TE-5009X
High Volume S/N: 5693
Calibrator Slope: 1.64931
Calibrator Intercept: -0.02579

Test No.	Delta H ₂ O (inch)	Q _{std} (m ³ /min)	I: Chart (CFM)	Linear Regression
1	3.8	1.1889	40	Slope: 43.5829
2	4.8	1.3330	46	Intercept: -12.0730
3	5.6	1.4377	50	Correlation Coefficient: 0.9990
4	6.6	1.5586	56	
5	7.4	1.6489	60	



Calibrated by

Winyou B

Approved by

Mr. Noppong Juntarupan

(Mr. Winyou Boontanal)
Field Scientist(2)

(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

FORM NO.: F-06-073 REVISION NO.:2 ISSUE DATE: 20/11/23



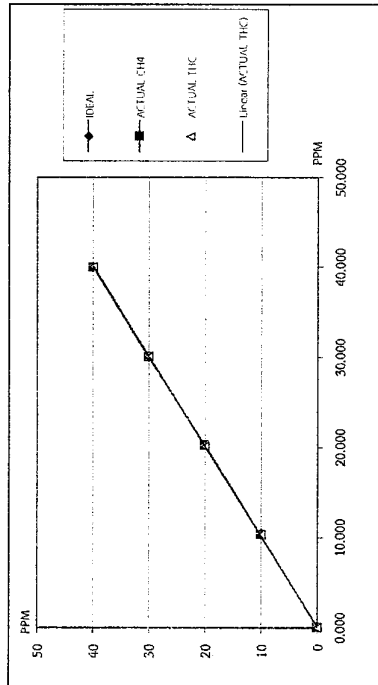
TEST REPORT

REVIEW BY : Victoria N.
APPROVED BY : Tangtorn M.
NEXT CAL DATE : 11/6/25

CUSTOMER NAME	: ALS Laboratory Group (Thailand) Co., Ltd. (บริษัท แอลเอสแลบอราทอรีกรุ๊ป (ประเทศไทย) จำกัด)
EQUIPMENT NAME	: THC Analyzer
MANUFACTURER	: HORIBA
MODEL	: APHA-370
SERIAL NO	: WKJ0NS9M
STANDARD GAS CONCENTRATION (PPM)	: 506.1 PPM
CYLINDER NO	: CCT34373
CERTIFIED DATE	: 12/05/2020
CYLINDER PRESSURE (psig)	: 1,000 PSI
CERTIFIED BY	: AIRGAS
EXPIRED DATE	: 12/05/2028

TEST RESULTS

POINT NO	TEST RESULTS					
	IDEAL	ACTUAL CH4	ERROR CH4	%ERROR CH4	ACTUAL THC	%ERROR THC
ZERO	0.000	0.00	0.000	-	0.00	0.000
1	10.000	10.30	0.300	3.00	10.29	0.290
2	20.000	20.20	0.200	1.00	20.39	0.950
3	30.000	30.01	0.010	0.03	30.10	0.100
4	40.000	39.90	-0.100	-0.25	39.39	-0.010
AVERAGE (%)				0.95		0.91



CALIBRATED BY : วิชาญ อภิรักษ์ 11/19/25
CHECKED BY : ธนากร อภิรักษ์ 11/19/25

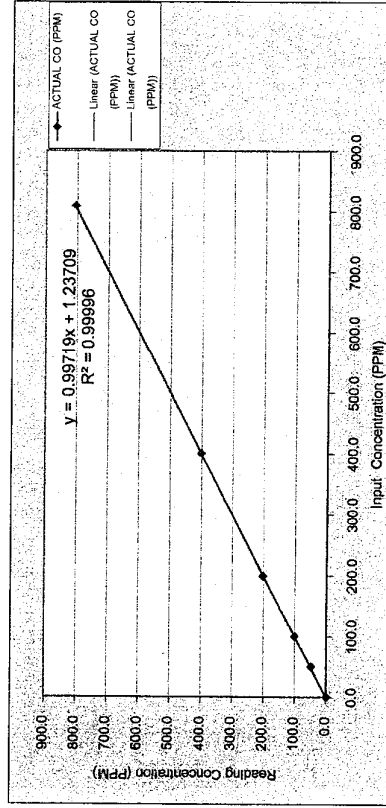
ผลการสอบเทียบเครื่องมือ : ผ่าน (ผลการสอบเทียบ : 11/19/25) E-Mail : Engineer@janatee.com
วันที่ 63/16 15/67/25 56 ถนนเพชรเกษม เขตภาษีเจริญ กรุงเทพฯ 10600 โทร 02-860812-13 โทรสาร 02-868-1889

MULTI POINT CALIBRATION REPORT

CUSTOMER NAME : ALS Laboratory Group (Thailand) Co.Ltd.
EQUIPMENT NAME : CO Analyzer
MANUFACTURER : Teledyne - API
MODEL : T300
STANDARD GAS CONCENTRATION (PPM) : 808.9
CYLINDER PRESSURE (psig) : 900
CERTIFIED BY : AIRGAS SPECIALTY GASES
REVIEW BY : Victoria N.
APPROVED BY : Tangtorn M.
SERIAL NO : 5947 3 Aug 94
NEXT CAL DATE : 5/23/2022
CERTIFIED DATE : Nov 05, 2020
EXPIRED DATE : Nov 05, 2028

CALIBRATION RESULTS

POINT NO	CALIBRATION RESULTS		
	IDEAL (PPM)	ACTUAL CO (PPM)	% ERROR CO
ZERO	0.000	0.020	0.020
1	50.000	49.176	-0.824
2	100.000	100.809	0.809
3	199.200	202.885	3.685
4	400.300	402.154	1.854
5	808.900	806.396	-2.504
AVERAGE (%)			1.016



CALIBRATED BY : คุณพรชัย นาคินาแก้ว

DATE : 3 สิงหาคม 2566

ต้องการข้อมูลทางด้านเทคนิคเพิ่มเติม : คุณพรชัย นาคินาแก้ว โทรศัพท์ : 02-515-8987

เลขที่ 388 ถนนรัชดาภิเษก แขวงจันทริก เขตจตุจักร กรุงเทพฯ 10900 โทรศัพท์ : 0-2515-8999 โทรสาร : 0-2515-8988 E-Mail : info@kinetics.co.th



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

CORPORATE SERVICES 3 : EQUIPMENT CALIBRATION AND TESTING SERVICES

534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250

TEL. 0-2717-3000 FAX. 0-2719-9484

Cert.No.: 23TW243
Page.: 1 of 2

Certificate of Testing

Equipment :	DO Meter
Manufacturer :	YSI
Model :	5000-230V
Serial No. :	09J101147
ID No. :	BKK_EN0017
Received Date :	15 November 2023
Test Date :	16 November 2023
Reference :	2311-05C5DSC-4
Submitted by :	ALS Laboratory Group (Thailand) Co., Ltd. 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand
Laboratory Condition :	Temperature (25 ± 5) °C Humidity (50 ± 20) % In - house method : CP-CH9 by Comparison Technique with Azide Modification Method
Test Procedure :	
Tested by :	Walaak Sirithean
Approved by :	 Approved Signatory
Issue Date :	17 November 2023

REVIEW BY	
APPROVED BY	
NEXT CAL. DATE	16/05/25



Cert.No.: 23TW243
Page.: 2 of 2

Condition of this result of calibration

1. Reference Standard Instruments :
This certification is traceable to the International System of Unit through the reference standards laboratory of Industrial Calibration Center, Technology Promotion Association (Thailand-Japan).

Instruments	Serial No.	ID No.	Certificate No.	Due Date
1) Burette	-	130BU10	23CG1172	22 Mar 2025
2) Balance	1124013382	14ORC006	23MM18	20 Feb 2024

2. Standard Material :-

Material	Manufacturer	Lot.No.	Assay
Sodium Thiosulfate pentahydrate	Merck	AM1763316	100.2%

Result : Dissolved Oxygen Meter Adjustment With Air 100 %
Dissolved Oxygen Probe No.: 16K100498

Titration Method (Azide Modification Method)	DO Meter Reading (mg/L)	Standard Deviation (mg/L)
8.18	8.18	0.0055

This report was certified only for the instrument we tested. It is allowable to use for study the system efficiency. The environmental impact control and present to organization it may concerned intend to use for advertising and referral purpose is prohibited. This report may not be reproduced other in full, without written approval of the laboratory

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a 1190297

B 0328589



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SIUANLUANG, SIUANLUANG BANGKOK 10250
TEL. 0-2717-3000-29 FAX. 0-2719-9481



Cert. No.: 23LM192
Page.: 1 of 2

Certificate of Calibration

Equipment: DO Meter with Sensor
Manufacturer: YSI
Model: 5000-230V
Serial No.: 09J101147
ID No.: BKK_EN0017
Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location: TPA Chemistry Calibration Laboratory
Received Order: 15 November 2023
Calibrated Date: 16 November 2023
Ambient Temperature: (26 ± 10) °C
Relative Humidity: (50 ± 30) %
AC Line Voltage: (220 ± 22) V
Calibrated by: Kunchit Promprat

Approved by: 
Approved Signatory

() Pornhippa Tameyakul
() Ponpan Paipim
(✓) Suwit Imjai

Issue Date: 17 November 2023

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 3: Equipment Calibration and Testing Services.

A 0060730



Equipment: DO Meter with Sensor
Condition As-Received: Used Item
Reference: 2311-0505DSC-10
Procedure Used :-

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with
Industrial Platinum Resistance Thermometer (IPR T) into Temperature Bath.
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) Digital Thermometer 3240076 231305 TPA 15 Mar 2024

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification 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: 16K100498

Calibration Point (°C)	Immersion Depth (mm)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty (± °C)	Coverage Factor k
20.0	80	19.997	19.93	-0.067	0.15	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 %.

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a 1190298



QUALITY CALIBRATION CO.,LTD.

235 Petchkasem 63/2 Road, Laksong, Bangkok 10160
Tel (662) 421-5402, (662) 444-0152-3, Fax (662) 809-4584
www.qualitycalibration.com



CERTIFICATE No : 24T2852
REFERENCE No : 72619-8

PAGE : 1 OF 2

Certificate of Calibration

EQUIPMENT : COOLED INCUBATOR

MANUFACTURER : MEMMERT

MODEL : ICP750

SERIAL No : F819.0021

ID No : BKK_EN0304

CONDITION AS RECEIVED :

SUBMITTED BY :

ALS LABORATORY GROUP (THAILAND) CO., LTD.
104 PHATTHANAKAN 40, PHATTHANAKAN
RD, KHAENG PHATTHANAKAN, KHET SUAN
LUANG, BANGKOK 10250, THAILAND

CALIBRATED BY :

CALIBRATION DATE :

CHAICHARN CH.

20-Mar-24

APPROVED BY :

ISSUED DATE :

RECEIVED DATE :

PONGSA J.

21-Mar-24

20-Mar-24

THIS CERTIFICATE MAY NOT BE REPRODUCED OTHER THAN IN FULL EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF
QUALITY CALIBRATION CO., LTD.

F-G010 REV : 03



QUALITY CALIBRATION CO.,LTD.

