Certificate of Instrument for Environment Quality Analysis.

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration*	Remark
Laboratory Instrument/Equipments (Water)									
1	pH Meter	ความเป็นกรดและด่าง	Orion	STAR A214 / X36836	SCIENCE TECH CO., LTD.	ST018/26	18 May 26	17 May 27	-
2	pH Meter		Mettler-Toledo	SevenEasy pH/ 1231155210	National Food Institute, Ministry of Industry, Thailand	2601956-001-01	20 Feb 26	19 Feb 27	-
3	Analytical Balance (Repeatability 0.01 mg)	สารแขวนลอย สารที่ละลายได้ทั้งหมด	Mettler-Toledo	XSR205DU C210685394	United Analyst and Engineering Consultant Co., LTD.	260311-2-BL001-26	11 Mar 26	10 Mar 27	-
4	Hot Air Oven		Memmert	UF55 / B212.0411	National Food Institute, Ministry of Industry, Thailand	2602300-001-01	11 Mar 26	10 Mar 27	-
5	BOD Incubator	บีโอดี	Arco	UC4-1320 / (UAE.WAO.006/2553)	National Food Institute, Ministry of Industry, Thailand	2602300-003-01	11 Mar 26	10 Mar 27	-
6	BOD Incubator		Arco	UR-1320 / (UAE.WAO.018/2551)	National Food Institute, Ministry of Industry, Thailand	2602300-002-01	12 Mar 26	11 Mar 27	-
7	Digestor Unit	ทีเคเอ็น (TKN)	FOSS TECATOR	KT 9 / 91905393	FOSS South East Asia	15256	12 Feb 26	11 Feb 27	-
8	Distillation Unit (Kjeldahl Method)		FOSS TECATOR	DT2520 / 91905060	Foss South East Asia	15257	12 Feb 26	11 Feb 27	-
9	Analytical Balance (Readability 0.1 mg)	น้ำมันและไขมัน	Mettler-Toledo	XSR204 / C117635043	United Analyst and Engineering Consultant Co., LTD.	260318-1-BL008-26	3 Apr 26	2 Apr 27	-
10	Incubator	แบคทีเรียกลุ่มฟีคอลโคลิฟอร์ม แบคทีเรียกลุ่มโคลิฟอร์มทั้งหมด	Memmert	IN75/ D317.0307	National Food Institute, Ministry of Industry, Thailand	262303-005-01	11 Mar 26	10 Mar 27	-
11	Incubator		Binder	KB 400 20200000015535	National Food Institute, Ministry of Industry, Thailand	2602303-006-01	11 Mar 26	10 Mar 27	-

Certificate of Instrument for Environment Quality Analysis.

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration*	Remark
Laboratory Instrument/Equipments (Water)									
12	Water Bath	แบคทีเรียกลุ่มฟีคอลโคลิฟอร์ม แบคทีเรียกลุ่มโคลิฟอร์มทั้งหมด	Memmert	WNE 14 / L416.0614	Technology Promotion Association (Thailand-Japan)	26TM195	2 Feb 26	1 Feb 27	-
13	Water Bath		Memmert	WNE 14 / L421.0121	Technology Promotion Association (Thailand-Japan)	26TM443	16 Mar 26	15 Mar 27	-
14	Auto Clave		ALP	CL-40L / 808763	National Food Institute, Ministry of Industry, Thailand	2602303-007-01	11 Mar 26	10 Mar 27	-

Due Date of Calibration* : Based on the annual calibration plan. At least 1 time per year.

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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Substitute for Certificate No.: 2602300-002-01

Certificate No.: 2602300-002-02

Equipment:	*CHAMBER (Incubator)*
Manufacturer:	ARCO
Model:	UR-1320
Serial No.:	N/A
ID No.:	UAE.WAO.018/2551
Order No.:	2602300
Operation No.:	2602300-002
Date of Receipt:	11 March 2026
Date of Calibration:	12 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 9 standard thermometers into its chamber, in accordance with W-TE-014. based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A RTD	MY59002902 CH#101-109/ RTD#101-109	2502797-002-01	3 May 2026	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Manas Somsak
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 27 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพมหานคร 10700
2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545

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อุตสาหกรรมพัฒนามูลนิธิเพื่อสถาบันอาหาร
ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602300-002-02

Calibration Condition:

Equipment: *CHAMBER (Incubator)*

UUC* Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Time of record 1 hour 9 minute / point

Place of Calibration: Laboratory

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Environment Conditions: Ambient Temperature (27.3 ± 1) °C

Relative Humidity (47.8 ± 4) %

Line Voltage (222 ± 3) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Measurement Uncertainty (±°C)
	Std.#1	Std.#2	Std.#3	Std.#4	Std.#5	Std.#6	Std.#7	Std.#8	Std.#9	
20.0	20.19	20.19	19.89	19.83	19.87	19.97	19.78	20.01	20.06	0.71

Table 2 : Reporting of Characterization Results

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	Max	Min	Average			
20.0	20.2	20.0	20.1	0.58	0.28	1.41

Note

- UUC* : Unit Under Calibration

-The quoted uncertainty includes contributions from 'Stability' and 'Loading Effect (20% of Temperature Uniformity).

- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

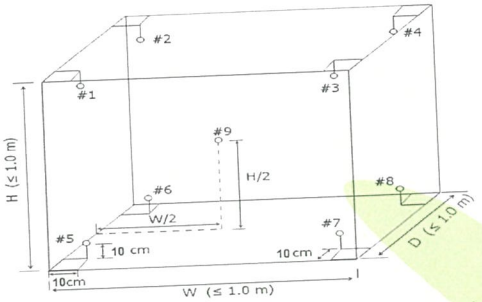
- Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

- Overall Variation = The difference of The maximum and minimum measured temperatures througout observation time.

For more information, details of the sensor installation should be reported.

Fresh air Damper	-	Open	- Position
	X	Close	100% Fan speed
	-	Not Available	

Dimension of inside chamber and sensor installation location (cm)						
W x H x D	120	x	130	x	60	
a x b x c	10	x	10	x	10	



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

--------- End of Report ---------

2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพ
2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545

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FOSS

Customer Service Report

FOSS South East Asia
3388 Sirinrat Building, 25th – 26th Floor, Unit No. 3388/90,
Rama IV Road, Klongton , Klongtoey, Bangkok, Thailand 10110

Report No.:	15256

Date:	Feb 12, 2026	Customer:	UAE
Job No.:	14589	Address:	Bangkok
Instrument:	Kt9 Distillator	Serial:	919°05393

	Travel To Customer (Hrs)		Labour (Hrs)		Travel From Customer (Hrs)	
Start	08.00	1.5	09.30	4	—	—
Finish	09.30		13.30		—	—

Job Type							
Application		Special		Standard			
Distributor		Courtesy Visit		Installation		In House	
Digital Service		PMA Approval Check		Quote		PM	X
Internal		Warranty - ____		Repair		HC Visit	
Training		Sales Support		Investigate		Others	

PMA Type						
	Smartcare		Smartcare Pro		Fosscare	X
	Smartcare Advance		Fosscare Pro		N/A	

Details of Work / Test				
- PM -				
- Visual Check				
+ No leak	- ok			
+ No damage	- ok			
- change PM kit x1 Set	- ok			
- Function Check				
+ Dilution	- ok			
+ Alkali	- ok			
+ Receiver	- Not Use			
+ Steam /Drain	- ok			
-				
Instrument Ready for Use	OK	X	Not OK*	

