



Bara Scientific Co., Ltd.  
368 U Chu Liang Building Floor 7 Ramad Road  
Silom Bangkok Bangkok Thailand 10500  
Tel : 02-6324300 Fax : 02-6375496-7  
www.barascientific.com



## Certificate of Calibration

Certificate No. BSCC-UV-367/23 Number of Page(s) 3 of 3

### Calibration Results:

#### 3. Photometric Accuracy (Visible)

Wavelength (nm)	Certified Absorbance (A)	UUC (A)	Error (A)	Uncertainty ( $\pm A$ )
420.0	0.0000	0.0000	0.0000	0.0042
	0.5783	0.5793	0.0010	0.0042
	0.7628	0.7624	-0.0004	0.0042
	1.0206	1.0216	0.0010	0.0042
440.0	0.0000	0.0000	0.0000	0.0042
	0.5621	0.5625	0.0004	0.0042
	0.7455	0.7452	-0.0003	0.0042
	0.9985	0.9989	0.0004	0.0042
460.0	0.0000	0.0000	0.0000	0.0042
	0.5227	0.5229	0.0002	0.0042
	0.6880	0.6873	-0.0007	0.0042
	0.9487	0.9486	-0.0001	0.0042
546.1	0.0000	0.0000	0.0000	0.0042
	0.5207	0.5211	0.0004	0.0042
	0.6973	0.6960	-0.0013	0.0042
	0.9959	0.9944	-0.0015	0.0042
590.0	0.0000	0.0000	0.0000	0.0042
	0.5544	0.5538	-0.0006	0.0042
	0.7253	0.7236	-0.0017	0.0042
	1.0942	1.0925	-0.0017	0.0042
635.0	0.0000	0.0000	0.0000	0.0042
	0.5616	0.5612	-0.0004	0.0042
	0.6927	0.6909	-0.0018	0.0042
	1.0881	1.0866	-0.0015	0.0042

\*CNR = Customer not request

#### 4. Stray Light\*

Standard cut-off wavelength (nm)	Wavelength (nm)	Transmission (%T)	Absorbance (A)
200.95 $\pm$ 0.11nm	200.55	0.9770	2.0104

The stray light transmission reference is less than 1.0%T and stray light absorbance reference is greater than 2.00A  
\*Stray Light not NSC-ONSC Accredited.

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

\*\*\*End of Certificate\*\*\*

The above results are valid exclusively for the calibrated item(s) as mention in this report / Certificate.  
Advertising the report / Certificate and publicity of the results are prohibited and also shall not be reproduced except in full, without written approval of the Bara Scientific Co., Ltd.

FM-UV-708-02 Rev 01 (23/01/63)



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



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 : Bm Lin / 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-L418/31-08-64



Metrological Center  
SCI ECO Services Company Limited

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



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	T149	T230545	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 3 Hour 45 Minute At 60 °C

### 5. Adjustment :

( X ) without adjustment ( ) after adjustment

Approved By: Bm Lin

FM-L13 117/15-05-63



Metrological Center  
SCI ECO Services Company Limited

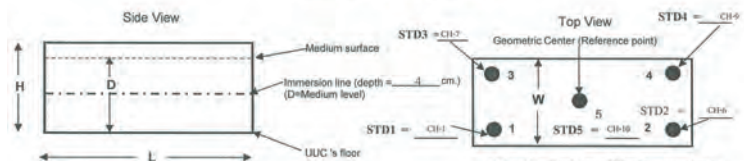
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Certificate No. T231303

Page 3 of 3

## Calibration Report



- D = Medium level : 8 cm. Working space dimension : 40 x 60 x 16 (WxLxH)

- UUC's medium : Water

- Working standards are located at 2.5 cm. away from each corner and walls.

### Measurement Results:

Calibration Point	Average Standard Reading at each position ( °C )				
	CH-1	CH-6	CH-7	CH-9	CH-10
60	60.03	60.06	60.24	60.11	60.18
85	84.79	84.83	85.42	85.05	85.20
95	93.71	93.83	94.62	94.15	94.42

Setting ( °C )	Liquid Bath ( Water )		Temperature Distribution				
	Min , Max	Average	Average ( °C )	Stability ( ± °C )	Uniformity ( ± °C )	Uncertainty ( ± °C )	Coverage Factor k
61.0	60.9 , 61.1	61.0	60.12	0.13	0.19	0.29	2.04
86.0	85.8 , 86.2	86.0	85.06	0.19	0.47	0.44	2.17
95.0	94.6 , 95	94.9	94.15	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: Bm Lin

FM-L13 117/15-05-63





TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
53/44 PATTANAKARN ROAD SOI 18, SUANLIANG, SUANLIANG, BANGKOK 10250  
TEL. 0-2717-3000-24 FAX. 0-2719-9484



## Certificate of Calibration

Certificate No.: 23T1512  
Page: 1 of 2

Equipment: Digital Thermometer With Sensor

Manufacturer: Testo

Model: 105

Serial No.: 83637871/0122

ID No.: BKK\_LG0055

Condition As-Received: Used Item

Received Date: 21 August 2023

Calibration Date: 24 August 2023  
to 30 August 2023

Reference: 2308-0616DSC

Ambient Temperature: ( 25 ± 3 ) °C

Relative Humidity: ( 50 ± 20 ) %

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except with the prior written approval of the head of  
Corporate Services 3: Equipment Calibration and Testing Services

Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.