235 Petchkasem 63/2 Road, Laksong, Bangkok 10160
Tel (662) 421-5402, (662) 444-0152-3, Fax (662) 809-4584

CERTIFICATE No : 24T2852

PAGE : 2 OF 2

Calibration Report

EQUIPMENT : COOLED INCUBATOR

MANUFACTURER : MEMMERT

MODEL : ICP750

ID No : BKK_EN0304

RECEIVED DATE : 20-Mar-24

AMBIENT TEMPERATURE : 26 °C ± 1 °C

RELATIVE HUMIDITY : 54 %RH ± 10 %RH

S/N : F819.0021

CALIBRATION DATE : 20-Mar-24

RELATIVE HUMIDITY : 54 %RH ± 10 %RH

CONDITION OF THIS RESULTS OF CALIBRATION
1. THIS INSTRUMENT WAS CALIBRATED ACCORDING TO TLAS G-20 BY COMPARISON WITH CALIBRATED THERMOCOUPLE TYPE K UNDER NO LOAD CONDITION. THE THERMOCOUPLES WERE PLACED ON NINE POINTS AND LOCATED ONE THERMOCOUPLE IN EACH OF THE EIGHT CORNERS OF THE CHAMBER AND WAS AWAY FROM THE EACH WALL OF 5 cm TO 10 cm AND PLACED THE NINTH THERMOCOUPLE WITHIN 2.5 cm. OF THE GEOMETRIC CENTER OF THE CHAMBER. THE UNIFORMITY WAS MEASURED BETWEEN REFERENCE PROBE AND OTHER PROBES AT THE SAME TIME.

2. REFERENCE STANDARD INSTRUMENTS :-

INSTRUMENT

1) DATA LOGGER WITH TC TYPE K

HYDRA 2635A

7286908

23T6641

14-Jul-24

CERTIFICATE No

SERIAL No

MODEL

3. THE CERTIFICATE IS VALID FOR THE ITEM CALIBRATED AS SHOWN ON THE DATE AND PLACE OF CALIBRATION ONLY.

4. THIS RESULT EXCLUDE LONG TERM STABILITY OF THE UNIT UNDER CALIBRATION.

5. THIS CERTIFICATE IS TRACEABLE TO THE INTERNATIONAL SYSTEM OF UNIT MAINTAINED AT:-

- NATIONAL INSTITUTE OF METROLOGY (THAILAND) THROUGH QUALITY CALIBRATION CO.,LTD.

RESULT OF CALIBRATION :- WITHOUT ADJUSTMENT

GENERAL INFORMATION

Overall Ambient Temperature around the Chamber (°C) variation : 1

Overall Line Voltage (V) variation : 5

Instrument Condition : Normal

CHAMBER PERFORMANCE

Controller Temperature (°C)

Indicating Temperature (°C)

Temperature Stability (±°C)

Temperature Uniformity (°C)

Overall Variation (°C)

20.0

20.0

0.16

0.21

0.41

CHAMBER PERFORMANCE

Controller Temperature (°C)

Indicating Temperature (°C)

Temperature Stability (±°C)

Temperature Uniformity (°C)

Overall Variation (°C)

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Temperature Stability (±°C)

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CHAMBER PERFORMANCE

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CHAMBER PERFORMANCE

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CHAMBER PERFORMANCE

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CHAMBER PERFORMANCE

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Temperature Stability (±°C)

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Overall Variation (°C)

20.0

20.0

0.16

0.21



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 0-2719-9484



PAC-MRA
MRA-THAILAND
CALIBRATION 9958

Certificate of Calibration

Cert.No.: 24CG952
Page.: 1 of 2

Equipment :

Capacity :

Serial No. :

ID. No. :

Manufacturer :

Made in :

Submitted by :

Ambient Temperature :

Relative Humidity :

Barometric Pressure :

Calibration Procedure :

Calibrated by :

Approved by :

() Unnophol Harachai
(✓) Srisuda Khamthia
() Sa-ngaeunkam Wongsa

Issue Date :

27 February 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 3 : Equipment Calibration and Testing Services.



Equipment :

Received Date : 23 February 2024

Condition As-Received : New Item

Calibration Date : 27 February 2024

Reference : 2402-0757DSC-1

Cert.No.: 24CG952

Page.: 2 of 2

Condition of this result of calibration

1. Reference Standard Instruments :

Instruments	Model	Serial No.	ID. No.	Certificate No.	Traceability	Due date
1) Balance	XP205DR	1126143764	140RC004	23MM/538	TPA	15 Sep 2024
2) Thermo-Hygrograph	THDX-CE	00016540	140EC001	23H1275	TPA	09 June 2024
3) Thermometer	-	0834181	140EC005	23I948	TPA	10 Aug 2024

This certification is traceable to SI Unit

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

3. True value is converted to true volume at the standard temperature of 20 °C

Calibration result :

Nominal capacity (mL)	Reading (mL)	Uncertainty (± mL)	k Factor
50	50.0032	0.010	2.00

Remark mL = cm³

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 %.

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Certificate of Calibration

Model Number: MSE224S-100-DU
Description: Analytical Balance
Serial Number: 27405555
ID No.: BKK_EN0003
Manufacturer: Sartorius

Calibration Results : Without Adjustment

Repeatability	
The reproducibility is the ability of a weighing instrument to display nearly identical readings under constant test conditions when the same load within a measurement series is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express reproducibility quantitatively.	
Nominal Value : (Low Load)	20.0000
20 g	200.0000
Tolerance	200.0000
0.0001 g	200.0001
Nominal Value : (High Load)	200.0000
200 g	200.0001
Tolerance	200.0001
0.0001 g	200.0001
Standard Deviation	0.00003
0.00005	

Linearity	
The linearity, also called linearity error, describes the deviation of the characteristic curve of a weighing instrument from the linear slope.	
Nominal Value	Conventional Mass Value
0.01 g	0.0100
0.1 g	0.1000
1 g	1.0000
5 g	5.0000
10 g	10.0000
20 g	20.0000
50 g	50.0000
100 g	100.0000
200 g	200.0000
Displayed Value	Deviation
0.0100	0.0000
0.1000	0.0000
1.0000	0.0000
2.0000	0.0000
5.0000	0.0000
10.0000	0.0000
20.0000	0.0000
50.0000	0.0000
100.0000	0.0000
200.0000	0.0000
Uncertainty	Uncertainty
0.00014	0.00014
0.00014	0.00014
0.00014	0.00014
0.00014	0.00014
0.00014	0.00014
0.00014	0.00014
0.00015	0.00015
0.00019	0.00019
0.00030	0.00030

End of Report.

Certificate of Calibration

Model Number: MSE224S-100-DU
Description: Analytical Balance
Serial Number: 27405555
ID No.: BKK_EN0003
Manufacturer: Sartorius

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

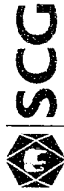
Calibrated By: Mr. Chonchai Inthana
Calibration Date: Wednesday, August 09, 2023
Based on UKAS LAB 14 : 2019

Calibration Procedure No.: This calibration was conducted by Using in-house calibration procedure number (WI-003)
Ambient Conditions:
Capacity: 220 g Readability: 0.0001 g Temperature: 22.8 °C ± 5.0 °C
Humidity: 58.0 % RH ± 10.0 % RH
Pressure: ± ±
Reasons for calibration: ☐ New Installation ☐ Service / Repaired ☒ Re-calibration/ Maintenance ☐ Good Operate ☐ Fair

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 realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came from list of Sartorius Metrological Specifications.

Model Number	Description	Traceability	Certificate No.	Due Date
YCS011-522-00	Sartorius weight set 1mg - 5000g E2, YCS011-522-00	SFC-RT	C02212565	14-Sep-2023
MHB-382SD	Humidity/Barometer/Temp Lutron MHB-382SD	DKSH	C19220444	5-Sep-2023

This certificate relate and apply this equipment 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.
Mr. Chonchai Inthana (Technical Manager)



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.

Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100

Bangkok Tel : +668 9205 6851 , +669 8247 2360

Website : www.scieco.co.th E-Mail : calibrate@scg.com



NSC-TIS-TIS 17025
CALIBRATION 0244

Certificate No. T231303

Page 1 of 3

Certificate of Calibration

Equipment : Liquid Bath (Water)

Manufacturer : MEMMERT

Model : WNB29

Serial No. : L611.0135

Customer Code : BKK_EN0148

ID No. : T6455A4

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

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,

Khet Suan Luang, Bangkok 10250

Customer Location : ORGANIC PREPARATION LAB

Date of Receipt : 27 June 2023

Calibrated By : Sujjar Naknakred (Site Calibration Manager)

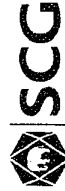
Approved By : *Don Loi* / Boonchai Suriyawong (Site Calibration Manager)

Date of Issue : 11 JUL 2023

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

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized 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 Metrological Center.

FM-1.1411831-08-64



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.



NSC-TIS-TIS 17025
CALIBRATION 0244

Certificate No. T231303

Page 2 of 3

Calibration Report

Equipment : Liquid Bath (Water)

Date of Calibration : 4 July 2023

Environment : Temperature : 22.2-22.5 °C

Line Voltage : 221.6-224.8 V

Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. This equipment was calibrated by insert five resistance thermometer detectors into its water bath , the other one thermocouple type T use for ambient temperature measurement . The calibration was done in according to WI-T36 (based on ASTM E715-80 (Reapproved 2001)).

All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 OHM	M18 (CH1,CH6-CH7,CH9-CH10)	T230545	10 April 2024
DATA LOGGER	34970A	TI49	T230545	10 April 2024

3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS-TIS 17025 CALIBRATION 0244)

4. Condition of calibrated item : good

Equipment Description :

Time Constant 3 Hour 45 Minute At 60 °C

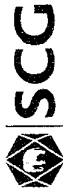
5. Adjustment :

(X) without adjustment

() after adjustment

Approved By: *Don Loi*

FM-1.15 117/15-05-63



Metrological Center

SCIECO Services Company Limited
33/2 Moo 3, T. Banpa, A. Kaengkhoi, Saraburi 18110, Thailand.