Part No:	Batch	Description	Q'ty
60100196	11.03.2025	PM kit kjeltec 9 Distillator	1

I confirm this report is accurate and complete			
Signed FOSS	[signature]	Signed Customer	[signature]
Name:	Anamika / Patchara / Jokhard	Name	
Tel:		Tel:	061 750 4097
Email:		Email:	Pitiya.Sukwan348@gmail.com

*Remark: _____

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Please scan QR code

FOSS

Customer Service Report

FOSS South East Asia
3388 Sirinrat Building, 25th – 26th Floor, Unit No. 3388/90,
Rama IV Road, Klongton , Klongtoey, Bangkok, Thailand 10110

Report No.:	15257

Date:	Feb 12, 2026	Customer:	UAE
Job No.:	14590	Address:	Bangkok
Instrument:	DT2520	Serial:	91905060

	Travel To Customer (Hrs)		Labour (Hrs)		Travel From Customer (Hrs)	
Start	–		13.30	1.5		
Finish	–	–	15.00			

Job Type							
Application		**Special**		**Standard**			
Distributor		Courtesy Visit		Installation		In House	
Digital Service		PMA Approval Check		Quote		PM	X
Internal		Warranty - _____		Repair		HC Visit	
Training		Sales Support		Investigate		Others	

PMA Type						
	Smartcare		Smartcare Pro		Fosscare	X
	Smartcare Advance		Fosscare Pro		N/A	

Details of Work / Test			
-PM			
- Visual Check			
+ No leak	- ok		
+ No damage	- ok		
- Change PM kit x 1 Set	- Ok		
- Function Check			
+ Quick mode			
+ Set Temp / Timer	- Ok		
+ Run	- ok		
- heating	- ok		
- Lift up/down	- Ok		
- Clean x20 holes with Grind head			
Instrument Ready for Use	**OK**	X	**Not OK***

Part No:	Batch	Description	Q'ty
60079730	29.09.2025	FOSS PM kit, Digestor 20 pcs / 12 month	1

I confirm this report is accurate and complete			
Signed FOSS		Signed Customer	
Name:	Anana / Patchara / Jakkrasiv	Name	
Tel:		Tel:	
Email:		Email:	

*Remark: _____

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United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com
UNITED ANALYST AND ENGINEERING CONSULTANT COMPANY LIMITED
NSC-TISI-TIS 17025
CALIBRATION 0416

Certificate of Calibration

Certificate No.: 260318-1-BL008-26

Code No.: BL008-26

Customer Name:	United Analyst and Engineering Consultant Co., Ltd.
Address:	3 Soi Udom suk 41, Sukhumvit Rd., Bang Chak, Phar Khanong, Bangkok 10260
Equipment:	Electronic Balance
Manufacturer:	Mettler Toledo
Model:	XSR204
Serial No.:	C117635043
Asset No. :	UAE.WAS.012/2564

Building : UAE No.3 Floor : 1 Room : 107

Received Date:	April 2, 2026				
Date of Calibation :	April 3, 2026				
Calibration Conditions:	Temperature	*start*	21.9 °C	*end*	22.3 °C
	Humidity	*start*	56.7 %	*end*	61.7 %
	Pressure	*start*	755.1 mmHg	*end*	754.8 mmHg

Calibrated by: Thanachat Chatpahol

Approved by: Suwit Chotnok Signature:

Issued Date: April 7, 2026

Note : 1) The Uncertainties are for a confidence probability of approximately 95%

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

3) 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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the United Analyst and Engineering Consultant Co.,Ltd. (UAE)

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NSC-TISI-TIS 17025
CALIBRATION 0416

UNITED ANALYST AND ENGINEERING CONSULTANT COMPANY LIMITED

United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

Equipment:	Electronic Balance	Manufacturer:	Mettler Toledo
Model:	XSR204	Readability:	0.0001 g
Serial No.:	C117635043	ID No.:	UAE.WAS.012/2564
Max. Capacity:	220 g		
Calibration Date:	April 3, 2026		
Condition As-Received:	In Condition		

Condition of Equipment:

Condition of This Result of Calibration:

1. Calibration Method: This instrument was calibrated by method UAE.CP.CAL.006 In-House Method based on UKAS Lab 14 : 2022

2. Reference Standrads:

Reference Standard:	Model	Serial No.	Calibrated By	Certificate No.	Traceability	Due Date
Standard Weight Class E2 (OIML)	1 mg to 1 kg	B749109122	METTLER TOLEDO GmbH	C510641605	METTLER TOLEDO GmbH	3-Mar-27

Instrument	Model	Serial No.	Calibrated By	Certificate No.	Traceability	Due Date
Thermo-Hygro-Baro Meter	MHB-382SD	AK.46457	SUCCESS	SG-H-00992/68	Success Gateway	26-Nov-26
Thermo-Hygro-Baro Meter	MHB-382SD	AK.46457	TPA	25P4464	TPA	18-Dec-26

3. This certification is traceable to SI Unit

4. This certification was certified only for the indtrument we calibrated

5. This result of calibration wae found accurate as show on date and place of calibration only.

6. Through the reference standard laboratory of Mettler-Toledo GmbH C510641605, SAS accreditation number SCS 0032

Calibraton Result:

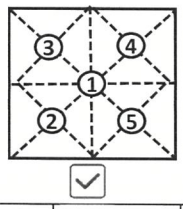
1. Repeatability of Reading:

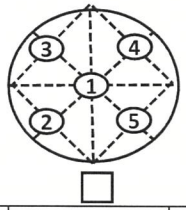
Nominal Value (g)	Standard Deviation of Reading (g)
200*	0.000055

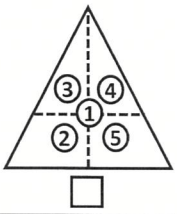
2. Eccentric or off-center loading

A mass of 100 g was placed and moved to various position on pan

The Balance reading obtained is given in the table.







1 (g)	2 (g)	3 (g)	4 (g)	5 (g)	Maximum Difference (g)
100.0003	100.0004	100.0001	100.0003	100.0006	0.0003

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United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

NSC -TISI -TIS 17025
CALIBRATION 0416

Certificate No.: 260318-1-BL008-26
Code No.: BL008-26

Equipment:	Electronic Balance	Manufacturer:	Mettler Toledo
Model:	XSR204	Readability:	0.0001 g
Serial No.:	C117635043	ID No.:	UAE.WAS.012/2564
Max. Capacity:	220 g		
Calibration Date:	April 3, 2026		

Calibraton Result: (Continued)
Calibraton Range: 0 - 200 g
Calibraton Adjustment: Internal Calibration

3. Error of indication from nominal or conventional mass value:

Nominal Value (g)	Reference Value (g)	Indication (g)	Correction (g)	Uncertainty (± mg)	Coverage Factor k
Unload	0.0000000	0.0000	0.0000	0.11	2.09
1	1.0000119	1.0001	-0.0001	0.11	2.09
5	5.0000148	5.0001	-0.0001	0.11	2.09
10	10.0000330	10.0001	-0.0001	0.11	2.09
20	20.0000280	20.0001	-0.0001	0.12	2.08
40	40.0000540	40.0002	-0.0001	0.13	2.05
50	50.0000370	50.0001	-0.0001	0.13	2.05
60	60.0000700	60.0002	-0.0001	0.14	2.04
80	80.0000980	80.0003	-0.0002	0.16	2.00
100	100.0000420	100.0003	-0.0003	0.16	2.00
120	120.0000680	120.0004	-0.0003	0.19	2.00
160	160.0001120	160.0004	-0.0003	0.23	2.00
200	200.0001460	200.0005	-0.0004	0.26	2.00

