



ภาคผนวก 15

เอกสารสอบเทียบเครื่องมือ

**บริษัท ทีโอพีส์-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

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6609026

TSP No.: 1947

Date: 25-Sep-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa):	1010.0	Corrected Pressure (mm Hg):	757.6
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

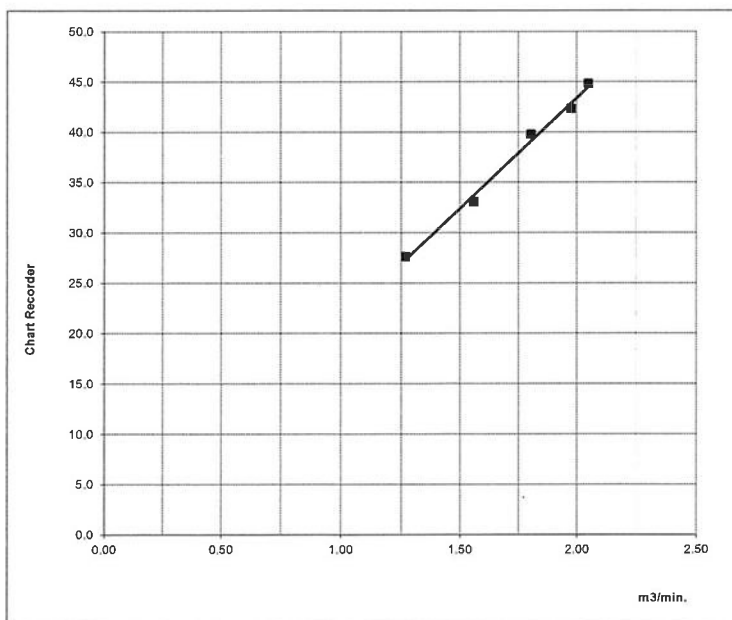
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	28.00	27.63	Slope = 21.9775
2	4.10	1.561	33.50	33.06	Intercept = -0.5607
3	5.50	1.806	40.30	39.77	Corr. coeff. = 0.9965
4	6.60	1.977	42.90	42.34	
5	7.10	2.050	45.40	44.80	# of Observations: 5

Range of Chart at 40-60 CFM 50.70



Calibrated by : [REDACTED]

Approved by : [REDACTED]



บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

PM10 High Volume Sampler Verification

Verification Report No. PM-6609026

SITE

PM-10 No.: 8456

Date: 25-Sep-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test:

Approval:

CONDITIONS

Sea Level Pressure (hPa):	1006.0	Corrected Pressure (mm Hg):	754.6
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

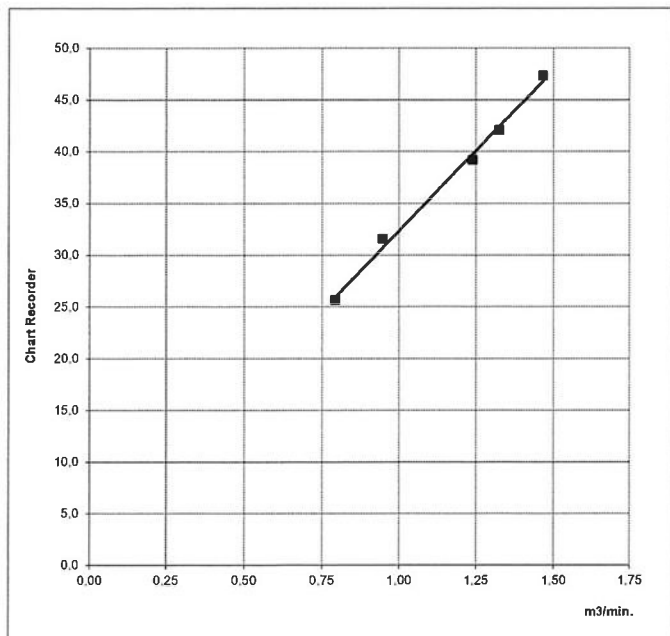
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.50	0.793	26.00	25.61	Slope (m)= 30.9902
2	3.60	0.949	32.00	31.52	Intercept (b)= 1.3508
3	6.20	1.240	39.80	39.20	Corr. coeff.(r)= 0.9976
4	7.10	1.326	42.70	42.06	SFR = 1.172
5	8.70	1.466	48.50	47.30	SSP = 59.25
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 40.10