104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand

Procedure used: Calibration were conducted using in-house calibration procedure CP-T01 according to comparison with  
Industrial Platinum Resistance Thermometer (IPRT) into liquid bath temperature controller.  
The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standards instruments:

Instrument	Model	Serial No.	Certificate No.	Due Date
1) Digital Thermometer	1529	A7A609	2211274	17 Oct 2023
2) Industrial Platinum Resistance Thermometer	5627	824304	2211274	17 Oct 2023

2. The 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 maintained through:-

-National Institute of Metrology Thailand (NIMT)



Calibrated by: Puttichai Manop  
Issue Date: 31 August 2023

Approved Signatory:  
[ ] Phalinee Prabpaipal  
[ ] Chatchawan Khunpiluek  
[x] Wanlop Larphorn

B 0323062



Cert. No.: 23T1512  
Page.: 2 of 2

### Result of Calibration:-

Without Adjustment  
Function: Temperature measurement

Dimension of probe: Diameter 3 mm., Length 55 mm. Sheath material: Stainless Steel

Immersion Depth (mm.)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of Measurement (±°C)
50	25.0052	25.0	-0.0052	0.12
50	30.0051	30.0	-0.0051	0.12
50	35.0063	35.1	0.0937	0.12
50	40.0034	40.1	0.0966	0.12
50	45.0009	45.0	-0.0009	0.12

UUC\*: Unit Under Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor  $k = 2$ , 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, SUANLIANG, SUANLIANG, BANGKOK 10250  
TEL. 0-2717-3000-24 FAX. 0-2719-9484



## Certificate of Calibration

Certificate No.: 23T1603  
Page: 1 of 2

Equipment: Digital Thermometer With Sensor

Manufacturer: Testo

Model: 105

Serial No.: 83637904/0122

ID No.: BKK\_LG0064

Condition As-Received: Used Item

Received Date: 08 September 2023

Calibration Date: 12 September 2023  
to 15 September 2023

Reference: 2309-0316DSC

Ambient Temperature: ( 25 ± 3 ) °C

Relative Humidity: ( 50 ± 20 ) %

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except with the prior written approval of the head of  
Corporate Services 3: Equipment Calibration and Testing Services

Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.

104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand

Procedure used: Calibration were conducted using in-house calibration procedure CP-T01 according to comparison with  
Industrial Platinum Resistance Thermometer (IPRT) into liquid bath temperature controller.  
The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standards instruments:

Instrument	Model	Serial No.	Certificate No.	Due Date
1) Black Stack Thermometer	1560	8C454	231600	30 May 2024
2) PRT Scanner Module	2562	A01303	231600	30 May 2024
3) Industrial Platinum Resistance Thermometer	5627	739434	231600	30 May 2024

2. The 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 maintained through:-

-Technology Promotion Association (Thailand-Japan), NSC-ONSC Accredited No. Calibration 0008



Calibrated by: Wissinee Sawatdee  
Issue Date: 20 September 2023

Approved Signatory:  
[ ] Phalinee Prabpaipal  
[ ] Chatchawan Khunpiluek  
[x] Wanlop Larphorn

B 0325001



Cert. No.: 23T1603  
Page.: 2 of 2

### Result of Calibration:-

Without Adjustment  
Function: Temperature measurement

Dimension of probe: Diameter 3 mm., Length 55 mm. Sheath material: Stainless Steel

Immersion Depth (mm.)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of Measurement (±°C)
50	25.0039	25.0	-0.0039	0.12
50	30.0038	30.0	-0.0038	0.12
50	35.0018	35.0	-0.0018	0.12
50	40.0030	40.1	0.0970	0.12
50	45.0032	45.0	-0.0032	0.12

UUC\*: Unit Under Calibration

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

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a 1180953



Agilent Technologies (Thailand) Limited  
U CHU LUNG BLDG. 22/F UNIT A.D  
868 RAMA 4 ROAD, SILOM, BANGRAK  
Bangkok 10500 Thailand

Tel: +662 637 6363  
Fax: +662 632 4334  
Email: ccc-smt@agilent.com  
Website: www.agilent.com/thailand

Service Confirmation Number: 6904837529  
Service Confirmation Date: 06.04.2023

## Customer Contact:

ALS Laboratory Group (Thailand) Co  
Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khwaeng Phatthanakan Khet Suan  
TAX ID : 0105540004859  
bounced-inchom.chanattagarn@alsglobal.com  
227158759519

## Invoice To:

ALS Laboratory Group (Thailand) Co  
Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khwaeng Phatthanakan Khet Suan

## Delivery Site:

ALS Laboratory Group (Thailand) Co  
Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khwaeng Phatthanakan Khet Suan

## Location:

Room  
Bldg  
Lab  
Dept

## SERVICE REPORT

Customer Purchase Order Number:	Customer Number: 70371013
Service Request:	Service Request Date:
Service Order: 6005068207	Service Confirmation: 6904837529

REVIEW BY Anchalee K.  
APPROVED BY Sawitri N.  
NEXT CAL DATE 06/10/2024

## Direct Inquiries to:

Contact Name: Customer Contact Center  
Contact E-mail: ccc-smt@agilent.com  
Contact Telephone: +662 637 6363  
Contact Fax: +662 632 4334

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Agilent Technologies (Thailand) Limited, Head Office  
U Chu Lung Bldg. 22/F Unit A.D  
868 Rama 4 Road, Silom, Bangkok,  
Bangkok 10500 Thailand  
Tax ID : 0105540004859

