

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ

## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA Protocol

Part Number: E04NI99E15AC084 Reference Number: 82-401409170-1  
Cylinder Number: EB0102326 Cylinder Volume: 144.4 CF  
Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG  
PGVP Number: B52019 Valve Outlet: 660  
Gas Code: CO,NO,NOX,SO2,BALN Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	51.01 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.86 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	50.87 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5050 %	G1	+/- 0.7% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Siemens Ultramat 6 J3-599 COHIGH	NDIR	Jan 18, 2019
Nicolet 6700 APW1100391 NO	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 NO2	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 SO2	FTIR	Jan 10, 2019

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

#### NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol Document EPA-600/R-12/531. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certificate. This document is certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.



TESTING CERT No. 3082.05

*[Signature]*  
Approved for Release

Page 1 of 82-401409170-1



## High Volume TSP&PM10 Calibration Data Sheet

Date: 15 Jan 25

Temp (°C): 23

Barometric pressure (mm Hg): 762

### Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

### Unit Under Test

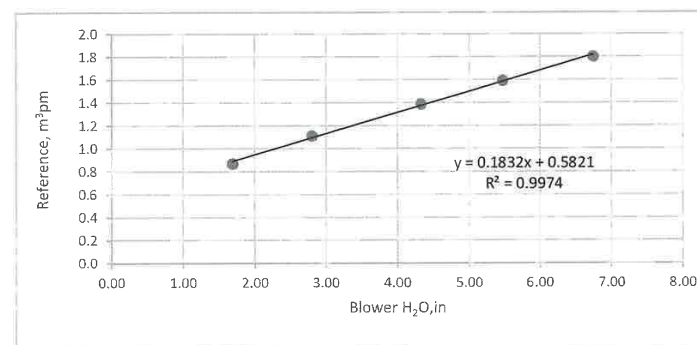
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-011

Calibrated by: Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	14.03	1.801	6.72	6.75
2	10.96	1.594	5.45	5.48
3	8.30	1.390	4.31	4.33
4	5.28	1.113	2.79	2.80
5	3.18	0.868	1.68	1.69



Approved by: *[Signature]*

Sheet No. : BH-034-1/2025(P)



## High Volume TSP&PM10 Calibration Data Sheet

Date: 10 Jan 25

Temp (°C): 31

Barometric pressure (mm Hg): 759

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

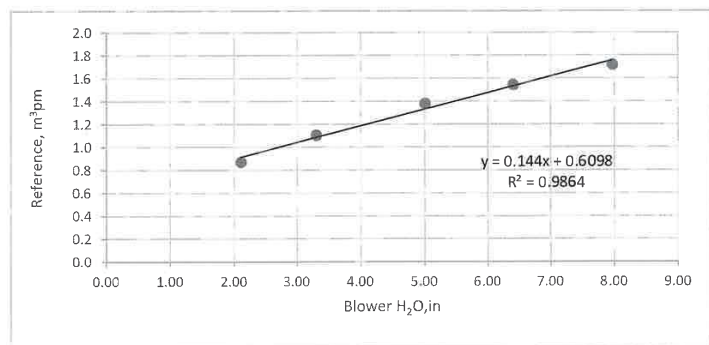
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-034

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	13.17	1.719	8.05	7.96
2	10.60	1.544	6.47	6.40
3	8.44	1.380	5.06	5.01
4	5.36	1.104	3.34	3.30
5	3.29	0.870	2.13	2.11



Approved by :

Sheet No. : BH-021-1/2025(P)



## High Volume TSP&PM10 Calibration Data Sheet

Date: 16 Jan 25

Temp (°C): 30

Barometric pressure (mm Hg): 760

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

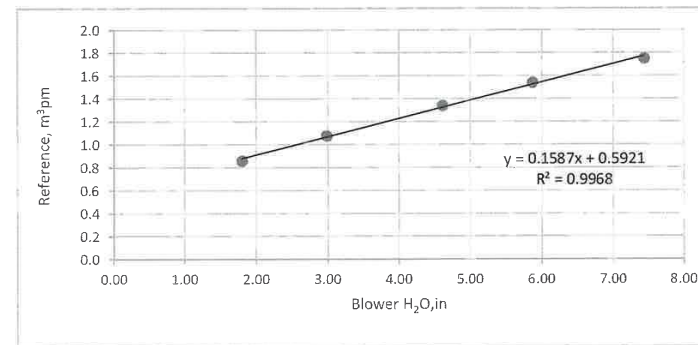
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-021

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	13.59	1.750	7.5	7.44
2	10.51	1.541	5.92	5.87
3	7.91	1.340	4.65	4.61
4	5.06	1.076	3.01	2.99
5	3.18	0.858	1.82	1.80



Approved by :



## High Volume TSP&PM10 Calibration Data Sheet

Date: 10 Jan 25

Temp (°C): 25

Barometric pressure (mm Hg): 762

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

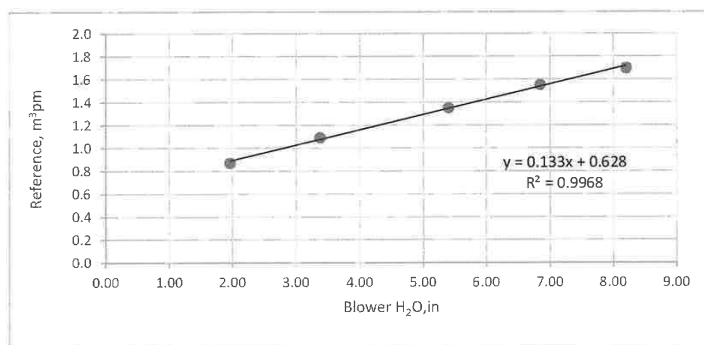
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-030

