ภาคผนวกที่ 5

เอกสารสอบเทียบความถูกต้องของเครื่องมือ

ภาคผนวกที่ 5.1 เอกสารสอบเทียบเครื่องมือตรวจวัดคุณภาพน้ำทิ้ง

ภาคผนวกที่ 5.1

เอกสารสอบเทียบเครื่องมือตรวจวัดคุณภาพน้ำทิ้ง

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-076801

Sample Code : 24-30695-001

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)

Equipment : pH Meter

Manufacturer : HANNA instruments **Model** : HI 2211

Serial No. : H0064643 **ID No.** : SV-TL.080/2560

Date of Receipt : 20 June 2024 **Date of Calibration** : 25 June 2024

Condition of Calibration

1. **Environment** Ambient temperature : 22.5 to 27.5 °C Relative humidity : 40.0 to 70.0 %RH
   1.1 Start time : 24.8 °C ; End time : 24.5 °C 1.2 Start time : 55.0 %RH ; End time : 55.4 %RH
2. **Calibration method**
   In house method WI-CL-019 : Direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM).
3. **Reference standard / Certified reference material**

Instrument	ID No.	Certificate No.	Due Date
3.1 Voltage Calibrator	LB-AMC-01	23E3244	03 October 2024
3.2 Digital Thermometer	LB-TH-33	23-098974	25 August 2024
Certified Reference Material	**Lot. No.**	**Ref No.**	**Expire Date**
3.3 Buffer Solution pH 4.008	980683	PH216.L5	25 April 2026
3.4 Buffer Solution pH 6.986	941727	PH107.L5	06 November 2024
3.5 Buffer Solution pH 9.997	941726	PH220.L5	06 November 2024

4. **This certificate is traceable to the international system of unit (SI Unit).**
   4.1 Instrument No. 3.1 through Technology Promotion Association (Thailand-Japan).
   4.2 Instrument No. 3.2 through Asia Medical and Agricultural Laboratory and Research Center Public Company Limited.
   4.3 Buffer Solution No. 3.3 and No. 3.5 traceable to CPA chem (through primary measurement method-Harned cell using calibrated thermometer, barometer, and nanovoltmeter Accredited laboratory ISO/IEC 17025 and ISO 17034).
   4.4 Buffer Solution No. 3.4 traceable to CPA chem (CPA RefN HARNED CELL LotN 61275737; CPA RefN HARNED CELL LotN 61273986 Accredited laboratory ISO/IEC 17025 and ISO 17034).
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item :** Normal

Calibrated by Mr. Nuttaput Timula
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 28 June 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Envipro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-076801

Sample Code : 24-30695-001

Equipment	:	pH Meter	**Resolution**	:	0.01 pH ; 0.1 mV (± 399.9 mV), 1 mV (beyond ± 400 mV)
Manufacturer	:	HANNA instruments			
Serial No.	:	H0064643	**Model**	:	HI 2211
Range	:	-2.00 pH to 16.00 pH ; ± 2000 mV	**ID No.**	:	SV-TL.080/2560

Results of Calibration

Part 1. DC Voltage measurement

pH Meter Serial No. : H0064643

Nominal Value	Applied DC Voltage	Average indicator reading		Uncertainty	Coverage factor
pH	mV	mV	pH	mV	*k*
0	414.113	414	0.00	± 0.083	2.00
4	177.477	177.5	4.00	± 0.083	2.00
7	0.000	0.0	7.00	± 0.083	2.00
10	-177.477	-177.4	10.00	± 0.083	2.00
14	-414.113	-414	14.00	± 0.083	2.00

Part 2. Performance of Electrode system

Electrode Manufacturer : HANNA instruments Model : HI1131

Electrode Serial No. : 0347487N

Two-Point Calibration at pH4 and pH7 Percent Slope : 96.6

Standard Buffer Solution	Average indicator reading		Error Value	Uncertainty	Coverage factor
pH (@ 25 °C)	pH	mV	pH	pH	*k*
4.008	4.00	170.9	-0.008	± 0.011	2.00
6.986	7.00	0.5	0.014	± 0.012	2.00

Two-Point Calibration at pH7 and pH10 Percent Slope : 95.7

Standard Buffer Solution	Average indicator reading		Error Value	Uncertainty	Coverage factor
pH (@ 25 °C)	pH	mV	pH	pH	*k*
6.986	7.00	-3.8	0.014	± 0.011	2.00
9.997	10.00	-174.2	0.003	± 0.012	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envipro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083949

Sample Code : 24-33404-027

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Burette

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.067/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 16 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083949

Sample Code : 24-33404-027

Equipment	:	Burette	**Capacity**	:	5 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.067/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings.

SI Unit cm^3 = ml

Nominal value	(ml)	2.5	5
Average reading	(ml)	2.50000	5.00484
Standard deviation	(ml)	0.00117	0.00118
Error value	(ml)	0.00000	-0.00484
Uncertainty	± (ml)	0.0039	0.0039
Coverage factor	(*k*)	2.00	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083951

Sample Code : 24-33404-029

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)

Equipment : Burette

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.115/2564

Date of Receipt : 04 July 2024 **Date of Calibration** : 15 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083951

Sample Code : 24-33404-029

Equipment	:	Burette	**Capacity**	:	50 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.115/2564

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	25	50
Average reading	(ml)	25.04499	50.0688
Standard deviation	(ml)	0.00216	0.0010
Error value	(ml)	-0.04499	-0.0688
Uncertainty	± (ml)	0.010	0.010
Coverage factor	(k)	2.00	2.00

The result expanded uncertainty of measurement U is stated as the standard uncertainty of measurement multiplied by the coverage factor k, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE	:	STANDARD WEIGHT
MANUFACTURER	:	LS
MODEL / TYPE	:	10 g
SERIAL NO.	:	S10G858-20
CLID. NO.	:	262200930
JOB CONTROL NO.	:	240706071242
CALIBRATION SERVICE	:	☑ IN-LABORATORY ☐ ON-SITE

CUSTOMER : ENVIRPRO CO., LTD.
168/28 NAKNIWAS RD., LADPRAO,
BANGKOK 10230 THAILAND

DATE OF RECEIVED : 06 July 2024

DATE OF ISSUED : 09 July 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Nattawadee Baengpech
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
09 July 2024

This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24071242

F3-011-05/12-23

@clccalibration

Envirpro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

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ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17025
CALIBRATION AND DIMENSIONAL MEASUREMENT
ACDM-2814

REPORT OF CALIBRATION

FOR

NOMENCLATURE	:	**STANDARD WEIGHT**
MANUFACTURER	:	**LS**
MODEL / TYPE	:	**10 g**
SERIAL NO.	:	**S10G858-20**
DATE OF CALIBRATION	:	**08 July 2024**

ENVIRONMENT CONDITIONS :

Temperature : **(20 ± 1) °C** **Relative Humidity :** **(50 ± 10) %RH**

PROCEDURE USED :

This instrument was calibrated under procedure No. **CLC-CPMM-01** based on **OIML R 111-1** as calibration guidelines.

The calibration was performed by Weight Set and Electronic Balance which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

Weight Set, Hafner Gewichte GmbH Class E2 S/N. 3281018.

TRACEABILITY :

The measurements are traceable to International System of Units (SI) , through National Institute of Metrology (Thailand).

Certificate No. MM-0169-22, Due Date 18 October 2024.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor complies with the table which for a normal distribution corresponds to a coverage probability of approximately 95 %.