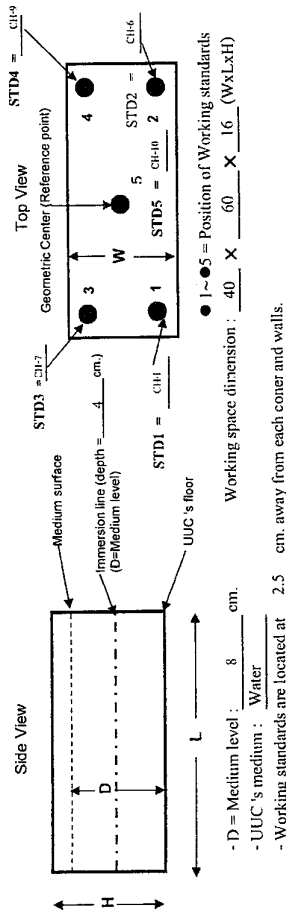


NSC-TS1715 17025
CALIBRATION 0244

Certificate No. T231303

Page 3 of 3

Calibration Report



Measurement Results:

Calibration Point	Average Standard Reading at each position (°C)			
	CH-1	CH-6	CH-7	CH-10
60	60.03	60.06	60.24	60.11
85	84.79	84.83	85.42	85.20
95	93.71	93.83	94.62	94.15

Setting (°C)	Liquid Bath (Water)				Temperature Distribution		
	Reading (°C)		Average (°C)	Stability (±°C)	Uniformity (±°C)	Uncertainty (±°C)	Coverage Factor k
	Min	Max					
61.0	60.9	61.1	61.0	0.13	0.19	0.29	2.04
86.0	85.8	86.2	86.0	0.19	0.47	0.44	2.17
95.0	94.6	95	94.9	0.32	0.65	0.55	2.13

* The quoted uncertainty exclude "uniformity"

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By

Don Lee

FM-LIS 117/15-05-63



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000-29 FAX. 0-2719-0484



NSC-TS1715 17025
CALIBRATION 0008

Cert.No.: 23CH1369
Page.: 1 of 3

Certificate of Calibration

Equipment : pH Meter

Manufacturer : Hach

Model : HQ411d

Serial No. : 200100031163

ID No. : BKK_EN0342

Condition As-Received: Used Item

Received Date : 26 October 2023

Calibration Date : 27 October 2023

Reference : 2310-0865DSC-3

Submitted by :

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

Ambient Temperature : (25 ± 2.5) °C

Relative Humidity : (50 ± 15) %

Calibration Procedure : In - house method :

- CP-CH5 by direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM)
- CP-CH8 by comparison with standard thermometer

Calibrated by :

Warakorn Lemgagrakul

Approved by :

Sailip

Approved Signatory

(✓) Sailip Meangmai

() Warakorn Lemgagrakul

() Porpan Papim

Issue Date :

31 October 2023

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 3: Equipment Calibration and Testing Services.



Cert.No.: 23CH1369
Page.: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument : -
Instrument : Serial No. ID No. Cert. No. Due Date
1) Ref. Standard Thermometer 4982054 110RC044 231908 26 Jul 2024
This certification is traceable to the International System of Unit maintained through:-
- Technology Promotion Association (Thailand-Japan)
2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd.,
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	913598	14 July 2025
pH 6.985	CPA chem	913599	14 July 2024
pH 9.997	CPA chem	931951	30 Sep 2024

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

Calibration Results

Function : pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4,7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH measurement ($\pm$)	Coverage factor k
pH Electrode S/N.: 230473042902	4.008	4.002	166.5	0.0044	2.00
	6.985	6.987	-10.4	0.0084	2.00
	9.997	10.005	-169.3	0.0071	2.00

Remark : - Can not connect the BNC because the plug does not match with the socket.

Sathip

a 1187344



Cert.No.: 23CH1369
Page.: 3 of 3

Calibration Results

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : PHC281
- Serial No. : 230473042902
- Length : 103 mm
- Diameter : 12 mm
- Immersion Depth : 90 mm

Calibration Point ($^{\circ}\text{C}$)	Standard Temperature ($^{\circ}\text{C}$)	UUC* Reading ($^{\circ}\text{C}$)	Error ($^{\circ}\text{C}$)	Uncertainty of measurement ($\pm^{\circ}\text{C}$)	Coverage factor k
25.0	25.002	25.1	0.098	0.13	2.00

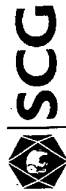
Remark : - UUC* = Unit Under Calibration

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 %.

-o0o-

Sathip

a 1187343



Metrology

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.

Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100

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Website : www.scieco.co.th E-Mail : calibrate@scg.com



NSC-TISI-TIS 17025
CALIBRATION 0244

Certificate No. T232160

Page 1 of 4

Certificate of Calibration

Equipment : Chamber (Cooling Room)

Manufacturer : KOLDTECH

Model : KM 320

Serial No. : TBN-1012061/05

Customer Code : BKK_EN0167

ID No. : T2463A3

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

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,

Khet Suan Luang, Bangkok 10250

Customer Location : Laboratory

Date of Receipt : 29 November 2023

Calibrated By : Atiphong Rongrat (Technician)

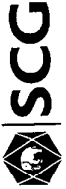
Approved By :  Boonchai Suriyawong (Site Calibration Manager)

Date of Issue : 09 JAN 2024

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

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized 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.

FM-L14 119/18-08-66



Metrology

SCI ECO Services Company Limited

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NSC-TISI-TIS 17025
CALIBRATION 0244

Certificate No. T232160

Page 2 of 4

Calibration Report

Equipment : Chamber (Cooling Room)

Date of Calibration : 6 December 2023

Environment : Temperature : 23.4-24.9 °C

Line Voltage : 221.4-230.2 V

Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. This equipment was calibrated by insert 16 standard thermocouples type T into its chamber, the other one standard thermocouples type T use for ambient temperature measurement. The calibration was done in according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and AS2853-1986).

All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.

2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN161-TN170	T230773	10 April 2024
TC	TYPE T	TN171-TN180	T230773	10 April 2024
DATA LOGGER	34970A	TI49	T230773	10 April 2024

3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0244.)

4. Condition of calibrated item : good

Equipment Description :

Time Constant : 1 Hour
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max

☐ Close

☒ Not Available

5. Adjustment :

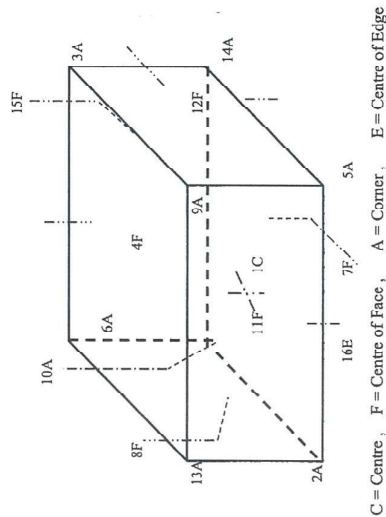
(X) without adjustment

() after adjustment

Approved By: 

FM-L15 118/18-08-66

Calibration Report



1C = TN161	12F = TN172
2A = TN162	13A = TN173
3A = TN163	14A = TN174
4F = TN164	15F = TN175
5A = TN165	16E = TN176

1C	=	TN161
2A	=	TN162
3A	=	TN163
4F	=	TN164
5A	=	TN165
6A	=	TN166
7F	=	TN167
8F	=	TN168
9A	=	TN169
10A	=	TN170
11F	=	TN171

Approved By.

FM-L15 118/18-08-66

Calibration Report

Measurement Results

Calibration Point	Average Standard Reading at each position (°C)											
	TN161	TN162	TN163	TN164	TN165	TN166	TN167	TN168	TN169	TN170	TN171	TN172
3.0	2.83	3.34	2.95	3.46	3.45	3.76	3.25	3.46	3.39	3.50	3.58	3.42
	TN173	TN174	TN175	TN176								
	3.33	3.39	3.15	3.43								

Chamber (Cooling Room)			Temperature Distribution				
Setting (°C)	Reading (°C)		Average (°C)	Stability (± °C)	Uniformity (°C)	Uncertainty (± °C)	Coverage Factor <i>k</i>
	Min	Max					
3.0	2.8	4.1	3.5	1.10	2.00	1.50	2.09

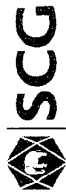
The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t -distribution, providing a level of confidence of approximately 95 %.

Approved By.

FM-L15 118/18-08-66



Metrological Center

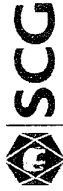
SCI ECO Services Company Limited

33/2 Moo 3, T. Banpa, A. Kaengkhoi, Saraburi 18110, Thailand.

Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100

Bangkok Tel : +668 9205 6851 , +669 8247 2360

Website : www.scieco.co.th E-Mail : calibrate@scg.com



Metrology

SCI ECO Services Company Limited

33/2 Moo 3, T. Banpa, A. Kaengkhoi, Saraburi 18110, Thailand.



NSC-TIS-TIS 17025
CALIBRATION 0244

Certificate No. T232009

Page 2 of 3

Certificate No. T232009

Page 1 of 3

Certificate of Calibration

Equipment : Chamber (Oven)

Manufacturer : Memmert

Model : UF110

Serial No. : B423.1549

Customer Code : BKK_EN0425

ID No. : T4671A5

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

104 Phatthanakan 40, Phatthanakan Rd.,

Khwaeng Phatthanakan, Kret Suan Luang, Bangkok 10250

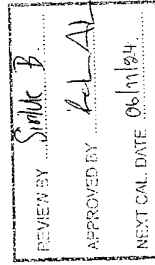
Customer Location : Oven Room

Date of Receipt : 1 November 2023

Calibrated By : Aliphong Rongrat (Technician)

Approved By : Boonchai Suriyawong (Site Calibration Manager)

Date of Issue : 09 NOV 2023



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

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized 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 Metrological Center.

FM-L14118/31-08-64

Condition of this results of calibration :

1. This equipment was calibrated by insert nine resistance thermometer detectors into its chamber, the other one resistance thermometer detector use for ambient temperature measurement . The calibration was done in according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and AS2853-1986).

All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 ohm	31-(CH1-10)	T230504	24 March 2024
DATA LOGGER	34970A	T114	T230504	24 March 2024

3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS-TIS 17025 CALIBRATION 0244.)

4. Condition of calibrated item : good

Equipment Description :

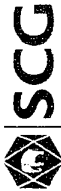
Time Constant : 2 Hour 50 Minute At 104 °C
Fresh Air Damper : ☒ Open ☒ Min ☐ Medium ☐ Max
Close ☐ Not Available

5. Adjustment :

(X) without adjustment () after adjustment

Approved By:

FM-L15118/18-08-66



Metrology

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhohi, Saraburi 18110, Thailand.

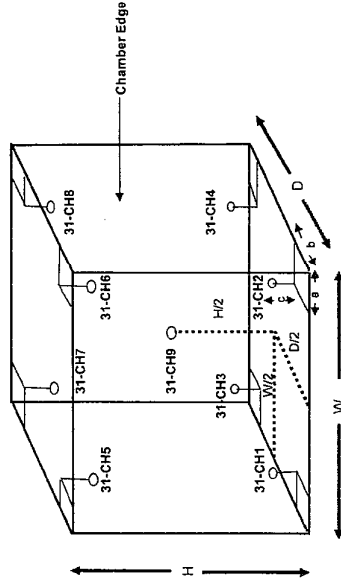


NSC-TS/TS/IS 17025
CALIBRATION 1244

Certificate No. T232009

Page 3 of 3

Calibration Report



Remark :

Internal Dimensions of Chamber : W (Width) = 56 cm. H (Height) = 41 cm. and D (Depth) = 48 cm.
Size of Installed Standard sensor number 31-CH1 to number 31-CH9 : a = 5 cm. b = 5 cm. and c = 5 cm.
Size of Installed Standard sensor number 31-CH9 : W/2 = 56 cm/2 H/2 = 41 cm/2 and D/2 = 48 cm/2

Measurement Results		Average Standard Reading at each position (°C)									
Calibration Point	Setting (°C)	31-CH1	31-CH2	31-CH3	31-CH4	31-CH5	31-CH6	31-CH7	31-CH8	31-CH9	Coverage Factor k
		104	104.02	103.74	104.26	103.95	104.31	103.87	104.00	103.81	
180	180.0	180.04	180.21	179.44	180.31	179.02	180.13	180.17	180.35	179.69	

Chamber (Oven)		Temperature Distribution					
Setting (°C)	Reading (°C)	Average (°C)		Stability (± °C)		Uniformity (°C)	
		Min	Max	Average (± °C)		Uncertainty (± °C)	
104.0	-	104.0	103.98	0.14	0.80	0.42	2.00
180.0	-	180.0	179.93	0.35	0.78	0.53	2.00

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By.