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	12.53	1.697	8.19	8.20
2	10.49	1.555	6.83	6.84
3	7.91	1.353	5.39	5.40
4	5.12	1.093	3.37	3.37
5	3.21	0.870	1.96	1.96



Approved by :



## High Volume TSP&PM10 Calibration Data Sheet

Date: 13 Jan 25

Temp (°C): 26

Barometric pressure (mm Hg): 761

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

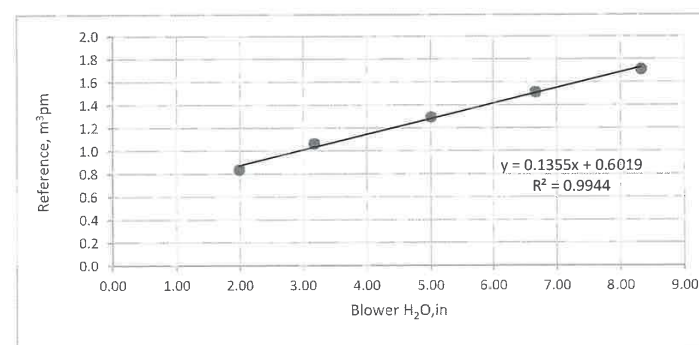
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-029

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	12.81	1.712	8.33	8.32
2	9.96	1.512	6.67	6.66
3	7.26	1.294	5.01	5.00
4	4.87	1.064	3.18	3.18
5	2.98	0.837	1.99	1.99



Approved by :



## High Volume TSP&PM10 Calibration Data Sheet

Date: 10 Jan 25

Temp (°C): 30

Barometric pressure (mm Hg): 762

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

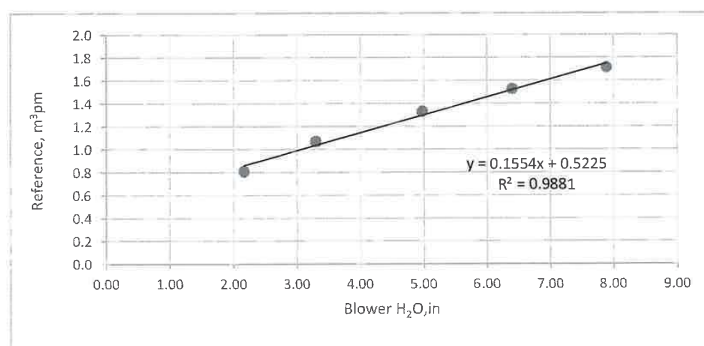
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-006

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	13.01	1.715	7.94	7.88
2	10.29	1.527	6.44	6.40
3	7.80	1.333	5.01	4.98
4	4.98	1.069	3.32	3.30
5	2.82	0.810	2.18	2.16



Approved by :



## High Volume TSP&PM10 Calibration Data Sheet

Date: 13 Jan 25

Temp (°C): 21

Barometric pressure (mm Hg): 763

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

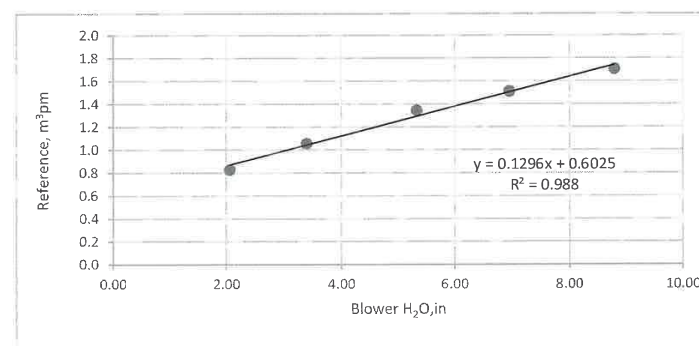
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-019

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	12.48	1.706	8.71	8.79
2	9.77	1.512	6.89	6.95
3	7.72	1.347	5.28	5.33
4	4.70	1.055	3.37	3.40
5	2.87	0.829	2.04	2.06



Approved by :

Sheet No. : BH-010-1/2025(P)



## High Volume TSP&PM10 Calibration Data Sheet

Date: 14 Jan 25

Temp (°C): 25

Barometric pressure (mm Hg): 762

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

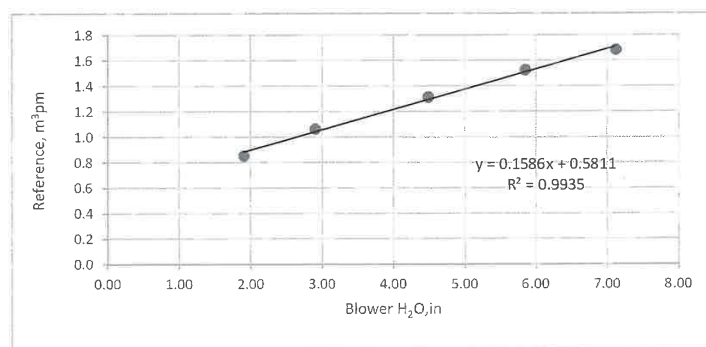
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-010