4. Effect of Tare test:

Tare Load (g)	Test Load (g)	Indication (g)	Correction (g)
100	20.000028	20.0001	-0.0001
	40.000054	40.0001	0.0000
	60.000070	60.0002	-0.0001
	80.000098	80.0002	-0.0001
	100.000042	100.0003	-0.0002

Remark: -
The report uncertainty of measurment was based on standard uncertainty multiplied by coverage factor k, providing a level of confidence of approximetely 95%

o---o-End-o---o

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ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-005-01

Equipment:	CHAMBER (Incubator)
Manufacturer:	MEMMERT
Model:	IN75
Serial No.:	D317.0307
ID No.:	UAE.MIC.023/2561
Order No.:	2602303
Operation No.:	2602303-005
Date of Receipt:	11 March 2026
Date of Calibration:	11 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 9 standard thermometers into its chamber, in accordance with W-TE-014. based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A RTD	MY59003377 CH#201-209/ RTD#201-209	2601300-001-01	10 January 2027	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Manas Somsak
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 18 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545
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ministry of industry

อุตสาหกรรมพัฒนามูลนิธิเพื่อสถาบันอาหาร
ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-005-01

Calibration Condition:

Equipment: **CHAMBER (Incubator)**

UUC* Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Time of record 1 hour 9 minute / point

Place of Calibration: Microbiology Laboratory (302)

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD

Environment Conditions: Ambient Temperature (23.5 ± 1) °C

Relative Humidity (59.1 ± 3) %

Line Voltage (223 ± 3) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Measurement Uncertainty (±°C)
	Std.#1	Std.#2	Std.#3	Std.#4	Std.#5	Std.#6	Std.#7	Std.#8	Std.#9	
41.5	41.84	41.85	41.80	41.76	40.96	41.18	41.12	41.32	41.33	0.29

Table 2 : Reporting of Characterization Results

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	Max	Min	Average			
41.5	41.5	41.5	41.5	0.06	0.52	0.96

Note

- UUC* : Unit Under Calibration

-The quoted uncertainty includes contributions from 'Stability' and 'Loading Effect (20% of Temperature Uniformity).

- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

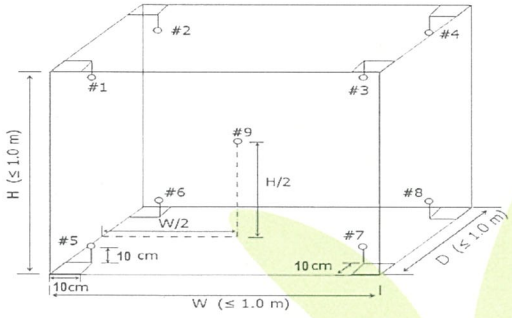
- Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

- Overall Variation = The difference of The maximum and minimum measured temperatures througout observation time.

For more information, details of the sensor installation should be reported.

Fresh air Damper	-	Open	-	Position
	X	Close	-	Fan speed
	-	Not Available		

Dimension of inside chamber and sensor installation location (cm)						
W x H x D	40	x	56	x	33	
a x b x c	10	x	10	x	10	



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

--------- End of Report ---------

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
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ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-006-01

Equipment:	CHAMBER (Incubator)
Manufacturer:	BINDER
Model:	KB 400
Serial No.:	20200000015535
ID No.:	UAE.MIC.018/2564
Order No.:	2602303
Operation No.:	2602303-006
Date of Receipt:	11 March 2026
Date of Calibration:	11 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 9 standard thermometers into its chamber, in accordance with W-TE-014. based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	DAQ973A RTD	MY59008964 CH#201-209/ RTD#201-209	2502244-001-01	29 March 2026	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Nuttapol Niyomchat
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 19 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545
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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-006-01

Calibration Condition:

Equipment: **CHAMBER (Incubator)**

UUC* Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Time of record 1 hour 9 minute / point

Place of Calibration: Microbiology Laboratory

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD

Environment Conditions: Ambient Temperature (17.2 ± 1) °C

Relative Humidity (51.5 ± 4) %

Line Voltage (229 ± 2) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Measurement Uncertainty (±°C)
	Std.#1	Std.#2	Std.#3	Std.#4	Std.#5	Std.#6	Std.#7	Std.#8	Std.#9	
35.0	34.78	34.86	34.81	34.83	35.22	35.21	35.22	35.12	34.83	0.28

Table 2 : Reporting of Characterization Results

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	Max	Min	Average			
35.0	35.0	35.0	35.0	0.034	0.39	0.52

Note

- UUC* : Unit Under Calibration

-The quoted uncertainty includes contributions from 'Stability' and 'Loading Effect (20% of Temperature Uniformity).

- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

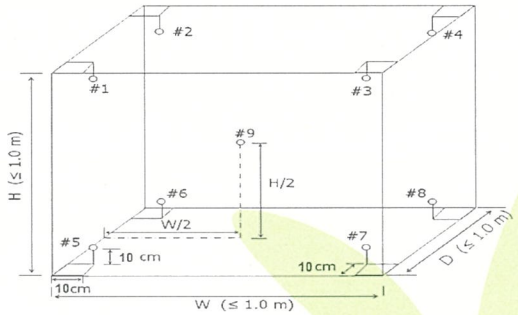
- Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

- Overall Variation = The difference of The maximum and minimum measured temperatures througout observation time.

For more information, details of the sensor installation should be reported.

Fresh air Damper	-	Open	-	Position
	X	Close	100%	Fan speed
	-	Not Available		

Dimension of inside chamber and sensor installation location (cm)						
W x H x D	65	x	125	x	48	
a x b x c	10	x	10	x	10	



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

--------- End of Report ---------

2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพมหานคร 10700
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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

NSC-TISI-TIS17025
CALIBRATION 0008

Certificate of Calibration

Cert. No.: 26TM195
Page : 1 of 3

Equipment :	Water Bath
Manufacturer :	Memmert
Model :	WNE 14
Serial No. :	L416.0614
ID No. :	MIC.020/2561
Submitted by :	United Analyst and Engineering Consultant Co.,Ltd. 3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Location :	Microbiology Laboratory (302)
Received Order :	02 February 2026
Calibration Date :	02 - 03 February 2026
Ambient Temperature :	(26 ± 10) °C
Relative Humidity :	(50 ± 30) %
AC Line Voltage :	(220 ± 22) V

Calibrated by : Krisda Malee

Approved by : Kunchit

Approved Signatory

( ) Chakrit Waewwanjua
( ) Suwit Imjai
(✓) Kunchit Promprat

Issue Date : 17 February 2026

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.