It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

@clccalibration

Enviro LC Co., Ltd.

CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment ( ) adjustment

The table in the following gives the calibration results and associated measurement uncertainties of the measuring standard weight.

CALIBRATION DATA

Nominal Value	Mark	Conventional mass	Uncertainty ± (mg)	Coverage factor *k*
10 g	-	10 g + 0.069 mg	0.031	2,00

Note. The Scope of Accredited ANAB Certificate No. ACDM-2814 Version 012 Page 51 of 67

This report is valid for the above stated instrument/s only.

End of Certificate

Envirpro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

ilac-MRA

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE	:	STANDARD WEIGHT
MANUFACTURER	:	LS
MODEL / TYPE	:	200 g
SERIAL NO.	:	N/A[SV-TL.111/2562]
CLID. NO.	:	262200933
JOB CONTROL NO.	:	240706071243
CALIBRATION SERVICE	:	☑ IN-LABORATORY ☐ ON-SITE

CUSTOMER : ENVIRPRO CO., LTD.
168/28 NAKNIWAS RD., LADPRAO,
BANGKOK 10230 THAILAND

DATE OF RECEIVED : 06 July 2024

DATE OF ISSUED : 09 July 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Nattawadee Baengpech
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
09 July 2024

This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24071243

F3-011-05/12-23

@clccalibration

Envirpro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

REPORT OF CALIBRATION

FOR

NOMENCLATURE	:	**STANDARD WEIGHT**
MANUFACTURER	:	**LS**
MODEL / TYPE	:	**200 g**
SERIAL NO.	:	**N/A[SV-TL.111/2562]**
DATE OF CALIBRATION	:	**08 July 2024**

ENVIRONMENT CONDITIONS :

Temperature : (20 ± 1) °C **Relative Humidity :** (50 ± 10) %RH

PROCEDURE USED :

This instrument was calibrated under procedure No. **CLC-CPMM-01** based on **OIML R 111-1** as calibration guidelines.

The calibration was performed by Weight Set and Electronic Balance which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

Weight Set, Hafner Gewichte GmbH Class E2 S/N. 3281018.

TRACEABILITY :

The measurements are traceable to International System of Units (SI) , through National Institute of Metrology (Thailand).

Certificate No. MM-0169-22, Due Date 18 October 2024.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor complies with the table which for a normal distribution corresponds to a coverage probability of approximately 95 %.

It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

@clccalibration

Enviro LC Co., Ltd.

CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment ( ) adjustment

The table in the following gives the calibration results and associated measurement uncertainties of the measuring standard weight.

CALIBRATION DATA

Nominal Value	Mark	Conventional mass	Uncertainty ± (mg)	Coverage factor *k*
200 g	-	200 g - 0.10 mg	0.16	2,00

Note. The Scope of Accredited ANAB Certificate No. ACDM-2814 Version 012 Page 51 of 67

This report is valid for the above stated instrument/s only.

End of Certificate

Envipro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083922

Sample Code : 24-33404-010

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric pipette

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.050/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 12 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083922

Sample Code : 24-33404-010

Equipment	:	Volumetric pipette	**Capacity**	:	5 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.050/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	5
Average reading	(ml)	4.99930
Standard deviation	(ml)	0.00094
Error value	(ml)	0.00070
Uncertainty	± (ml)	0.0025
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083925

Sample Code : 24-33404-013

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric pipette

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.053/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 12 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Damaged and chip It does not effect the measurement and calibration.

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083925

Sample Code : 24-33404-013

Equipment	:	Volumetric pipette	**Capacity**	:	10 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.053/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings.

SI Unit cm^3 = ml

Nominal value	(ml)	10
Average reading	(ml)	9.99478
Standard deviation	(ml)	0.00146
Error value	(ml)	0.00522
Uncertainty	± (ml)	0.0038
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083926

Sample Code : 24-33404-014

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric pipette

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.054/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 12 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083926

Sample Code : 24-33404-014

Equipment	:	Volumetric pipette	**Capacity**	:	15 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.054/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	15
Average reading	(ml)	14.98661
Standard deviation	(ml)	0.00179
Error value	(ml)	0.01339
Uncertainty	± (ml)	0.0063
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083927

Sample Code : 24-33404-015

Customer	:	บริษัท เอ็นไวร์โปร จำกัด เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว เขตลาดพร้าว กรุงเทพมหานคร 10230			
Location of Calibration	:	Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)			
Equipment	:	Volumetric pipette			
Manufacturer	:	TS	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.055/2559
Date of Receipt	:	04 July 2024	**Date of Calibration**	:	12 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Damaged and chip It does not effect the measurement and calibration.

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083927

Sample Code : 24-33404-015

Equipment	:	Volumetric pipette	**Capacity**	:	20 ml
Manufacturer	:	TS	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.055/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	20
Average reading	(ml)	19.99361
Standard deviation	(ml)	0.00273
Error value	(ml)	0.00639
Uncertainty	± (ml)	0.0065
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co.; Ltd.

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083932

Sample Code : 24-33404-018

Customer	:	บริษัท เอ็นไวร์โปร จำกัด เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว เขตลาดพร้าว กรุงเทพมหานคร 10230			
Location of Calibration	:	Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)			
Equipment	:	Volumetric pipette			
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.058/2559
Date of Receipt	:	04 July 2024	**Date of Calibration**	:	15 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083932

Sample Code : 24-33404-018

Equipment	:	Volumetric pipette	**Capacity**	:	100 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.058/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	100
Average reading	(ml)	99.9457
Standard deviation	(ml)	0.0019
Error value	(ml)	0.0543
Uncertainty	± (ml)	0.017
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083934

Sample Code : 24-33404-019

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric flask

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.059/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 09 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083934

Sample Code : 24-33404-019

Equipment	:	Volumetric flask	**Capacity**	:	5 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.059/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings.

SI Unit cm^3 = ml

Nominal value	(ml)	5
Average reading	(ml)	5.00408
Standard deviation	(ml)	0.00135
Error value	(ml)	-0.00408
Uncertainty	± (ml)	0.0059
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083939

Sample Code : 24-33404-022

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric flask

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.062/2559

Date of Receipt : 04 July 2024 **Date of Calibration** : 09 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviropro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083939

Sample Code : 24-33404-022

Equipment	:	Volumetric flask	**Capacity**	:	50 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.062/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings.