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	12.31	1.682	7.11	7.12
2	10.10	1.526	5.84	5.85
3	7.44	1.313	4.48	4.49
4	4.84	1.063	2.9	2.90
5	3.07	0.851	1.9	1.90



Approved by :

Sheet No. : BH-036-1/2025(P)



## High Volume TSP&PM10 Calibration Data Sheet

Date: 16 Jan 25

Temp (°C): 23

Barometric pressure (mm Hg): 763

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

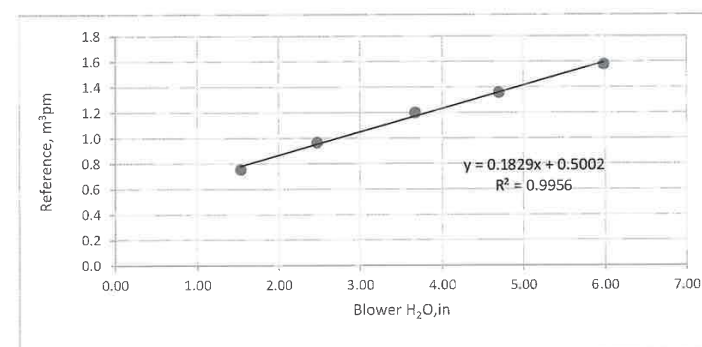
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-036

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	10.73	1.578	5.95	5.98
2	7.91	1.358	4.67	4.69
3	6.14	1.199	3.65	3.67
4	3.95	0.966	2.46	2.47
5	2.38	0.755	1.52	1.53



Approved by :





## High Volume TSP&PM10 Calibration Data Sheet

Date: 10 Jan 25

Temp (°C): 25

Barometric pressure (mm Hg): 760

## Reference Standard Calibration

Equipment: Orifice

Model No: TE-5025A

Serial No: 4218

Manufacturer: Tisch

## Unit Under Test

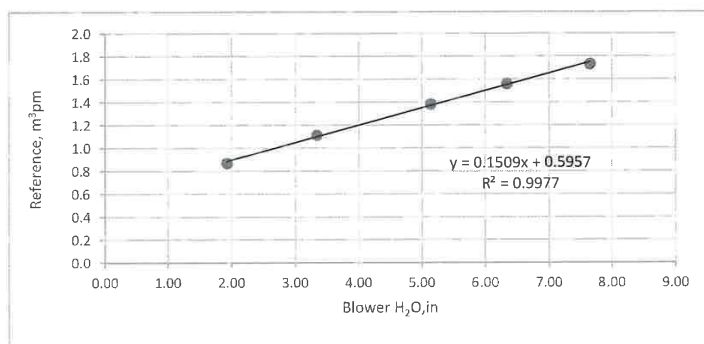
Equipment: High Volume Air Sampler

Model No: TE-5009X

Serial No: BH-022

Calibrated by : Surachat I.

Test No.	Orifice (in)	Qstd (m <sup>3</sup> /min)	Reading (in)	Reading(Corrected) (in)
1	13.09	1.732	7.65	7.65
2	10.60	1.561	6.33	6.33
3	8.30	1.384	5.14	5.14
4	5.34	1.114	3.34	3.34
5	3.21	0.868	1.93	1.93



Approved by :

THE LINDE GROUP

Linde

### Certificate Of Analysis Special Gases Mixture

## Customer Details

Name:

Secot Co., Ltd.

Address:

239 Rimklongpropa Rd. Bangsue Khet Bangsue  
Bangkok 10800

Customer Tag No.:

## Certificate Details

Number: 0484/23

Date of Issue: 22-Feb-2023

Expiry date: 21-Feb-2027

Material Details

Production Order: 90176403

Material Code: 478100-J-62

Cylinder No.: 12360

Gas content: 6.520 M<sup>3</sup> (nominal)

Filling pressure: 145 bar (g)

Valve: CGA 590 BRASS

Cylinder Owner: LINDE

Cylinder Material: STEEL

Cylinder Size: 47 L

## Laboratory Report

Component	Normal Concentration	Analysis Result <sup>1</sup>	Uncertainty <sup>2</sup>	Method of Analysis <sup>3</sup>
Oxygen	8.00%	7.94%	± 2% relative	(1) SG-O-01
In Nitrogen				

## Recommend usage condition

Minimum utilization: 5% of actual content or before expire date whichever comes first.

Storage condition: Keep in well ventilation and secure area.

## Comments

## Note:

- All results expressed in this report are on mole/mole basis, unless otherwise specified.
- The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
- (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Sukanya Parinyasoonorn

Signatory for and on behalf of Linde (Thailand) Co., Ltd.