FM-L15 11/18/18-08-66



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhohi, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T240742

Page 1 of 5

Certificate of Calibration

Equipment : Digestion Unit
Manufacturer : SCP Science
Model : DigiPRER HT
Serial No. : HTC1120480658
Customer Code : BKK_EN0366
ID No. : T2635A5

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

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,

Khet Suan Luang, Bangkok 10250

Customer Location : Wet Chemistry Lab 1

Date of Receipt : 11 April 2024

Calibrated By : Sujjar Nakrakred (Site Calibration Manager)

Approved By : / Boonchai Suriyayong (Site Calibration Manager)

Date of Issue : 02 MAY 2024

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

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized 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 Metrological Center.

FM-L12 10/30/05-57



Metrological Center

SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T240742

Page 2 of 5

Calibration Report

Equipment : Digestion Unit
Date of Calibration : 21 April 2024
Environment : Temperature : 23.9 - 26.3 °C
Line Voltage : 221.8 - 225.9 V
Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

- This equipment was calibrated by insert four standard thermocouples type S into its chamber, the other one thermocouple type T use for ambient temperature measurement. The calibration was done in according to WI-T10.
was based on ITS - 90.
- Reference Standard Instrument :
Instrument Model Instrument No. Certificate No. Due Date
TC M20A2-(CH11-CH14) T230886 09 May 2024
DATA LOGGER 34970A T47 T230886 09 May 2024
- This certificate is traceable to :
National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0244.)
- Condition of calibrated item : good
Equipment Description :
Time Constant 1 Hour 6 Minute At 380 °C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
- Adjustment :
(X) without adjustment () after adjustment

Approved By

[Signature]

FM-L13 108/30-05-57



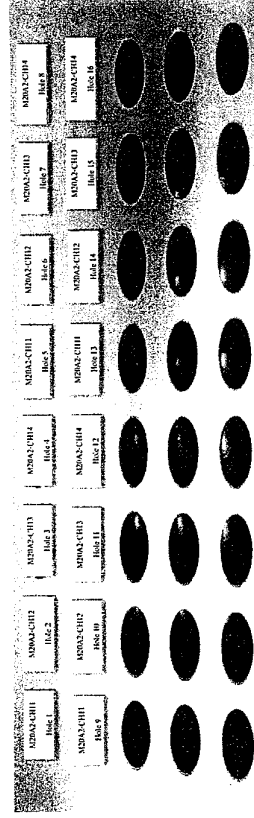
Metrological Center

SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T240742

Page 3 of 5

Calibration Report



FRONT

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards at Block
380.0	380.0 °C	379.2 - 380.5 °C	Reading	Block 1 Block 2 Block 3 Block 4 Block 5 Block 6 Block 7 Block 8 Block 9 Block 10 Block 11 Block 12 Block 13 Block 14 Block 15 Block 16
			Max °C	378.7 378.9 377.9 378.7 380.5 379.8 378.7 377.4
			Min °C	378.2 378.5 377.5 378.2 380.1 379.3 378.3 376.9
			Average °C	378.4 378.7 377.7 378.4 380.3 379.6 378.5 377.2
			Stability ± °C	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2

Cal. Point	Setting	Reading	STD.	Position of Standards at Block
380.0	380.0 °C	379.2 - 380.5 °C	Reading	Block 1 Block 2 Block 3 Block 4 Block 5 Block 6 Block 7 Block 8 Block 9 Block 10 Block 11 Block 12 Block 13 Block 14 Block 15 Block 16
			Max °C	378.4 378.6 379.2 379.6 381.9 380.6 379.1 378.1
			Min °C	377.8 378.2 378.7 379.2 381.4 379.9 378.3 377.2
			Average °C	378.1 378.4 379.0 378.4 381.6 380.3 378.7 377.7
			Stability ± °C	0.3 0.2 0.2 0.2 0.3 0.4 0.4 0.5

Approved By

[Signature]

FM-L13 108/30-05-57



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

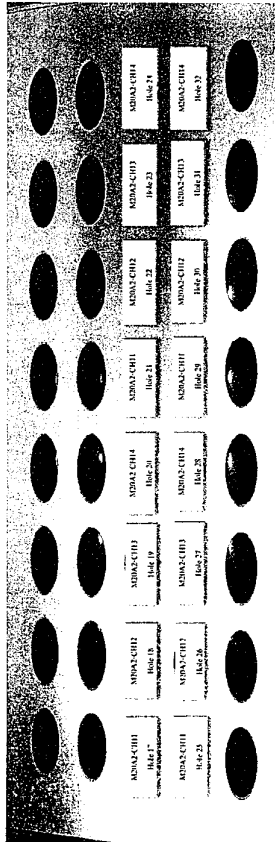
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T240742

Page 4 of 5

Calibration Report



FRONT

Measurement Results

Cal. Point (°C)	Setting (°C)	Reading (°C)	STD.	Position of Standards at Block											
				Reading (°C)	Max °C	Min °C	Average °C	Stability ± °C	Block 17	Block 18	Block 19	Block 20	Block 21	Block 22	Block 23
380.0	380.0	379.2 - 380.5	0.3	378.9	379.2	378.6	378.5	0.3	378.9	379.2	378.6	378.5	380.1	380.2	380.6
				378.9	379.2	378.6	378.5	0.3	378.9	379.2	378.6	378.5	380.1	380.2	380.6
				378.9	379.2	378.6	378.5	0.3	378.9	379.2	378.6	378.5	380.1	380.2	380.6
				378.9	379.2	378.6	378.5	0.3	378.9	379.2	378.6	378.5	380.1	380.2	380.6

Cal. Point (°C)	Setting (°C)	Reading (°C)	STD.	Position of Standards at Block											
				Reading (°C)	Max °C	Min °C	Average °C	Stability ± °C	Block 24	Block 25	Block 26	Block 27	Block 28	Block 29	Block 30
380.0	380.0	379.2 - 380.5	0.2	378.4	378.5	378.1	378.2	0.2	378.4	378.5	378.1	378.2	379.0	379.7	380.6
				378.4	378.5	378.1	378.2	0.2	378.4	378.5	378.1	378.2	379.0	379.7	380.6
				378.4	378.5	378.1	378.2	0.2	378.4	378.5	378.1	378.2	379.0	379.7	380.6
				378.4	378.5	378.1	378.2	0.2	378.4	378.5	378.1	378.2	379.0	379.7	380.6

Approved By.

[Signature]

FM-L13 108/30-05-57



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

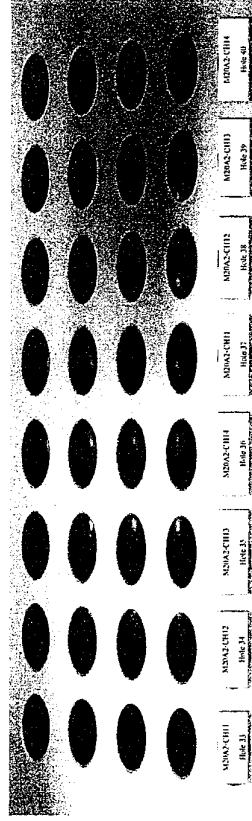
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T240742

Page 5 of 5

Calibration Report



FRONT

Measurement Results

Cal. Point (°C)	Setting (°C)	Reading (°C)	STD.	Position of Standards at Block											
				Reading (°C)	Max °C	Min °C	Average °C	Stability ± °C	Block 31	Block 32	Block 33	Block 34	Block 35	Block 36	Block 37
380.0	380.0	379.2 - 380.5	0.2	378.3	378.3	378.0	378.2	0.2	378.3	378.3	378.0	378.2	378.7	378.7	380.5
				378.3	378.3	378.0	378.2	0.2	378.3	378.3	378.0	378.2	378.7	378.7	380.5
				378.3	378.3	378.0	378.2	0.2	378.3	378.3	378.0	378.2	378.7	378.7	380.5
				378.3	378.3	378.0	378.2	0.2	378.3	378.3	378.0	378.2	378.7	378.7	380.5

The expanded uncertainty of temperature measurement was $\pm 1.87^\circ\text{C}$

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95 %.

Approved By.

[Signature]

FM-L13 108/30-05-57



บริษัท ดับเบิล เอส ไดแอกโนสติกส์ จำกัด
DOUBLE S DIAGNOSTICS CO., LTD.

4 ซอยสุขุมวิท 14 แขวงคลองเตย เขตคลองเตย กรุงเทพฯ 10110 โทรศัพท์: (02) 747-7008
โทรสาร: (02) 747-7009 แฟกซ์: (02) 747-7008

Maintenance Plan YEAR : 2023

เดือน	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
สถานะ												
OK												
NG												

Periodical maintenance check list for Konelab

	6M	12M	Note
1.Diluent-wash tubing change	☐	☒	
2.ISE tubing change	☐	☒	None
3.Syringe check/change	☒	☒	
4.Dispensing check/ change	☒	☒	
5.Waste tubing change when necessary	☒	☒	
6.Lamp check/change	☒	☒	
7.Mixer paddle/paddle change(not Konelab20)	☐	☒	None
8.ISE needles check/change	☐	☒	
9.Pump tubing check/change	☐	☒	
10.Broken/worn out part check /change	☐	☒	
11.Peristaltic pump check /cleaning/ lubrication	☐	☒	
12.Heating check	☒	☒	
13.Cooling check	☒	☒	
14.Dispenser mechanic check/adjustment	☐	☒	
15.Cuvette transfer mechanic check/adjustment	☐	☒	
16.Dispenser movement check/adjustment	☐	☒	
17.Sample/reagent register check/adjustment	☐	☒	
18.Dispensing tubing tightness check	☐	☒	
19.Photometer and optics cleaning/check/adjustment	☐	☒	
20.Workstation PC cleaning if necessary	☐	☒	
21.Mechanic cleaning/lubrication	☐	☒	
22.Instrument cleaning if necessary	☐	☒	
23.Complete analyzer testing with waterblank/QC or sample	☐	☒	
24.Test parameters/Adjustment/config. Save to USB key	☐	☒	
25.UPS Test	☐	☒	

Place: ALS LAB Instrument: 890 Aquakem
Date/Time: 12/7/66 Serial no: 99981
Service done by: 61728- Install date: 12/1/66
Signature of customer: 9991 Date/Time:

Accuracy results Aquakem 7.2.AQ2 Page: 1

Laboratory
Analyzer User

7/12/2023 21:21

Performed 7/12/2023
Lot W166

ACCEPTANCE CRITERIA

	Result	Limit	Warning
Temperature (°C)	37.7	37.0 +/- 1.0	
Dispensing ratio CV%	16.4 1.17	14.8 - 17.2 <1.7	
Photometric noise Max SD L340_2 (mV) Max SD L340_4 (mV)	0.19 1.06	<2.0 <3.0	
Linearity of photometer Slope Curvature Max bias from linear fit (mV) Max delta %	1.0188 0.0035 3.2 -2.0	0.94 - 1.06 +/- 0.02 <15.0 +/- 6.0	
Linearity of sample dispensing Proport. volume XDISP2 (21) Proport. volume XDISP4 (21) XDISP2 CV% XDISP4 CV% XDISP10 CV%	2.06 4.13 0.58 0.70 0.59	1.96 - 2.16 3.85 - 4.40 <2.0 <2.0 <2.0	
Needle 0 21 volume Average (A) Standard deviation (A) Volume (21)	0.009 0.002 0.06	<0.050 <0.005 <0.32	