SI Unit cm^3 = ml

Nominal value	(ml)	50
Average reading	(ml)	49.9934
Standard deviation	(ml)	0.0035
Error value	(ml)	0.0066
Uncertainty	± (ml)	0.011
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

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NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083944

Sample Code : 24-33404-024

Customer	:	บริษัท เอ็นไวร์โปร จำกัด เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว เขตลาดพร้าว กรุงเทพมหานคร 10230			
Location of Calibration	:	Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)			
Equipment	:	Volumetric flask			
Manufacturer	:	SCHOTT DURAN	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.064/2559
Date of Receipt	:	04 July 2024	**Date of Calibration**	:	11 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-10	23-083786	24 July 2024
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TH-34	23-098975	25 August 2024

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083944

Sample Code : 24-33404-024

Equipment	:	Volumetric flask	**Capacity**	:	250 ml
Manufacturer	:	SCHOTT DURAN	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.064/2559

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	250
Average reading	(ml)	250.005
Standard deviation	(ml)	0.004
Error value	(ml)	-0.005
Uncertainty	± (ml)	0.036
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

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NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083946

Sample Code : 24-33404-025

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Volumetric flask

Manufacturer : PYREX **Class** : A

Serial No. : N/A **ID No.** : SV-TL.099/2562

Date of Receipt : 04 July 2024 **Date of Calibration** : 11 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-10	23-083786	24 July 2024
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TH-34	23-098975	25 August 2024

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

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NSC-TISI-TIS17025
CALIBRATION 0152

REPORT OF CALIBRATION

Certificate No. : 24-083946

Sample Code : 24-33404-025

Equipment	:	Volumetric flask	**Capacity**	:	500 ml
Manufacturer	:	PYREX	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.099/2562

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	500
Average reading	(ml)	500.061
Standard deviation	(ml)	0.013
Error value	(ml)	-0.061
Uncertainty	± (ml)	0.064
Coverage factor	(*k*)	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083914

Sample Code : 24-33404-002

Customer : บริษัท เอ็นไวร์โปร จำกัด
เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว
เขตลาดพร้าว กรุงเทพมหานคร 10230

Location of Calibration : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
(Calibration Laboratory)

Equipment : Cylinder

Manufacturer : witeg **Class** : A

Serial No. : N/A **ID No.** : SV-TL.116/2564

Date of Receipt : 04 July 2024 **Date of Calibration** : 09 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-11	24-040475	30 March 2025
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TM-56	24-066415	29 May 2025

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083914

Sample Code : 24-33404-002

Equipment	:	Cylinder	**Capacity**	:	50 ml
Manufacturer	:	witeg	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.116/2564

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	30	50
Average reading	(ml)	30.0086	50.0203
Standard deviation	(ml)	0.0072	0.0066
Error value	(ml)	-0.0086	-0.0203
Uncertainty	± (ml)	0.030	0.030
Coverage factor	(k)	2.00	2.00

The result expanded uncertainty of measurement U is stated as the standard uncertainty of measurement multiplied by the coverage factor k, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co., Ltd.

AMARC | ASIA MEDICAL AND AGRICULTURAL LABORATORY AND RESEARCH CENTER

NSC-TISI-TIS17025
CALIBRATION 0152

CERTIFICATE OF CALIBRATION

Certificate No. : 24-083915

Sample Code : 24-33404-003

Customer	:	บริษัท เอ็นไวร์โปร จำกัด เลขที่ 168/28 ถนนนาคนิวาส แขวงลาดพร้าว เขตลาดพร้าว กรุงเทพมหานคร 10230			
Location of Calibration	:	Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (Calibration Laboratory)			
Equipment	:	Cylinder			
Manufacturer	:	PYREX	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.035/2555
Date of Receipt	:	04 July 2024	**Date of Calibration**	:	10 July 2024

Condition of Calibration

1. **Environment**
   - 1.1 Ambient Temperature : 20 °C ± 2.5 °C
   - 1.2 Atmospheric Pressure : 1013 hPa ± 8 hPa
   - 1.3 Relative Humidity : 50 % ± 10 %
2. **Calibration method** : ASTM E542-01 (2012)
3. **Reference standard instrument**

Instrument	ID No.	Certificate No.	Due Date
3.1 Electronic Balance	LB-BL-10	23-083786	24 July 2024
3.2 Thermo Hygrometer	LB-DA-05	QR24-0509	04 March 2025
3.3 Barometer	LB-PS-04	23P4056	03 December 2024
3.4 Thermometer	LB-TH-34	23-098975	25 August 2024

4. **This certificate is traceable to the international system of unit (SI Unit).**
   - 4.1 Instrument No. 3.1, 3.4 through : Asia Medical and Agricultural Laboratory and Research Center Public Company Limited
   - 4.2 Instrument No. 3.2 through : Quality Reborn Co., Ltd.
   - 4.3 Instrument No. 3.3 through : Technology Promotion Association (Thailand-Japan)
5. **This result of calibration was found accurate as shown on date and place of calibration only.**
6. **Condition of calibration item** : Normal

Calibrated by Miss Woranuch Sookruay
Scientist

Approved by (Mr. Somchai Neampunt)
Signed for Director

Issue date 18 July 2024

The uncertainties are for a confidence probability of approximately 95%.
The calibration result is applied only to the above calibrated item and was found accurate as shown on date and place of calibration only.

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 unit 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 Asia Medical and Agricultural Laboratory and Research Center Public Company Limited (AMARC).

Enviro Co., Ltd.

REPORT OF CALIBRATION

Certificate No. : 24-083915

Sample Code : 24-33404-003

Equipment	:	Cylinder	**Capacity**	:	100 ml
Manufacturer	:	PYREX	**Class**	:	A
Serial No.	:	N/A	**ID No.**	:	SV-TL.035/2555

Results of Calibration

Calibration results without adjustment.

The result obtained is the arithmetic average value of volumes from 10 single weighings. SI Unit cm^3 = ml

Nominal value	(ml)	50	100
Average reading	(ml)	50.547	100.374
Standard deviation	(ml)	0.018	0.008
Error value	(ml)	-0.547	-0.374
Uncertainty	± (ml)	0.048	0.048
Coverage factor	(*k*)	2.00	2.00

The result expanded uncertainty of measurement *U* is stated as the standard uncertainty of measurement multiplied by the coverage factor *k*, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with UKAS M3003.

- End of Report -

Envirpro Co.; Ltd.

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: B1-0507032/24 **Page** 1 **of total** 4 **pages**

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Electronic Balance		
Manufacturer	AND	**Model**	GF-3002A
Serial No.	T2102126	**ID No.**	SV-TL.109/2562
Description	Maximum Capacity: 3200 g	Resolution:	0.01 g

Environmental Conditions	Ambient Temperature:	24.9 °C
	Relative Humidity:	61 %
	Atmospheric Pressure:	-
Calibration Location	Balance Room	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager — Representative of Managing Director

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
( ) (Pongsak H.) ( ) (Nitiphong K.)
(✓) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

(Dr. Ekachai Puttitwong)

Envirpro Co., Ltd.

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Certificate No.: B1-0507032/24 **Page** 2 **of total** 4 **pages**

Reference Method:

- The calibration method used was CP-208 based on UKAS LAB 14
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Standard Weight Set 1 mg - 5 kg	30402687-4	I0-2702002/23	Feb. 27, 2025	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:
- THC, Thai Heart Calibration Co., Ltd.

Measurement Results:

☑ Without Adjustment
☐ After Adjustment

1. Repeatability

Nominal Weight	Standard Deviation of Reading (g)
3000 g	0.000

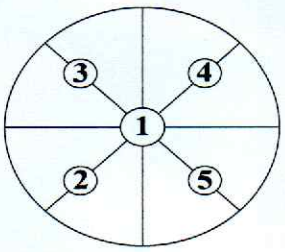
Envirpro Co., Ltd.