Page 1 of 1

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PB-002/F004

Iss: K/2, 15 Oct 2021

บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบอนุญาตประกอบกิจการ: 010703000785

ชั้น 15 อาคารชาเลนเจอร์ 2/3 หมู่ 14 ถนนพหลโยธิน-พญาไท กม. 6.5 แขวงบางนา

เขตบางนา กรุงเทพมหานคร 10540 โทรศัพท์ (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิตก๊าซ: 105 หมู่ 5 ต.บางนาเหนือ อ.บางนาเขต อ.เมืองสมุทรปราการ 24180

โทรศัพท์ (66) 38.570-479-93

โทรสาร (66) 38.570-323

Linde (Thailand) Public Company Limited

PLC Registration No. 010703000785

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkaew

Bangklee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93

Fax (66) 38.570-323

Certificate Of Analysis  
Special Gases Mixture

## Customer Details

Name: Address: Customer Tag No.:  
Secot Co., Ltd. 239, Rimklongprapa Rd., Bangsue, Bangkok 10800

## Certificate Details

Number: 0528/23 Date of Issue: 8-Mar-2023 Expiry date: 8-Mar-2026  
Material Details  
Production Order: 90176406 Material Code: 511600-SK-34 Cylinder No.: A00722SK  
Gas content: 5.20 M<sup>3</sup> Filling pressure: 137.0 bar Valve: CGA 660 SS  
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

## Laboratory Report

## Analytical Result

Component	Normal Concentration	Analysis Result <sup>1</sup>	Uncertainty <sup>2</sup>	Method of Analysis <sup>3</sup>	Assay Date
Nitric Oxide	40.0 ppm	39.6 ppm	± 1% relative	(6) I-PB-352	1-Mar & 8-Mar-23
Other NOx impurity		Less than 1.9 ppm			
Carbon Monoxide in Nitrogen	40.0 ppm	41.9 ppm	± 1% relative	(6) I-PB-352	1-Mar-2023

## Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Nitric Oxide	133261SG	25.61 ± 0.13 ppm	6-May-2023
Carbon Monoxide in Nitrogen	ND52320	25.03 ± 0.13 ppm	7-Oct-2023

## Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-NO	28-Feb-2023
FTIR Spectrometers Nicolet iS50	FTIR-CO	25-Feb-2023

## Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.  
Storage condition: Keep in well ventilation and secure area.

## Comments

When reordering, please quote the material number

## Note:

- All results expressed in this report are on mole/mole basis, unless otherwise specified. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-600/R-12/531 for the Assay and Certification of Gaseous Calibration Standards using procedure G1
- The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
- (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Sukanya Parinyasoontorn  
Signatory for and on behalf of Linde (Thailand) Co., Ltd.

Page 1 of 1

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บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบอนุญาตประกอบวิชาชีพ 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนพหลโยธิน-ลาดพร้าว แขวง 6.5 กรุงเทพมหานคร

เลขที่ใบอนุญาตประกอบวิชาชีพ 10540 โทรสาร (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิต: 105 หมู่ 5 ตำบลบางคูรัด อำเภอบางบัวทอง จังหวัดนนทบุรี 24180

Linde (Thailand) Public Company Limited Iss:K/2, 15 Oct 2021

PLC Registration no. 0107537000785

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkawk

Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

PB-002/F006

Certificate Of Analysis  
Special Gases Mixture

## Customer Details

Name: Address: Customer Tag No.:  
Secot Co., Ltd. 239, Rimklongprapa Rd., Bangsue, Bangkok 10800

## Certificate Details

Number: 0275/22 Date of Issue: 4-Feb-2022 Expiry date: 4-Feb-2026  
Material Details  
Production Order: 90169722 Material Code: 631500-SK-44 Cylinder No.: D636195  
Gas content: 5.52 M<sup>3</sup> Filling pressure: 145.0 bar Valve: CGA 660 SS  
Cylinder Owner: LINDE Cylinder Material: Spectra seal Cylinder Size: 40 L

## Laboratory Report

## Analytical Result

Component	Normal Concentration	Analysis Result <sup>1</sup>	Uncertainty <sup>2</sup>	Method of Analysis <sup>3</sup>	Assay Date
Sulphur Dioxide in Nitrogen	20.0 ppm	20.4 ppm	± 1% relative	(6) I-PB-352	28-Jan & 4-Feb-22

## Reference Standard used in Assay

Reference Standard	Cylinder number	Concentration	Expiry date:
Sulphur Dioxide in Nitrogen	145754SG	25.03 ± 0.25 ppm	18-Aug-2022

## Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR Spectrometers Nicolet iS50	FTIR-SO2	27-Jan-2022

## Recommend usage condition

Minimum utilization: 5% of actual content or before expiry date whichever comes first.  
Storage condition: Keep in well ventilation and secure area.

## Comments

When reordering, please quote the material number

## Note:

- All results expressed in this report are on mole/mole basis, unless otherwise specified. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-600/R-12/531 for the Assay and Certification of Gaseous Calibration Standards using procedure G1
- The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The measurement of this material is traceable to the SI through the reference gas standard which is traceable to Swiss National Standard of Mass or other recognised national metrology institutes.
- (1) Gas Chromatography, (2) Paramagnetic Oxygen Analyzer, (3) Electrochemical Oxygen Analyzer, (4) Electrochemical Moisture Analyzer, (5) Total Hydrocarbon Analyzer, (6) Other - Specified

Page 1 of 1

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บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)

เลขที่ใบอนุญาตประกอบวิชาชีพ 0107537000785

ชั้น 15 อาคารทาวเวอร์ เอ 2/3 หมู่ 14 ถนนพหลโยธิน-ลาดพร้าว แขวง 6.5 กรุงเทพมหานคร

เลขที่ใบอนุญาตประกอบวิชาชีพ 10540 โทรสาร (66) 2338-6100 โทรสาร (66) 2338-6333

โรงงานผลิต: 105 หมู่ 5 ตำบลบางคูรัด อำเภอบางบัวทอง จังหวัดนนทบุรี 24180

โทรสาร (66) 38.570-479-93

โทรสาร (66) 38.570-323

Sukanya Parinyasoontorn  
Signatory for and on behalf of Linde (Thailand) Co., Ltd.