เอกสารไม่ควบคุม

Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2602-0004OC-3

Cert. No.: 26TM195

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:-

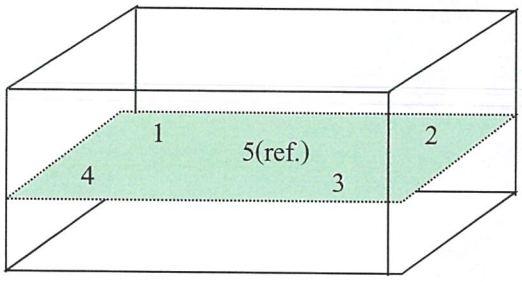
Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Data Acquisition	MY57013711	25LM117	TPA	17 Jul 2026

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This measurement result is traceable to the International System of Unit maintained through :

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	53	220
Finished of Calibration	23	55	221



Front

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

เอกสารไม่ควบคุม

Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2602-0004OC-3
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source

Cert. No.: 26TM195

Calibration point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Average* Standard Reading (°C) Position					Uncertainty (± °C)
			1	2	3	4	5 (ref.)	
44.5	44.5	44.5	44.502	44.455	44.473	44.502	44.512	0.15
50.0	50.0	50.0	50.000	49.910	49.943	49.989	50.007	0.15

Calibration point (°C)	Uniformity (°C)	Stability (± °C)	Coverage Factor *k*
44.5	0.11	0.035	2
50.0	0.14	0.047	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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เอกสารไม่ควบคุม

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

NSC-TISI-TIS17025
CALIBRATION 0008

Certificate of Calibration

Equipment :	Water Bath
Manufacturer :	Memmert
Model :	WNE 14
Serial No. :	L421.0121
ID No. :	UAE.MIC.007/2558
Submitted by :	United Analyst and Engineering Consultant Co.,Ltd. 3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Location :	Microbiology Laboratory (302)
Received Order :	16 March 2026
Calibration Date :	16 March 2026
Ambient Temperature :	(26 ± 10) °C
Relative Humidity :	(50 ± 30) %
AC Line Voltage :	(220 ± 22) V
Calibrated by :	Tawatchai Pama
Approved by :	Kunchit Approved Signatory

( ) Chakrit Waewwanjua
( ) Suwit Imjai
(✓) Kunchit Promprat

Issue Date : 23 March 2026

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.

เอกสารไม่ควบคุม

Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2603-0427OC-2

Cert. No.: 26TM443

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:-

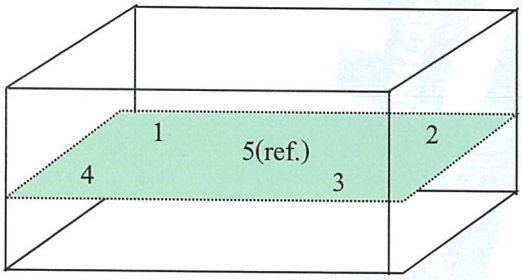
Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Data Acquisition	MY59003411	25LM177	TPA	26 Dec 2026

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This measurement result is traceable to the International System of Unit maintained through :

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	26	67	231
Finished of Calibration	25	62	231



Front

Position :	Ref. Std. ID No.:
1	4804539-001
2	4804539-002
3	4804539-003
4	4804539-004
5(ref.)	4804539-005

เอกสารไม่ควบคุม

Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2603-0427OC-2
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source

Cert. No.: 26TM443

Calibration point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Average* Standard Reading (°C) Position					Uncertainty (± °C)
			1	2	3	4	5 (ref.)	
44.5	44.5	44.5	44.522	44.498	44.484	44.526	44.518	0.15

Calibration point (°C)	Uniformity (°C)	Stability (± °C)	Coverage Factor *k*
44.5	0.088	0.040	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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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2502227-001-01
Client name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.
Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Equipment: Electronic Balance

Manufacturer: OHAUS

Model: PX623

Serial No.: C236754745

ID No.: UAE.MIC.055/2565

Order No.: 2502227

Operation No.: 2502227-001

Date of Receipt: 19 March 2025

Date of Calibration: 19 March 2025

Calibrated by Mr.Yothin Charoensuk
Scientist

Approved by for N. Injaubut
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 25 March 2025

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545

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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: **2502227-001-01**

Equipment: Electronic Balance

Manufacturer: OHAUS

Model: PX623

Resolution: 0.001

Serial No.: C236754745

ID No.: UAE.MIC.055/2565

Capacity: 620

Date of Calibration: 19 March 2025

Calibration Results: **(Continued)**

Calibration Range: 0-600 g

Calibration Adjustment: Internal Calibration

3. Departure from Nominal Value:

Nominal Value (g)	Standard Value (g)	Average Reading (g)	Correction (g)	Uncertainty (± g)	Coverage Factor *k*
Unload	0.0000	0.000	0.000	0.00086	2.00
1	1.0000	1.000	0.000	0.00086	2.00
5	5.0000	4.999	0.001	0.00086	2.00
10	10.0000	10.000	0.000	0.00086	2.00
20	20.0000	20.000	0.000	0.00086	2.00
50	50.0000	50.000	0.000	0.00087	2.00
100	100.0001	100.000	0.000	0.00087	2.00
200	200.0001	200.001	-0.001	0.00090	2.00
300	300.0002	300.001	-0.001	0.00094	2.00
400	400.0003	399.999	0.001	0.0011	2.00
500	500.0003	499.999	0.001	0.0011	2.00
600	600.0004	600.000	0.000	0.0012	2.00

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

---------- **End** ----------

for. N. Inyaubol

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NSC THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Report

Certificate No.: **2502227-001-01**

Equipment: Electronic Balance

Manufacturer: OHAUS

Model: PX623

Resolution: 0.001

Serial No.: C236754745

ID No.: UAE.MIC.055/2565

Capacity: 620

Date of Calibration: 19 March 2025

Environment Condition: Ambient Temperature: 22.8 ± 0.3 °C Relative Humidity: 51 ± 0.95 %

Place of Calibration: 301, UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Condition of Equipment: Good Condition

Condition of This Results of Calibration:

1. Calibration Method: NFI Method W-MA-001 In-House Method based on UKAS Lab 14 : 2019

2. Reference Standards:

Reference Standard	Model	Serial No.	Calibrated By	Certificate No.	Due Date
Standard Weight Class E2	1mg to 200g	B505567572	TCS	M2404100S	19 April 2025
Standard Weight Class E2	500g	B505567696	TCS	M2404101S	19 April 2025
Instrument	**Model**	**Serial No.**	**Calibrated By**	**Certificate No.**	**Due Date**
Thermo-Hygro Meter	608-H1	NFI.BTH 017/23	Quality Reborn	QR25-0542	10 February 2026

3. This certification is traceable to SI UNIT

4. This certificate was certified only for the instrument we calibrated.

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

Calibration Results:

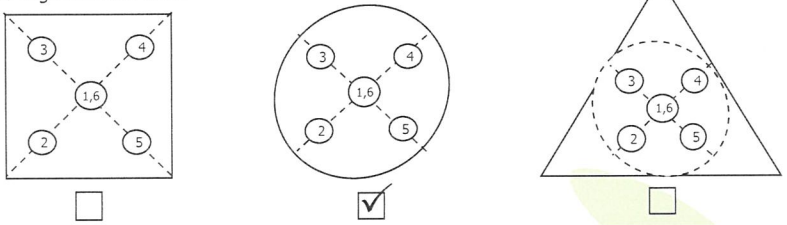
1. Repeatability of Reading:

Nominal Value (g)	Standard Deviation of Reading (g)
300	0.00042
600	0.00048

2. Off-Center Error:

A mass of 200 g was placed and moved to various position on pan.

The balance reading obtained is given in the table.



