

ภาคผนวกที่ 7

เอกสารการสอบเทียบความถูกต้องของเครื่องมือ

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.

189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

189 Moo. 3 Bangrakphatthana Bangbuaathong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6906010

TSP No.: 1941 Date: 8-Jun-26
Location: โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านมะเกลือ Technical: C.Kunlapat
Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa): 1012.0 Corrected Pressure (mm Hg): 759.1
Temperature (deg C): 32.0 Temperature (deg K): 305.0
Seasonal SL Press. (hPa): 1000.7 Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg C): 20.0 Seasonal Temp. (deg K): 293.0

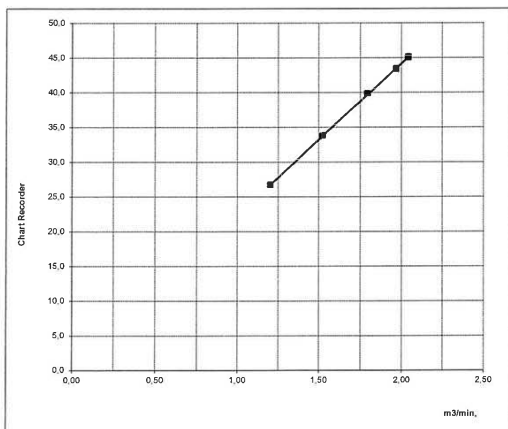
CALIBRATION ORIFICE

Make: Tisch Environmental, Inc Qstd Slope: 1.29243
Model: TE-5025A Qstd Intercept: -0.01962
Serial#: 3092 Date Certified: 25-Aug-25

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.41	1.202	26.99	26.66	Slope = 21.9239
2	3.89	1.523	34.15	33.74	Intercept = 0.3561
3	5.41	1.793	40.33	39.84	Corr. coeff.= 0.9999
4	6.51	1.965	43.89	43.36	
5	7.02	2.040	45.60	45.05	# of Observations: 5

Range of Chart at 40-60 CFM 50.10



Calibrated by : C.Kunlapat
(Kunlapat Chuichoti)

Approved by : K.Metawee
(Metawee Khumkham)

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189 Moo. 3 Bangrakphatthana Bangbuaathong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6906011

TSP No.: 1940 Date: 8-Jun-26
Location: บริเวณโรงเรียนบ้านแก่งชะวักวิทยา Technical: C.Kunlapat
Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa): 1012.0 Corrected Pressure (mm Hg): 759.1
Temperature (deg C): 30.0 Temperature (deg K): 303.0
Seasonal SL Press. (hPa): 1000.7 Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg C): 20.0 Seasonal Temp. (deg K): 293.0

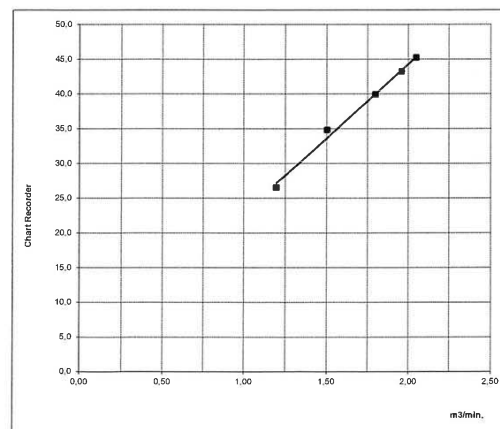
CALIBRATION ORIFICE

Make: Tisch Environmental, Inc Qstd Slope: 1.29243
Model: TE-5025A Qstd Intercept: -0.01962
Serial#: 3092 Date Certified: 25-Aug-25

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.38	1.198	26.72	26.48	Slope = 21.3823
2	3.77	1.504	35.11	34.80	Intercept = 1.5269
3	5.40	1.797	40.25	39.89	Corr. coeff.= 0.9961
4	6.43	1.960	43.57	43.18	
5	7.03	2.048	45.60	45.19	# of Observations: 5

Range of Chart at 40-60 CFM 53.20



Calibrated by : C.Kunlapat
(Kunlapat Chuichoti)

Approved by : K.Metawee
(Metawee Khumkham)

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Tel : (662) 159-0121 Fax : (662) 159-0122

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6906012

TSP No.: 1947 Date: 8-Jun-26
Location: บริเวณวัดบ้านแก่ง Technical: C.Kunlapat
Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa): 1012.0 Corrected Pressure (mm Hg): 759.1
Temperature (deg C): 32.0 Temperature (deg K): 305.0
Seasonal SL Press. (hPa): 1000.7 Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg C): 20.0 Seasonal Temp. (deg K): 293.0

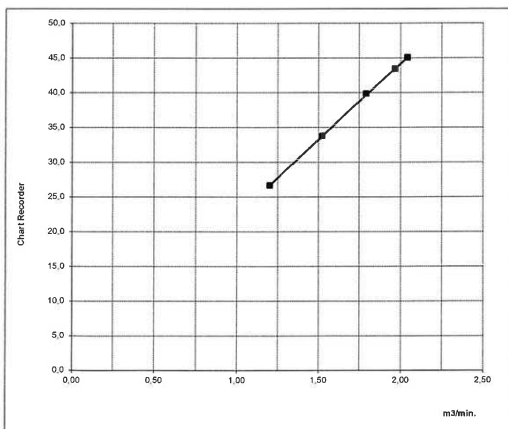
CALIBRATION ORIFICE

Make: Tisch Environmental, Inc Qstd Slope: 1.29243
Model: TE-5025A Qstd Intercept: -0.01962
Serial#: 3092 Date Certified: 25-Aug-25

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.41	1.202	26.99	26.66	Slope = 21.9239
2	3.89	1.523	34.15	33.74	Intercept = 0.3561
3	5.41	1.793	40.33	39.84	Corr. coeff.= 0.9999
4	6.51	1.965	43.89	43.36	
5	7.02	2.040	45.60	45.05	# of Observations: 5

Range of Chart
at 40-60 CFM 50.10



Calibrated by : *C. Kunlapat*
(Kunlapat Chuichoti)

Approved by : *K. Metawee*
(Metawee Khumkham)

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189 Moo. 3 Bangrakphatthana Bangbuahtong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6906013

TSP No.: 4862 Date: 8-Jun-26
Location: บริเวณศูนย์พัฒนาเด็กเล็กบ้านมะเกลือ Technical: C.Kunlapat
Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa): 1012.0 Corrected Pressure (mm Hg): 759.1
Temperature (deg C): 32.0 Temperature (deg K): 305.0
Seasonal SL Press. (hPa): 1000.7 Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg C): 20.0 Seasonal Temp. (deg K): 293.0

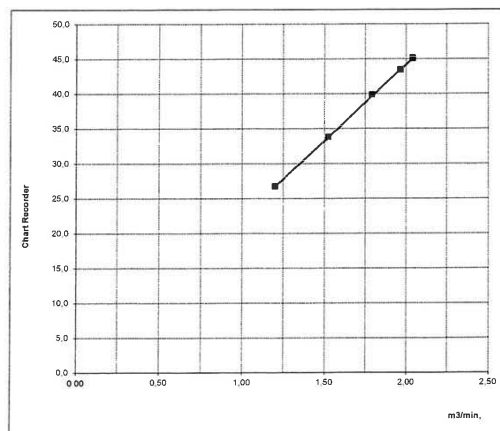
CALIBRATION ORIFICE

Make: Tisch Environmental, Inc Qstd Slope: 1.29243
Model: TE-5025A Qstd Intercept: -0.01962
Serial#: 3092 Date Certified: 25-Aug-25

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.41	1.202	26.99	26.66	Slope = 21.9239
2	3.89	1.523	34.15	33.74	Intercept = 0.3561
3	5.41	1.793	40.33	39.84	Corr. coeff.= 0.9999
4	6.51	1.965	43.89	43.36	
5	7.02	2.040	45.60	45.05	# of Observations: 5

Range of Chart
at 40-60 CFM 50.10



Calibrated by : *C. Kunlapat*
(Kunlapat Chuichoti)

Approved by : *K. Metawee*
(Metawee Khumkham)

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Tel : (662) 159-0121 Fax : (662) 159-0122

PM10 High Volume Sampler Verification**Verification Report No. PM-6906010****SITE**