Linde (Thailand) Public Company Limited Iss:K/2, 15 Oct 2021

PLC Registration no. 0107537000785

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad KM. 6.5 Road, Bangkok

Bangplee, Samutprakarn 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellgrow Plant: 105 Moo 5, T.Bangsamak, A.Bangpakong, Chachoengsao 24180

Thailand, Tel (66) 38.570-479-93

Fax (66) 38.570-323





## CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 8 Jan 25

Barometric press, Pb

Initial	Final	Average
759	759	759

mmHg

## Dry Gas Meter Data

Console No. M50-08

Metering System ID

DGM Number 975906

DGM Model ES-110

Calibrated by : Montri P.

## Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0077

Last Calibration Date 25 Oct 24

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V <sub>r</sub> Liters	DGM Volume V <sub>m</sub> Liters	Temperature (°C)				Time Θ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T <sub>r</sub>	Dry Gas Meter					
				Inlet T <sub>i</sub>	Outlet T <sub>o</sub>	Avg T <sub>m</sub>			
12.5	100.1	100.6	25	25	24	24.5	8.83	0.9999	44.1498
25.0	100.1	100.6	25	25	24	24.5	6.17	0.9985	43.0855
50.0	100.2	101.0	25	25	24	24.5	4.22	0.9941	40.1536
76.0	100.1	100.9	25	25	24	24.5	3.48	0.9910	41.7921
100.0	100.0	100.5	25	25	24	24.5	3.48	0.9917	40.8171
150.0	100.0	100.3	25	25	24	24.5	2.48	0.9893	41.9313

Average

0.9941	41.9882
--------	---------

Approved by :



## PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Type S Pitot No. : PS20-01

Calibration Date : 03-01-2025

Coefficient (Cp) : 0.99

Calibrated by : Mr. Montri P.

## A Side Calibration

Run No.	ΔPstd (mm H <sub>2</sub> O)	ΔPs (mm H <sub>2</sub> O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

C<sub>P(A),avg</sub>

0.8401
--------

## B Side Calibration

Run No.	ΔPstd (mm H <sub>2</sub> O)	ΔPs (mm H <sub>2</sub> O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.0	21.0	0.8367	0.0065
2	15.0	21.5	0.8269	-0.0033
3	15.0	21.5	0.8269	-0.0033

C<sub>P(B),avg</sub>

0.8302
--------

| CP(A) - CP(B) | = 0.0099

C<sub>P(Avg)</sub> = 0.8351

Approved by :

\*\*\* δ must be ≤ 0.01 for the test to be acceptable \*\*\*  
 \*\*\* | Cp(A) - Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is to be used \*\*\*



## CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 6 Jan 25

Barometric press, Pb

Initial	Final	Average
758	758	758

 mmHg

## Dry Gas Meter Data

Console No. M50-07

Metering System ID

DGM Number 90331

DGM Model MST-C2-1

Calibrated by Montri P.

## Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0077

Last Calibration Date 25 Oct 24

Orifice manometer setting, ΔH mm H2O	Ref.	DGM Volume V <sub>m</sub> Liters	Temperature (°C)			Time Θ min	DGM Correction factor (Y)	ΔH@ mm	
	DGM Volume V <sub>r</sub> Liters		Ref	Dry Gas Meter					
			DGM T <sub>r</sub>	Inlet T <sub>i</sub>	Outlet T <sub>o</sub>				Avg T <sub>m</sub>
12.5	100.1	101.0	25	25	24	24.5	8.67	0.9958	42.5842
25.0	99.9	100.8	25	25	24	24.5	6.23	0.9946	44.2513
50.0	100.0	100.9	25	25	24	24.5	4.62	0.9920	48.4414
76.0	100.1	99.3	25	25	24	24.5	3.63	1.0074	45.4868
100.0	100.2	100.7	25	25	24	24.5	3.63	0.9921	47.7831
150.0	99.9	99.4	25	25	24	24.5	2.62	0.9970	46.7598

Average

0.9965	45.8844
--------	---------

Approved by :



## PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 04-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PV15-01

Calibrated by : Mr. Montri P.