☐ ☑ ☐

1 (g)	2 (g)	3 (g)	4 (g)	5 (g)	6 (g)	(Maximum Difference) (g)
200.002	200.003	200.001	200.001	200.002	200.002	0.001

for N. myoubat

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700 Thailand
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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-007-01

Equipment:	Autoclave
Manufacturer:	ALP
Model:	CL-40L
Serial No.:	808763
ID No.:	UAE.MIC.026/2563
Order No.:	2602303
Operation No.:	2602303-007
Date of Receipt:	11 March 2026
Date of Calibration:	11 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 3 standard data loggers with RTDs into its autoclave, in accordance with W-TE-018. based on BS 2646-1:2021, Autoclaves for sterilization in laboratories Part 1: Design, construction, safety and performance - specification.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with RTD (Data Logger)	HiTemp140-PT	S33753	2502245-002-01	22 March 2026	NATIONAL FOOD INSTITUTE
	HiTemp140	S25602	2601300-004-01	10 January 2027	NATIONAL FOOD INSTITUTE
	PRTemp140	R38546	2601300-003-01	10 January 2027	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Nuttapol Niyomchat
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 19 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602303-007-01

Calibration Condition:

Equipment: **Autoclave**

Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Setting program function sterilization STERILIZE/NORMAL
- Time of sterilizatior 15 Minute at 115.0, 121.0 °C

Place of Calibration: Room 301

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Environment Conditions: Ambient Temperature (26.0 ± 1) °C

Relative Humidity (47.5 ± 3) %

Line Voltage (228.5 ± 4) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. Std.# 1	Std.# 2 (REF)	Std.# 3	Measurement Uncertainty (±°C)
115.0	115.29	115.33	115.37	0.64
121.0	121.17	121.18	121.06	0.64

Table 2 : Reporting of Characterization Results

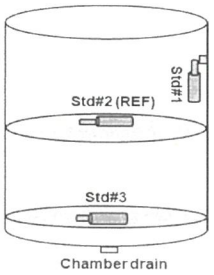
UUC* Setting (°C)	UUC* Reading (°C) Max	Min	Average	MPa	Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
115.0	115.1	114.9	115.0	0.08	0.23	0.53	0.51
121.0	121.1	120.9	121.0	0.12	0.24	0.67	0.67

Note

- UUC* : Unit Under Calibration
- The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity)"
- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.
- 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.
- Overall Variation = The difference of the maximum and minimum measured temperatures througout observation time.

For more information, details of the sensor installation should be reported.

Standard at position
Std #1 = Attached to the load temperature probe, within 20 mm.
Std #2 (REF) = In the upper half of the chamber.
Std #3 = In the chamber drain, within 100 mm.



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

--------- End of Report ---------

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545
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SCIENCE TECH CO., LTD.

Head Office : 321/43 Nanglinchee Rd. Chongnondsee Yannawa Bangkok 10210 Thailand Tel. 0-2285-4101 Fax. 0-2285-4856 www.sciencetech.th.com
Science Tech Laboratory : 279/27-29 Soi Watpoman Sathupradit 19 Rd. Chongnondsee Yannawa Bangkok 10120 Tel. 0-2285-4101 Fax. 0-2285-4856

NSC-TISI-TIS 17025
CALIBRATION 0402

Job No. : J018/26 **Certificate No. : ST018/26**

Certificate of Calibration

Equipment :	pH/ISE Meter
Manufacturer :	Orion
Made in :	USA
Model :	STAR A214
Serial No. :	X36836
ID No. :	UAE.WAT.025/2560
Range :	0 to 14 pH
Resolution :	0.001 pH 0.1 mV
UUC Condition As-Received :	Good
Submitted by :	บริษัท ยูไนเต็ด แอนนาลิสต์ แอนด์ เอ็นจิเนียริ่ง คอนซัลแตนท์ จำกัด 3 ซอยอุดมสุข 41 ถนนสุขุมวิท แขวงบางจาก เขตพระโขนง กรุงเทพฯ 10260
Ambient Temperature :	(25 ± 3) °C
Relative Humidity :	(50 ± 15)%
Calibration Procedure :	In - house method : WI-ST-LAB-7.2/I based on direct measurement by using standard voltage calibrator
Issue date :	Wednesday, May 20, 2026

Calibrateded by : Khannika Sangkham **Approved by :**

(Khannika Sangkham)
Laboratory manager

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 standards laboratory. This certificate may not be reproduced other **than in full, except with the prior written approval of the Science Tech Laboratory.**

เอกสารไม่ควบคุม

Certificate of Calibration

Job No. : J018/26 **Certificate No. : ST018/26**

Received date : Friday, May 15, 2026 **Page : 2 of 2**

Calibration date : Monday, May 18, 2026

Condition of this calibration result

1 Reference standard instrument : Voltage calibrator Yokogawa 7651 S/N. 91H441999 Certificate No. 26E7

Due date 5 June 2026 TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

2 This certificate was certified only for the instrument we calibrated

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

Result of Calibration

Function : pH meter

Performing standard curve by Voltage Calibrator at pH (4,7,10)

Unit Under Calibration	Applied Voltage (mV)	Nominal Value (pH)	UUC Reading (mV)	Correction (mV)	Uncertainty (± mV)	k Factor
pH Meter	177.48	4	177.4	0.1	0.060	2.00
Model STAR A214	0.0	7	0.0	0.0	0.064	2.00
S/N. X36836	-177.48	10	-177.4	-0.1	0.078	2.00

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

-oooo- End of Certificate of Calibration -oooo-

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Head Office : 321/43 Nanglinchee Rd. Chongnondsee Yannawa Bangkok 10120
Thailand Tel. 0-2285-4101 Fax. 0-2285-4856 www.sciencetech.th.com
Science Tech Laboratory : 279/27-29 Soi Watpoman Sathupradit 19 Rd.
Chongnondsee Yannawa Bangkok 10120 Tel. 0-2285-4101 Fax. 0-2285-4856

Job No. : JF004/26 **Certificate No. : FT004/26**

Certificate of Calibration

Equipment :	pH/ISE Meter
Manufacturer :	Orion
Made in :	USA.
Model :	STAR A214
Serial No. :	X36836
ID No. :	UAE.WAT.025/2560
Ion Selective Model :	9409BN
Serial No. :	ZW1-18420
Referance Electrode Model :	900100
Serial No. :	ZW1-16834
Range :	0 to 14 pH
Resolution :	0.001 pH 0.1 mV
Submitted by :	บริษัท ยูไนเต็ด แอนนาลิสต์ แอนด์ เอ็นจิเนียริ่ง คอนซัลแตนท์ จำกัด 3 ซอยอุดมสุข 41 ถนนสุขุมวิท แขวงบางจาก เขตพระโขนง กรุงเทพฯ 10260
Ambient Temperature :	(25 ± 3) °C
Relative Humidity :	(50 ± 15)%
Issue date :	Wednesday, May 20, 2026
Calibrateded by :	**Khannika Sangkham**

Approved by :

(Khannika Sangkham)
Laboratory manager

เอกสารไม่ควบคุม

Certificate of Calibration

Job No. : **JF004/26** **Certificate No. : FT004/26**

Received date : Friday, May 15, 2026 **Page : 2 of 2**

Calibration date : Tuesday, May 19, 2026

Condition of this calibration result

1 Reference standard materials : Certified Fluoride standard reference solution (Directly measured by differential potentiometry with the aid of potassium fluoride "quasi without transference" against solutions prepared from primary reference materials from NIST)

2 This certificate was certified only for the instrument we calibrated

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

Result of Calibration

Function : pH/ISE Meter with Probe

Direct Measurement

First Standard concentrated	=	0.1	ppm
Secondary Standard concentrated	=	1	ppm
Tertiary Standard concentrated	=	10	ppm
Fourthly Standard concentrated	=	100	ppm
Slope	=	**-57.9**	mV/Dec.