PM-10 No.: 5095

Date: 8-Jun-26

Location: โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านมะเกลือ

Test: C.Kunlapat

Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa):	1012.0	Corrected Pressure (mm Hg):	759.1
Temperature (deg C):	32.0	Temperature (deg K):	305.0
Seasonal SL Press. (hPa):	1005.8	Corrected Seasonal (mm Hg):	754.4
Seasonal Temp. (deg C):	21.0	Seasonal Temp. (deg K):	294.0

CALIBRATION ORIFICE

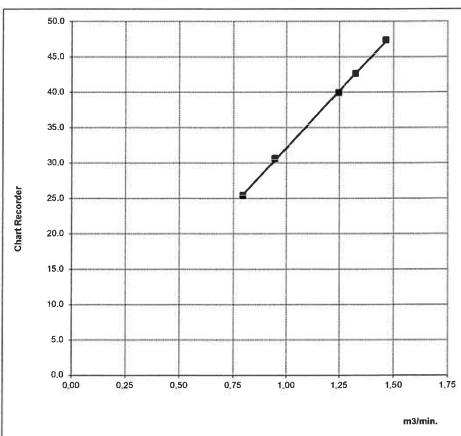
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 25-Aug-25

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.53	0.795	25.71	25.40	Slope (m)= 32.3972
2	3.61	0.947	30.96	30.58	Intercept (b)= -0.2977
3	6.32	1.248	40.42	39.93	Corr. coeff.(r)= 0.9998
4	7.14	1.326	43.10	42.58	SFR = 1.165
5	8.73	1.464	47.00	47.30	SSP = 59.08
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 38.40



Calibrated by : C.Kunlapat
(Kunlapat Chuichoti)

Approved by : K.Metawee
(Metawee Khumkham)

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Tel : (662) 159-0121 Fax : (662) 159-0122

PM10 High Volume Sampler Verification**Verification Report No. PM-6906011****SITE**

PM-10 No.: 2381

Date: 8-Jun-26

Location: บริเวณโรงเรียนบ้านแก่งชีวลัดวิทยา

Test: C.Kunlapat

Approval: K.Metawee

CONDITIONS

Sea Level Pressure (hPa):	1012.0	Corrected Pressure (mm Hg):	759.1
Temperature (deg C):	32.0	Temperature (deg K):	305.0
Seasonal SL Press. (hPa):	1005.8	Corrected Seasonal (mm Hg):	754.4
Seasonal Temp. (deg C):	21.0	Seasonal Temp. (deg K):	294.0

CALIBRATION ORIFICE

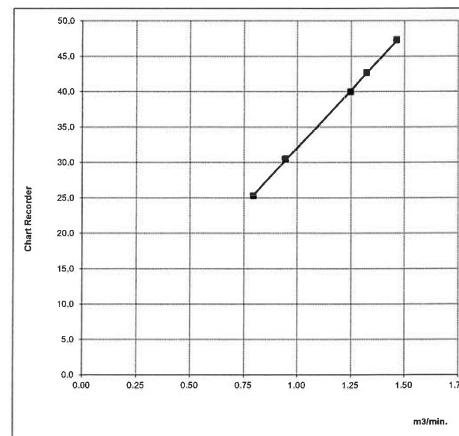
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 25-Aug-25

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.53	0.795	25.60	25.29	Slope (m)= 32.6496
2	3.61	0.947	30.87	30.49	Intercept (b)= -0.6034
3	6.32	1.248	40.45	39.96	Corr. coeff.(r)= 0.9999
4	7.14	1.326	43.20	42.68	SFR = 1.165
5	8.73	1.464	47.00	47.30	SSP = 59.06
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.50



Calibrated by : C.Kunlapat
(Kunlapat Chuichoti)

Approved by : K.Metawee
(Metawee Khumkham)

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

PM10 High Volume Sampler VerificationVerification Report No. PM-6906012**SITE**

PM-10 No.: 1942

Date: 8-Jun-26

Location: บริเวณวัดบ้านแก่งTest: C.KunlapatApproval: K.Metawee**CONDITIONS**

Sea Level Pressure (hPa):	<u>1012.0</u>	Corrected Pressure (mm Hg):	759.1
Temperature (deg C):	<u>32.0</u>	Temperature (deg K):	305.0
Seasonal SL Press. (hPa):	<u>1005.8</u>	Corrected Seasonal (mm Hg):	754.4
Seasonal Temp. (deg C):	<u>21.0</u>	Seasonal Temp. (deg K):	294.0

CALIBRATION ORIFICE

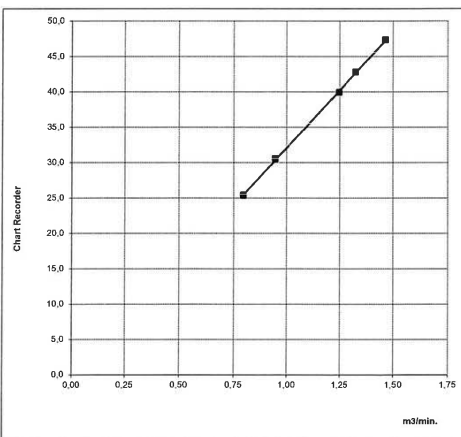
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 25-Aug-25

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.53</u>	<u>0.795</u>	<u>25.67</u>	<u>25.36</u>	Slope (m)= 32.5726
2	<u>3.61</u>	<u>0.947</u>	<u>30.89</u>	<u>30.51</u>	Intercept (b)= -0.4946
3	<u>6.32</u>	<u>1.248</u>	<u>40.40</u>	<u>39.91</u>	Corr. coeff.(r)= 0.9998
4	<u>7.14</u>	<u>1.326</u>	<u>43.26</u>	<u>42.73</u>	SFR = 1.165
5	<u>8.73</u>	<u>1.464</u>	<u>47.15</u>	<u>47.30</u>	SSP = 59.09
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 40.10



Calibrated by :

C.Kunlapat

(Kunlapat Chuichoti)

Approved by :

K.Metawee

(Metawee Khumkham)

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

PM10 High Volume Sampler VerificationVerification Report No. PM-6906013**SITE**

PM-10 No.: 8456

Date: 8-Jun-26

Location: บริเวณศูนย์พัฒนาเด็กเล็กบ้านมะเกลือTest: C.KunlapatApproval: K.Metawee**CONDITIONS**

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
Temperature (deg C):	<u>30.0</u>	Temperature (deg K):	303.0
Seasonal SL Press. (hPa):	<u>1005.8</u>	Corrected Seasonal (mm Hg):	754.4
Seasonal Temp. (deg C):	<u>21.0</u>	Seasonal Temp. (deg K):	294.0

CALIBRATION ORIFICE

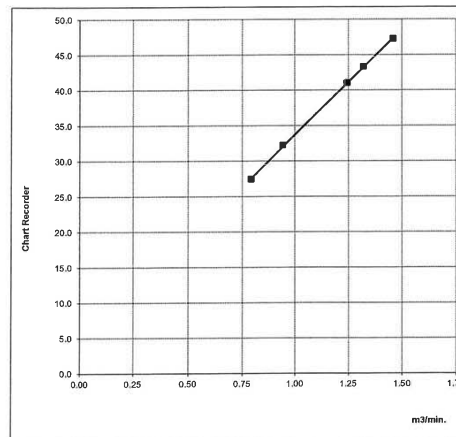
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 25-Aug-25

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.53</u>	<u>0.794</u>	<u>27.74</u>	<u>27.47</u>	Slope (m)= 29.6370
2	<u>3.61</u>	<u>0.945</u>	<u>32.60</u>	<u>32.28</u>	Intercept (b)= 4.1002
3	<u>6.32</u>	<u>1.245</u>	<u>41.43</u>	<u>41.02</u>	Corr. coeff.(r)= 0.9999
4	<u>7.14</u>	<u>1.323</u>	<u>43.80</u>	<u>43.37</u>	SFR = 1.160
5	<u>8.73</u>	<u>1.461</u>	<u>50.12</u>	<u>47.30</u>	SSP = 60.83
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.00



Calibrated by :

C.Kunlapat

(Kunlapat Chuichoti)

Approved by :

K.Metawee

(Metawee Khumkham)

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189 Moo. 3 Bangrakphatthana Bangbua Thong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906008