Test by :

Approved by :



บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

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189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

Verification Test Report

Report No. : SLM-6609027

Calibrated Date : September 25, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

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189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110



189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6610046

TSP No.: 1947

Date: 2-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Technical: Approval: **CONDITIONS**Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

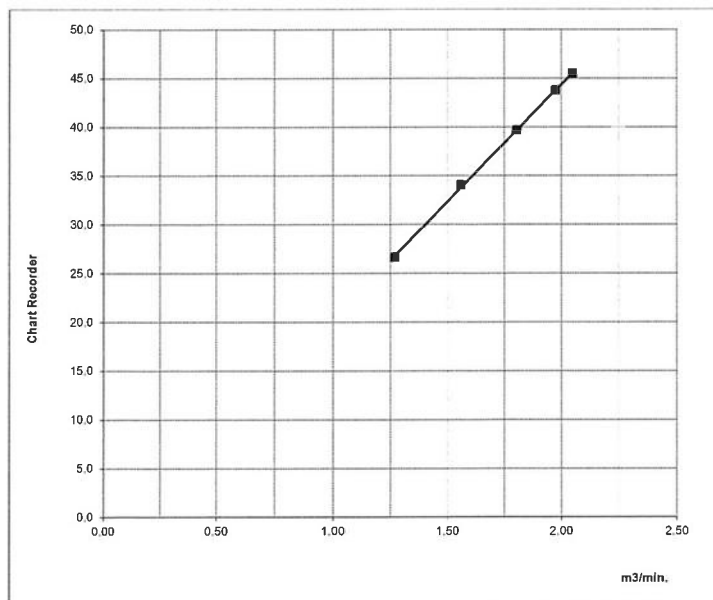
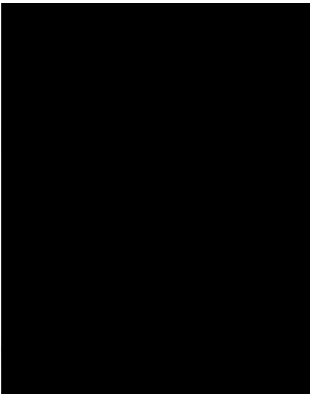
Qstd Intercept: -0.01962

Serial#: 3092

Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	27.00	26.65	Slope = 24.0520
2	4.10	1.561	34.50	34.05	Intercept = -3.7507
3	5.50	1.806	40.20	39.67	Corr. coeff.= 0.9998
4	6.60	1.977	44.35	43.77	
5	7.10	2.050	46.10	45.49	# of Observations: 5

Range of Chart
at 40-60 CFM 42.40Calibrated by : Approved by : 



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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

PM10 High Volume Sampler Verification

Verification Report No. PM-6610043

SITE

PM-10 No.: 8456

Date: 2-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test:

Approval:

CONDITIONS

Sea Level Pressure (hPa):	1010.0	Corrected Pressure (mm Hg):	757.6
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