## A Side Calibration

Run No.	ΔPstd (mm H <sub>2</sub> O)	ΔPs (mm H <sub>2</sub> O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.0	21.0	0.8367	0.0033
2	15.0	21.0	0.8367	0.0033
3	15.0	21.5	0.8269	-0.0065

C<sub>P(A)</sub>-avg 0.8334

## B Side Calibration

Run No.	ΔPstd (mm H <sub>2</sub> O)	ΔPs (mm H <sub>2</sub> O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.0	21.0	0.8367	0.0000
2	15.0	21.0	0.8367	0.0000
3	15.0	21.0	0.8367	0.0000

C<sub>P(B)</sub>-avg 0.8367

|CP(A)-CP(B)| = 0.0033

C<sub>P(Avg)</sub> = 0.8351

Approved by :

\*\*\* δ must be ≤ 0.01 for the test to be acceptable \*\*\*  
 \*\*\* | Cp(A)-Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is to be used \*\*\*



# SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Mar 21, 25

## ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
15	Cirrus	CR162B	G300769	93.7	0.0
42	Cirrus	CR162B	G302738	93.7	0.0
50	Cirrus	CR162B	G302333	93.7	0.0

Calibrated by :

Approved by :

Preeda S.



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-68/0279

MTC.No.23-68/0279-02

Number of page(s) 2

## CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

Scale range : 300 ml/min to 30,000 ml/min

Subdivision : ( 0.0001, 0.001 ) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2025 Condition of measured item : Normal

Calibration date : 25 February 2025

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 0811/67	3-Jul-26	TISTR
Molbox/PressureTransducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 119216	MW-0035-23	31-May-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by : Ms.Kirana Luanghirun

(Ms.Kirana Luanghirun)

Director

Mechanical Engineering Standards Laboratory

Ref. 2013268021300656002

Issued Date 28 February 2025

The results relate only to the items tested/calibrated or value assigned.  
Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

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Office/Laboratory

668 Mu 2 Tambon Bangpoomai, Amphoe Muang Samutprakan,  
Changwat Samutprakan 10280, Thailand  
Tel. (66) 0 2323 1672-80 ext. 115, 116  
(66) 08 3219 9440  
E-mail : mtc@tistr.or.th Website : www.tistr.or.th

Office

196 Phahonyothin Road, Ladyao, Chatuchak,  
Bangkok 10900, Thailand  
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217  
(66) 08 1889 6827



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-68/0279

2/2

MTC.No.23-68/0279-02

**Calibration point :** (1.5, 5.0, 10, 15, 25) l/min

**Ambient condition :** Temperature (  $23 \pm 3$  ) °C , Relative humidity (  $55 \pm 15$  ) %

Atmospheric pressure (  $1010 \pm 13$  ) hPa

**Calibration method :** The flowmeter (UUC) was calibrated by comparison method with standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition within pressure and temperature of the actual gas entering the UUC

**Measurement data :**

UUC Value	Standard Value	Temperature	Pressure	Deviation	Uncertainty
(L/min)	(L/min)	(°C)	(hPa)	(%)	(%)
1.5010	1.4862	24.354	1011.40	+0.99	0.91
5.0202	4.9882	24.364	1013.95	+0.64	0.89
9.9989	9.9228	24.319	1020.22	+0.77	0.89
15.033	14.819	24.342	1030.37	+1.44	0.89
25.136	24.152	24.331	1061.30	+4.08	0.89

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor  $k=2$ , which provides a level of confidence of approximately 95%.

The end of calibration certificate.

The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FM.BL.MTC.002 Rev.5

**Head Office**

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(66) 08 3219 9440  
E-mail : mtc@tistr.or.th Website : www.tistr.or.th

**Office**

196 Phahonyothin Road, Ladyao, Chatuchak,  
Bangkok 10900, Thailand  
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217  
(66) 08 1889 6827

Sheet No. : CAL-2502-0058-01



## SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: 21/03/2025

### ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR162B	G302737	93.7	0.0
2	Cirrus	CR162B	G302330	93.7	0.0
3	Cirrus	CR162B	G302742	93.7	0.0
4	Cirrus	CR162B	G302237	93.7	0.1

Calibrated by

Approved by :

CER\_CCE\_2502-0058\_1.mq/CAL SHEET 01/04-04-25

SECOT CO., LTD.  
239 Rimkongruang Rd. Bangpoo, Bangkok, 10800, THAILAND  
Tel: (662) 959-3600 Fax: (662) 959-3535  
E-Mail: envserv@secot.co.th



## SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: 21/03/2025

## ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET TECH	ST-21D	820725	93.8	0.0
2	SCARLET TECH	ST-21D	820726	93.8	0.0

Calibrated by :

Approved by :



## SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: 16/05/2025

## ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET TECH	ST-21D	820726	93.7	0.1
2	SCARLET TECH	ST-21D	820725	93.7	-0.1
3	SCARLET TECH	ST-21D	820728	93.7	0.2
4	SCARLET TECH	ST-21D	820731	93.7	0.0
5	SCARLET TECH	ST-21D	820724	93.7	0.1

Calibrated by :

Approved by :





## SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: 16/05/2025

## ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR162C	G300832	93.6	0.0

## CERTIFICATE OF CALIBRATION

ISSUED BY Noisemeters

DATE OF ISSUE 26 February 2025

CERTIFICATE NUMBER 234084

Noisemeters

NoiseMeters  
Acoustic House  
Bridlington Road  
Hunmanby  
YO14 0PH  
United Kingdom  
www.noisemeters.com

Page 1 of 2

Approved signatory

N.Smith

Electronically signed:

## doseBadge Reader : IEC 60942:2003

## Instrument information

Manufacturer: Cirrus Research plc

Notes:

Model: RC:110A

Serial number: 95167

Class: 2

## Test summary

Date of calibration: 21 February 2025

The doseBadge reader detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942\_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The doseBadge Reader has been shown to conform to the Class 2 requirements for periodic testing, described in Annex B of IEC 60942:2003 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

However, as public evidence was not available, from a testing organisation responsible for pattern approval, to demonstrate that the model of doseBadge Reader conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, no general statement or conclusion can be made about conformance of the doseBadge Reader to the requirements of IEC 60942:2003.