Orinbank N.A. Bangkok Branch  
299 Interchange 21 Building, Sukhumvit Road, Klongtoey New  
Sub-district, Wattana District, Bangkok 10119 Thailand  
Acc. No. 012-4462-007  
THB-Sing Thai Bank PCL  
Siam Square Bldg. 616/1-2 Rama 1 Rd, Pathumwan, BKK 10330  
Thailand

Page 1 of 3

## Service Instrument:

Model Number	Model Description	Serial Number	System Handle	Parent Asset
SYS-IM-7900	ICPMS 7900 System			
G8410A	SPS 4 Autosampler	AU15430722	ICP MS 7900	SYS-IM-7900
G8411A	ISIS 3 for Agilent 7850/7900/8900	JP15510227	ICP MS 7900	SYS-IM-7900
G3292A	PSC 610ST Chiller	2U15A1948	ICP MS 7900	SYS-IM-7900
G8403A	Agilent 7800 ICP-MS	JP15471169	ICP MS 7900	SYS-IM-7900

## Service Items:

Item	Service/Part #	Description	Qty	Entitlement	Service Start	Service End
1000	EQO	Enterprise Operational Qualification	1.00	Agreement Entitlement - 100 % covered	06.04.2023	06.04.2023
1010	5185-5850	ICP-MS Checkout Solutions	1.00	Agreement Entitlement - 100 % covered		

## Additional Information:

## Metrological Center

SCI ECO Services Company Limited

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

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

Website : [www.scieco.co.th](http://www.scieco.co.th) E-Mail : [calibrate@scg.co.th](mailto:calibrate@scg.co.th)



Certificate No. T231676

Page 1 of 6

## Certificate of Calibration

Equipment : HEATING BLOCK

Manufacturer : Environmental Express

Model : SC 196

Serial No. : 6974CECW3285

Customer Code : BKK\_EL0054

ID No. : T5306A3

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

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,  
Khet Suan Luang, Bangkok 10250

Customer Location : Acid Digestion Lab

Date of Receipt : 13 September 2023

Calibrated By : Sane Musikawan ( Site Calibration Manager )

Approved By : [Signature] / Sujjar Naknakred ( Site Calibration Manager )

Date of Issue : 26 SEP 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.

Service Confirmation Number: 6904837529  
Service Confirmation Date: 06.04.2023

## Service Information:

<b>Problem Description:</b> WU-S-00-ICP MS 7900-5001143313.		
<b>Service Provided:</b> Test OQ control of instrument ICPMS = BKK_EL0043. After done all instrument test all Pass.		
<b>Service Overview Code:</b> Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service		
Reported Hours: 6.0	Travel Hours: 1.0	
Customer Field Service Representative Name: Panthep Kurasathain	Customer Field Service Representative Signature: <u>[Signature]</u>	Date: 06 Apr 2023
Customer Name: Anchalee Khamjan	Customer Signature: <u>[Signature]</u>	Date: 06 Apr 2023
Additional Comments:		

Page 3 of 3





## 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. T231676

Page 2 of 6

### Calibration Report

Equipment : HEATING BLOCK  
Date of Calibration : 22 September 2023  
Environment : Temperature : 21.8-23.1 °C  
Line Voltage : 221.6-226.3 V  
Relative Humidity : 55 - 65 %RH

#### Condition of this results of calibration :

- This equipment was calibrated by insert 20 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.  
All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN21-TN30	T230014	17 January 2024
TC	TYPE T	TN31-TN40	T230014	17 January 2024
DATA LOGGER	34970A	T151	T230014	17 January 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 : 2 Hour 20 Minute At 95 °C  
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☐ Close  
☒ Not Available
- Adjustment :  
( ) without adjustment ( X ) after adjustment

Approved By.

FM-L13 108/30-05-57



## Metrological Center

SCI ECO Services Company Limited

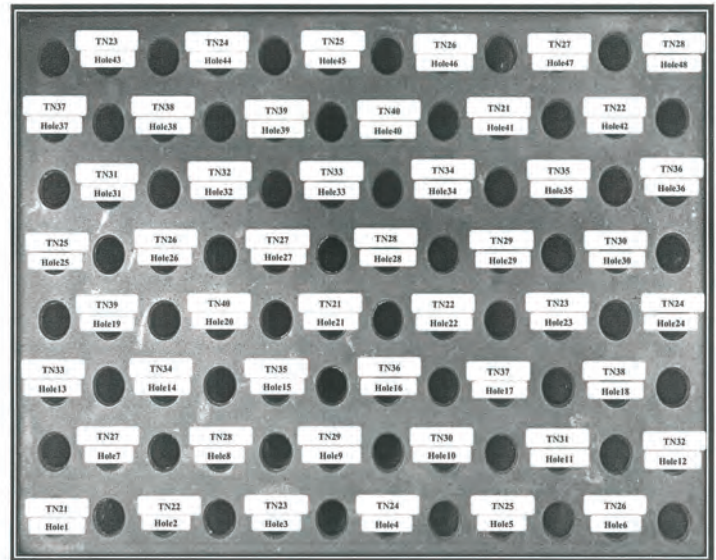
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109  
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T231676

Page 3 of 6

### Calibration Report



FRONT CONTROL

Approved By.