Calibrated by Ariyaphon

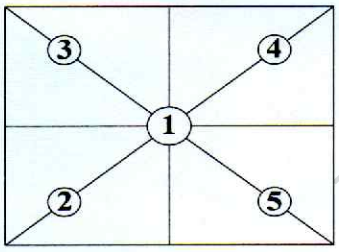
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112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

Measurement Results (Cont.):

2. Off-Center Loading



Front ☐



Front ☑

Measuring Positions

Measuring Positions	Instrument Reading (g)	Max. Difference (g)
1	1000.00	0.01
2	999.99	
3	999.99	
4	1000.00	
5	1000.00	
1	1000.00	

3.Error of indication from nominal value

Standard Weight (g)	Instrument Reading (g)		Correction (g)	Uncertainty of Measurement (g)
	Without Adjustment	After Adjustment		
300.00	300.00	-	0.00	± 0.0083
600.00	600.00	-	0.00	± 0.0084
900.00	900.00	-	0.00	± 0.0086
1200.00	1200.00	-	0.00	± 0.0089
1500.00	1500.00	-	0.00	± 0.0092
1800.00	1800.00	-	0.00	± 0.0096
2100.00	2100.00	-	0.00	± 0.011
2400.00	2400.00	-	0.00	± 0.011
2700.00	2700.00	-	0.00	± 0.012
3000.00	3000.00	-	0.00	± 0.012

Calibrated by Ariyaphon

Enviro Co., Ltd.

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
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Measurement Results (Cont.):

4. Effect of Tare

Nominal Tare Weight (g)	Standard Weight (g)		Instrument Reading (g)	Instrument Deviation (g)
1000	Tare		0.00	0.00
	at 20 %	200.00	200.00	0.00
	at 40 %	500.00	500.00	0.00
	at 60 %	1000.00	1000.00	0.00
	at 80 %	1500.00	1500.00	0.00
	at 100 %	2000.00	1999.99	-0.01

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Envirpro Co., Ltd.

Calibrated by Ariyaphon

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax. 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: T1-0507016/24 **Page** 1 **of total** 3 **pages**

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Incubator		
Manufacturer	ACCUPLUS	**Model**	i250
Serial No.	0408-02115-0016	**ID No.**	SV-TL.042/2558
Description	Resolution of UUC : 0.1 °C		

Environmental Conditions	Ambient Temperature:	22.9 °C
	Relative Humidity:	62 %
	Atmospheric Pressure:	-
Calibration Location	Analysis Laboratory 2	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager

Representative of Managing Director

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
(✓) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

(Dr. Ekachai Puttitwong)

Envirpro Co., Ltd.

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THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-084 based on TLAS G-20-1/02-08 (E).
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Data Logger with Sensors	MY59002120/ MY41211040	I0-0102002/24	Feb. 1, 2025	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.

Measurement Results: (X) Without Adjustment

Reporting of Temperature Distribution

UUC Reading (°C)	Measured Temperature (°C) @ sensor No. (Sensor No. 9 is Ref.)									Uncertainty (± °C)
	1	2	3	4	5	6	7	8	9	
20.0	20.79	20.67	20.60	20.43	20.66	20.77	20.59	20.72	21.09	0.36

Reporting of Chamber Performance

Setting Temperature (°C)	UUC Reading (°C)	Uniformity (°C)	Stability (°C)	Overall Variation (°C)
20.0	20.0	0.84	0.83	2.06

UUC: Unit Under Calibration

Calibrated by Phakkawan

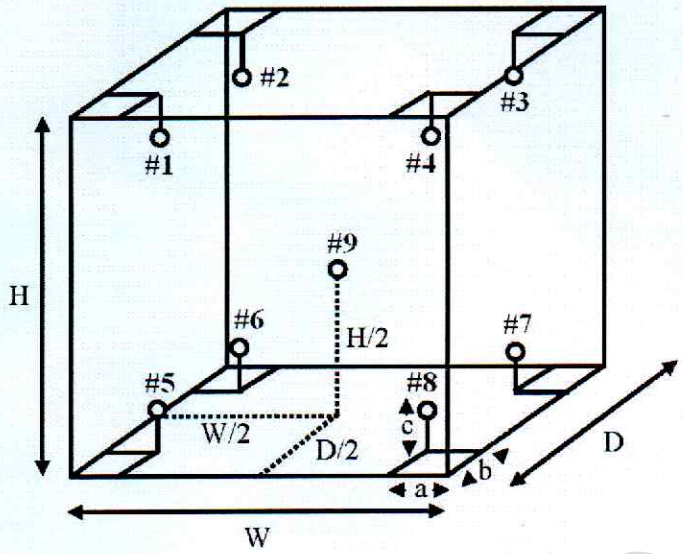
Enviro Co., Ltd.

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Measurement Results (Cont.):

Sensor Installation



Working space :

W x H x D	49	cm.x	115	cm.x	47 cm.
a x b x c	5	cm.x	5	cm.x	5 cm.

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Envirpro Co., Ltd.

Calibrated by Phakkawan

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: T1-0507015/24

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Incubator		
Manufacturer	ACCUPLUS	**Model**	i250DS
Serial No.	I250402-0510	**ID No.**	SV-TL.030/2553
Description	Resolution of UUC : 0.1 °C		

Environmental Conditions	Ambient Temperature:	22.9 °C
	Relative Humidity:	62 %
	Atmospheric Pressure:	-
Calibration Location	Analysis Laboratory 2	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager

Representative of Managing Director

(Dr. Ekachai Puttitwong)

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
(✓) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

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Envirpro Co., Ltd.

THC Calibration Services
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Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax. 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-084 based on TLAS G-20-1/02-08 (E).
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Data Logger with Sensors	MY59002120/ MY41211040	I0-0102002/24	Feb. 1, 2025	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.

Measurement Results: (X) Without Adjustment

Reporting of Temperature Distribution

UUC Reading (°C)	Measured Temperature (°C) @ sensor No. (Sensor No. 9 is Ref.)									Uncertainty (± °C)
	1	2	3	4	5	6	7	8	9	
4.0	5.82	5.48	5.08	4.89	4.86	4.67	4.19	4.17	4.39	0.36
20.0	20.87	20.58	20.29	20.10	20.02	19.87	19.57	19.47	19.56	0.36

Reporting of Chamber Performance

Setting Temperature (°C)	UUC Reading (°C)	Uniformity (°C)	Stability (°C)	Overall Variation (°C)
4.0	4.0	1.58	0.57	2.39
20.0	20.0	1.48	0.67	2.30

UUC: Unit Under Calibration

Calibrated by Phakkawan

Environ Co., Ltd.

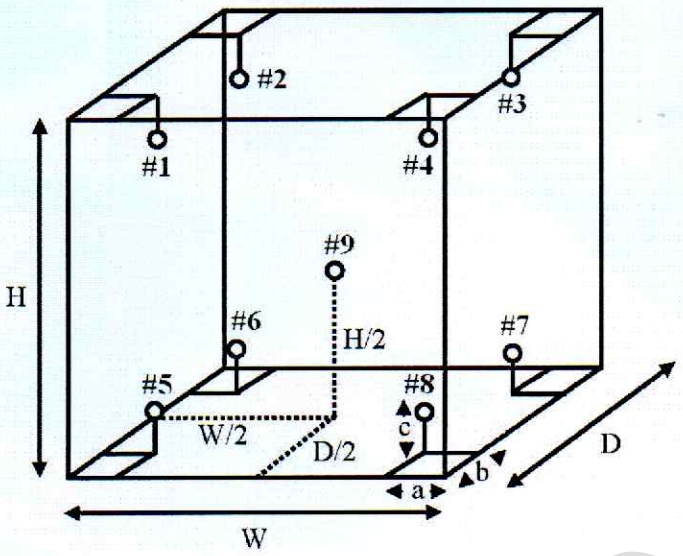
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112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Certificate No.: T1-0507015/24 **Page** 3 **of total** 3 **pages**

Measurement Results (Cont.):

Sensor Installation



Working space :

W x H x D	50	cm.x	104	cm.x	46 cm.
a x b x c	5	cm.x	5	cm.x	5 cm.