Notes:

Calibrated by :

Approved by :

# CERTIFICATE OF CALIBRATION

Certificate Number:  
**234084**  
Page 2 of 2

## Environmental conditions

The following conditions were recorded at the time of the test:

**Before** Pressure: 99.38 kPa Temperature: 25.0 °C Humidity: 40.4 %  
**After** Pressure: 99.39 kPa Temperature: 25.1 °C Humidity: 37.9 %

## Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	1063074
Environmental Monitor	Comet	T7510	21962628

## Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.79	113.78	113.79	<b>113.79</b>	-0.21	±0.75	0.11 dB
Distortion (%)	< 4.00	1.52	0.51	0.51	<b>0.84</b>	0.84	+4.00	0.13 %
Frequency (Hz)	1000.0	990.4	990.4	990.3	<b>990.4</b>	-9.6	±20.0	0.1 Hz

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

## Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.97	113.97	113.97	<b>113.97</b>	-0.03	±0.75	0.11 dB
Distortion (%)	< 4.00	0.51	0.50	0.51	<b>0.51</b>	0.51	+4.00	0.13 %
Frequency (Hz)	1000.0	990.3	990.3	990.3	<b>990.3</b>	-9.7	±20.0	0.1 Hz

## Functionality Results

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

End of results

# Calibration Certificate

BEIJING J.T. TECHNOLOGY CO., LTD.  
www.jttech.com  
www.janttech.com

## Instrument information

Name **WET BULB GLOBE TEMPERATURE (WBGT)METER**  
Series No **3522210176**  
Type **JT2011-E2A**

Customer **SECOT CO., LTD.**  
Address **239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800**

## Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

## Calibration Results

UUC Sensor	Standard Temperature ( °C )	UUCReading ( °C )	Correction ( °C )	Uncertainty ( ±°C )
WET	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.2	-0.2	0.2
DRY	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	35.2	-0.2	0.2
	40.0	39.8	0.2	0.2
	45.0	44.8	0.2	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	39.9	0.1	0.2
	45.0	44.8	0.2	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,  
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : \_\_\_\_\_

Date : \_\_\_\_\_ January 15, 2025



## Instrument information



Name	WET BULB GLOBE TEMPERATURE (WBGT)METER
Series No	3522210174
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

## Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

## Calibration Results

UUC Sensor	Standard Temperature ( °C )	UUC Reading ( °C )	Correction ( °C )	Uncertainty ( ±°C )
WET	25.0	25.1	-0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	44.8	0.2	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	45.1	-0.1	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	44.9	0.1	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,  
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000073

Calibration Engineer : \_\_\_\_\_

Date : January 15, 2025



## Instrument information



Name	WET BULB GLOBE TEMPERATURE (WBGT)METER
Series No	3522211237
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

## Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

## Calibration Results

UUC Sensor	Standard Temperature ( °C )	UUC Reading ( °C )	Correction ( °C )	Uncertainty ( ±°C )
WET	25.0	25.1	-0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.9	0.1	0.2
	45.0	45.2	-0.2	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	34.8	0.2	0.2
	40.0	39.9	0.1	0.2
	45.0	44.8	0.2	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.9	0.1	0.2
	35.0	34.8	0.2	0.2
	40.0	40.2	-0.2	0.2
	45.0	44.8	0.2	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,  
Calibrated Date : 20 February 2024, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000073

Calibration Engineer : \_\_\_\_\_

Date : September 6, 2024



## Instrument information



Name	WET BULB GLOBE TEMPERATURE (WBGT) METER
Series No	3522210181
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

## Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

## Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.1	-0.1	0.2
DRY	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	35.2	-0.2	0.2
	40.0	40.2	-0.2	0.2
	45.0	44.9	0.1	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.9	0.1	0.2
	35.0	34.9	0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.2	-0.2	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,  
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : 

Date : January 15, 2025



## INTERNATIONAL TESTING SERVICE CO., LTD

1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310  
Tel 0-2559-2095 Fax 0-2559-2096

E-mail : sale@itest-lab.com web site : www.itest-lab.com



## CALIBRATION CERTIFICATE

Issued date: 30 January 2025

Client Name : SECOT CO., LTD.

Address : 239 Rimklongprapa Rd., Bangsue, Bangkok 10800 Thailand.

Request No: C-2501 - 026

Laboratory No.: CAL- 026

Date of Request: 27 January 2025.

Date of Calibration: 29 January 2025.