FM-L13 108/30-05-57



## Metrological Center

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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 T231676

Page 4 of 6

### Calibration Report

#### Measurement Results

Calibration Point		Average Standard Reading at each position ( ° C )					
R1 Hole1-Hole6		TN21	TN22	TN23	TN24	TN25	TN26
CAL POINT	Max	95.01	94.41	95.20	95.41	94.51	95.17
	Min	94.57	93.95	94.75	94.92	94.00	94.72
	Average	94.79	94.18	94.98	95.17	94.26	94.95
R2 Hole7-Hole12		TN27	TN28	TN29	TN30	TN31	TN32
	Max	95.36	95.43	95.19	95.16	95.35	94.97
	Min	94.94	94.95	94.72	94.71	94.90	94.57
	Average	95.15	95.19	94.96	94.94	95.13	94.77
R3 Hole13-Hole18		TN33	TN34	TN35	TN36	TN37	TN38
	Max	95.37	95.50	95.22	95.21	95.33	95.31
	Min	94.99	95.09	94.78	94.82	94.88	94.96
	Average	95.18	95.30	95.00	95.02	95.11	95.13
R4 Hole19-Hole24		TN39	TN40	TN21	TN22	TN23	TN24
	Max	95.59	94.42	94.52	94.24	94.63	94.67
	Min	95.21	94.06	94.13	93.88	94.28	94.27
	Average	95.40	94.24	94.33	94.06	94.45	94.47
R5 Hole25-Hole30		TN25	TN26	TN27	TN28	TN29	TN30
	Max	95.19	95.38	92.93	95.30	95.14	95.03
	Min	94.83	95.03	92.56	94.95	94.79	94.70
	Average	95.01	95.20	92.75	95.12	94.96	94.87
R6 Hole31-Hole36		TN31	TN32	TN33	TN34	TN35	TN36
	Max	94.63	94.90	94.77	94.31	94.24	93.87
	Min	94.24	94.55	94.44	93.98	93.92	93.56
	Average	94.43	94.72	94.60	94.14	94.08	93.71
R7 Hole37-Hole42		TN37	TN38	TN39	TN40	TN21	TN22
	Max	94.30	94.44	94.04	93.81	94.89	95.35
	Min	93.95	94.05	93.67	93.48	94.39	94.90
	Average	94.13	94.24	93.86	93.65	94.64	95.12
R8 Hole43-Hole48		TN23	TN24	TN25	TN26	TN27	TN28
	Max	95.99	95.63	95.28	95.29	95.45	94.87
	Min	95.37	95.15	94.82	94.84	94.99	94.48
	Average	95.78	95.39	95.05	95.07	95.22	94.68

Approved By.

FM-L13 108/30-05-57



## Metrological Center

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

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

Certificate No T231676

Page 5 of 6

### Calibration Report

#### Measurement Results

Calibration Point		Average Standard Reading at each position ( ° C )					
R1 Hole1-Hole6		TN21	TN22	TN23	TN25	TN26	
CAL POINT	Max	105.23	104.32	105.43	105.25	104.44	105.27
	Min	104.94	104.95	105.15	105.04	104.11	104.96
	Average	105.09	104.13	105.29	105.15	104.28	105.12
R2 Hole7-Hole12		TN27	TN28	TN29	TN30	TN31	TN32
	Max	105.30	105.12	105.18	105.22	105.12	105.16
	Min	105.11	104.92	104.96	105.00	104.92	104.97
	Average	105.20	105.02	105.07	105.11	105.02	105.06
R3 Hole13-Hole18		TN33	TN34	TN35	TN36	TN37	TN38
	Max	105.37	105.63	105.02	104.80	104.69	105.19
	Min	105.17	105.37	104.75	104.59	104.50	105.00
	Average	105.27	105.50	104.88	104.69	104.60	105.09
R4 Hole19-Hole24		TN39	TN40	TN21	TN22	TN23	TN24
	Max	105.31	104.43	106.41	104.71	105.63	105.82
	Min	105.08	104.22	106.15	104.41	105.37	105.56
	Average	105.19	104.33	106.28	104.56	105.50	105.69
R5 Hole25-Hole30		TN25	TN26	TN27	TN28	TN29	TN30
	Max	104.95	106.26	103.34	105.78	105.59	105.87
	Min	104.67	105.96	103.08	105.56	105.36	105.68
	Average	104.81	106.11	103.21	105.67	105.48	105.77
R6 Hole31-Hole36		TN31	TN32	TN33	TN34	TN35	TN36
	Max	104.75	104.86	104.80	105.20	104.50	104.39
	Min	104.54	104.63	104.59	105.00	104.32	104.18
	Average	104.65	104.75	104.69	105.10	104.41	104.28
R7 Hole37-Hole42		TN37	TN38	TN39	TN40	TN21	TN22
	Max	104.30	104.90	104.85	104.65	104.88	104.85
	Min	104.09	104.72	104.66	104.49	104.63	104.52
	Average	104.19	104.81	104.75	104.57	104.76	104.68
R8 Hole43-Hole48		TN23	TN24	TN25	TN26	TN27	TN28
	Max	105.71	105.85	105.39	105.61	105.42	105.19
	Min	105.45	105.61	105.14	105.27	105.18	104.94
	Average	105.58	105.73	105.27	105.44	105.30	105.07

Approved By.