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Envirpro Co., Ltd.

Calibrated by Phakkawan

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax. 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: T1-0507017/24 **Page** 1 **of total** 3 **pages**

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Water Bath		
Manufacturer	Memmert	**Model**	WNB 22
Serial No.	L514.0438	**ID No.**	SV-TL.041/2557
Description	Resolution of UUC : 0.1 °C		

Environmental Conditions	Ambient Temperature:	23.5 °C
	Relative Humidity:	51 %
	Atmospheric Pressure:	-
Calibration Location	Analysis Laboratory 1	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager

Representative of Managing Director

(Dr. Ekachai Puttitwong)

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
(✓) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Envirpro Co., Ltd.

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-085 based on an ASTM E715-80 (Reapproved 2016).
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Data Logger with Sensors	MY59002152/ MY60001197	I0-0108001/23	Aug. 2, 2024	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.

Measurement Results: (X) Without Adjustment

Reporting of Temperature Distribution

UUC Reading (°C)	Measured Temperature (°C) @ sensor No. (Sensor No. P5 is Ref.)					Uncertainty (± °C)
	P1	P2	P3	P4	P5	
85.0	84.04	84.07	83.99	83.98	84.02	0.14

Reporting of Chamber Performance

Setting Temperature (°C)	Uniformity (°C)	Stability (°C)
85.0	0.19	0.05

UUC: Unit Under Calibration

Calibrated by Phakkawan

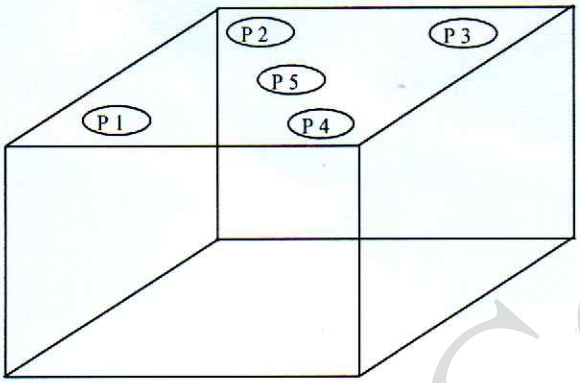
Enviro Co., Ltd.

THAI HEART CALIBRATION CO., LTD.
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Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Measurement Results (Cont.):

Sensor Installation



Immersion Depth = 135 mm.

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Envirpro Co., Ltd.

Calibrated by Phakkawan

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: T1-0507021/24 **Page** 1 **of total** 3 **pages**

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Hot Air Oven		
Manufacturer	MEMMERT	**Model**	UFE400
Serial No.	G410.0133	**ID No.**	SV-TL.021/2553
Description	Resolution of UUC : 0.1 °C		

Environmental Conditions	Ambient Temperature:	23.5 °C
	Relative Humidity:	51 %
	Atmospheric Pressure:	-
Calibration Location	Analysis Laboratory 1	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager

Representative of Managing Director

(Dr. Ekachai Puttitwong)

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
(✓) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Envirpro Co., Ltd.

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-084 based on TLAS G-20-1/02-08 (E).
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Data Logger with Sensors	MY59001842/ US37245625	I0-1809001/23	Sep. 18, 2024	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.

Measurement Results: (X) Without Adjustment

Reporting of Temperature Distribution

UUC Reading (°C)	Measured Temperature (°C) @ sensor No. (Sensor No. 9 is Ref.)									Uncertainty (± °C)
	1	2	3	4	5	6	7	8	9	
104.0	104.67	104.99	104.89	103.29	104.56	104.39	104.51	104.08	104.55	0.36
180.0	180.85	181.71	181.17	178.50	180.85	180.59	180.76	179.47	180.79	0.36

Reporting of Chamber Performance

Setting Temperature (°C)	UUC Reading (°C)	Uniformity (°C)	Stability (°C)	Overall Variation (°C)
104.0	104.0	1.48	0.30	2.05
180.0	180.0	2.50	0.72	3.55

UUC: Unit Under Calibration

Environ Co., Ltd.

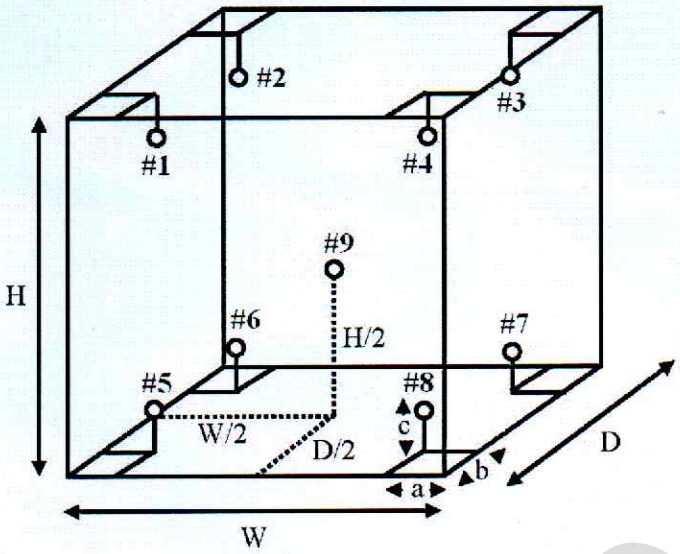
Calibrated by Phakkawan

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Measurement Results (Cont.):

Sensor Installation



Working space :

W x H x D	40	cm.x	40	cm.x	33 cm.
a x b x c	5	cm.x	5	cm.x	5 cm.

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Calibrated by Phakkawan

Envirpro Co., Ltd.

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: T1-0507018/24 **Page** 1 **of total** 4 **pages**

Customer ENVIRPRO CO., LTD.
168/28 Nakniwas Rd., Ladprao, Bangkok 10230

Equipment	Block Digestion Unit		
Manufacturer	VELP SCIENTIFIC	**Model**	DKL 12
Serial No.	465101	**ID No.**	SV-TL.084/2561
Description	Resolution of UUC : 1 °C		

Environmental Conditions	Ambient Temperature:	23.5 °C
	Relative Humidity:	51 %
	Atmospheric Pressure:	-
Calibration Location	Analysis Laboratory 1	
Received Date	5 July 2024	
Calibration Date	5 July 2024	
Date of Issue	8 July 2024	
Condition of Artifacts	Used conditions but can be calibrated	

Checked by _____ **Approved by** _____

Act as Technical Manager

Representative of Managing Director

(Dr. Ekachai Puttitwong)

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) ( ) (Onnapa P.)
(✓) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Enviro Co., Ltd.

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method :

- The calibration method used was CP-142 based on an in-house method.
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Data Logger with Sensors	MY59002152/ MY41166060	I0-0301002/24	Jan. 2, 2025	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.

Measurement Results:

Hole No.	UUC Setting (°C)	Standard Reading (°C)	UUC Reading (°C)	Correction (°C)	Stability of UUC (± °C)	Uncertainty (± °C)
# 1	150	152.4	150	2.4	0.21	0.68
# 2	150	155.0	150	5.0	0.25	
# 3	150	157.4	150	7.4	0.21	
# 4	150	157.4	150	7.4	0.24	
# 5	150	159.6	150	9.6	0.20	
# 6	150	159.1	150	9.1	0.23	
# 7	150	159.2	150	9.2	0.22	
# 8	150	158.0	150	8.0	0.19	
# 9	150	158.5	150	8.5	0.18	
# 10	150	156.5	150	6.5	0.19	
# 11	150	158.1	150	8.1	0.19	
# 12	150	155.2	150	5.2	0.34	

UUC : Unit Under Calibration

Enviro Co., Ltd.