OTHER INFORMATION

Dispensing ratio	Photom., noise: SD (mV)
Posit Result (A)	Posit L340_2 L340_4
1 0.1592	1 0.07 0.64
2 0.1624	2 0.09 1.06
3 0.1631	3 0.14 0.50
4 0.1631	4 0.13 0.53
5 0.1625	5 0.19 0.38
6 0.1650	6 0.02 0.64

Laboratory
Analyzer User

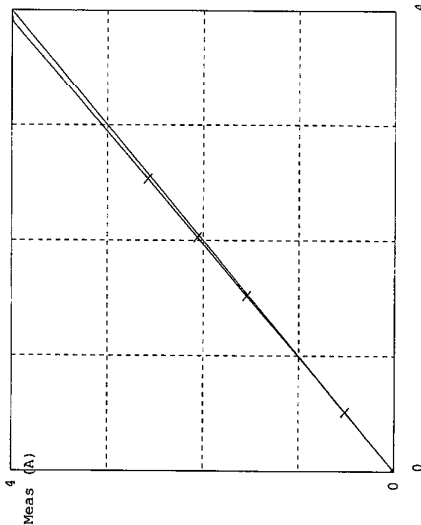
7/12/2023 21:21

Linearity of sample dispensing

Test
XDISP2 0.311
XDISP4 0.616
XDISP10 1.478

Linearity of photometer

L340_	Target (A)	Meas (A)	Delta (A)	Delta %
1	0.001	0.005	-0.004	-394.7
2	0.512	0.519	-0.007	-1.5
3	1.523	1.550	-0.027	-1.8
4	2.027	2.066	-0.039	-1.9
5	2.532	2.582	-0.050	-2.0



4 Target (A)



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/44 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2713-5800, 29 FAX. 0-2710-9481



Cert. No.: 23TMM103
Page: 1 of 3

Certificate of Calibration

Equipment : Autoclave
Manufacturer : Sanyo
Model : MLS-3781
Serial No. : 830167
ID No. : BKK_ML0037

REVIEW BY	Sittichok
APPROVED BY	[Signature]
NEXT CAL. DATE	17/01/25

Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwang Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : Media Preparation Room

Received Order : 17 July 2023
Calibration Date : 17 July 2023
Ambient Temperature : (26 ± 10) °C
Relative Humidity : (50 ± 30) %

Calibrated by : Preecha Hahib

Approved by : [Signature]
Approved Signatory

() Ponthippa Taneyakul
() Malee Burkrua
(✓) Suwit Injai

Issue Date : 24 July 2023

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 3 : Equipment Calibration and Testing Services.

A 0053615



Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2307-0285OC-3
Cert. No.: 23TM1103
Page : 2 of 3

Procedure Used :-

Calibration were conducted using in-house calibration procedure CP-OT03 according to direct measurement method with Data Acquisition which connected with 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	MY57013823	23LM66	TPA	25 Mar 2024
2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.
4. This result of calibration covers laboratory autoclaves for the sterilization of goods and material which could be infected with organisms categorized as Hazard Group 1, 2 and 3**

(** = Categorization of pathogens according to hazard and categories of containment, second edition, 1990)
It does not cover autoclaves for use with material infect with organisms in Hazard Group 4, for which complete containment and sterilization of infected condensate is considered to be essential.

This result of calibration does not apply to sterilizers or disinfectors used for medical, dental, pharmaceutical or veterinary purposes which are directly concerned with patient care, or those used for fabrics subjected to sterilization which are required to be dry at the end of cycle.

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

Result of Calibration :-

Function of UUC* : (*) Without Adjustment
Temperature Source



Environmental	
(°C)	(%R.H.) (Volt)
Beginning of Calibration	22 53 220
Finished of Calibration	22 54 220

Position	Description	Ref. Std. ID No.:
1 =	Center of chamber	22-17TC-01
2 =	Temperature sensor	23-17TC-02
3 =	Exhaust port	19-17TC-03

Yunt

a 1159503



Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2307-0285OC-3
Cert. No.: 23TM1103
Page : 3 of 3

Result of Calibration :-

Function of UUC* : (*) Without Adjustment
Temperature Source

Operating parameter Set : Temperature = 121 °C

Sterilization period = 15 minute

UUC* Setting (°C)	UUC* Reading (°C)	Position	Average* Standard Reading (°C)	Stability (± °C)	Pressure Reading (MPa)	Uncertainty (± °C)	Coverage Factor k
121	121	1	120.877	0.39	0.12	1.0	2
		2	120.870				
		3	120.866				

Average* : The average of 30 values in each position.

Stability : One-half of the greatest maximum difference of measured temperature at any one probe.

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 %.

-o0o-

Yunt

a 1159504



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
334/6 PATTANAKARN ROAD SOI 18, SUAN LUANG, SIAM TANG BANGKOK 10250
TEL. 02-2713 9000-29 FAX. 02-2710-9424



Cert. No.: 23TM1146
Page : 1 of 3

Certificate of Calibration

Equipment : Incubator
Manufacturer : SHEL-LAB
Model : 1915A
Serial No. : 0200599
ID No. : BKK_ML0010

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

Location : Incubation & Micrological Reading

Received Order : 17 July 2023
Calibration Date : 17 July 2023
Ambient Temperature : $(28 \pm 10) ^\circ\text{C}$
Relative Humidity : $(50 \pm 30) \%$

Calibrated by : Man Pattanapongsaiboon

Approved by : 
Approved Signatory

() Porphippa Tanayakul
() Malee Butkruea
() Suwit Imjai

Issue Date : 24 July 2023

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 3: Equipment, Calibration and Testing Services.

A 0056489



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2307-02850C-1
Procedure Used :

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector (RTD).
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 : MY49001451 : 23LM27 : TPA : 25 Feb 2024

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

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

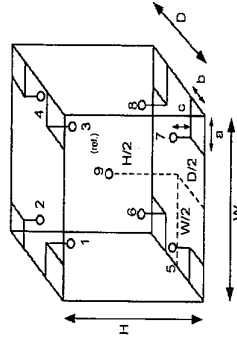
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration	
Beginning	Finished
Temp. (°C)	24 24
REL.Humid. (%)	54 56
AC Supply (Volt)	221 223



Probe Installation Details : Dimension of Chamber :
a = 10 cm D = 0.50 m
b = 10 cm W = 0.75 m
c = 10 cm H = 1.2 m
Capacity = 0.45 m³

Position :	Ref. Std. ID No.:
1	19RTD-2/1
2	19RTD-2/2
3	19RTD-2/3
4	19RTD-2/4
5	19RTD-2/5
6	19RTD-2/6
7	19RTD-2/7
8	19RTD-2/8
9 (ref.)	19RTD-2/9



a 1172189



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.D-2717-3000-29 FAX.D-2719-9484



ISO 17025
CALIBRATION 0008

Cert. No.: 23TM1146
Page : 3 of 3

Equipment : Incubator
Condition As-Received : Used Item
Reference : 2307-0285OC-1
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor k
35.0	35.0	35.0	0.055	0.30	0.44	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (±°C)
	1	2	3	4	5	6	7	8	9 (ref.)	
35.0	34.898	34.933	34.815	34.813	35.064	35.019	35.156	35.141	35.087	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 %.

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Cert. No.: 24TM667
Page : 1 of 3

Certificate of Calibration

Equipment : Hot Air Oven
Manufacturer : Binder
Model : ED 240/E2
Serial No. : 00-15533
ID No. : BKK_MLD013

REVIEW BY : Sithichok T.
APPROVED BY :
NEXT CAL DATE : 23/10/25

Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phathanakan 40, Phathanakan Rd.,
Khwaeng Phathanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : Media Preparation Room

Received Order : 23 April 2024
Calibration Date : 23 April 2024
Ambient Temperature : (26 ± 10) °C
Relative Humidity : (50 ± 30) %

Calibrated by : Tawatchai Pama

Approved by :
Approved Signatory

() Ponpan Paipim
(✓) Suwit Injai
() Kunchit Promprat

Issue Date : 26 April 2024

The Uncertainties are for a confidence probability of approximately 95%

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970000

a 1172188



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2404-04390C-8

Cert. No.: 24TM667
Page : 2 of 3

Procedure Used :-

Calibration were conducted using calibration procedure C²-OT02 based on TLAS G-20 according to direct measurement method with Data Acquisition which connected with 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 MY4900-451 24LM44 TPA 17 Mar 2025

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

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

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

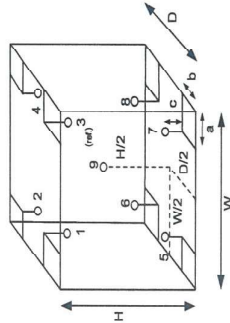
Result of Calibration :-

(*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp. (°C)	24	23
REL Humid. (%)	65	65
AC Supply (Volt)	223	222



Probe Installation Details :

a = 10 cm
b = 10 cm
c = 10 cm

Dimension of Chamber :
D = 0.50 m
W = 0.80 m
H = 0.60 m
Capacity = 0.24 m³

Position :	Ref. Std. ID No.:
1	24-19TC-01
2	24-19TC-02
3	24-19TC-03
4	24-19TC-04
5	24-19TC-05
6	24-19TC-06
7	24-19TC-07
8	24-19TC-08
9 (ref.)	24-19TC-09



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2404-04390C-8
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 24TM667
Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor k
180	180	180	0.64	2.7	3.7	2
Measured Temperature (°C)						
Position						
1	2	3	4	5	6	7
181.009	181.511	180.922	181.359	181.217	183.659	181.664
180	181.009	181.511	180.922	181.217	183.659	181.664
Uncertainty (± °C)						1.5

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 %.

-o0o-



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.0-2717-3000-29 FAX.0-2719-9464



MAC
NCC-183-1837625
CALIBRATION 1888

Certificate of Calibration

Cert. No.: 24TM469
Page : 1 of 3

Equipment : Water Bath
Manufacturer : Memmert
Model : WNE 45
Serial No. : L712.0429
ID No. : BKK_ML0056

Submitted by :

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

Location :

Incubation \$ Microbiological Reading

Received Order :
Calibration Date :
Ambient Temperature :
Relative Humidity :

01 March 2024
01 March 2024
(26 ± 10) °C
(50 ± 30) %

Calibrated by :

Krisda Malee

Approved by :

Approved Signatory

() Ponthippa Tameyakul
() Unnopphol Harachai
(✓) Suwit Injai

Issue Date :

4 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 3 : Equipment Calibration and Testing Services.



Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2403-0001OC-1

Procedure Used :-

Calibration were 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 MY57013711 23LM115 TPA 11 Jul 2024

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

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

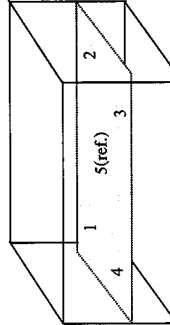
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Heat transfer medium used : Water

	Environmental		AC Voltage Supply
	(°C)	(%R.H.)	(Volt)
Beginning of Calibration	24	55	221
Finished of Calibration	23	56	220



Front

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

Cert. No.: 24TM469
Page : 2 of 3



Cert. No.: 24TM469
Page : 3 of 3
Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2403-0001OC-1
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source

Calibration point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Average* Standard Reading (°C)					Uncertainty (± °C)
			1	2	3	4	5 (ref.)	
44.5	44.5	44.5	44.469	44.462	44.492	44.510	44.496	0.15
45.0	45.0	45.0	44.975	44.974	45.007	45.023	44.999	0.15

Calibration point (°C)	Uniformity (°C)	Stability (± °C)	Coverage Factor k
44.5	0.087	0.029	2
45.0	0.069	0.031	2

Average* : The average of 30 values in each position.
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.
Stability : One-half of the greatest maximum difference of measured temperature at any one probe.
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 %.

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Sartorius (Thailand) Co., Ltd.
128 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel : +66 2643 8361-6, e-mail: service.thailand@sartorius.com



SARTORIUS

Certificate

NSC-TS18TS 17025
CALIBRATION 0426

REVIEW BY SITHIKOLK
APPROVED BY [Signature]
NEXT CAL. DATE 23/01/25

of Calibration

Model Number : CP3202S
Description : Precision Balance
Serial Number : 16704832
ID No. : BKK_ML0001
Manufacturer : Sartorius
Certificate No. : 24BCI0026
Issued Date : Thursday, January 25, 2024
Reference No. : 227439
Page No. : 1 of 2

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

Calibrated Place : Balance Room.

Calibrated By : Mr.Chonchai Inthana
Calibration Date : Tuesday, January 23, 2024
Calibration Procedure No. : This calibration was conducted by Using in-house calibration procedure number (WI-003)
Based on UKAS LAB 14 : 2019

Metrological data :
Capacity : 3,200 g Readability : 0.01 g
Reasons for calibration
☐ New Installation ☐ Service / Repaired ☒ Re-calibration/ Maintenance ☒ Good Operate ☐ Fair

Ambients Conditions:

Temperature : 22.0 °C ± 3.0 °C
Humidity : 60.0 % RH ± 5.0 % RH
Pressure : ±

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 realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came form list of Sartorius Metrological Specifications.

Traceability:

Model Number	Description	Traceability	Certificate No.	Due Date
YCS011-522-00	Sartorius weight set 1mg - 5000g E2,YCS011-522-00	TCS	M2308197S	23-Aug-2025
MHB-382SD	Humidity/Barometer/Temp Lutron MHB-382SD	DKSH	C19231845	23-Aug-2024

This certificate relate and apply this equipment 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]

SOP FM 33 03 February 2022

Mr.Chonchai Inthana(Technical Manager)





Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2310-0006OC-6
Page : 2 of 4

Cert. No.: 23TM1408
Page : 3 of 4

Procedure Used :-

Calibration were conducted using in-house calibration procedure CP-OT03 according to direct measurement method with Data Acquisition which connected with 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 | MY57013823 | 23LM66 | TPA | 25 Mar 2024 |
2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.
4. This result of calibration covers laboratory autoclaves for the sterilization of goods and material which could be infected with organisms categorized as Hazard Group 1, 2 and 3**

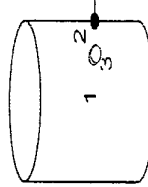
(** = Categorization of pathogens according to hazard and categories of containment, second edition, 1990)
It does not cover autoclaves for use with material infect with organisms in Hazard Group 4, for which complete containment and sterilization of infected condensate is considered to be essential.

This result of calibration does not apply to sterilizers or disinfectors used for medical, dental, pharmaceutical or veterinary purposes which are directly concerned with patient care, or those used for fabrics subjected to sterilization which are required to be dry at the end of cycle.

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

Result of Calibration :-

Function of UUC* :



	Environmental		
	(°C)	(%R.H.)	(Volt)
Beginning of Calibration	26	64	221
Finished of Calibration	27	67	222

Position	Description	Ref. Std. ID No.:
1 =	Center of chamber	19-17TC-08
2 =	Temperature sensor	19-17TC-09
3 =	Exhaust port	19-17TC-10

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Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2310-0006OC-6
Page : 3 of 4

Cert. No.: 23TM1408
Page : 3 of 4

Function of UUC* :

Operating parameter Set : Temperature = 108 °C
Sterilization period = 10 minute

UUC* Setting (°C)	UUC* Reading (°C)	Position	Average* Standard Reading (°C)	Stability (± °C)	Pressure Reading (MPa)	Uncertainty (± °C)	Coverage Factor k
108	108	1	108.352	0.12	0.04	0.90	2
		2	108.263				
		3	108.140				

Operating parameter Set : Temperature = 115 °C
Sterilization period = 20 minute

UUC* Setting (°C)	UUC* Reading (°C)	Position	Average* Standard Reading (°C)	Stability (± °C)	Pressure Reading (MPa)	Uncertainty (± °C)	Coverage Factor k
115	115	1	115.376	0.13	0.08	0.90	2
		2	115.297				
		3	115.157				

Operating parameter Set : Temperature = 118 °C
Sterilization period = 10 minute

UUC* Setting (°C)	UUC* Reading (°C)	Position	Average* Standard Reading (°C)	Stability (± °C)	Pressure Reading (MPa)	Uncertainty (± °C)	Coverage Factor k
118	118	1	118.083	0.11	0.09	0.90	2
		2	118.037				
		3	117.954				

Average* : The average of 30 values in each position.

Stability : One-half of the greatest maximum difference of measured temperature at any one probe.

UUC* : Unit Under Calibration

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

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Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2310-0006OC-6
Result of Calibration : (*) Without Adjustment
Function of UUC* : Temperature Source

Operating parameter Set : Temperature = 121 °C
Sterilization period = 30 minute

UUC* Setting (°C)	UUC* Reading (°C)	Position	Average* Standard Reading (°C)	Stability (± °C)	Pressure Reading (MPa)	Uncertainty (± °C)	Coverage Factor <i>k</i>
121	121	1	121.186	0.17	0.11	0.91	2
		2	121.082				
		3	120.980				

Average* : The average of 30 values in each position.

Stability : One-half of the greatest maximum difference of measured temperature at any one probe.

UUC* : Unit Under Calibration

Note : The reported uncertainty of measurement was excluded stability.

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 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/44 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL 0-2717-3006-29 FAX 0-2719-0481



Cert. No.: 23TM1366
Page : 1 of 3

Certificate of Calibration

Equipment : Incubator
Manufacturer : Memmert
Model : ICP 750
Serial No. : F816.0004
ID No. : BKK_ML0189

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : Incubation & Microbiological Reading

Received Order : 03 October 2023
Calibration Date : 03 October 2023
Ambient Temperature : (26 ± 10) °C
Relative Humidity : (50 ± 30) %

Calibrated by : Man Pattanapongsaiboon

Approved by :
() Parnthippa Tameyakul
(X) Ponpan Paipim
() Suwit Injai

Approved Signatory

Issue Date : 11 October 2023

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 3: Equipment Calibration and Testing Services.

A 0053222



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2310-0006OC-3
Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector (RTD).
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 MY49023932 23LM122 TPA 26 Jul 2024

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

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

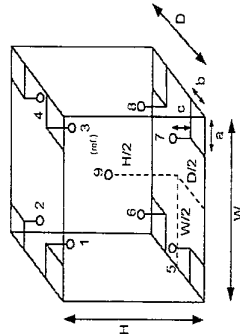
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp (°C)	24	24
REL Humid. (%)	54	56
AC Supply (Volt)	222	224



Probe Installation Details :
a = 10 cm
b = 10 cm
c = 10 cm
Dimension of Chamber :
D = 0.50 m
W = 1.1 m
H = 0.80 m
Capacity = 0.44 m³

Position :	Ref. Std. ID No. :
1	19-16RTD-01
2	19-16RTD-02
3	19-16RTD-03
4	19-16RTD-04
5	19-16RTD-05
6	19-16RTD-06
7	21-16RTD-07
8	19-16RTD-08
9 (ref.)	19-16RTD-09

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Equipment : Incubator
Condition As-Received : Used Item
Reference : 2310-0006OC-3
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor k
37.0	37.0	37.0	0.026	0.13	0.18	2

Measured Temperature (°C)								
Position								
1	2	3	4	5	6	7	8	9 (ref.)
36.994	36.907	37.045	37.002	37.007	37.002	37.008	36.995	36.923
Uncertainty (± °C)								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 %.

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a 1184538

ภาคผนวก จ

สำเนาหนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการ

วิเคราะห์เอกชน



ที่ อก ๐๓๑๐(๑)/ ๑ บ ๑ ๖ ๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒ ๐ พฤศจิกายน ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แล็บราทอรี่ กรุ๊ป (ประเทศไทย) จำกัด
อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแม่แบบผลการ และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๔ สิงหาคม ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผ่น
๓. ขอบข่ายสามเหลี่ยมที่ได้รับความเห็นชอบจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผ่น
ตามที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือ
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สดงที่ ๑๐๔ ขอพัฒนาการ ๔๐
ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แล็บราทอรี่ กรุ๊ป (ประเทศไทย) จำกัด
ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้
ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๒
ค. ขอบข่ายสามเหลี่ยมที่ได้รับขึ้นทะเบียนไว้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล
หรือวัสดุที่ไม่ใช่แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะมีผลต่ออายุในวันที่ ๒ กันยายน ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือ
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ
กรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นสุดของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ทั้งนี้เว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีระ จันทน์รัตน์)

นักวิทยาศาสตร์ผู้เชี่ยวชาญ วิทยาการทางเคมี
ผู้อำนวยการกองวิจัยและพัฒนายุทธศาสตร์
ผู้บริหารด้านเคมีภัณฑ์และเครื่องสำอางภัณฑ์

กองวิจัยและพัฒนายุทธศาสตร์โรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบผลิตภัณฑ์และทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๕๓๐ ๖๓๑๒ ถึง ๒๕๓๑-๕

โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ถึง ๒๕๓๑

ไปรษณีย์อิเล็กทรอนิกส์ saraban@dw.mail.go.th



"อุตสาหกรรมก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"

สิ่งที่ส่งมาด้วย ๑

เอกสารแนบท้ายหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอแอลเอส แล็บราทอรี่ กรุ๊ป (ประเทศไทย) จำกัด
ที่ อก ๐๓๑๐(๑)/ ๑ บ ๑ ๖ ๕ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

- ๑) นางสาวยุพพร จันทน์รัตน์ ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๑
- ๒) นางสาวจันทน์ โภการกุล ณ นคร ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๒
- ๓) นางสาวพชร จิตราชนนท์ ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๓
- ๔) นางสาวกนกกร เอกก ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๔
- ๕) นายสุริยา สอนแก้ว ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๕
- ๖) นายวิญญู ชุนทรรัตน์ ทะเบียนเลขที่ ๖-๒๐๔-ค-๐๐๐๖

เอกสารแนบท้ายหนังสือร้องเรียนขอขึ้นทะเบียนเพื่อขอขึ้นทะเบียนโครงการเพื่อเอกชน

บริษัท เอลเอส แลอรทอรี่ กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖๒๐๔

ที่ กก ๐๓๐(๑)/ ๑ ๖ ๑ ๖ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๔๑ ราย