FM-L13 108/30-05-57



## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, 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. T231676

Page 6 of 6

### Calibration Report

#### Measurement Results:

HEATING BLOCK			Temperature Distribution	
Setting (°C)	Reading (°C)		Stability (±°C)	Uncertainty (±°C)
	Min , Max	Average		
100.0	100.3 , 100.5	100.4	0.26	0.81
107.0	107.0 , 107.1	107.1	0.19	0.78

\* 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: \_\_\_\_\_

FM-L13 108/30-05-57

Service Confirmation Number: 6004800024  
Service Confirmation Date: 20.03.2023

#### Service Instrument:

Model Number	Model Description	Serial Number	System Handle	Parent Asset
SYS-10-5100	ICP-OES 5100/5110 System			
G8010A	Agilent 5100 SVDV ICP-OES Spectrometer	MY1601000E	ICP OES 5100	SYS-10-5100
G8410A	SPS 4 Autosampler	AU15440764	ICP OES 5100	SYS-10-5100

#### Service Items:

Item	Service/Part #	Description	Qty	Entitlement	Service Start	Service End
1000	EQO	Enterprise Operational Qualification	1.00	Agreement Entitlement - 100 % covered	20.03.2023	20.03.2023

#### Additional Information:



Agilent Technologies (Thailand) Limited.  
U CHU LIANG BLDG. 22/F UNIT A.D.  
968 RAMA 4 ROAD, SILOM, BANGRAK.  
Bangkok 10500 Thailand  
Tel: +662 637 6363  
Fax: +662 632 4334  
Email: ccc-smt@agilent.com  
Website: www.agilent.com/chem

#### Customer Contact:

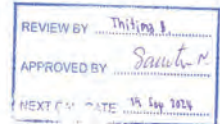
ALS Laboratory Group (Thailand) Co Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khuasong Phatthanakan Khet Suan  
TAX ID : 0105540004859  
Chanattagarn.jmchom@alsglobal.com  
27603068

#### Invoice To:

ALS Laboratory Group (Thailand) Co Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khuasong Phatthanakan Khet Suan

#### SERVICE REPORT

Customer Purchase Order Number:	Customer Number: 70371013
Service Request:	Service Request Date:
Service Order: 6006033911	Service Confirmation: 6004800024



#### Delivery Site:

ALS Laboratory Group (Thailand) Co Ltd  
Head Office  
104 Phatthanakan 40 Phatthanakan Rd  
Khuasong Phatthanakan Khet Suan

#### Direct Inquiries to:

Contact Name: Customer Contact Center  
Contact E-mail: ccc-smt@agilent.com  
Contact Telephone: +662 637 6363  
Contact Fax: +662 632 4334

#### Location:

Room  
Bldg  
Lab  
Dept

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U Chu Liang Bldg. 22/F Unit A.D.  
968 Rama 4 Road, Silom, Bangkok.  
Bangkok 10500 Thailand  
Tax ID : 010554298218

Citybank N.A. Bangkok Branch  
399 Interchange 21 Building, Sukhumvit Road, Khongtoey Nua Sub-district, Wattana District, Bangkok 10110 Thailand  
Acc. No. 012-4462-007  
7100 Krung Thai Bank PCL  
Siam Square Bldg. 416/1-2 Rama 1 Rd, Pathumwan, BKK 10330 Thailand

ORIGINAL

Service Confirmation Number: 6004800024  
Service Confirmation Date: 20.03.2023

#### Service Information:

Problem Description: WU-S-QG-10-5100-5061143313		
Service Provided: Complete OOHW 5100ICP OES Equipment ID: BKK_EL0037, all tools passed		
Service Overview Code: Reason Code: Scheduled Service Diagnostic Code: Scheduled Service Resolution Code: Scheduled Service		
Reported Hours: 4.0	Travel Hours: 2.0	
Customer Field Service Representative Name: Kanyakorn Sukphatjarern	Customer Field Service Representative Signature: 	Date: 20 Mar 2023
Customer Name: Thitiing B.	Customer Signature: 	Date: 20 Mar 2023
Additional Comments:		





REVIEW BY *Chanok S.*  
 APPROVED BY *Sauwan M.*  
 NEXT CAL DATE *6/13/24*

## Performance Verification Certificate for Mercury Analyzer

**PRODUCT ID** Quicktrace M-8000 , Teledyne Leeman Labs  
**Equipment ID** BKK\_EL0128 Mercury Analyzer  
 S/N: US22133002  
 BKK\_EL0129 Autosampler  
 S/N: 052222A560  
**Customer Name** ALS Laboratory Group (Thailand) Co., Ltd.  
**Address** 104 Soi Pattana 40, Pattana Rd. Suan Luang, Suan Luang  
 Bangkok 10250 Thailand

**Date of Qualified** December 6, 2023  
**Next Due date** December 6, 2024

This certifies for products which was performed in acceptable criteria specifications

Autosampler & Sample Introduction	PASSED
Analyzer	PASSED
Gas Liquid Separator & Dryer	PASSED
CVAFS Detector	PASSED
Electronics/Mechanical	PASSED
Data station/PC	PASSED
Analytical test	PASSED

Provided by

Scientist Instrument Co., Ltd.  
 113 Soi Ekachai 44, Ekachai Road  
 Khlong Bang Phran, Bangkok  
 Bangkok 10150 Thailand

Certified by *Sauwan M.*  
**Thunraphol Sakdayos**  
 Service Engineer



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. 0-2719-9884



Cert. No.: 23TM1103  
 Page : 1 of 3

## Certificate of Calibration

**Equipment :** Autoclave  
**Manufacturer :** Sanyo  
**Model :** MLS-3781  
**Serial No. :** 830167  
**ID No. :** BKK\_ML0037  
**Submitted by :** ALS Laboratory Group (Thailand) Co., Ltd.  
 104 Phatthanakan 40, Phatthanakan Rd.,  
 Khwaeng 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 Hlahib

**Approved by :** *P. Suwit*  
 Approved Signatory

( ) Pornthippa Tameyakul  
 ( ) Malee Butkruea  
 (✓) 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  
**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

- Reference standard Instrument:-  

Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Data Acquisition	MY57013823	23LM66	TPA	25 Mar 2024
- This certificate is valid only to the item calibrated on date and place of calibration.
- This certification is traceable to the International System of Unit.
- 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 :-** ( \* ) Without Adjustment  
**Function of UUC\* :** 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

a 1159503



**Equipment :** Autoclave  
**Condition As-Received :** Used Item  
**Reference :** 2307-0285OC-3  
**Result of Calibration :-** ( \* ) Without Adjustment  
**Function of UUC\* :** 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 %.