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Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโพลีเมอร์ จำกัด

Instruments Information

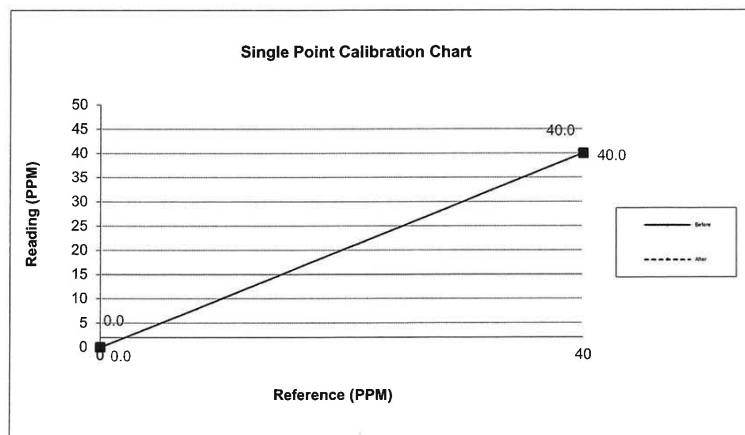
Analyzer Type: NO2 Analyzer Model: 42C	Manufacturer API S/N: 362
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Calibration System

Calibrator Unit	Standard Gas
Dilutor Model B22019 S/N: APPVD ZERO AIR Generator E07N199E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °CHumidity: 39.0 %RH**Calibration Report**

Status	Zero			Span		
	Reference (PPM)	Reading (PPM)	Drift (PPM)	Reference (PPM)	Reading (PPM)	Drift%
Before	0.0	0.0	0.0	40.0	40.0	0.0
After	0.0	0.0	0.0	40.0	40.0	0.0



Calibrate By :

C. Kunlapat

(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee

(Metawee Khumkham)

Date : June 08, 2026

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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189 Moo. 3 Bangrakphatthana Bangbua Thong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906009

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Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโพลีเมอร์ จำกัด

Instruments Information

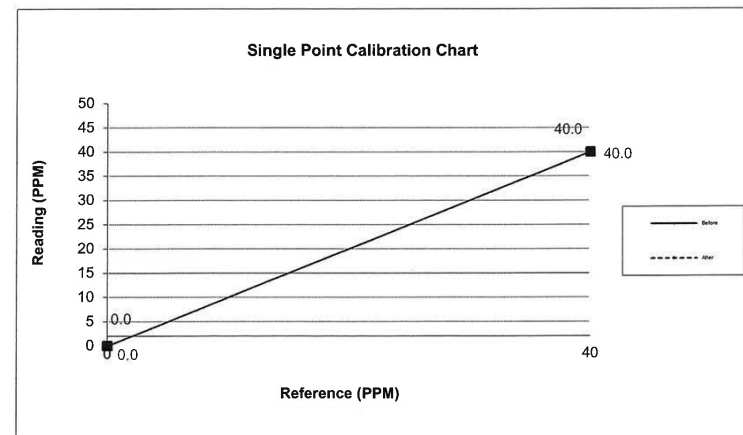
Analyzer Type: NO2 Analyzer Model: 200A	Manufacturer API S/N: 615
--	------------------------------

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model B22019 S/N: APPVD ZERO AIR Generator E07N199E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °CHumidity: 39.0 %RH**Calibration Report**

Status	Zero			Span		
	Reference (PPM)	Reading (PPM)	Drift (PPM)	Reference (PPM)	Reading (PPM)	Drift%
Before	0.0	0.0	0.0	40.0	40.0	0.0
After	0.0	0.0	0.0	40.0	40.0	0.0



Calibrate By :

C. Kunlapat

(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee

(Metawee Khumkham)

Date : June 08, 2026

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906010

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโศพาเวอร์ จำกัด

Instruments Information

Analyzer Type: NO2 Analyzer	Manufacturer: Thermo
Model: T200	S/N: 2014

Calibration System

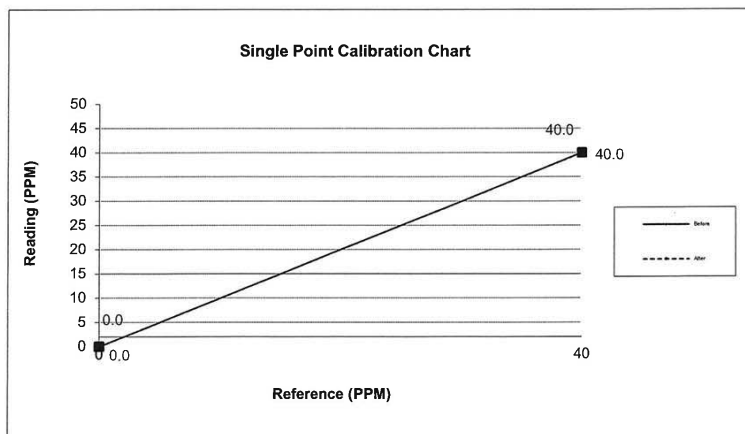
Calibrator Unit	Standard Gas
Dilutor Model B22019	NO Conc 54.81 PPM
S/N: APPVD	SO2 Conc 52.99 PPM
ZERO AIR Generator E07NI99E15A0002	CO Conc 4,469 PPM
S/N: EB0125123	Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 39.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPM)	Reading (PPM)	Drift (PPM)	Reference (PPM)	Reading (PPM)	Drift%
Before	0.0	0.0	0.0	40.0	40.0	0.0
After	0.0	0.0	0.0	40.0	40.0	0.0



Calibrate By :

C. Kunlapat
(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee
(Metawee Khumkham)

Date : June 08, 2026

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.
189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110
189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906011

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโศพาเวอร์ จำกัด

Instruments Information

Analyzer Type: NO2 Analyzer	Manufacturer: API
Model: 200A	S/N: 1648

Calibration System

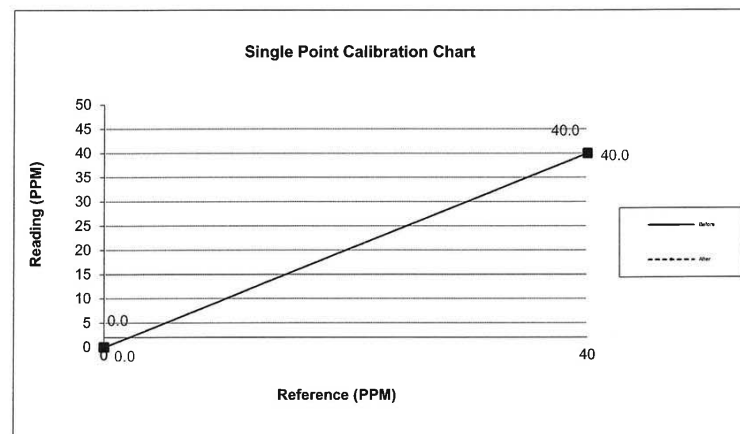
Calibrator Unit	Standard Gas
Dilutor Model B22019	NO Conc 54.81 PPM
S/N: APPVD	SO2 Conc 52.99 PPM
ZERO AIR Generator E07NI99E15A0002	CO Conc 4,469 PPM
S/N: EB0125123	Expire Date: 6 November 2027

Environment: Temperature 30.0 °C

Humidity: 39.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPM)	Reading (PPM)	Drift (PPM)	Reference (PPM)	Reading (PPM)	Drift%
Before	0.0	0.0	0.0	40.0	40.0	0.0
After	0.0	0.0	0.0	40.0	40.0	0.0



Calibrate By :

C. Kunlapat
(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee
(Metawee Khumkham)

Date : June 08, 2026



TOPS-LAB Consultants CO., LTD.
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Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906010

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโอฟาเวอร์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: M102E	Manufacturer: Thermo S/N: 1116
---	---