- ๑) นายภาณุวัฒน์ กิตติคุณนิพนธ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๑
- ๒) นายภัทรพล สว่างใจธรรม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๒
- ๓) นายธนกร ทรัพย์คำ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๓
- ๔) นายศุภมิตร พงษ์ธรรม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๔
- ๕) นายอัฐวิทย์ ด่วนแพง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๕
- ๖) นางสาวจินดา ไชยธรรม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๖
- ๗) นางสาวศิริวิทย์ น้อยเสียม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๗
- ๘) นางสาวชณัฐกาญจน์ อิมเม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๘
- ๙) นางสาวนรินทร์ สายแสง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๐๙
- ๑๐) นางสาวนันทิ สมบูรณ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๐
- ๑๑) นางสาวศรัณยา เอลิมอาร์งด์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๑
- ๑๒) นางสาวณัฐพร มงคลจิราวัฒน์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๒
- ๑๓) นางสาวศิริลักษณ์ บุญาค ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๓
- ๑๔) นายพนพพัทธ์ จันทร์บุรี ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๔
- ๑๕) นายณรงค์ ฐิติมาลัย ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๕
- ๑๖) นายธันวรา จักรยา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๖
- ๑๗) นางสาวนันทิพร แก้วมัน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๗
- ๑๘) นางสาวสุเมธ ชัยเรืองภูมิ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๘
- ๑๙) นางสาวสุชาดา ธรรมถาวร ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๑๙
- ๒๐) นางสาวเปี่ยมา ชัยเดชมงคล ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๐
- ๒๑) นางสาวศศิธร หนูสวัสดิ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๑
- ๒๒) นางสาวเสาวลักษณ์ ภูนาอำพร ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๒
- ๒๓) นายอภิสิทธิ์ สิงหา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๓
- ๒๔) นายศักดิ์สิทธิ์ ไชยสิทธิ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๔
- ๒๕) ว่าที่ร้อยตรีหญิง พรรณีภา จำเจริญ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๕
- ๒๖) นางจิตดา คำแก้ว ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๖
- ๒๗) นางสาวอรรณพ รักง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๗
- ๒๘) นางสาวนันทน์ แยมกรานต์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๘
- ๒๙) นายจุลเดช วารินทร์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๒๙
- ๓๐) นางสาวดาวิรัตน์ ร้องคำ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๐
- ๓๑) นายพรมณ์ ศรีบัณฑิต ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๑
- ๓๒) นายอุทิศ อุณิม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๒
- ๓๓) ว่าที่ร้อยตรี เอลิมเกียรติ อมรศรีเสริม ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๓
- ๓๔) นางสาววริยา สร้างนา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๔
- ๓๕) นายอนุพงศ์ รัตนศรีประเสริฐ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๕

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๓๖) นางสาวจุฑารัตน์...

- ๓๖) นางสาวจุฑารัตน์ โยสนันธิยะ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๖
- ๓๗) นางสาวจรรณม พิมพ์กิตติยา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๗
- ๓๘) นางสาวปรังสิทธิ์ กิ่งไพศาลศักดิ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๘
- ๓๙) นางสาวเดือนใจ ทางกลาง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๓๙
- ๔๐) นางสาวจิราพร ศิริราช ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๐
- ๔๑) นายวรากร สุภักษ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๑
- ๔๒) นายพนง วีระสภกิจ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๒
- ๔๓) นายณิชา เจนจบ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๓
- ๔๔) นายณิศร จำพร ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๔
- ๔๕) นายวิฑูร พรหมสะอาด ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๕
- ๔๖) นายธนเดช โมคำทิพัฒน์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๖
- ๔๗) นายชวฤทธิ์ วงษ์จันทร์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๗
- ๔๘) นายอาทิตย์ ศรีเสน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๘
- ๔๙) นายเจตตินทร คงศักดิ์ไทย ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๔๙
- ๕๐) นายกรรณ บุญยิ่ง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๐
- ๕๑) นายธนาธิปไตย โอนา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๑
- ๕๒) นายอภิวัฒน์ ทุมพญ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๒
- ๕๓) นางสาวภาณุวิทย์ มาก ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๓
- ๕๔) นางสาวพัชร ขวาลสมบูรณ์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๔
- ๕๕) นางสาวธิดา บุญเที่ยง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๕
- ๕๖) นางสาวภาณุมาศ นามวัฒน์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๖
- ๕๗) นางสาวไรรัตน์ พึ่งสร้างเป็น ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๗
- ๕๘) นายธีรวัฒน์ ปางสุ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๘
- ๕๙) นายอติพล ยะใส ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๕๙
- ๖๐) นายประพนธ์ วรรณสุข ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๐
- ๖๑) นายชยธร พวงทิพย์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๑
- ๖๒) นางสาวกนกวรรณ จันทร์บาล ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๒
- ๖๓) นายสิทธิเดช ธงเงิน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๓
- ๖๔) นางศศิลาธรรม ไชยญ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๔
- ๖๕) นางสาวพรรณธิดา พุ่มคง ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๕
- ๖๖) นายบวรภัทร ศรีวัชร ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๖
- ๖๗) นายสุวิศา ทองอ่อน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๗
- ๖๘) นายวิญญู บุญตระกูล ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๘
- ๖๙) นายสมบูรณ์ บุตรจันทร์ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๖๙
- ๗๐) นายวิรัตน์ ไชยเมธา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๗๐
- ๗๑) นายณพคน เหมพูน ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๗๑
- ๗๒) นายจิรพันธุ์ ขาละอ ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๗๒
- ๗๓) นายธีร์ นามบุรี ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๗๓
- ๗๔) นายอัครเดช จอสา ทะเบียนเลขที่ ๖-๒๐๔-๖-๐๐๗๔

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๗๕) นายประเสริฐ...

๗๕) นายประเสริฐ สุระขันธุ์
๗๖) นายบุญชู จันทรานิยม
๗๗) นายพิรุณ ของอุปรีดา
๗๘) นายฤทธิรงค์ ทองนุช
๗๙) นายอนุวัฒน์ หอมเพชร
๘๐) นายเจตคุรุวิฑูรี ปัตตะมะ
๘๑) นายฤกษ์ณะ สายวรรณ
๘๒) นายพิชัย บุญเกิด
๘๓) นางกาญจน์ โสมวงศ์
๘๔) นายสมภารณ ทูปเถี
๘๕) นายสัญญา โกศรีนาม
๘๖) นายณัฐวุฒิ ศรีประเสริฐ
๘๗) นายชลวิรัช นาคพนม
๘๘) นายพจนคร ชัยทิพย์
๘๙) นายสิทธิโชค ทาสีดา
๙๐) นายอนุภากร อินเสดา
๙๑) นางสาวกรรณิศา ขาดวันชัย
๙๒) นางสาวพนิตะวัน มีนากุล
๙๓) นางสาวเพชรรัตน์ สิงห์สมบุญ
๙๔) นางสาวพญานิพน พรหมจันทร์
๙๕) นายกิตติ ทวีราช
๙๖) นายจักริน นันทวิชา
๙๗) นายฉัตรชัย สุทธิชัย
๙๘) นายณรรเบห์ สัตโธงคำ
๙๙) นายศุภพล สมนอก
๑๐๐) นายทักษิณ อุบลศรี
๑๐๑) นายธนากร นามะกุลเมธา
๑๐๒) นายธิตพงศ์ บัวแดง
๑๐๓) นายมนทชัย อุปัทม์
๑๐๔) นายณัฐพล คุณสุทธิ์
๑๐๕) นายณัฏฐนัน ศรีวิน
๑๐๖) นายปิยะวิฑูร พลชนะศรี
๑๐๗) นายพงษ์ศิริ โสมเขียว
๑๐๘) นายพิพัฒน์ ปักคำ
๑๐๙) นายกาญจน์ มณีโดย
๑๑๐) นายมงคล ผลทิพย์
๑๑๑) นายสิริมนต์ ทองอิน
๑๑๒) นายอนุชา พันสมัย
๑๑๓) นายอดิศักดิ์ ฝมไผ

๑๑๔) นายอนันตชัย...

๑๑๕) นายอนันตชัย...

๑๑๕) นายอนันตชัย วิมล
๑๑๖) นายวรวิฑูร ตันภา
๑๑๗) นายแสงตะวัน นตะสัถ
๑๑๘) นายยุทธพงศ์ รัตนะ
๑๑๙) นายชัยนุติ ไชยะนิจ
๑๒๐) นายวิศรุต ศรีธรรมมา
๑๒๑) นายมนทกร เดียงทอง
๑๒๒) นายกำชัย สุทธิ
๑๒๓) นางสาวณัฐรัตน์ บุญชนะ
๑๒๔) นางสาวพัชรินทร์ แสนสร้อย
๑๒๕) นายไพรัชย์ เปี่ยมพิมาย
๑๒๖) นางสาวศุภมาศ ทองมาก
๑๒๗) นางสาวลลิตา จิตสว่าง
๑๒๘) นางสาวพนมพร เล็กแก้ว
๑๒๙) นางสาวกนิมาพร คำแก่น
๑๓๐) นางสาวสกลรัตน์ ภาคภูมิ
๑๓๑) นางสาวไกรรินทร์ ศรีรูป
๑๓๒) นางสาวทิพนตร ยุบปัญญา
๑๓๓) นางสาวธิดา ปานทอง
๑๓๔) นางสาวอริสา ทองนวล
๑๓๕) นางสาวอรยา คำคล้อง
๑๓๖) นางสาวศุภมาศ สุนทรสนาม
๑๓๗) นางสาวอัญชลี คำจันทร์
๑๓๘) นายบุญฤทธิ์ เอี่ยมเทศ
๑๓๙) นางสาวศุภมาศ ปันมยุรา
๑๔๐) นางสาวพณิศา คุณนาม
๑๔๑) นางสาวจิราเจต พงศา
๑๔๒) นางสาวอรยา มีชัย
๑๔๓) นางสาววิฑูตา นาคบุญ
๑๔๔) นางสาวนันทยา จันทะถน
๑๔๕) นายกิตติพงศ์ แซ่
๑๔๖) นายณัฐ ภูริวิ
๑๔๗) นายธีรพล แสงทอง
๑๔๘) นายศักดิ์พัฒน์ บุญ
๑๔๙) นายวิฑูร วัฒน
๑๕๐) นายชัยณรงค์ ศรีไทร
๑๕๑) นางสาวอรรณวรรณ สมนอง
๑๕๒) นางสาวณัฐพร สิงหา
๑๕๓) นายณิเรก แหมไ

๑๕๔) นางสาวเอ...

๑๕๕) นางสาวเอ...