Channel : 1

Unit Under Calibration	**Standard Concentrated (ppm)**	**UUC Reading (ppm)**	**Correction (ppm)**	**Stdev (ppm)**
Model :	0.1	0.107	-0.007	0.00
9409BN S/N. ZW1-18420	1	1.02	-0.02	0.01
900100 S/N. ZW1-16834	10	10.1	-0.1	-0.05
	100	100	0	0.46

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Food Industrial Laboratory Service Center

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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2601956-001-01

Equipment:	pH Meter
Manufacturer:	METTLER TOLEDO
Model:	SevenEasy pH
Serial No.:	1231155210
ID No.:	UAE.WAT.010/2553
Order No.:	2601956
Operation No.:	2601956-001
Date of Receipt:	20 February 2026
Date of Calibration:	23 February 2026

Customer name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.
Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1.Calibration Method W-CC-002 : In house method based on direct measurement by using standard voltage calibrator and certified reference material (CRM)

2. Reference Standards / Certified Reference Material

Instruments	Serial / ID No.	Manufacturer	Certificate No.	Due Date
2.1 DC Voltage Calibrator	2709007	Fluke	25E1753	22 May 2026
2.2 Digital Thermometer	2709007	Fluke	2600328-002-01	25 October 2026
2.3 Thermo-Hygro Meter	NFI.BTH 014/23	testo	2503232-014-01	10 June 2026
Certified Reference Material	**Lot. No.**	**Manufacturer**	**Ref N**	**Expire Date**
2.4 pH buffer 4.008 (Primary pH buffer Solution)	1016435	CPAchem	PH216.L5	25 July 2026
2.5 pH buffer 6.865 (Primary pH buffer Solution)	1016432	CPAchem	PH217.L5	25 July 2026
2.6 pH buffer 10.01 (Primary pH buffer Solution)	1088003	CPAchem	PH220.L5	18 March 2026
2.7 pH buffer 7.00 (Standard pH buffer Solution)	C03282	HACH LANGE GmbH	S11M004	11 June 2027

3. This certification is traceable to The International System of Unit (SI Unit)
- 3.1 Instruments No.2.1 through NSC-ONSC Laboratory Accredition of Calibration No.0008 (TPA)
- 3.2 Instruments No.2.2 and 2.3 through NSC-ONSC Laboratory Accredition of Calibration No.0061 (NFI)
- 3.3 Certified Reference Material No.2.4 to 2.6 traceable to CPAchem Ltd is accredited to ISO 17034 (ANSI accredited No. AR-1835)
- 3.4 Certified Reference Material No.2.7 traceable to Hach Lange GmbH is accredited to DIN EN ISO 17034 (DAkkS accredited No.D-RM-15184-01-00)

4. This certificate was certified only for the instrument we calibrated.

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

Calibrated by Mr.Manas Somsak
Specialist

Approved by
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 2 March 2026

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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2601956-001-01

Calibration Condition:

Place of Calibration :	Chemical Calibration Laboratory, National Food Institute		
Environment Condition:	Ambient Temperature (24.0 ± 0.2) °C	Relative Humidity:	(49.8 ± 2) %
Calibration Item Condition:	Used Item	Type:	Bench top
	Range: 0 - 14 pH	Resolution:	0.01 pH, 1 mV

Calibration results:

1. Calibration of pH Meter (Manual Temperature Compensation at 25 °C)

Nominal pH	DC Voltage Standard (mV)	Average Indicator Reading		Uncertainty (±mV)	Coverage Factor (*k*)
		mV	pH		
0	414.119	414	-0.01	0.58	2.00
2	295.813	296	1.99	0.58	2.00
4	177.463	178	4.00	0.58	2.00
6	59.159	59	6.00	0.58	2.00
7	0.000	0	7.00	0.58	2.00
8	-59.159	-59	8.00	0.58	2.00
10	-177.462	-177	10.00	0.58	2.00
12	-295.813	-296	12.00	0.58	2.00
14	-414.119	-414	14.00	0.58	2.00

2. Calibration of pH Meter with Electrode (Manual Temperature Compensation at 25 °C)

Equipment:	pH Electrode	Manufacturer:	METTLER TOLEDO	Model:	InLab Solids
Serial No.:	C507554932	ID.No.	N/A	Type:	Combined Electrode

Performance of Electrode system (Three-Point Calibration at pH 4, 7 and 9)

Certified Value @25 °C (pH)	Average Indicator Reading		Relative Slope (%)	Uncertainty (± pH)	Coverage Factor (*k*)
	pH	mV			
4.008	4.01	184	-	0.0071	2.00
7.000	7.00	8	99.5	0.0086	2.00
10.010	10.01	-166	97.7	0.0085	2.00
6.876	6.88	15	-	0.0071	2.00

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

---------- End of Report ----------

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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2601956-002-01

Equipment:	Digital Thermometer with RTD (pH Meter)		
Manufacturer:	METTLER TOLEDO	**Customer Name:**	UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.
Model:	SevenEasy pH	**Address:**	3 Soi Udomsuk 41, Sukhumvit Road,
Serial No.:	1231155210		Bangchack, Prakhanong, Bangkok 10260
ID No.:	UAE.WAT.010/2553		
Order No.:	2601956		
Operation No.:	2601956-002		
Date of Receipt:	20 February 2026		
Date of Calibration:	23 February 2026		

Metrological traceability:

1. Calibration Method:

- NFI Method W-TE-025 : based on comparison with a standard thermometer.
- TM-CG01-TT01-V04: CALIBRATION OF DIGITAL THERMOMETER WITH TEMPERATURE SENSORS.
- The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).

2. Reference Standard Instrument:

Instrument	Model / Type	Serial No. / ID No.	Certificate No.	Due Date	Through
HANDHELD THERMOMETER	1523	2118154	PSL-T 0926/68	26-Jun-26	TISTR
Platinum Resistance Thermometer (PRT)	5627A	877332			

Support Equipment : - Low Temperature Bath (AMETEK RTC-187), Model: RTC-187C , S/N: 670930-00018

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by	Mr.Manas Somsak Specialist	**Approved by**	(Mr.Pheraphat Tuanjit) Manager, Division of Calibration Laboratory Responsible for the Technical Management Team
Date of Issue:	2 March 2026		

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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Food Industrial Laboratory Service Center

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MC THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2601956-002-01

Calibration Condition :

Equipment: Digital Thermometer with RTD
UUC* Resolution: 0.1 °C
Condition of the item: Normal & Good
Without adjustment / AS FOUND

Place of Calibration: Chemical Calibration Laboratory
National Food Institute

Environment Conditions: Ambient Temperature (23.1 ± 0.3) °C
Relative Humidity (49.8 ± 2) %
Line Voltage (220 ± 10) V.