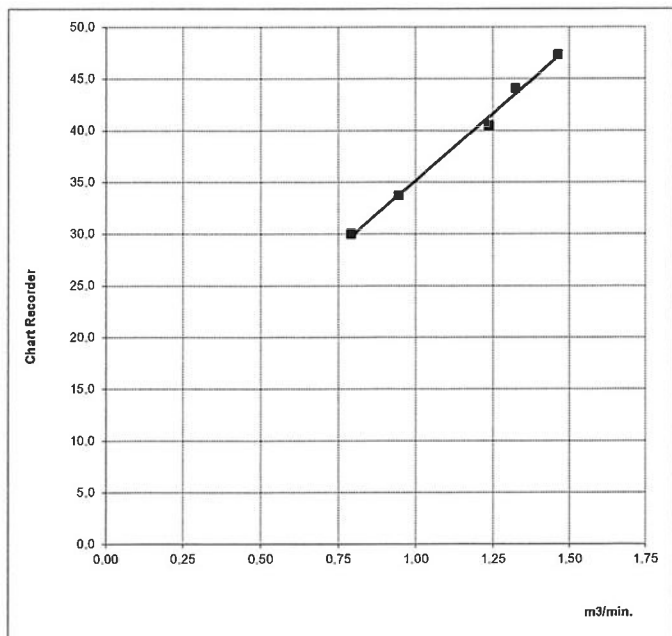
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.50	0.791	30.42	30.02	Slope (m)= 25.8410
2	3.60	0.947	34.13	33.68	Intercept (b)= 9.3187
3	6.20	1.238	41.00	40.46	Corr. coeff. (r)= 0.9974
4	7.10	1.323	44.62	44.03	SFR = 1.167
5	8.70	1.463	47.10	47.30	SSP = 62.23
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 40.60



Test by :

Approved by :

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

Verification Test Report**Report No. : SLM-6610034****Calibrated Date : October 2, 2023****Equipment : Sound Level Meter****Manufacturer : ACO****Model : 6226****Serial or ID No. 67601****Reference Standard : Sound Calibrator Model QC-10**

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

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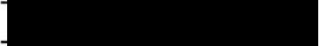
189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6610047

TSP No.: 1947

Date: 9-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Technical: Approval: **CONDITIONS**Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

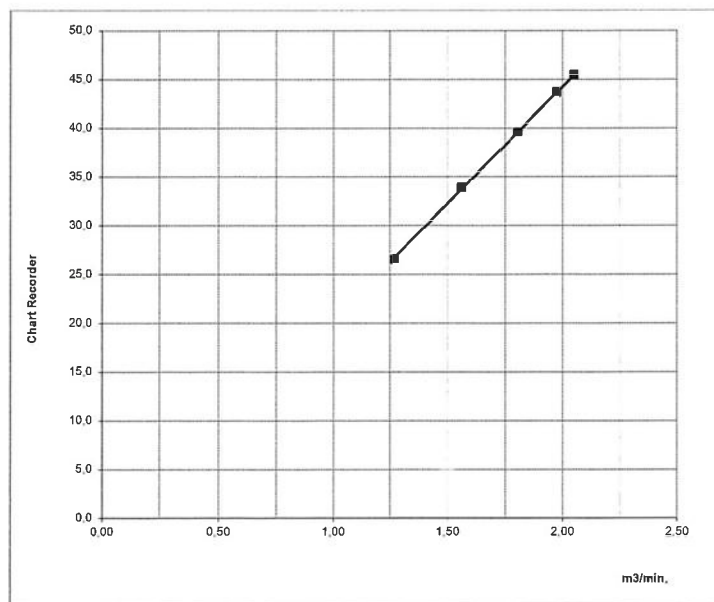
Qstd Intercept: -0.01962

Serial#: 3092

Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.70</u>	1.270	<u>26.90</u>	26.55	Slope = 24.0934
2	<u>4.10</u>	1.561	<u>34.30</u>	33.85	Intercept = -3.9408
3	<u>5.50</u>	1.806	<u>40.10</u>	39.57	Corr. coeff.= 0.9999
4	<u>6.60</u>	1.977	<u>44.25</u>	43.67	
5	<u>7.10</u>	2.050	<u>46.00</u>	45.40	# of Observations: 5

Range of Chart
at 40-60 CFM 49.80Calibrated by : Approved by : 



บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

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189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

PM10 High Volume Sampler Verification

Verification Report No. PM-6610044

SITE

PM-10 No.: 8456

Date: 9-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa):	1010.0	Corrected Pressure (mm Hg):	757.6
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