- ๑๕๕) นางสาวอุบล ดิถีศิริ
๑๕๖) นางสาวนันทน์ ทองบุตร
๑๕๗) นายภาคภูมิ แทนไทย
๑๕๘) นางสาวสุภาวดี มัลลิวัง
๑๕๙) นางสาวพรทิศา ลาตาขามิ
๑๖๐) นายเอกวิทย์ วันทะนา
๑๖๑) นายไตรณตล พิพย์รณ
๑๖๒) นายจิรเมธ ประเสริฐพิงค์
๑๖๓) นายจิรายุส เกษมสุข
๑๖๔) นายสิริศักดิ์ ศรีวิชัย
๑๖๕) นายณัฐฤกษ์ชัย สะพานแก้ว
๑๖๖) นายบุญศักดิ์ ปะที
๑๖๗) นายบัณฑิตย์ เสมอทรัพย์
๑๖๘) นายพิชญพงษ์ โยธา
๑๖๙) นายภัทรพงษ์ มณฑาทอง
๑๗๐) นายสัณห์ ตริบุกล
๑๗๑) นายภาณุเดช เพชรอุต
๑๗๒) นายอนุชิต วิเศษแสง
๑๗๓) นายภัทรพงษ์ มีสุข
๑๗๔) นางสาวสุวิมล ลิละทัป
๑๗๕) นางสาวภาวดี โกศลนาม
๑๗๖) นางสาวอรณิชา เวียนคำ
๑๗๗) นางสาวพรเพ็ญ ขอบสอน
๑๗๘) นางสาววิมล ขอนทิบล
๑๗๙) นางสาวอรรณณ เกาทัต
๑๘๐) นางสาวอัยลิณ มอริวัฒน์
๑๘๑) นางสาววิศรา คัญครอง
๑๘๒) นายวุฒิกร ศิริวรรณ
๑๘๓) นางสาวจตุรรม กระจำพันธุ์

- ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๓
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๔
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๕
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๖
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๑

Signature

เอกสารแนบท้ายหนังสือรับต่ออาชญากรรมเพื่อขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์ของ
บริษัท เอลอส แล็บราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๒๐๔
ที่ อก ๐๓๑๐(๑)/ ๑๖ ๑ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖
ค. ขอช่วยสารเลพิษที่รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๑๗๔ รายการ
น้ำเสีย จำนวน ๕๐ รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method ^(a)
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method ^(a)
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method ^(a)
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
6	Barium	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
7	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
8	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
9	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
10	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method ^(a) 2) 5-Day BOD Test, Membrane Electrode Method ^(a)
12	Carbaryl	High-Performance Liquid Chromatographic Method ^(a)
13	Carbofuran	High-Performance Liquid Chromatographic Method ^(a)
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method ^(a) 2) Closed Reflux, Titrimetric Method ^(a)
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
17	Chromium	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
18	Color	ADM Weighted-Ordinate Spectrophotometric Method ^(a)

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

40 Manganese...

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

ไม่ใช้...

หน้าตัด จำนวน 126 รายการ

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

18 Bis(2-ethylhexyl)phthalate...

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

36 Chrysene...

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

56 1,3-Dichloropropene...

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

76 γ-HCH...

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

94 N-Nitrosodiphenylamine...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
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 ^(a)
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
98	pH	Electrometric Method ^(a)
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
100	Phenol	1) Distillation, Chloroform Extraction Method ^(a) 2) Distillation, Direct Photometric Method ^(a) 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
102	Selenium	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
103	Silver	1) Digestion, Inductively Coupled Plasma Method ^(a) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(a)
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(a)
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(a)
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(a)
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(a)
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(a)
109	TPH (C ₅ -C ₉)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^{(a)(4,25)}

110 TPH (C₈-C₁₆)...

ลำดับที่	สารเคมี	วิธีตรวจหา
110	TPH (C ₉ -C ₁₆)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,22)
111	TPH (C ₁₆ -C ₃₅)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,22)
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
126	Zinc	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾

Sm

อากาศเสีย...

อากาศเสีย (ปล่องระบาย) จำนวน 28 รายการ

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

Sm

15 Lead...

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

27 Vanadium...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[5]
28	Xylene	Adsorption Sampling, Gas Chromatographic Method ^[5]

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1.9.26] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1.9.26] 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1.9.26]
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1.6.16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1.6.17] 3) Digestion, Inductively Coupled Plasma Method ^[7.16] 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[7.17]
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1.6.16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1.6.17] 3) Digestion, Inductively Coupled Plasma Method ^[7.16] 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[7.17]
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1.6.16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[1.6.17] 3) Digestion, Inductively Coupled Plasma Method ^[7.16] 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^[7.17]

5 Beryllium...

3 mg

ลำดับที่	สารเคมี	วิธีการหา
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6.16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6.17) 3) Digestion, Inductively Coupled Plasma Method ^(7.16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6.16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6.17) 3) Digestion, Inductively Coupled Plasma Method ^(7.16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.2.26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.2.26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.2.26)
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6.16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6.17) 3) Digestion, Inductively Coupled Plasma Method ^(7.16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1.6.16, 1.9) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1.6.16, 1.9) 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.8, 17.19) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.8, 17.19)

10 Chromium (VI)...

ลำดับที่	สารเคมี	วิธีการหา
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method ^(1.6.19) 2) Alkaline Digestion, Colorimetric Method ^(8.18)
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6.16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6.17) 3) Digestion, Inductively Coupled Plasma Method ^(7.16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6.16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6.17) 3) Digestion, Inductively Coupled Plasma Method ^(7.16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9.26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26)
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9.26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26)
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9.26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26)
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9.26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1.9.26)

2) Soxhlet...

ลำดับที่	สารเคมี	วิธีการหา
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
18	Endrin	
19	Heptachlor	
20	Lead	
21	Lindane	

22 Mercury...

ลำดับที่	สารเคมี	วิธีการหา
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^(1,6,20) 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ^(1,6,30) 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽²⁰⁾ 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽³⁰⁾ 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method ⁽²¹⁾ 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic Method ^(11,26)
23	Methoxychlor	
24	Mirex	
25	Molybdenum	
26	Nickel	
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	

- 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',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',5,5',6'-Heptachlorobiphenyl - 2,2',3,4',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 ^(1,2,3) 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,2,3) 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,2,3) Electrometric Method ^(2,3,4) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,4,5) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,4,5) 3) Digestion, Inductively Coupled Plasma Method ^(1,4) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,17)
29	pH	
30	Selenium	

31 Silver...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,4,5) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,4,5) 3) Digestion, Inductively Coupled Plasma Method ^(1,4) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,17)
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,4,5) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,4,5) 3) Digestion, Inductively Coupled Plasma Method ^(1,4) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,17)
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,2,3) 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,2,3) 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,2,3)
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,4,5) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,4,5) 3) Digestion, Inductively Coupled Plasma Method ^(1,4) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,17)
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,4,5) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,4,5) 3) Digestion, Inductively Coupled Plasma Method ^(1,4) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,17)

31 Silver...

ดิน จำนวน 125 รายการ

ลำดับที่	สารเคมี	วิธีการหา
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
2	Acetone	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23) 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ⁽¹³⁾
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
5	Antimony	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
8	Barium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)

11 Benzo(b)fluoranthene

ลำดับที่	สารเคมี	วิธีการหา
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
21	Butanol	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ^(13,25)
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

Smol

23 Cadmium...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^(7.16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
33	Chromium	1) Digestion, Inductively Coupled Plasma Method ^(7.16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7.17)
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.16, 19) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.17, 19)
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^(6.19)

ลำดับที่	สารเคมี	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
37	Cyanide	Extraction, Distillation, Colorimetric Method ^(27.28, 29)
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10.26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11.26)
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15.25)

ลำดับที่	สารเคมี	วิธีการหา
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)

ลำดับที่	สารเคมี	วิธีการหา
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3) 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ^(1,2,3)

ลำดับที่	สารเคมี	วิธีการหา
74	α-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
75	β-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
76	γ-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
81	Lead	1) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁶⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁷⁾⁽¹⁷⁾
82	Manganese	1) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁶⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁷⁾⁽¹⁷⁾
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽²⁾⁽³⁾ 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry ⁽²⁾⁽¹⁾ 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽²⁾⁽³⁾

84 Methanol...

ลำดับที่	สารเคมี	วิธีการหา
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾ 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
86	Methyl Bromide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾
87	Methylene Chloride	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
90	Methyl tert-Butyl Ether	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽⁵⁾⁽²⁵⁾
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
92	Nickel	1) Digestion, Inductively Coupled Plasma Method ⁽⁷⁾⁽¹⁶⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁷⁾⁽¹⁷⁾
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾ 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽¹⁾⁽²⁾⁽³⁾

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารเคมี	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',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 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'-Octachlorobiphenyl Nonachlorobiphenyl Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
97	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

99 Phenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
101	Selenium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
102	Silver	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
108	TPH (C ₅ -C ₈)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
109	TPH (C ₈ -C ₁₆)	1) Automated Extraction, Gas Chromatographic Method ^(12,21) 2) Solvent Extraction, Gas Chromatographic Method ^(12,21) 3) Ultrasonic Extraction, Gas Chromatographic Method ^(12,21)
110	TPH (C ₁₆ -C ₃₅)	1) Automated Extraction, Gas Chromatographic Method ^(12,21) 2) Solvent Extraction, Gas Chromatographic Method ^(12,21) 3) Ultrasonic Extraction, Gas Chromatographic Method ^(12,21)
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)

115 2,4,5-Trichlorophenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
115	2,4,5-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,24) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,24)
116	2,4,6-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,24) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,24)
117	1,3,5-Trimethylbenzene	Mass Spectrometric Method ^(15,23) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method ^(7,14) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
121	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
122	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
123	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,23)
125	Zinc	1) Digestion, Inductively Coupled Plasma Method ^(7,14) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)

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ที่ อก ๐๓๑๐(๑)/ ๕ ๑ ๒ ๑

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๒ ๕ เมษายน ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขอติดสารมลพิษของห้องปฏิบัติการวิเคราะห์ออกเทน
ลงวันที่ ๒๔ มีนาคม ๒๕๖๗

ตามที่ขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขอติดสารมลพิษของห้องปฏิบัติการวิเคราะห์ออกเทน
วิเคราะห์ออกเทน เลขทะเบียน ๖-๒๐๑๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ
เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้อยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย
๑) นางสาวพรรมณิดา พุ่มคง ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๐๖๕
๒) นายกัณฑ์ สุทธิยะ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๒๑
๓) นางสาวศุภรดา ปิ่นมยุรา ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๓๘
๒. ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์ออกเทน จำนวน ๑๒ ราย
๑) นางสาววิภาดา กลิ่นเขียว ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๖
๒) นางสาวกัญญ์ภัสร์ สายคำ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๓
๓) นางสาวณัฏฐนันท์ กัมพวงค์ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๕
๔) นายอำนาจ วงษาเคน ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๖
๕) นายฤกษ์ณพล ปัญญวงค์ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๗
๖) นายณัฐกร หรรษา ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๘
๗) นายวัชรินทร์ ผ่องสามสวน ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๔๙
๘) นายณัฐพงษ์ โสภะ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๕๑
๙) นายธีรภัทร ปานเพ็ง ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๕๒
๑๐) นายณัฐพล จุ่มชื่น ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๕๓
๑๑) นายสนา สุภาพันธุ์ ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๕๔
๑๒) นายบรรณกร แก้วพงษ์ชา ทะเบียนเลขที่ ๖-๒๐๑๔-จ-๐๑๕๕

อนึ่ง หนังสือฉบับนี้...

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือที่ยังค้างชำระเป็นหนี้ของนิติบุคคลกระทรวงมหาดไทย
ในวันที่ ๒ กันยายน ๒๕๖๔

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายพรศักดิ์ กัลยาณมิตร)
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อธิบดีกรมส่งเสริมการค้าระหว่างประเทศ

กองวิจัยและพัฒนาระบบข้อมูล

กลุ่มงานบริหารวิเทศสัมพันธ์และทะเบียนนิติบุคคล

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โทรสาร ๐ ๒๔๓๐ ๖๓๑๖ ต่อ ๒๑๐๓.๕

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