## 1. Unit Under Calibration (UUC) :

Nomenclature : Digital Light Meter

Serial No.: A 051050

Maker : EXTECH

Model : 407026

2. Place of Calibration: Photometry Standard Laboratory, INTERNATIONAL TESTING SERVICE CO., LTD.

3. Range of Calibration: 1 Range

4. Condition of Laboratory: Ambient temperature: (25 ± 2) °C and relative humidity (60 ± 20) %.

5. Reference Standard: Standard Tungsten Halogen Lamp, Serial No.: 504011, which was calibrated on  
22 April 2024, can be traceable to International System of Unit (SI) through National Institute of  
Metrology (Thailand), Certificate No.: TP-1014-24.

## 6. Support Equipment:

- Photometric bench, 6.3 meter long.
- DC. power supply, Serial No.: EJ 19A 009, Model: GPR-25H 300, Maker: GW INSTEK.
- Digital Multimeter, Model: 34401A, S/N: MY44011212 and MY44011215.
- Foot Candle / Lux Meter, Model: 407026, S/N: Q 558437, Maker: EXTECH.

## 7. Calibration Procedure:

The measurement was done in accordance with WI-CP-01. The reported uncertainty is based on a standard  
uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 %.The Results shown in this certification report refer only to the equipment(s) calibrated unless otherwise stated  
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**INTERNATIONAL TESTING SERVICE CO., LTD**1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310  
Tel 0-2559-2095 Fax 0-2559-2096E-mail : sale@itest-lab.com web site : [www.itest-lab.com](http://www.itest-lab.com)**INTERNATIONAL TESTING SERVICE CO., LTD**1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310  
Tel 0-2559-2095 Fax 0-2559-2096E-mail : sale@itest-lab.com web site : [www.itest-lab.com](http://www.itest-lab.com)

Request No: C-2501 - 026

Serial No.: A 051050

Laboratory No.: CAL - 026

**Results :**

UUC Range	Standard (lx)	UUC Reading (lx)		Correction (lx)	Uncertainty of Measurement ( $\pm$ lx)
		Before adjust	After adjust		
2000	0	0	0	0	0.60
	100	96	99	1	2.1 % of Reading
	500	480	501	-1	
	1000	960	1002	-2	
	1500	1448	1507	-7	
	1900	1836	1911	-11	

Note : 1. The results relate only to the items calibrated.  
2. Zero adjust before used.

Calibration result approved by

  
(Mr. Yuktana Tholueng)Approved on behalf of  
International Testing Service Co., Ltd  
(Mr. Pichit Vivat-Anant)  
Managing Director

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**CALIBRATION CERTIFICATE**

Issued date: 24 March 2025

Client Name : SECOT CO., LTD (HEAD OFFICE)

Address : 239 rimklongprapa Rd., Bangsue, Bangkok 10800.

Request No: C-2503 - 088

Laboratory No.: CAL- 088

Date of Request: 21 March 2025.

Date of Calibration: 21 March 2025.

**1. Unit Under Calibration (UUC) :**

Nomenclature : Digital Light Meter

Serial No. : A.041100

Maker : EXTECH

Model : 407026

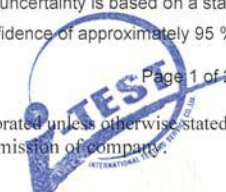
**2. Place of Calibration:** Photometry Standard Laboratory, INTERNATIONAL TESTING SERVICE CO., LTD.**3. Range of Calibration:** 2 Range**4. Condition of Laboratory:** Ambient temperature:  $(25 \pm 2)$  °C and relative humidity  $(60 \pm 20)$  %.**5. Reference Standard:** Standard Tungsten Halogen Lamp, Serial No.: 504011, which was calibrated on 22 April 2024, can be traceable to International System of Unit (SI) through National Institute of Metrology (Thailand), Certificate No.: TP-1014-24.**6. Support Equipment:**

1. Photometric bench, 6.3 meter long.
2. DC. power supply, Serial No.: EJ 19A 009, Model: GPR-25H 300, Maker: GW INSTR.
3. Digital Multimeter, Model: 34401A, S/N: MY44011212 and MY44011215.
4. Foot Candle / Lux Meter, Model: 407026, S/N: Q 558437, Maker: EXTECH.

**7. Calibration Procedure:**

The measurement was done in accordance with WI-CP-01. The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2$ , providing a level of confidence of approximately 95 %.

The Results shown in this certification report refer only to the equipment(s) calibrated unless otherwise stated  
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**INTERNATIONAL TESTING SERVICE CO., LTD**

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E-mail : sale@itest-lab.com web site : [www.itest-lab.com](http://www.itest-lab.com)

Request No: C-2503 - 088

Serial No.: A.041100

Laboratory No.: CAL - 088

**Results:**

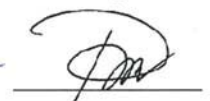
UUC Range	Standard (Ix)	Unit Under Calibration Reading (Ix)	Correction (Ix)	Uncertainty of Measurement ( $\pm$ Ix)
2000	0	0	0	0.60
	101	101	0	2.1 % of Reading
	507	514	-7	
	1021	1024	-3	
	1539	1539	0	
	1955	1953	+2	
20000	2092	2030	+62	
	3170	3070	+100	
	4263	4140	+123	

Note : 1. The results relate only to the items calibrated.  
2. Zero adjust before used.

Calibration result approved by

  
(Mr. Yuttana Tholueng)

Approved on behalf of  
International Testing Service Co., Ltd

  
(Mr. Pichit Vivat-Anant)  
Managing Director

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