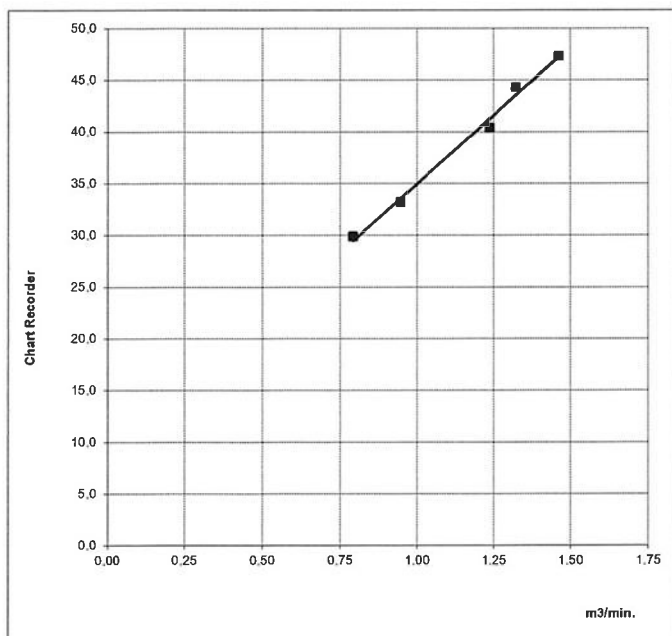
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.50	0.791	30.30	29.90	Slope (m)= 26.4432
2	3.60	0.947	33.60	33.16	Intercept (b)= 8.5279
3	6.20	1.238	40.92	40.38	Corr. coeff.(r)= 0.9961
4	7.10	1.323	44.86	44.27	SFR = 1.167
5	8.70	1.463	46.98	47.30	SSP = 62.09
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.30



Test by : [REDACTED]

Approved by : [REDACTED]



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

Verification Test Report

Report No. : SLM-6610035

Calibrated Date : October 9, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

**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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6610048

TSP No.: 1947

Date: 16-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0
Temperature (deg C): 32.0
Seasonal SL Press. (hPa): 1000.7
Seasonal Temp. (deg C): 20.0

Corrected Pressure (mm Hg): 757.6
Temperature (deg K): 305.0
Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg K): 293.0

CALIBRATION ORIFICE

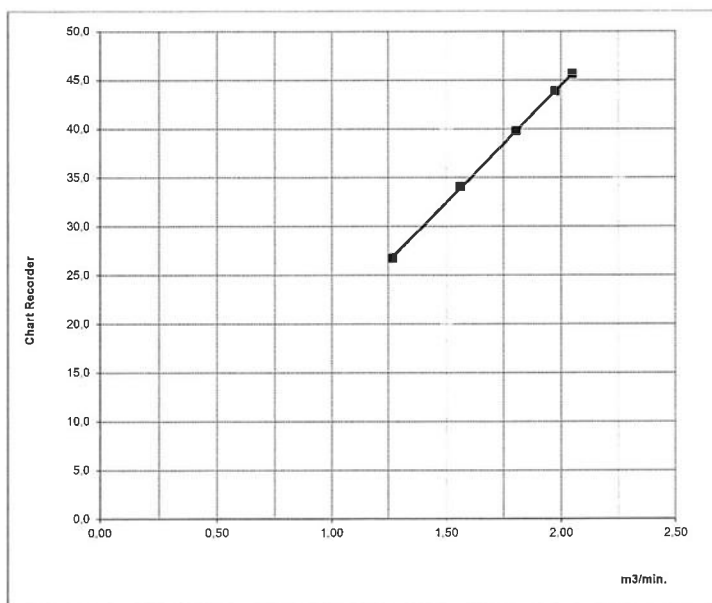
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	27.10	26.74	Slope = 24.1316 Intercept = -3.7998 Corr. coeff. = 0.9999 # of Observations: 5
2	4.10	1.561	34.50	34.05	
3	5.50	1.806	40.30	39.77	
4	6.60	1.977	44.45	43.87	
5	7.10	2.050	46.25	45.64	

Range of Chart
at 40-60 CFM 50.90



Calibrated by : [REDACTED]

Approved by : [REDACTED]

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.