Calibration System

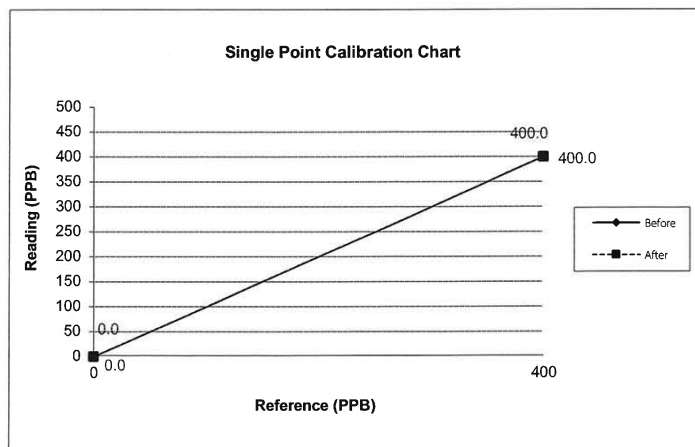
Calibrator Unit	Standard Gas
Dilutor Model: B22019 S/N: APPVD ZERO AIR Generator: E07NI99E15A0002 S/N: EB0125123	NO Conc: 45.74 PPM SO2 Conc: 44.9 PPM CO Conc: 4,490 PPM Expire Date: 6 November 2027

Environment: Temperature 34.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPB)	Reading (PPB)	Drift (PPB)	Reference (PPB)	Reading (PPB)	Drift%
Before	0.0	0.0	0.0	400.0	400.0	0.0
After	0.0	0.0	0.0	400.0	400.0	0.0



Calibrate By :

C. Kunlapat
(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee
(Metawee Khumkham)

Date : June 08, 2026

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Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906007

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโอฟาเวอร์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: 43C	Manufacturer: Thermo S/N: 297
---	--

Calibration System

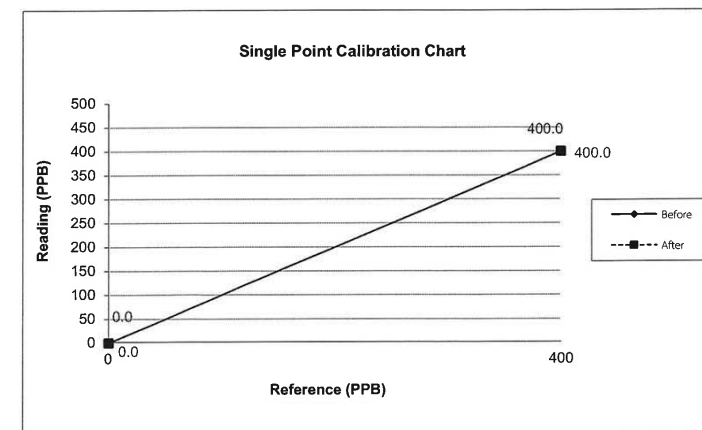
Calibrator Unit	Standard Gas
Dilutor Model: B22019 S/N: APPVD ZERO AIR Generator: E07NI99E15A0002 S/N: EB0125123	NO Conc: 54.81 PPM SO2 Conc: 52.99 PPM CO Conc: 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPB)	Reading (PPB)	Drift (PPB)	Reference (PPB)	Reading (PPB)	Drift%
Before	0.0	0.0	0.0	400.0	400.0	0.0
After	0.0	0.0	0.0	400.0	400.0	0.0



Calibrate By :

C. Kunlapat
(Kunlapat Chuichoti)
Date : June 08, 2026

Approve By :

K. Metawee
(Metawee Khumkham)
Date : June 08, 2026

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906005

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโผเวอร์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: 43C	Manufacturer Thermo S/N: 357
---	---------------------------------

Calibration System

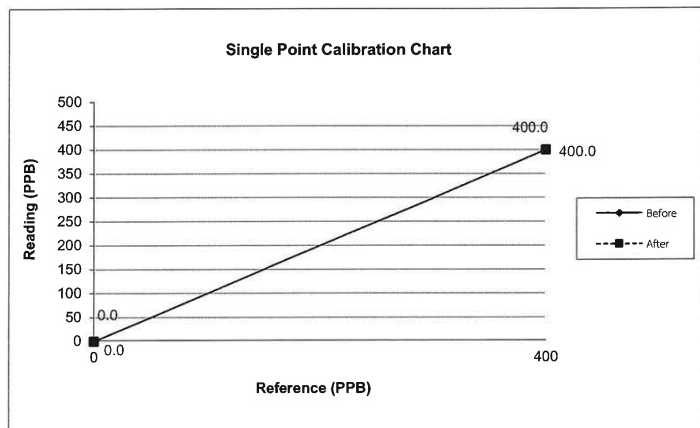
Calibrator Unit	Standard Gas
Dilutor Model B22019 S/N: APPVD ZERO AIR Generator E07N199E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPB)	Reading (PPB)	Drift (PPB)	Reference (PPB)	Reading (PPB)	Drift%
Before	0.0	0.0	0.0	400.0	400.0	0.0
After	0.0	0.0	0.0	400.0	400.0	0.0



Calibrate By :

C. Kunlapat

(Kunlapat Chuichoti)

Date : June 08, 2026

Approve By :

K. Metawee

(Metawee Khumkham)

Date : June 08, 2026



บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด
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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110
Tel : (662) 159-0121 Fax : (662) 159-0122

Analyzer Performance Test

Calibration Report No.: 6906009

Page:1/1

Calibrated Date: 08 June 2026

Calibrated For: บริษัท รวมผลไม้อิโผเวอร์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: M102E	Manufacturer Thermo S/N: 1116
---	----------------------------------

Calibration System

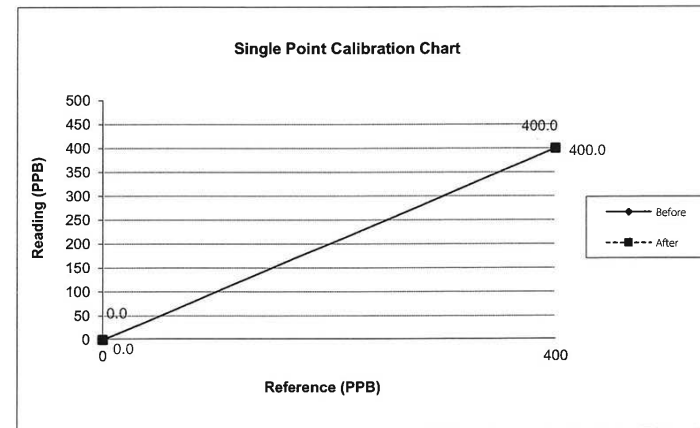
Calibrator Unit	Standard Gas
Dilutor Model B22019 S/N: APPVD ZERO AIR Generator E07N199E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (PPB)	Reading (PPB)	Drift (PPB)	Reference (PPB)	Reading (PPB)	Drift%
Before	0.0	0.0	0.0	400.0	400.0	0.0
After	0.0	0.0	0.0	400.0	400.0	0.0



Calibrate By :

C. Kunlapat

(Kunlapat Chuichoti)

Date : June 8, 2026

Approve By :

K. Metawee

(Metawee Khumkham)

Date : June 8, 2026

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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189 Moo.3 Bangrakphatthana Bangbua Thong Nonthaburi 11110

Tel : (662) 159-0121 Fax : (662) 159-0122

Verification Test Report

Report No. : SLM-6906005

Calibrated Date : June 8, 2026

Equipment : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST-11D

Serial or ID No. 820880

Reference Standard : Sound Calibrator Model ST-120

Serial No. ST120C0231E

Date of Calibration : January 15, 2026

Result of Test

Reference Standard (dB)	Instrument reading (dB)	Error (dB)	Adjust (dB)
114.0	114.1	0.1	114.0

Calibrated By : C. Kunlapat

(Kunlapat Chuichoti)

Date : June 8, 2026

Approve By : K. Metawee

(Metawee Khumkham)

Date : June 8, 2026

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Tel : (662) 159-0121 Fax : (662) 159-0122

Verification Test Report

Report No. : SLM-6906006

Calibrated Date : June 18, 2026

Equipment : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST-11D

Serial or ID No. 820884

Reference Standard : Sound Calibrator Model ST-120

Serial No. ST120C0231E

Date of Calibration : January 15, 2026

Result of Test

Reference Standard (dB)	Instrument reading (dB)	Error (dB)	Adjust (dB)
114.0	114.1	0.1	114.0

Calibrated By : C. Kunlapat

(Kunlapat Chuichoti)

Date : June 8, 2026

Approve By : K. Metawee

(Metawee Khumkham)

Date : June 8, 2026

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Tel. (66-2) 9873248-50 Fax: (66-2) 9873252 E-mail: info.accl2662@gmail.com
pomsak2008@yahoo.co.th



CALIBRATION LABORATORY

Certificate No. RS-2601051-4

Job No. RS-2601051

Certificate of Calibration

FOR

Equipment Name : Sound Level Meter

Manufacturer : SCARLET TECH

Model : ST-11D

Serial Number : 820951

Customer Code : N/A

Location of Calibration : In Lab

Customer Name : TOPS-LAB Consultants Co., Ltd.