Calibrated by Phakkawan

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Certificate No.: T1-0507018/24

Measurement Results (Cont.):

Hole No.	UUC Setting (°C)	Standard Reading (°C)	UUC Reading (°C)	Correction (°C)	Stability of UUC (± °C)	Uncertainty (± °C)
# 1	380	380.0	380*	0.0	0.28	0.68
# 2	380	383.0	380*	3.0	0.33	
# 3	380	385.7	380*	5.7	0.29	
# 4	380	385.4	380*	5.4	0.30	
# 5	380	388.6	380*	8.6	0.26	
# 6	380	388.3	380*	8.3	0.30	
# 7	380	388.7	380*	8.7	0.28	
# 8	380	387.8	380*	7.8	0.23	
# 9	380	387.6	380*	7.6	0.24	
# 10	380	386.3	380*	6.3	0.25	
# 11	380	388.1	380*	8.1	0.22	
# 12	380	385.4	380*	5.4	0.29	

UUC : Unit Under Calibration

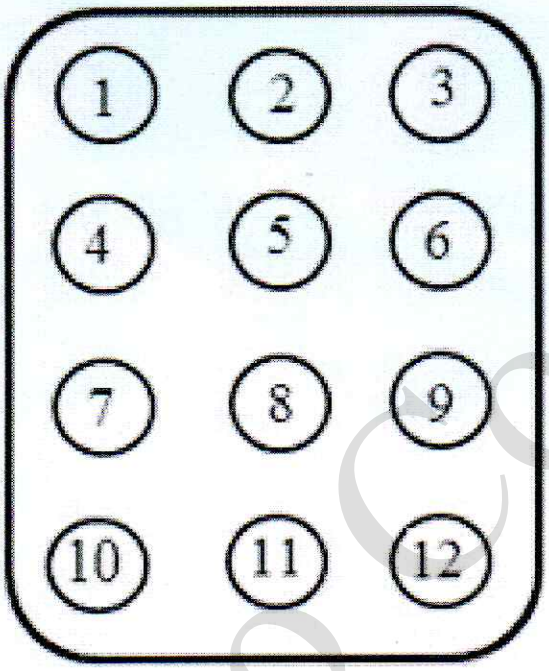
Envirpro Co., Ltd.

Calibrated by Phakkawan

THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Measurement Results (Cont.):



Front View

Remark : The calibration results with * in this certificate are not ANAB accredited.

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Calibrated by Phakkawan

Enviro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE	:	DIGITAL THERMOHYGRO METER
MANUFACTURER	:	TESTO
MODEL / TYPE	:	608-H1
SERIAL NO.	:	30117665[SV-TL.014/2548]
CLID. NO.	:	232102149
JOB CONTROL NO.	:	240803080220
CALIBRATION SERVICE	:	☑ IN-LABORATORY ☐ ON-SITE

CUSTOMER : ENVIRPRO CO., LTD.
168/28 NAKNIWAS RD., LADPRAO,
BANGKOK 10230 THAILAND

DATE OF RECEIVED : 03 August 2024 DATE OF ISSUED : 08 August 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Tanawan Seenam-Ngoen
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
08 August 2024

This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24080220

F3-011-05/12-23

@clccalibration

Envirpro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

REPORT OF CALIBRATION

FOR

NOMENCLATURE	:	**DIGITAL THERMOHYGRO METER**
MANUFACTURER	:	**TESTO**
MODEL / TYPE	:	**608-H1**
SERIAL NO.	:	**30117665[SV-TL.014/2548]**
DATE OF CALIBRATION	:	**07 August 2024**

ENVIRONMENT CONDITIONS :

Temperature : (23 ± 2) °C **Relative Humidity :** (55 ± 10) %RH

PROCEDURE USED :

This instrument was calibrated under procedure No. **CLC-CPTH-11.** The calibration was performed by using Chilled Mirror Hygrometer which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

Chilled Mirror Hygrometer, Edgetech Model Dew Master S/N. 36151.

Temperature & Humidity Chamber, PGC Model 9141-5114 S/N.0802282.

TRACEABILITY :

The measurements are traceable to International System of Units (SI) , through Thunder Scientific Corporation.

Certificate No. 22212, Due Date 23 February 2025.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2{,}00$ which for a normal distribution corresponds to a coverage probability of approximately 95 %.

It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

Enviro Co., Ltd.

@clccalibration

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com
CLC Accredited ISO/IEC 17025
ANAB ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment ( ) adjustment

The table in the following gives the calibration results and associated measurement uncertainties of the measuring digital thermohygro meter.

CALIBRATION DATA

1. CORRECTION OF TEMPERATURE

Test point (°C)	Actual Temperature (°C)	DUC Reading (°C)	Correction (°C)	Uncertainty ±(°C)
20.0	19.98	19.9	+0.08	0.27
25.0	24.99	25.0	-0.01	
30.0	29.99	29.9	+0.09	

2. CORRECTION OF HUMIDITY

STD Temperature (°C)	STD Reading (%RH)	DUC Reading (%RH)	Correction (%RH)	Uncertainty ± (%RH)
25	35.01	38.0	-2.99	0.60
25	50.01	51.6	-1.59	0.60
25	64.99	65.0	-0.01	0.60

Note. The Scope of Accredited ANAB Certificate No. ACDM-2814 Version 012 Page 59 of 67

This report is valid for the above stated instrument/s only.

End of Certificate

Envirpro Co., Ltd.

@clccalibration

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE	:	LIQUID IN GLASS THERMOMETER
MANUFACTURER	:	N/A
MODEL / TYPE	:	0-100 °C
SERIAL NO.	:	N/A[SV-TL.020/2551]
CLID. NO.	:	232102154
JOB CONTROL NO.	:	240803080222
CALIBRATION SERVICE	:	☑ IN-LABORATORY ☐ ON-SITE

CUSTOMER : ENVIRPRO CO., LTD.
168/28 NAKNIWAS RD., LADPRAO,
BANGKOK 10230 THAILAND

DATE OF RECEIVED : 03 August 2024 DATE OF ISSUED : 06 August 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Tanawan Seenam-Ngoen
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
06 August 2024

This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24080222

F3-011-05/12-23

Envirpro Co., Ltd.
@clccalibration

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

REPORT OF CALIBRATION

FOR

NOMENCLATURE	:	**LIQUID IN GLASS THERMOMETER**
MANUFACTURER	:	**N/A**
MODEL / TYPE	:	**0-100 °C**
SERIAL NO.	:	**N/A[SV-TL.020/2551]**
DATE OF CALIBRATION	:	**05 August 2024**

ENVIRONMENT CONDITIONS :

Temperature : **(23 ± 2) °C** **Relative Humidity :** **(55 ± 10) % RH**

PROCEDURE USED :

This instrument was calibrated under procedure No. **CLC-CPTH-02** based on **ASTM E 77-07** as calibration guidelines.
The calibration was performed by comparison with Calibration Bath,Precision Thermometer and IPRT
which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

1. Calibration Bath, Kambic Model OB-22/2 ULT S/N. 17115653.
2. Precision Thermometer, ASL Model F200-A-8 S/N. 014433/03 with IPRT S/N. L0193A-1-1,PO00043543-1-10-1.