Calibration results:

- Temperature Measurement Results

Calibration Point (°C)	Standard Thermometer Value (°C)	UUC* Reading Value (°C)	UUC* Correction Value (°C)	Measurement Uncertainty (± °C)
20	20.002	20.1	-0.1	0.098
25	25.001	25.1	-0.1	0.098
30	30.003	30.1	-0.1	0.098

Note

- UUC* : Unit Under Calibration
- The probe was immersed in a liquid bath or a dry bath to a minimum depth of 120 mm.
- Description of probe, model : N/A S/N : N/A

Dimension of probe : Diameter 4 mm. Length 120 mm. Sheath material: Plastic

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

--------- End of Report ---------

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545

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United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

NSC-TISI-TIS 17025
CALIBRATION 0416

Certificate of Calibration

Certificate No.: 260311-2-BL001-26

Code No.: BL001-26

Customer Name:	United Analyst and Engineering Consultant Co., Ltd.
Address:	3 Soi Udom suk 41, Sukhumvit Rd., Bang Chak, Phar Khanong, Bangkok 10260
Equipment:	Electronic Balance
Manufacturer:	Mettler Toledo
Model:	XSR205DU
Serial No.:	C210685394
Asset No. :	UAE.WAO.010/2565

Building : UAE number 3 Floor : 2 Room : 208

Received Date:	March 11, 2026			
Date of Calibation :	March 12, 2026			
Calibration Conditions:	Temperature	23.0 °C	to	23.6 °C
	Humidity	51.5 %	to	54.4 %
	Pressure	755.7 mmHg	to	757.9 mmHg

Calibrated by: Thanachat Chatpahol

Approved by: Suwit Chotnok Signature:

Issued Date: March 16, 2026

Note : 1) The Uncertainties are for a confidence probability of approximately 95%

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

3) 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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the United Analyst and Engineering Consultant Co.,Ltd. (UAE)

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Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

NSC -TISI -TIS 17025
CALIBRATION 0416

Equipment:	Electronic Balance	Manufacturer:	Mettler Toledo
Model:	XSR205DU	Readability:	0 to 81 (g): 0.01 mg , > 80 to 200 (g) : 0.1 mg
Serial No.:	C210685394	ID No.:	UAE.WAO.010/2565
Max. Capacity:	81 g / 220 g		
Calibration Date:	March 12, 2026		
Condition As-Received:	In Condition		

Condition of Equipment:

Condition of This Result of Calibration:

1. Calibration Method: This instrument was calibrated by method UAE.CP.CAL.006 In-House Method based on UKAS Lab 14 : 2022

2. Reference Standrads:

Reference Standard:	Model	Serial No.	Calibrated By	Certificate No.	Traceability	Due Date
Standard Weight Class E2 (OIML)	1 mg to 1 kg	C510641605	METTLER TOLEDO GmbH	C510641605	METTLER TOLEDO GmbH	3-Mar-27
Standard Weight Class E2 (OIML)	1 mg to 1 kg	B749109122	AMARC	25-009359	AMARC	21-Jan-27

Instrument	Model	Serial No.	Calibrated By	Certificate No.	Traceability	Due Date
Thermo-Hygro-Baro Meter	MHB-382SD	AK.46457	SUCCESS	SG-H-00992/68	Success Gateway	26-Nov-26
Thermo-Hygro-Baro Meter	MHB-382SD	AK.46457	TPA	25P4464	TPA	18-Dec-26

3. This certification is traceable to SI Unit

4. This certification was certified only for the indtrument we calibrated

5. This result of calibration wae found accurate as show on date and place of calibration only.

6. Through the reference standard laboratory of Mettler-Toledo GmbH C510641605, SAS accreditation number SCS 0032

7. Through the reference standard laboratory of AMARC 25-009359, TISI accreditation number 0152

Calibraton Result:

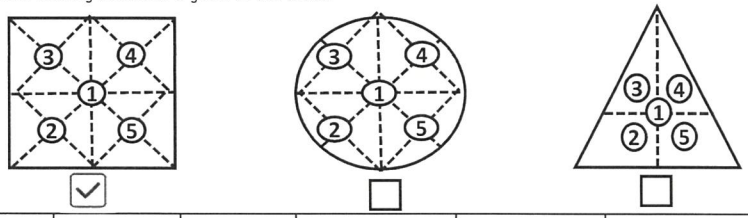
1. Repeatability of Reading:

Nominal Value (g)	Standard Deviation of Reading (g)
80	0.000019
200*	0.000055

2. Eccentric or off-center loading

A mass of 100 g was placed and moved to various position on pan

The Balance reading obtained is given in the table.



☑ ☐ ☐

1 (g)	2 (g)	3 (g)	4 (g)	5 (g)	Maximum Difference (g)
100.0002	100.0002	100.0003	100.0004	100.0003	0.0001

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UAE
UNITED ANALYST AND ENGINEERING CONSULTANT COMPANY LIMITED
United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

NSC -TISI -TIS 17025
CALIBRATION 0416

Equipment:	Electronic Balance	Manufacturer:	Mettler Toledo
Model:	XSR205DU	Readability:	0 to 81 (g): 0.01 mg , > 80 to 200 (g) : 0.1 mg
Serial No.:	C210685394	ID No.:	UAE.WAO.010/2565
Max. Capacity:	81 g / 220 g		
Calibration Date:	March 12, 2026		

Calibraton Result: (Continued)
Calibraton Range: 0 to 80 (g)
Calibraton Adjustment: Internal Calibration

3. Error of indication from nominal or conventional mass value: (Range: 0 to 81 (g) ; Resolution: 0.00001 g)

Nominal Value (g)	Reference Value (g)	Indication (g)	Correction (g)	Uncertainty (± mg)	Coverage Factor k
Unload	0.0000000	0.00000	0.00000	0.032	2.65
0.001	0.0010020	0.00101	0.00000	0.032	2.65
0.005	0.0050025	0.00501	-0.00001	0.032	2.65
0.01	0.0100005	0.01001	-0.00001	0.032	2.65
0.05	0.0500003	0.05001	-0.00001	0.032	2.65
0.10	0.1000083	0.10000	0.00001	0.033	2.65
0.50	0.5000121	0.50001	0.00000	0.033	2.65
1	1.0000119	1.00003	-0.00002	0.032	2.52
2	2.0000125	2.00003	-0.00002	0.033	2.52
5	5.0000146	5.00003	-0.00002	0.033	2.32
10	10.0000330	10.00006	-0.00003	0.034	2.21
20	20.000028	20.00006	-0.00003	0.041	2.07
30	30.000061	30.00017	-0.00011	0.055	2.00
40	40.000054	40.00021	-0.00016	0.066	2.00
50	50.000037	50.00023	-0.00019	0.068	2.00
60	60.000070	60.00029	-0.00022	0.084	2.00
80	80.000098	80.00039	-0.00030	0.12	2.00

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United Analyst and Engineering Consultant Co., Ltd.
UNITED ANALYST AND ENGINEERING CONSULTANT COMPANY LIMITED
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

NSC -TISI -TIS 17025
CALIBRATION 0416

Equipment:	Electronic Balance	Manufacturer:	Mettler Toledo
Model:	XSR205DU	Readability:	0 to 81 (g): 0.01 mg , > 80 to 200 (g) : 0.1 mg
Serial No.:	C210685394	ID No.:	UAE.WAO.010/2565
Max. Capacity:	81 g / 220 g		
Calibration Date:	March 12, 2026		

Calibraton Result: (Continued)
Calibraton Range: > 81 to 200 (g)
Calibraton Adjustment: Internal Calibration

3. Error of indication from nominal or conventional mass value: (Range: > 81 - 220 (g) ; Resolution: 0.0001 g)

Nominal Value (g)	Reference Value (g)	Indication (g)	Correction (g)	Uncertainty (± mg)	Coverage Factor k
Unload	0.0000000	0.0000	0.0000	0.032	*2.65*
90	90.0000910	90.0004	-0.0003	0.16	*2.00*
100	100.0000420	100.0003	-0.0003	0.16	*2.00*
110	110.0000750	110.0004	-0.0003	0.18	*2.00*
120	120.0000680	120.0004	-0.0003	0.19	*2.00*
130	130.0001010	130.0005	-0.0004	0.20	*2.00*
140	140.0000960	140.0004	-0.0003	0.21	*2.00*
150	150.0000790	150.0005	-0.0004	0.22	*2.00*
160	160.0001120	160.0004	-0.0003	0.23	*2.00*
170	170.0001050	170.0003	-0.0002	0.24	*2.00*
200	200.0001460	200.0001	0.0000	0.26	*2.00*