189 moo 3 Bangrakphattana Bangbuathong Nonthaburi 11110

Calibration Procedure : CPE-04-01

Received Date : Feb 14, 2026

Calibration Date : Feb 15, 2026

Recommended Due Date : N/A

CONDITION AS RECEIVED : Normal

Environmental Conditions

Ambient Temperature : (25 ± 2) °C

Relative Humidity : (50 ± 15) %RH

Result : No Adjustment (See data attached in page 3 to the end of certificate)

1. 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%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Advantage Center Co., Ltd.

Calibrated by : J. Sutep

Approved by :

ACCL
(Signature)

(Pomsak Suksawaeng)

Date of Issue : Feb 13, 2026

Laboratory Management

Page 1 of 3

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.



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pomsak2008@yahoo.co.th

Certificate No.: RS-2601051-4

Reference Standards

Equipment Name	Serial No.	Certificate No.	Due Date	Traceability to
Sound Calibrator	170603302	EEL.BP. 76/1068	Oct 28, 2026	TISTR

Traceability

This calibration is traceable to the International System of Unit via :

- TISTR : Thailand Institute of Scientific and Technological Research



Page 2 of 3

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.

Certificate No. : RS-2601051-4

Result of Calibration

Calibration Range : 94 dB, 114 dB

Function : Measurement @ 1 kHz

Select A Fast response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.3	-0.3	0.21
114 dB	114.3	-0.3	0.28

Select A Slow response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.3	-0.3	0.21
114 dB	114.3	-0.3	0.28

Select C Fast response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.3	-0.3	0.21
114 dB	114.3	-0.3	0.28

Select C Slow response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.3	-0.3	0.21
114 dB	114.3	-0.3	0.28

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





ADVANTAGE CENTER CO., LTD.

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pomsak2008@yahoo.co.th



CALIBRATION LABORATORY

Certificate No. RS-2601051-5

Job No. RS-2601051

Certificate of Calibration

FOR

Equipment Name : Sound Level Meter

Manufacturer : SCARLET TECH

Model : ST-11D

Serial Number : 820952

Customer Code : N/A

Location of Calibration : In Lab

Customer Name : TOPS-LAB Consultants Co., Ltd.

189 moo 3 Bangrakphattana Bangbuathong Nonthaburi 11110

Calibration Procedure : CPE-04-01

Received Date : Feb 14, 2026

Calibration Date : Feb 15, 2026

Recommended Due Date : N/A

CONDITION AS RECEIVED : Normal

Environmental Conditions

Ambient Temperature : (25 ± 2) °C

Relative Humidity : (50 ± 15) %RH

Result : No Adjustment (See data attached in page 3 to the end of certificate)

1. 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%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Advantage Center Co., Ltd.

Calibrated by : J. Sutep

Approved by :

ACCL
(Signature)

(Pomsak Suksawaeng)

Date of Issue : Feb 13, 2026

Laboratory Management

Page 1 of 3

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.



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pomsak2008@yahoo.co.th

Certificate No.: RS-2601051-5

Reference Standards

Equipment Name	Serial No.	Certificate No.	Due Date	Traceability to
Sound Calibrator	170603302	EEL.BP. 76/1068	Oct 28, 2026	TISTR

Traceability

This calibration is traceable to the International System of Unit via :

- TISTR : Thailand Institute of Scientific and Technological Research



Page 2 of 3

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.

Certificate No. : RS-2601051-5

Result of Calibration

Calibration Range : 94 dB, 114 dB

Function : Measurement @ 1 kHz

Select A Fast response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.2	-0.2	0.21
114 dB	114.1	-0.1	0.28

Select A Slow response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.2	-0.2	0.21
114 dB	114.1	-0.1	0.28

Select C Fast response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.2	-0.2	0.21
114 dB	114.1	-0.1	0.28

Select C Slow response

STD Setting	UUC Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	94.2	-0.2	0.21
114 dB	114.1	-0.1	0.28

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





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pomsak2008@yahoo.co.th

CALIBRATION LABORATORY

Certificate No. RS-2601040-1

Job No. RS-2601040

Certificate of Calibration

FOR

Equipment Name : Sound Calibrator

Manufacturer : SCARLET TECH

Model : ST-120

Serial Number : ST120C0231E

Customer Code : N/A

Location of Calibration : In Lab

Customer Name : TOPS-LAB Consultants Co., Ltd.

189 moo 3 Bangrakphattana Bangbuathong Nonthaburi 11110

Calibration Procedure : CPE-04-01

Received Date : Jan 15, 2026

Calibration Date : Jan 15, 2026

Recommended Due Date : N/A

CONDITION AS RECEIVED : Normal

Environmental Conditions

Ambient Temperature : (25 ± 2) °C

Relative Humidity : (50 ± 15) %RH

Result : No Adjustment (See data attached in page 3 to the end of certificate)

1. 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%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by

Calibration Laboratory, Advantage Center Co., Ltd.

Calibrated by : P. Noppadon

Approved by :

(Pomsak Suksawaeng)

Date of Issue : Feb 6, 2026

Laboratory Management

Page 1 of 3

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.



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pomsak2008@yahoo.co.th

Certificate No.: RS-2601040-1

Reference Standards

Equipment Name	Serial No.	Certificate No.	Due Date	Traceability to
Digital Sound Level Meter	HF:2556826	RA-2511002-21	Dec 1, 2026	NA

Traceability

This calibration is traceable to the International System of Unit via :

- NA : NA Calctecnologies Co.,Ltd.

Test Equipment Calibration, In-house Calibration Preparations, Source Inspection ISO 9000 / 14000 Consultation, Statistical Quality Control, Statistical Production Control, New Product Sourcing, Troubleshooting, Safety Engineering consultations / Applications for world wide Approvals and Certifications.



Page 2 of 3

Certificate No. : RS-2601040-1

Result of Calibration

Calibration Range : 94 dB, 114 dB

Frequency : 1 kHz

UUC Setting	STD Reading (dB)	Correction (dB)	Uncertainty of Measurement (± dB)
94 dB	93.7	0.3	0.10
114 dB	114.3	-0.3	0.10

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





CERT.No.: HS-X016C

Harikul Science Co.,Ltd.
694 Soi Ratchadanivet 24, Pracharatbamphen,
Samsaennok, Huaihwang, Bangkok 10310
Tel: 0-2274-2456 Fax: 0-2274-2443
Email: info@harikul.com www.harikul.com

Certificate of Calibration

Calibration Date : 27 March 2026

Submitted by : TOPS-LAB CONSULTANTS CO.,LTD.

189 Moo 3 Bangrakphatthana Bangbuathong

Nonthaburi 11110

Model : YSI 5000

S/N : 13K100714

Probe : YSI 5010

S/N : 13J100364

ID NO. :

Air Temp ref : S/N. F8065C26

Barometric ref : S/N. F8065C26

Water Temp ref : -

ID NO. HS001

Technician : Kittipong M.

Avg Room Temp : 20 °C

Avg Water Temp : 20 °C

Air Pressure : 760.00 mmHg

Salinity : 0 ppt

Calibration Details

Calibration Point 100% air sat. (status) (status)
(@20 °C, DO = 9.09 mg/l)

Measurement 1 (mg/l)	9.09	(PASS)	-	-
Measurement 2 (mg/l)	9.08	(PASS)	-	-
Measurement 3 (mg/l)	9.08	(PASS)	-	-
Measurement 4 (mg/l)	9.08	(PASS)	-	-
Measurement 5 (mg/l)	9.08	(PASS)	-	-
Measurement 6 (mg/l)	9.08	(PASS)	-	-
Measurement 7 (mg/l)	9.08	(PASS)	-	-
Measurement 8 (mg/l)	9.07	(PASS)	-	-
Measurement 9 (mg/l)	9.08	(PASS)	-	-
Measurement 10 (mg/l)	9.07	(PASS)	-	-

Mean Measurement	9.08	mg/l	-	-
Inaccuracy	0.01	mg/l	-	-

Overall Status (PASS)

Manufacturer Specification

Accuracy = +/- 0.02 mg/l

- 1) This certificate is issued based on the result that are found as shown on date and place of test only.
- 2) The calibration procedure followed in accordance with Harikul Science Co., Ltd.
- 3) This result shall not be used for advertising purpose.