TRACEABILITY :

1. The measurements are traceable to International System of Units (SI) , through Calibration Laboratory Co., Ltd.
Certificate No. Q23136342, Due Date 20 December 2024.
2. The measurements are traceable to International System of Units (SI) , through Thailand Institute of Scientific
and Technological Research (TISTR) and National Institute of Metrology (Thailand).
Certificate No. PSL-T 0203/67,TT-0136-23,TT-0114-23. Due Date 07 December 2024,12 December 2024,30 October 2024.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied
by the coverage factor k = 2,00 which for a normal distribution corresponds to a coverage probability of approximately 95 %.
It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

@clccalibration

CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment ( ) adjustment

The DUC Reading were recorded and the means value were reported of four times measurement in the table below.

CALIBRATION DATA

CORRECTION OF TEMPERATURE

STD Reading (°C)	DUC Reading (°C)	Correction (°C)	Uncertainty ± (°C)
4.00	4.0	0.00	0.12
20.00	20.0	0.00	
25.00	25.0	0.00	

Range : 0 °C to 100 °C

Graduation : 1 °C

Immersion Type : Total Immersion.

Correction of Reference Temperature (0 °C) = 0.0 °C

Note. The Scope of Accredited ANAB Certificate No. ACDM-2814 Version 012 Page 56 of 67

This report is valid for the above stated instrument/s only.

End of Certificate

@clccalibration

Envipro Co., Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE	:	DISSOLVED OXYGEN METER
MANUFACTURER	:	YSI
MODEL / TYPE	:	5000-115/5010
SERIAL NO.	:	17C104148/17C100383[SV-TL.079/2560]
CLID. NO.	:	272101627
JOB CONTROL NO.	:	240827090188
CALIBRATION SERVICE	:	☑ IN-LABORATORY ☐ ON-SITE

CUSTOMER : ENVIRPRO CO., LTD.
168/28 NAKNIWAS RD., LADPRAO,
BANGKOK 10230 THAILAND

DATE OF RECEIVED : 27 August 2024 DATE OF ISSUED : 30 August 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Sukgasem Seehanart
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
30 August 2024

This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24090188

@clccalibration

Envirpro Co.,Ltd.

CALIBRATION LABORATORY CO., LTD.
2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230
Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com

CLC Accredited ISO/IEC 17025

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ACDM-2814

REPORT OF CALIBRATION

FOR

NOMENCLATURE	:	**DISSOLVED OXYGEN METER**
MANUFACTURER	:	**YSI**
MODEL / TYPE	:	**5000-115/5010**
SERIAL NO.	:	**17C104148/17C100383[SV-TL.079/2560]**
DATE OF CALIBRATION	:	**28 August 2024**

ENVIRONMENT CONDITIONS :

Temperature : **(25 ± 2.5) °C** **Relative Humidity :** **(50 ± 15) %RH**

PROCEDURE USED :

This instrument was calibrated under procedure No. **CLC-CPCH-06.** The calibration was performed by direct measurement with Certified Reference Material (CRM).

REFERENCE STANDARD USED :

Dissolved Oxygen, Sigma-Alorich Product ID QC3077-500ML .

TRACEABILITY :

The measurements are traceable to International System of Units (SI) , through Merck Co., Ltd.

Lot LRAD3840 , Due Date October 2024.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2{,}00$ which for a normal distribution corresponds to a coverage probability of approximately 95 %.

It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

Certificate No. Q24090188

Enviro Co., Ltd.

@clccalibration

CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment ( ) adjustment

The table in the following gives the calibration results and associated measurement uncertainties of Dissolved Oxygen Meter.

CALIBRATION DATA

Nominal Value (mg/L)	DUC Reading (mg/L)	Correction (mg/L)	Uncertainty (mg/L)
7.78	7.79	-0.01	± 0.38

Note. The Scope of Accredited ANAB Certificate No. ACDM-2814 Version 012 Page 5 of 67

This report is valid for the above stated instrument/s only.

End of Certificate

Envirpro Co., Ltd.
@clccalibration

PerkinElmer
Science with Purpose

AA03026312

MAINTENANCE REPORT AND CALIBRATION CERTIFICATE

ATOMIC ABSORPTION SPECTROPHOTOMETER MODEL

AAnalyst 200/400

Customer :	บริษัท เอ็นไวร์โปร จำกัด	**Date Tested:**	February 18, 2025
		Recommendation Recertification Period	6 Months
Address :	168/28, 168/30, 168/71 ถนนนาคนิวาส แขวงลาดพร้าว เขตลาดพร้าว กรุงเทพมหานคร	**Recertification Due:**	August 17, 2025
		Date Last Certified:	August 19, 2024
User Name:		**Visit Number:**	1 of 2
Phone:		**PerkinElmer Phone:**	02-719-6420 ext 206
Fax:		**PerkinElmer Fax:**	02-318-5597

CONFIGURATION TESTED

MODEL	SERIAL NUMBER	SOFTWARE
AAnalyst 400	201S5082209	AA WinLab32 Version 7.4.1
FIAS 100	100S3020504	

TEST STANDARD USED	PART NUMBER	EXPIRATION DATE
GFAAS Mix STD	N9300244	DEC 30, 2025
MG0-056	N101-3000	
MG2-054	N101-3002	

PerkinElmer Ltd. 290 Soi 17, Rama 9 Road, Bangkapi, Huay Kwang, Bangkok 10310

Enviro Co. Ltd.

PerkinElmer
Science with Purpose

AA03026312

MAINTENANCE REPORT AND CALIBRATION CERTIFICATE

ATOMIC ABSORPTION SPECTROPHOTOMETER MODEL

AAnalyst 200/400

SERIAL NUMBER 201S5082209 **DATE TESTED** February 18, 2025

1. INSTRUMENT CHECKS	
A. The mirror, prism and lenses condition. Clean if necessary.	OK
B. Inspect the grating.	OK
C. Inspect and clean or replace the dust filter.	OK
D. Clean the burner head, chamber and end cap.	OK
E. Clean the nebulizer.	OK
F. Check the condition of the end cap, chamber and nebulizer o-rings.	OK
G. Clean the drain system.	OK
H. Clean exterior the instrument.	OK
2. GAS SYSTEM CHECKS	
A. Leak test all internal and extenal gas box joints	OK
B. Inspect the acetylene catridge filter. (Replacement catridge filter every 1 year)	OK
C. Inspect the air catridge filter. (Replacement catridge filter every 6 months)	OK
3. ELECTRICAL	
A. Check incoming AC line voltage for proper levels and grounding.	OK
B. Check unit's software and firmware revisions and upgrade if necessary.	OK
4. FIAS CHECKS	
A. Pump and 5 Port Valve	OK
B. Chemifold and Tubing	OK
C. Power Supply	OK
D. Flow meter and Gas system	OK

PerkinElmer Ltd. 290 Soi 17, Rama 9 Road, Bangkapi, Huay Kwang, Bangkok 10310

Enviro Co., Ltd.