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a 1159504





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, Phatthakan Rd.,  
Khwang Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand  
Location : Incubation & Micrological Reading  
Received Order : 17 July 2023  
Calibration Date : 17 July 2023  
Ambient Temperature :  $(26 \pm 10) ^\circ\text{C}$   
Relative Humidity :  $(50 \pm 30) \%$   
Calibrated by : Man Pattanapongpaiboon

Approved by : Man  
Approved Signatory

( ) Pornthippa Tameyakul  
( ) 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 & Equipment Calibration and Testing Services.

A 0056489



Equipment : Incubator  
Condition As-Received : Used Item  
Reference : 2307-0285OC-1

Cert. No.: 23TM1146  
Page : 2 of 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	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 )

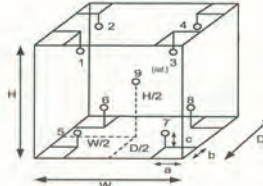
Result of Calibration :- ( \* ) Without Adjustment

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 :

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

### Dimension of Chamber :

D = 0.50 m  
W = 0.75 m  
H = 1.2 m  
Capacity = 0.45 m<sup>3</sup>

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

Malee

a 1172189



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

Cert. No.: 23TM1146  
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
35.0	35.0	35.0	0.055	0.30	0.44	2

Calibration Point ( °C )	Measured Temperature ( °C )									Uncertainty  ( ± °C )
	Position									
	1	2	3	4	5	6	7	8	9 (ref.)	
35.0	34.888	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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Malee

a 1172188



## Certificate of Calibration

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

Equipment : Hot Air Oven  
Manufacturer : Binder  
Model : ED 240/E2  
Serial No. : 00-15533  
ID No. : BKK\_ML0013

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

Received Order : 23 April 2024  
Calibration Date : 23 April 2024  
Ambient Temperature :  $(26 \pm 10) ^\circ\text{C}$   
Relative Humidity :  $(50 \pm 30) \%$

Calibrated by : Tawatchai Pama

Approved by : Tawatchai Pama  
Approved Signatory

( ) Ponpan Paipim  
( ) Suwit Imjai  
( ) Kunchit Promprat

Issue Date : 26 April 2024

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services & Equipment Calibration and Testing Services.





Equipment : Hot Air Oven  
Condition As-Received : Used Item  
Reference : 2404-0439OC-8

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

#### Procedure Used :-

Calibration were conducted using calibration procedure CP-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	MY49001451	24LM44	TPA	17 Mar 2025

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

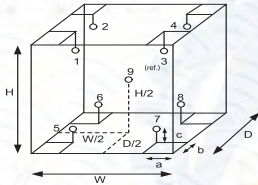
3. This certification is traceable to the International System of Unit.

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

Result of Calibration :- ( \* ) Without Adjustment

Function of UUC\* : Temperature Source

Fresh air setting : Close



#### 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 m<sup>3</sup>

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

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 : 2404-0439OC-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

Calibration Point ( °C )	Measured Temperature ( °C )									Uncertainty ( ± °C )
	1	2	3	4	5	6	7	8	9 (ref.)	
180	181.009	181.511	180.922	181.359	181.217	183.659	181.664	181.986	181.474	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 %.

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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.0-2719-9484



## 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 : 01 March 2024  
Calibration Date : 01 March 2024  
Ambient Temperature : ( 26 ± 10 ) °C  
Relative Humidity : ( 50 ± 30 ) %

Calibrated by : Krisda Malee

Approved by :   
Approved Signatory

( ) Pomthippa Tameyakul  
( ) Unnopphol Harachai  
(✓) Suwit Imjai

Issue Date : 4 March 2024

REVIEW BY

APPROVED BY

NEXT CAL DATE..... 01/03/25



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

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

#### 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.

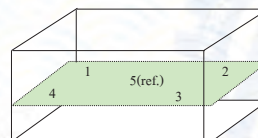
Remark : TPA : Technology Promotion Association ( Thailand - Japan )

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

The Uncertainties are for a confidence probability of approximately 95%

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Equipment : Water Bath  
Condition As-Received : Used Item  
Reference : 2403-0001OC-1  
Result of Calibration :- ( \* ) Without Adjustment  
Function of UUC\* : Temperature Source

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

Calibration point ( °C )	UUC* Setting ( °C )	UUC* Reading ( °C )	Average* Standard Reading ( °C )					Uncertainty  ( ± °C )
			Position					
			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 <i>k</i>
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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## ภาคผนวก ด

สำเนาหนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน



ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๒๐ พฤศจิกายน ๒๕๖๖

เรื่อง ค่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารเคมีของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๔ สิงหาคม ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผน

๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผน

๓. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผน

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔-๕ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ไม่พบข้อบกพร่องของเอกสารประกอบคำขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ ๑๘๓ ราย ตามสิ่งที่ส่งมาด้วย ๒

ค. ขอบข่ายสารเคมีที่ได้รับขึ้นทะเบียนไม่วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ กันยายน ๒๕๖๙ หากประสงค์ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกกรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นสุดของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายดิเรก ชัยวัฒน์)