Technician Signature

(Kittipong Maekwong)

Laboratory Manager

(Natenapha Pisatkunchon)



694 Soi Ratchadanivet 24, Pracharatbamphen, Samsaennok, Huay-khwang, Bangkok 10310

el. 0-2274-2456 Fax. 0-2274-2443 Email: info@harikul.com, support@harikul.com

ใบส่งเครื่องซ่อม

ชื่อ คุณ ปณิดา ตึกห้อง
หน่วยงาน บริษัท ฟอปปี้แลบ คอนซัลแตนท์ จำกัด
ที่อยู่ 189 หมู่ที่ 3 ตำบล บางรักพัฒนา อำเภอ บางบัวทอง จังหวัด นนทบุรี 11110
โทร 0-2159-0121 อีเมล

ลำดับที่	ชื่อเครื่อง	รุ่น	รหัส	หมายเหตุ/ผู้ตรวจ	รายการ
1	DO METER	YSI 5000	13K100714		ปกติ ชัดทำความสะอาด Sensor
2	DO PROBE	YSI 5010	13J100364		
หมายเหตุ					
สอบเทียบ					

ได้รับเอกสารช่วยเหลือแล้ว กรุณาส่งกลับมายัง E:mail service@harikul.com

ลงชื่อผู้ส่งเครื่อง

(กิตติพงษ์ เมาแก้ว)

27/03/26

ลงชื่อผู้รับเครื่อง

()

...../...../.....

ใบรายละเอียดการให้บริการ

รายละเอียดผู้รับบริการ

ชื่อ : คุณ ปณิดา

หน่วยงาน : บริษัท ท็อปส์-แสบ คอมมิตีแคตเนท์ จำกัด

ที่อยู่ : 189 หมู่ที่ 3 ตำบล บางรักพัฒนา อำเภอ บางบัวทอง จังหวัด นนทบุรี 11110

โทร : 0-2159-0121

เลขที่ : 26-055

วันที่รับเครื่อง : 26/3/2026

ลำดับที่	รายละเอียดเครื่องมือ		อาการ	รายละเอียดการให้บริการ
	Model	S/N		
1	YSI 5000	13K100714	- ปกติ มีค่าความละเอียด Sensor	- ตรวจเช็คProbe - คัดบเทียบ
2	YSI 5010	13J100364		
หมายเหตุ				

ลงชื่อผู้ตรวจสอบ



24.03.69

ลงชื่อผู้ตรวจสอบ



24.03.69



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.0-2717-3000-29 FAX.0-2719-9484



Certificate of Calibration

Cert.No.: 26CH600
Page.: 1 of 3

Equipment : pH Meter
Manufacturer : Mettler Toledo
Model : SevenCompact pH/lon S220
Serial No. : B329579021
ID No. : TLC-L020
Condition As-Received: Used Item
Received Date : 02 June 2026
Calibration Date : 04 June 2026
Reference : 2606-0031DN-1
Submitted by : Tops-Lab Consultants Co.,Ltd.
189 Moo. 3, Bangrakphatthana,
Bangbuathong, Nonthaburi 11110

Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with DC voltage
standard and direct measurement with
certified reference material (CRM)
- CP-CH8 by comparison with temperature standard

Calibrated by : Walalak Sirithean
Saithip
Approved by : _____
Approved Signatory

() Chakrit Waewwanjua
() Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 05 June 2026

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written
Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.



Cert.No.: 26CH600
Page.: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	54030049	130RC116	25E2743	25 Aug 2026
2) Ref. Standard Thermometer	4982054	110RC044	25I708	03 July 2026

- This measurement result is traceable to SI through Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd.,
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	1187328	18 Jan 2028
pH 6.979	CPA chem	1187330	18 Jan 2027
pH 10.010	CPA chem	1187332	18 Jan 2027

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

Calibration Results

Function : mV Measurement

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

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement (±mV)	Coverage factor k
			mV	pH		
pH Meter	4.000	177.48	177.1	4.000	0.058	2.00
S/N.: B329579021	7.000	0.00	-0.3	7.000	0.058	2.00
	10.000	-177.48	-177.7	10.000	0.058	2.00



Cert.No.: 26CH600

Page.: 3 of 3

Calibration Results

Function : pH Measurement

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

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement ($\pm$)	Coverage factor k
pH Electrode S/N.: 4222298	4.008	4.004	165.6	0.0044	2.00
	6.979	6.977	-8.9	0.0084	2.07
	10.010	10.011	-184.9	0.0073	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab Expert Pro-ISM

- Serial No. : 4222298

Dimension of probe

- Length : 120 mm.

- Diameter : 12 mm.

- Immersion Depth : 100 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement ($\pm$ °C)	Coverage factor k
23.0	23.001	22.9	-0.101	0.13	2.00
25.0	25.001	24.9	-0.101	0.13	2.00
27.0	27.001	26.9	-0.101	0.13	2.00

Remark - UUC* = Unit Under Calibration

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

-o0o-

ENVIR SERVICE CO., LTD. (HEAD OFFICE)

42 Ramintra 14, Yeak 9 Tha Raeng, Bang Khen, Bangkok 10230 Thailand
Tax ID: 0105555170865 Tel: 02-943-5814-5
Tel: 02-943-8201 Email: pasagorn@envirservice.co.th



Certificate No. EN202510023

CALIBRATION CERTIFICATE

Instrument Description : WET BULE GLOBE TEMPERATURE (WBGT) METER
Manufacture : Beijing JANTYTECH Technology Co., Ltd.
Instrument Model : JT2011-E2A
Serial No. : 3522410051
Customer Name : TOPS-LAB CONSULTANTS CO., LTD.
Address : 189 moo 3 Bangrukphathana Bangbuathong Nonthaburi 11110

Measurement standard used in the Calibration

Reference Standard: Standard Calibration Device, Manufacture: JANTYTECH, Model WBGT (2011-E2A), SN:
241011001 Calibration Date: 2024 Oct. 27, Calibration Certificate No.: JTCD202410005

The verification result in the certificate can be traceable to international system of unit (SI) / social public measurement standards.

CALIBRATION RESULTS

Testing Result:

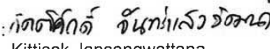
UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	25.1	-0.1	0.2
	30.0	30.1	-0.1	0.2
	35.0	35.0	0.0	0.2
	40.0	40.0	0.0	0.2
	45.0	44.9	0.1	0.2
DRY	25.0	25.1	-0.1	0.2
	30.0	30.1	-0.1	0.2
	35.0	35.0	0.0	0.2
	40.0	40.0	0.0	0.2
	45.0	44.9	0.1	0.2
GLOBE	25.0	25.1	-0.1	0.2
	30.0	30.1	-0.1	0.2
	35.0	35.0	0.0	0.2
	40.0	40.0	0.0	0.2
	45.0	44.9	0.1	0.2

Environment Condition: Temperature (25 ± 2) °C Relative Humidity (50 ± 15) %RH

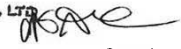
- The report applies to the item and shall not be reproduced except in full without written approval by Calibration Laboratory, Envir Service Co., Ltd.
- This result of this report only to the item calibrated.

Date of Calibration : 2025-10-15

Valid to : 2026-10-14

Calibrated By : 
Kittisak Jansangwattana
(Technician)


บริษัท เอ็นไวร์ เซอร์วิส จำกัด
ENVIR SERVICE CO., LTD.