4. Effect of Tare test:

Tare Load (g)	Test Load (g)	Indication (g)	Correction (g)
100	20.000028	20.0001	0.0000
	40.000054	40.0001	0.0000
	60.000070	60.0000	0.0001
	80.000098	80.0000	0.0001
	100.000109	100.0000	0.0001

Remark: -

The report uncertainty of measurment was based on standard uncertainty multiplied by coverage factor k, providing a level of confidence of approximetely 95%

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ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร
Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

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THAILAND
NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602300-001-01

Equipment:	CHAMBER (Hot Air Oven)
Manufacturer:	MEMMERT
Model:	UF55
Serial No.:	B212.0411
ID No.:	UAE.WAO.005/2556
Order No.:	2602300
Operation No.:	2602300-001
Date of Receipt:	11 March 2026
Date of Calibration:	11 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 9 standard thermometers into its chamber, in accordance with W-TE-014. based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A RTD	MY59002902 CH#201-209/ RTD#201-209	2502797-002-01	3 May 2026	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Manas Somsak
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 18 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545
nfi.or.th

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อุตสาหกรรมพัฒนามูลนิธิเพื่อสถาบันอาหาร
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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602300-001-01

Calibration Condition:

Equipment: CHAMBER (Hot Air Oven)

UUC* Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Time of record 1 hour 9 minute / point

Place of Calibration: Laboratory

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Environment Conditions: Ambient Temperature (29.8 ± 1.0) °C

Relative Humidity (47.8 ± 4) %

Line Voltage (222 ± 3) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Measurement Uncertainty (±°C)
	Std.#1	Std.#2	Std.#3	Std.#4	Std.#5	Std.#6	Std.#7	Std.#8	Std.#9	
104.0	104.22	103.87	103.90	104.17	103.56	103.58	104.22	104.17	104.00	0.53
120.0	120.21	119.76	119.86	120.18	119.53	119.58	120.24	120.20	119.96	0.73
180.0	180.27	179.37	179.73	180.31	178.91	179.13	180.35	180.25	179.84	0.90

Table 2 : Reporting of Characterization Results

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	Max	Min	Average			
104.0	104.0	104.0	104.0	0.05	0.44	0.75
120.0	120.0	120.0	120.0	0.06	0.43	0.79
180.0	180.0	180.0	180.0	0.07	0.93	1.56

Note

- UUC* : Unit Under Calibration

-The quoted uncertainty includes contributions from 'Stability' and 'Loading Effect (20% of Temperature Uniformity).

- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

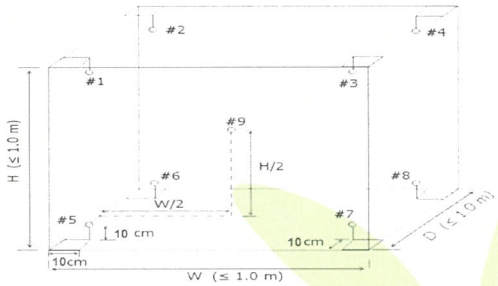
- Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

- Overall Variation = The difference of The maximum and minimum measured temperatures througout observation time.

For more information, details of the sensor installation should be reported.

Fresh air Damper	-	Open	- Position
	X	Close	100% Fan speed
	-	Not Available	

Dimension of inside chamber and sensor installation location (cm)						
W x H x D	40	x	40	x	33	
a x b x c	10	x	10	x	10	



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

--------- End of Report ---------

2008 ซอยอรุณอมรินทร์ 36 ถนนอรุณอมรินทร์ แขวงบางยี่ขัน เขตบางพลัด กรุงเทพมหานคร [illegible]
2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8688 Fax: +66(0) 2422 8545

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NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Substitute for Certificate No.: 2602300-003-01

Certificate No.: 2602300-003-02

Equipment:	*CHAMBER (Incubator)*
Manufacturer:	ARCO
Model:	UR-1320
Serial No.:	N/A
ID No.:	UAE.WAO.006/2553
Order No.:	2602300
Operation No.:	2602300-003
Date of Receipt:	11 March 2026
Date of Calibration:	11 March 2026

Customer Name: UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Address: 3 Soi Udomsuk 41, Sukhumvit Road,
Bangchack, Prakhanong, Bangkok 10260

Metrological traceability:

1. Calibration Method:
   - This instrument was calibrated by inserting 9 standard thermometers into its chamber, in accordance with W-TE-014. based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
   - The temperature scale used in this laboratory is the International Temperature Scale of 1990 (ITS-90).
   - All data shown below are final values, and the initial data may be obtained upon request.
2. Reference Standard Instrument:

Instrument	Model/Type	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A RTD	MY59002902 CH#101-109/ RTD#101-109	2502797-002-01	3 May 2026	NATIONAL FOOD INSTITUTE

3. This certificate is traceable to the International System of Units (SI).
4. This certificate is valid only for the instrument that was calibrated.
5. The result of this calibration was found to be accurate only on the date and at the place of calibration shown.

Calibrated by Mr.Manas Somsak
Specialist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 27 March 2026

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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
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nfi.or.th

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Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center

NSC-TISI-TIS 17025
CALIBRATION 0061

Calibration Certificate

Certificate No.: 2602300-003-02

Calibration Condition:

Equipment: ***CHAMBER (Incubator)***

UUC* Resolution: 0.1 °C

Condition of the item: Normal & Good

Without adjustment / As Found

- Time of record 1 hour 9 minute / point

Place of Calibration: Laboratory

UNITED ANALYST AND ENGINEERING CONSULTANT CO.,LTD.

Environment Conditions: Ambient Temperature (29.3 ± 1) °C

Relative Humidity (47.8 ± 4) %

Line Voltage (222 ± 3) V.

Calibration Results:

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF)									Measurement Uncertainty (±°C)
	Std.#1	Std.#2	Std.#3	Std.#4	Std.#5	Std.#6	Std.#7	Std.#8	Std.#9	
20.0	20.12	19.83	20.17	19.85	20.18	20.13	20.17	20.21	19.93	0.78

Table 2 : Reporting of Characterization Results

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	Max	Min	Average			
20.0	20.0	19.7	19.9	0.63	0.29	1.33

Note

- UUC* : Unit Under Calibration

-The quoted uncertainty includes contributions from 'Stability' and 'Loading Effect (20% of Temperature Uniformity).

- Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

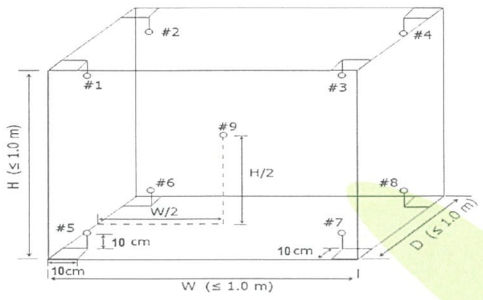
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For more information, details of the sensor installation should be reported.

Fresh air Damper	-	Open	- Position
	X	Close	100% Fan speed
	-	Not Available	

Dimension of inside chamber and sensor installation location (cm)		
W x H x D	120 x 130 x 60	
a x b x c	10 x 10 x 10	



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

--------- End of Report ---------

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2008 Soi 36, Arun Amarin Road, Bang Yi Khan Subdistrict, Bang Phlat District, Bangkok 10700, Thailand
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