อธิบดีกรมโรงงานอุตสาหกรรม  
ผู้อำนวยการกอง  
ผู้อำนวยการกองวิจัยและพัฒนาสิ่งแวดล้อมพิษโรงงาน  
ผู้อำนวยการกองสนับสนุนโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓

ไปรษณีย์อิเล็กทรอนิกส์ sarabang@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

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

ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘

ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

๑) นางสาวสุพาทกร จันทร์ปลั่ง

๒) นางสาวจันทน์ ไกรภักดิ์ ณ นคร

๓) นายศุภพัทธ์ จิตราชนันท์

๔) นางสาวกนกกร เอบก

๕) นายสุริยา สอนแก้ว

๖) นายวิชาญ ขุนหวัด

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๕

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๖

สิ่งที่ส่งมาด้วย ๒

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

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

ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘

ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๘๓ ราย

๑) นายภาณุวัฒน์ กิตติคุณาณีย์

๒) นายภัทรพล สว่างใจธรรม

๓) นายธนวิทย์ เทือกคำ

๔) นายศิริโชค พงษ์ประสม

๕) นายณัฐวุฒิ คังแพง

๖) นางสาวจินดา ไชยธรรม

๗) นางสาวสวดี น้อยเจริญ

๘) นางสาวณัฐภาณุ อิมขม

๙) นางสาวนรินทร์ สายแสง

๑๐) นางสาวนันทิณี สมบูรณ์

๑๑) นางสาวศรัณยา เกลิมอ้างค์

๑๒) นางสาวณัฐพร มงคลจิตรวุฒิ

๑๓) นางสาวศิริลักษณ์ บุญนาค

๑๔) นายณพพงศ์ จันทร์พันธุ์

๑๕) นายณนเศรษฐ์ โทมาลัย

๑๖) นายธนา จริยา

๑๗) นางสาวภาณุพร แก้วมื่น

๑๘) นางสาวสุวิมล ชัยเรืองวุฒิ

๑๙) นางสาวสุชาดา ธรรมถาวร

๒๐) นางสาวเมธิกา ชัยเดชอนกุล

๒๑) นางสาวศศิธร หนูสวัสดิ์

๒๒) นางสาวเสาวลักษณ์ ภูมิกำอำพร

๒๓) นายอภิสิทธิ์ สิงหา

๒๔) นายศักดิ์สิทธิ์ โพธิ์พิสุทธิ์

๒๕) ว่าที่ร้อยตรีหญิง พรรณิภา จำเจริญ

๒๖) นางจิตตา คำภูแก้ว

๒๗) นางสาวอรุณวรรณ รักษ์ง

๒๘) นางสาวนพรัตน์ แยมกรามค์

๒๙) นายจุลเดช วารินทร์

๓๐) นางสาวศุภาวิณี รื่องคำ

๓๑) นายพรมณ์ ศรีปัดเนตร

๓๒) นายชุตติ์ สุนธิ์

๓๓) ว่าที่ร้อยตรี เกลิมเกียรติ อมรรศรีเสริม

๓๔) นางสาววริยา สว่างนา

๓๕) นายอนุพงศ์ วัฒนศิริประเสริฐ

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๔

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ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๐๙

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ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๐

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๕

๑๖) นางสาวจุฑารัตน์...

- ๒ -

๑๖) นางสาวจุฑารัตน์ โอนสันเพียร

๑๗) นางสาวจุฑารัตน์ พิมพ์กิจดิยา

๑๘) นางสาวปรารถนา ศิริกิจ

๑๙) นางสาวศศิธร หนูสวัสดิ์

๒๐) นางสาวศศิธร หนูสวัสดิ์

๒๑) นางสาวศศิธร หนูสวัสดิ์

๒๒) นางสาวศศิธร หนูสวัสดิ์

๒๓) นางสาวศศิธร หนูสวัสดิ์

๒๔) นางสาวศศิธร หนูสวัสดิ์

๒๕) นางสาวศศิธร หนูสวัสดิ์

๒๖) นางสาวศศิธร หนูสวัสดิ์

๒๗) นางสาวศศิธร หนูสวัสดิ์

๒๘) นางสาวศศิธร หนูสวัสดิ์

๒๙) นางสาวศศิธร หนูสวัสดิ์

๓๐) นางสาวศศิธร หนูสวัสดิ์

๓๑) นางสาวศศิธร หนูสวัสดิ์

๓๒) นางสาวศศิธร หนูสวัสดิ์

๓๓) นางสาวศศิธร หนูสวัสดิ์

๓๔) นางสาวศศิธร หนูสวัสดิ์

๓๕) นางสาวศศิธร หนูสวัสดิ์

๓๖) นางสาวศศิธร หนูสวัสดิ์

๓๗) นางสาวศศิธร หนูสวัสดิ์

๓๘) นางสาวศศิธร หนูสวัสดิ์

๓๙) นางสาวศศิธร หนูสวัสดิ์

๔๐) นางสาวศศิธร หนูสวัสดิ์

๔๑) นางสาวศศิธร หนูสวัสดิ์

๔๒) นางสาวศศิธร หนูสวัสดิ์

๔๓) นางสาวศศิธร หนูสวัสดิ์

๔๔) นางสาวศศิธร หนูสวัสดิ์

๔๕) นางสาวศศิธร หนูสวัสดิ์

๔๖) นางสาวศศิธร หนูสวัสดิ์

๔๗) นางสาวศศิธร หนูสวัสดิ์

๔๘) นางสาวศศิธร หนูสวัสดิ์

๔๙) นางสาวศศิธร หนูสวัสดิ์

๕๐) นางสาวศศิธร หนูสวัสดิ์

๕๑) นางสาวศศิธร หนูสวัสดิ์

๕๒) นางสาวศศิธร หนูสวัสดิ์

๕๓) นางสาวศศิธร หนูสวัสดิ์

๕๔) นางสาวศศิธร หนูสวัสดิ์

๕๕) นางสาวศศิธร หนูสวัสดิ์

๕๖) นางสาวศศิธร หนูสวัสดิ์

๕๗) นางสาวศศิธร หนูสวัสดิ์

๕๘) นางสาวศศิธร หนูสวัสดิ์

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๑๖

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๑๗

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๑๘

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๑๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๐