Approved By : 
Pasagorn Samol
(Technician Manager)

- End of Calibrated -

Certificate No: G 260163

Date of issue : 12-Mar-26

Instrument description : Flue Gas Analyzer
Instrument model : Testo 350
Instrument serial no. : 02685557/311
Control unit serial no. : 02669071/311
ID no. or control no. : -
Manufacturer : Testo SE & Co. KGaA
Probe description : -
Probe model : -
Probe serial no. : -
Customer name : TOPS-LAB CONSULTANTS CO.,LTD.
Customer address : 189 Moo. 3 Bangrakphatthana Bangbuaathong Nonthaburi 11110

Total pages of certificate : 2 Pages
Receiving no. : L-260589
Receiving date. : 04-Mar-26
Parameter of calibration : Gas Calibration(Oxygen, Carbon Monoxide, Nitric Oxide, Sulphur Dioxide, Carbon dioxide, Hydrogen sulfide)
Condition of UUC. : Used
Ambient condition : All of the Measurement were carried out the stabilized laboratory
Temperature : 23 ±5 °C
Humidity : 55 ± 15 %RH
Calibration place : 17/121 Soi Ngamwongwan 47 Yaek 48, Toongsonghong, Laksi, Bangkok 10210
Calibration procedure no : This instrument was calibrated by comparison with Standard gas mixture according to calibration Work Instruction no. WI-CL-28-C

The calibration certificate expanded uncertainty of measurement is stated as the standard uncertainty of measurement Multiplied by coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. This certificate is applied only to item under test Environmental condition. This Calibration Certificate may not be reproduced other than in full except with the permission of the issuing laboratory. Calibration certificates without signature and seal not valid and The results relate only to the items tested/calibrated. This calibration certificate documents are traceability to national standards, which realize measurement according to the International System of Units (SI).

Date of calibration : 12-Mar-26

Kwanchai Khamdoun

Mr. Kwanchai Khamdoun

Calibration Technician

Nongluck Wongsettee

Mrs. Nongluck Wongsettee

Technical Manager

Certificate No.: G 260163

Standard References (Table 1)

Standard	Certificate No.	Vendor	Due date
Oxygen (O ₂) 2.506 % Vol	1287/25	Linde	08-May-29
Oxygen (O ₂) 9.984 % Vol	CG-0090-25	Nimt	24-Jun-30
Oxygen (O ₂) 21.01 % Vol	CG-0112-24	Nimt	01-Aug-29
Carbon monoxide (CO) 80.47 ppm	3276/25	Linde	09-Nov-27
Carbon monoxide (CO) 300.9 ppm	1422/25	Linde	21-May-29
Carbon monoxide (CO) 1000 ppm	3131/25	Linde	27-Oct-29
Nitric Oxide (NO) 29.8 ppm	CG-0145-25	Nimt	27-Oct-27
Nitric Oxide (NO) 151.8 ppm	0404/25	Linde	09-Feb-27
Nitric Oxide (NO) 322 ppm	1234/25	Linde	04-May-27
Sulphur Dioxide (SO ₂) 50.4 ppm	1306/25	Linde	12-May-27
Sulphur Dioxide (SO ₂) 100.7 ppm	2662/24	Linde	25-Aug-26
Sulphur Dioxide (SO ₂) 605.9 ppm	1229/25	Linde	04-May-27
Carbon dioxide (CO ₂) 39.9 %Vol	3508/24	Linde	07-Nov-28
Hydrogen sulfide (H ₂ S) 24.9 ppm	CG-0085-25	Nimt	05-Jun-28

Measured room conditions

Temperature : 23.4 °C Humidity : 61.7 %RH Pressure : 1009.2 mbar

Calibration conditions

Gas Temperature : 23 °C Flow rate : 1,200 ml/min Gas pressure : 1016.1 mbar

Calibration Results (Without adjustment) (Table 2)

Parameter of Standard	Standard Values	Mean of UUC	Error	Uncertainty (±)
O ₂ (%Vol)	2.506	2.58	0.074	0.15
O ₂ (%Vol)	9.984	10.12	0.136	0.20
O ₂ (%Vol)	21.01	21.15	0.14	0.30
CO (ppm)	80.47	80	-0.47	3.0
CO (ppm)	300.9	301	0.1	6.0
CO (ppm)	1000	997	-3	12
NO (ppm)	29.8	30	0.2	8.0
NO (ppm)	151.8	154	2.2	8.0
NO (ppm)	322	326	4	12
SO ₂ (ppm)	50.4	49	-1.4	6.0
SO ₂ (ppm)	100.7	101	0.3	6.0
SO ₂ (ppm)	605.9	608	2.1	13
*CO ₂ (%Vol)	39.9	39.96	0.06	0.40
*H ₂ S (ppm)	24.9	24.6	-0.3	1.5

Remark : 1 cmol/mol = 1 %vol. 1 µmol/mol = 1 ppm, Sensor(O₂)New.

* Calibrations marked Not TISI Accredited "in this Certificate have been included for completeness."

End of Certificate of Calibration

Meter Console Information	
Console Model Number	XC-572V
Console Serial Number	0802003
DGM Model Number	CHNT
DGM Serial Number	L1500033350

Calibration Conditions			
Date	Time	08-May-26	10:00 AM
Calibration Reference No.	SE69AP0003		
Barometric Pressure	756	mm Hg	
Calibration Meter Gamma	1.0000	unitless	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check	PASS	

Calibration Data									
Run Time		Metering Console				Calibration Meter			
Elapsed	DGM Orifice	Volume	Volume	Outlet Temp	Outlet Temp	Volume	Volume	Outlet Temp	Outlet Temp
(@)	ΔH	Initial	Final	Initial	Final	Initial	Final	Initial	Final
min	(P _m)	(V _m)	(V _m)	(t _m)	(t _m)	(V _w)	(V _w)	(t _w)	(t _w)
	mm H ₂ O	m ³	m ³	°C	°C	m ³	m ³	°C	°C
15.00	13.0	550.3917	550.5541	24	24	186.15268	186.32388	24	24
10.00	25.0	550.5623	550.7116	24	24	186.33294	186.48982	24	24
7.00	50.0	550.7191	550.8696	24	24	186.49834	186.65628	24	24
6.00	80.0	550.8778	551.0414	24	24	186.66494	186.83846	24	24
5.00	120.0	551.0517	551.2239	25	25	186.84936	187.03060	24	24

Results								
Standardized Data				Calibration Factor				
Dry Gas Meter		Calibration Meter		Value		Variation		ΔH @
(V _{m(Std)})	(Q _{m(Std)})	(V _{w(Std)})	(Q _{w(Std)})	(Y)	(ΔY)	(Q _{m(Std)(Corr)})	(ΔH@)	Variation
m ³	m ³ /min	m ³	m ³ /min		(ΔY)	m ³ /min	mm H ₂ O	(ΔΔH@)
0.159	0.011	0.168	0.011	1.053	0.005	0.011	45.995	0.795
0.147	0.015	0.154	0.015	1.048	0.000	0.015	46.925	1.725
0.148	0.021	0.155	0.022	1.044	-0.004	0.022	45.592	0.392
0.162	0.027	0.170	0.028	1.052	0.004	0.028	44.660	-0.540
0.170	0.034	0.178	0.036	1.044	-0.004	0.036	42.828	-2.372
				1.048	Y Average		45.200	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is ± 0.02 .