PerkinElmer
Science with Purpose

AA03026312

MAINTENANCE REPORT AND CALIBRATION CERTIFICATE

ATOMIC ABSORPTION SPECTROPHOTOMETER MODEL

AAnalyst 200/400

SERIAL NUMBER 201S5082209 **DATE TESTED** February 18, 2025

PARAMETER	SPECIFICATION	ACTUAL VAULE
5. PERFORMANCE TESTS		
*1. Detector-Linearity with Barium (553.55 nm).		
Neutral Density Filter 0.2 :	0.1806 Abs. ± 5%	0.1804 Abs.
Neutral Density Filter 1.0 :	1.0531 Abs. + 5%	1.0140 Abs.
2. Baseline Noise at 1 Abs with Barium (553.55 nm). (at an integration time of 0.5 seconds and 99 replicates)	SD ≤ 0.010 Abs.	0.0025 Abs.
3. AA Baseline with Copper (Cu 324.75 nm). (at an integration time of 0.5 seconds and 99 replicates)	SD ≤ 0.001 Abs.	0.0002 Abs.
4. D_2 Background Compensation (Copper 324.75 nm). with Neutral Density Filter 1.0	Absorbance ≤ 0.010 Abs	-0.0018 Abs.
5. AA-BG Baseline Noise with Copper (324.75 nm). (at an integration time of 2.0 seconds and 99 replicates)	SD ≤ 0.005 Abs.	0.0002 Abs.
6. Flame Safety Interlock all Functions.		OK

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ATOMIC ABSORPTION SPECTROPHOTOMETER MODEL

AAnalyst 200/400

SERIAL NUMBER 201S5082209 **DATE TESTED** February 18, 2025

PARAMETER	SPECIFICATION	ACTUAL VAULE
7. Wavelength Accuracy with Nickel (232.00 nm).		
Nickel Prism Position	± 190 steps	-7 Steps
Nickel Grating Position	+ 380, - 260 steps	32 Steps
3 mg/L Ni Standard Mean Abs	≥ 0.200 Abs	0.203 Abs.
8. Flame Sensitivity with Copper (324.75 nm).		
Cu Prism Position	± 120	-8 Steps
Cu Grating Position	± 380	24 Steps
(2 mg/L Cu Standard at an integration time of 10 seconds and 10 replicates)		
Mean Absorbance	≥ 0.250	0.349 Abs.
Capacitance value	≥ 1.0 pF	3.5 pF

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ATOMIC ABSORPTION SPECTROPHOTOMETER MODEL

AAnalyst 200/400

SERIAL NUMBER 201S5082209 **DATE TESTED** February 18, 2025

Remarks :

* - Neutral Density Filter refer to data sheet.
- Cu and Ni std replaced by N9300244 GFAAS Mix Standard

This is to certify that the above tests have been perfomed and the configuration tested

☑ meets
☐ does not meet

the PerkinElmer Specifications listed on this certificate.

This certificate does not modify PerkinElmer's standrd terms and condition of sale, including warranty terms.

Service Department PerkinElmer Ltd.

Customer Service Engineer: Khwanchai S.

(Khwanchai Siangwong)

Customer Service Engineer

PerkinElmer Ltd. 290 Soi 17, Rama 9 Road, Bangkapi, Huay Kwang, Bangkok 10310

Enviro Co., Ltd.

DKSH

Certificate of Calibration

NSC-TISI-TIS 17025
Calibration 0087

Equipment:	SPECTROPHOTOMETER	Certificate No.:	C06240418
Model:	DR6000	Issued Date:	25 September 2024
Serial No. (or ID.):	1893325 (SV-TL.110/2562)	Job No.:	WO-00043486
Manufacturer:	HACH	Page:	1 of 4
Condition:	In Condition		

Customer: ENVIRPRO CO.,LTD.
168/28 Naknivas Rd.,
Ladprao, Bangkok 10230 Thailand.

Environment Condition:

Temperature	27.3	°C	±	0.3	°C
Humidity	59.7	%RH	±	2.4	%RH

Calibration Place: ENVIRPRO CO.,LTD. (Laboratory)
168/28 Naknivas Rd.,
Ladprao, Bangkok 10230 Thailand.

Calibration By: Mr. Atachai Ngamchanat

Calibration Date: 25 September 2024

The Method used: In house method, CAL-WI-24, base on ASTM E 275-08 and ASTM E 387-04

Traceability: This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 113620 and 113619
The standard for Photometric Certificate No. 113650 and 113631
The standard for Stray light Certificate No. 113615 and 113614
The standard for Spectral resolution Certificate No. 113624

(Mr. Atachai Ngamchanat)
Person in charge

(Miss Kaewkan Suradech)
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

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

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

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2533 Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand

Enviro Co., Ltd.

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 2 nm and UUC at 2 nm

Standard Wavelength	Unit Under Calibration	Correction	Uncertainty
241.74	241.2	0.54	0.13
361.00	360.5	0.50	0.13
418.61	418.2	0.41	0.13
460.05	459.5	0.55	0.13
536.66	536.2	0.46	0.13
585.29	584.8	0.49	0.13
637.98	637.6	0.38	0.13
740.18	739.6	0.58	0.13
879.27	879.1	0.17	0.13

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2533 Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
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Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance	Unit Under Calibration	Correction	Uncertainty
420 nm	0.0000	0.000	0.0000	0.0045
	0.5797	0.579	0.0007	0.0045
	0.7119	0.712	-0.0001	0.0045
	1.0124	1.013	-0.0006	0.0045
440 nm	0.0000	0.000	0.0000	0.0045
	0.5634	0.562	0.0014	0.0045
	0.7001	0.700	0.0001	0.0045
	0.9955	0.996	-0.0005	0.0045
465 nm	0.0000	0.000	0.0000	0.0045
	0.5239	0.523	0.0009	0.0045
	0.6613	0.662	-0.0007	0.0045
	0.9395	0.940	-0.0005	0.0045
546.1 nm	0.0000	0.000	0.0000	0.0045
	0.5212	0.520	0.0012	0.0045
	0.6977	0.697	0.0007	0.0045
	0.9927	0.992	0.0007	0.0045
590 nm	0.0000	0.000	0.0000	0.0045
	0.5548	0.553	0.0018	0.0045
	0.7732	0.771	0.0022	0.0045
	1.1021	1.099	0.0031	0.0045
635 nm	0.0000	0.000	0.0000	0.0045
	0.5621	0.560	0.0021	0.0045
	0.7629	0.761	0.0019	0.0045
	1.0873	1.085	0.0023	0.0045
235 nm	0.0000	0.000	0.0000	0.0080
	0.7410	0.738	0.0030	0.0080
257 nm	0.0000	0.000	0.0000	0.0080
	0.8610	0.858	0.0030	0.0080
313 nm	0.0000	0.000	0.0000	0.0080
	0.2888	0.291	-0.0022	0.0080
350 nm	0.0000	0.000	0.0000	0.0080
	0.6392	0.637	0.0022	0.0080

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Calibration Results:

Without Adjustment

Stray light *

Standard: cut-off	UUC: Wavelength (nm)	UUC: Transmission (%T)	Absorbance (A)
260.36 +/- 0.11 nm	260.4	1.8	1.745
391.83 +/- 0.11 nm	391.8	1.9	1.721

Spectral Resolution *

Nominal Concentration 0.02 % v/v	Peak	Trough	Ratio	SBW
Standard Wavelength (nm)	268.65	266.66	1.26	2.00
UUC: Wavelength (nm)	268.3	266.1		
Std Absorbance (A)	0.4262	0.2625		
UUC: Absorbance (A)	0.357	0.283		

* Calibration Marked " Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

Envipro Co., Ltd.

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