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๕

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๖

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๗

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๘

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๒๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๐

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๕

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ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๗

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๘

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๓๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๐

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๕

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๖

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๗

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๘

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๔๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๐

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๑

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๒

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๓

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๔

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๕

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๖

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๗

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๘

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๕๙

ทะเบียนเลขที่ ๖-๒๐๔-๕-๐๐๖๐

๑๕) นายประเสริฐ...







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

40 Manganese...

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

น้ำโคลน...

น้ำโคลน จำนวน 126 รายการ

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

18 Bis(2-ethylhexyl)phthalate...

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

36 Chrysene...



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

56 1,3-Dichloropropene...

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

76 γ-HCH...

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

94 N-Nitrosodiphenylamine...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1254	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
98	pH	Electrometric Method <sup>(4)</sup>
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
100	Phenol	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup> 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
102	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
103	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
109	TPH (C <sub>9</sub> -C <sub>16</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4),23)</sup>

110 TPH (C<sub>9</sub>-C<sub>16</sub>)...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH (C <sub>8</sub> -C <sub>16</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>(9,22)</sup>
111	TPH (C <sub>10</sub> -C <sub>25</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>(9,22)</sup>
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(4)</sup>
126	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>

อากาศเสีย..

## อากาศเสีย (ปล่องระบาย) จำนวน 28 รายการ

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

15 Lead...

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

27 Vanadium...

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

## สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(9,24)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,24)</sup>
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,4,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,4,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,4,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,4,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,4,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,4,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

5 Beryllium...



ลำดับที่	สารตัวอย่าง	วิธีการวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,3,20)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(20,20)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(21,20)</sup>
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1,6,14,19)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1,6,17,19)</sup> 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,6,14,19)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,6,17,19)</sup>

10 Chromium (VI)...

ลำดับที่	สารมลพิษ	วิธีการตรวจ
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method <sup>(1,6,15)</sup> 2) Alkaline Digestion, Colorimetric Method <sup>(6,15)</sup>
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup>

2) Soxhlet..

ลำดับที่	สารเคมี	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,20)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,20)</sup>
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,20)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,20)</sup>
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,20)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,20)</sup>
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,14)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,20)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,20)</sup>

22 Mercury...

ลำดับที่	สารมลพิษ	วิธีการหาห
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(1.4.28)</sup> 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(1.4.31)</sup> 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(30)</sup> 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method <sup>(21)</sup>
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction Gas Chromatographic/Mass Spectrometric Method <sup>(9,28)</sup> 2) Soxhlet Extraction, Gas Chromatographic / Mass Spectrometric Method <sup>(10,28)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic / Mass Spectrometric Method <sup>(11,28)</sup>
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction Gas Chromatographic/Mass Spectrometric Method <sup>(1,28)</sup> 2) Soxhlet Extraction, Gas Chromatographic / Mass Spectrometric Method <sup>(10,28)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic / Mass Spectrometric Method <sup>(11,28)</sup>
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1.4.16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.4.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,18)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(7.6.18)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1.4.17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,18)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(19,28)</sup> 2) Soxhlet Extraction, Gas Chromatographic Method <sup>(10,28)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic Method <sup>(11,28)</sup>

- 2-ChlorobiphenylL...



ลำดับที่	สารเคมี	วิธีวิเคราะห์
28	- 2-Chlorobiphenyl - 2,3-Dichlorobiphenyl - 2,2',5-Trichlorobiphenyl - 2,4',5-Trichlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5',6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl Pentachlorophenol	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,24)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup> Electrometric Method <sup>(23,24)</sup> 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
29	pH	
30	Selenium	

31 Silver...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

31...

## สินค้าจำนวน 125 รายการ

ลำดับที่	สารเคมี	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
2	Acetone	1) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method <sup>(13)</sup>
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>(15,25)</sup>

11 Benzo(b)fluoranthene

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

23 Cadmium...



ลำดับที่	สารเคมี	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,14)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method/ Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,16,19)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,17,19)</sup>
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method <sup>(8,19)</sup>

35 Chrysene...

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

49 1,2-Dichloroethane...

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

63 Di-n-Octyl Phthalate...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(19)</sup>

73 n-Hexane...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
74	$\alpha$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
75	$\beta$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
76	$\gamma$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry <sup>(21)</sup> 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(20)</sup>

84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13,25)</sup>
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
90	Methyl, tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,6-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

99 Phenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
101	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
102	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
108	TPH (C <sub>6</sub> -C <sub>8</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
109	TPH (C <sub>9</sub> -C <sub>16</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(12,23)</sup>
110	TPH (C <sub>16</sub> -C <sub>35</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(12,23)</sup>
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

115 2,4,5-Trichlorophenol...