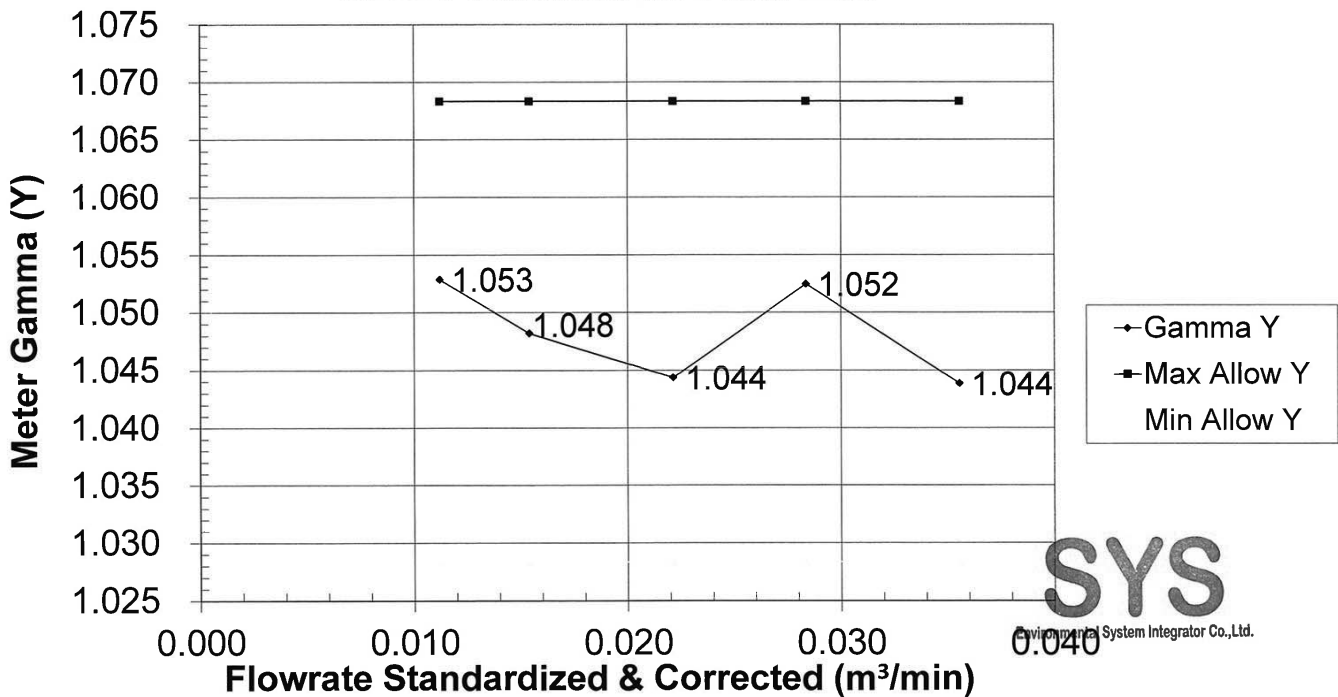
Note: For ΔH_@, orifice pressure differential that equates to 0.75cfm (0.0212m³/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is ± 0.2 inches (5.1mm) H₂O.

Signature: *Jimmy S.* Environmental System Integrator Co., Ltd. Date: 8 May 26

Calibration Date: 8-5-2026

Calibration Reference No: SE69AP0003

Meter Gamma vs Flowrate



Console Serial: 0802003

Console Model: XC-572V

Certificate No: G 260163

Date of issue : 12-Mar-26

Instrument description : Flue Gas Analyzer
Instrument model : Testo 350
Instrument serial no. : 02685557/311
Control unit serial no. : 02669071/311
ID no. or control no. : -
Manufacturer : Testo SE & Co. KGaA
Probe description : -
Probe model : -
Probe serial no. : -
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Total pages of certificate : 2 Pages
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Receiving date. : 04-Mar-26
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Ambient condition : All of the Measurement were carried out the stabilized laboratory
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Humidity : 55 ± 15 %RH
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Date of calibration : 12-Mar-26

Kwanchai Khamdoun

Mr. Kwanchai Khamdoun

Calibration Technician

Nongluck Wongsettee

Mrs. Nongluck Wongsettee

Technical Manager

Certificate No.: G 260163

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Oxygen (O ₂) 21.01 % Vol	CG-0112-24	Nimt	01-Aug-29
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Carbon monoxide (CO) 300.9 ppm	1422/25	Linde	21-May-29
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Nitric Oxide (NO) 322 ppm	1234/25	Linde	04-May-27
Sulphur Dioxide (SO ₂) 50.4 ppm	1306/25	Linde	12-May-27
Sulphur Dioxide (SO ₂) 100.7 ppm	2662/24	Linde	25-Aug-26
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O ₂ (%Vol)	9.984	10.12	0.136	0.20
O ₂ (%Vol)	21.01	21.15	0.14	0.30
CO (ppm)	80.47	80	-0.47	3.0
CO (ppm)	300.9	301	0.1	6.0
CO (ppm)	1000	997	-3	12
NO (ppm)	29.8	30	0.2	8.0
NO (ppm)	151.8	154	2.2	8.0
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Remark : 1 cmol/mol = 1 %vol. 1 µmol/mol = 1 ppm, Sensor(O₂)New.

* Calibrations marked Not TISI Accredited "in this Certificate have been included for completeness."

End of Certificate of Calibration



SYS Environmental System Integrator Co.,Ltd.
Web Site : www.envi-system.com
E-mail : info@envi-system.com

PITOT TUBE CALIBRATION

Sampling System Equipment Information	
Console Model Number	XC-572V
Console Serial Number	0802003
DGM Model Number	CHNT
DGM Serial Number	L1500033350
Pitot tube Number	

Calibration Conditions	
Date	08-May-26
Time	10:00 AM
Calibration Reference No.	SE69AP0003
Barometric Pressure	756 mm Hg
Pitot Tube Type	S
size (OD)	3/8 inch
Standard Pitot Tube ID Number	160-12
C _p (std)	0.99

Results				
"A" SIDE CALIBRATION				
RUN No.	Δp std mm H ₂ O	Δp (s) mm H ₂ O	C _p (s)	DEVIATION C _p (s)-C _p (A)
1	6.4	8.6	0.854	0.003
2	17.4	23.8	0.846	-0.005
3	31.8	42.8	0.853	0.002
AVERAGE			0.851	-0.001

Results				
"B" SIDE CALIBRATION				
RUN No.	Δp std mm H ₂ O	Δp (s) mm H ₂ O	C _p (s)	DEVIATION C _p (s)-C _p (B)
1	6.4	8.8	0.844	0.003
2	17.4	24.6	0.833	-0.009
3	31.8	43.4	0.847	0.006
AVERAGE			0.841	-0.004

$$[C_{pA} (\text{SIDE A}) - C_{pB} (\text{SIDE B})] = 0.010 \quad (\text{must be } \leq 0.01)$$

Note: Average deviation must be < 0.01

Signature _____

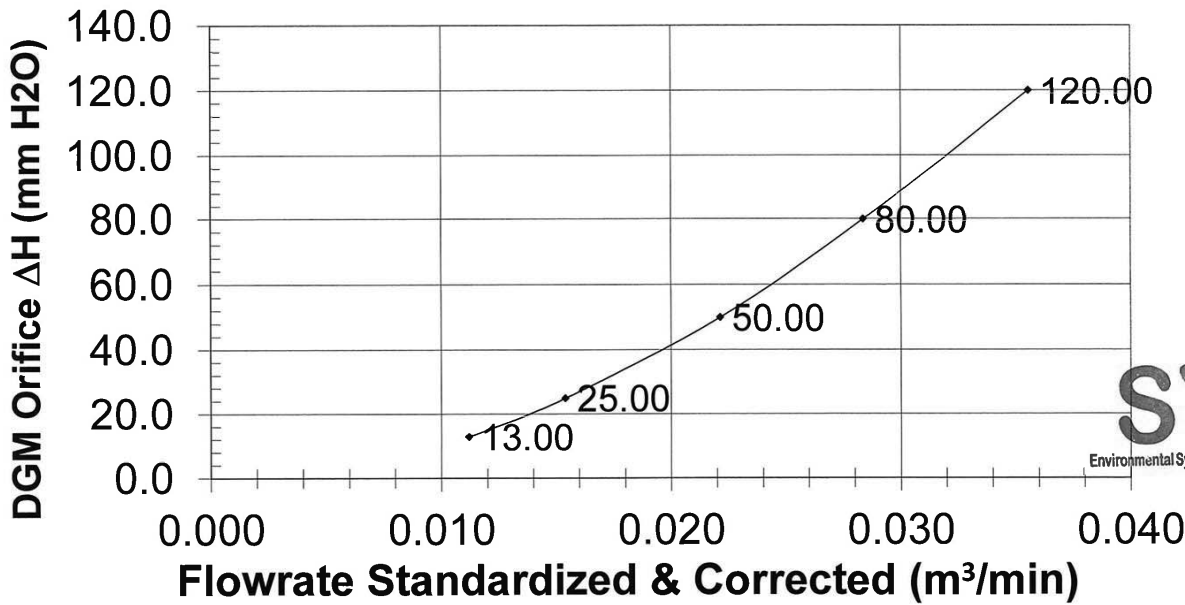
SYS

Environmental System Integrator Co.,Ltd.

Calibration Date: 8-5-2026

Calibration Reference No: SE69AP0003

Meter Pressure vs Flowrate



Console Serial: 0802003

Console Model: XC-572V