189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

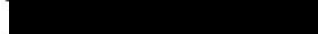
189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

PM10 High Volume Sampler VerificationVerification Report No. PM-6610045**SITE**

PM-10 No.: 8456

Date: 16-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Test: Approval: **CONDITIONS**

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

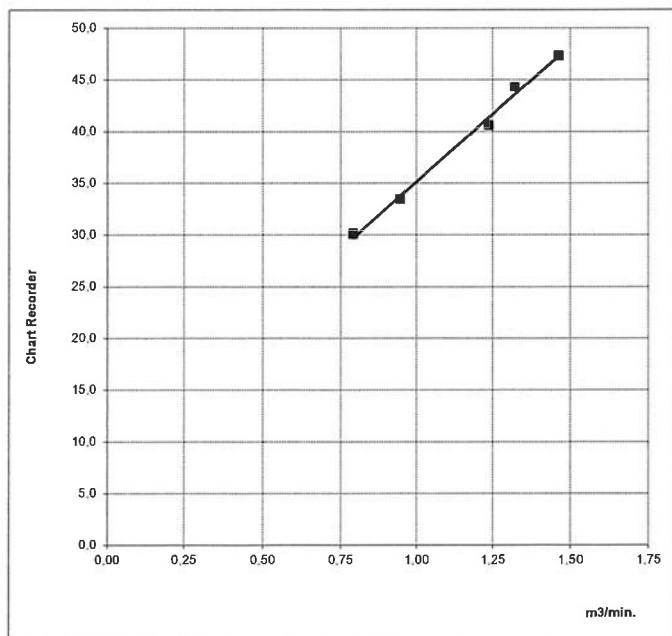

Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>30.50</u>	30.10	Slope (m)= 26.1018
2	<u>3.60</u>	0.947	<u>33.85</u>	33.41	Intercept (b)= 9.0516
3	<u>6.20</u>	1.238	<u>41.13</u>	40.59	Corr. coeff.(r)= 0.9968
4	<u>7.10</u>	1.323	<u>44.86</u>	44.27	SFR = 1.167
5	<u>8.70</u>	1.463	<u>46.98</u>	47.30	SSP = 62.29
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 42.90

Test by : Approved by : 



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

Verification Test Report

Report No. : SLM-6610036

Calibrated Date : October 16, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

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189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6610049

TSP No.: 1947

Date: 23-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

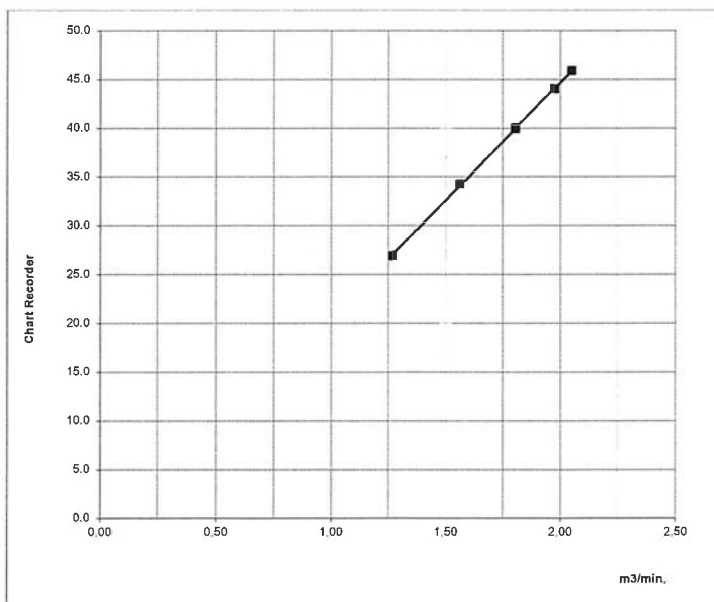
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	27.25	26.89	Slope = 24.2104
2	4.10	1.561	34.70	34.24	Intercept = -3.7468
3	5.50	1.806	40.48	39.95	Corr. coeff.= 0.9999
4	6.60	1.977	44.63	44.04	
5	7.10	2.050	46.50	45.89	# of Observations: 5

Range of Chart
at 40-60 CFM

51.30



Calibrated by : [REDACTED]

Approved by : [REDACTED]



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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6610050

TSP No.: 1945

Date: 26-Oct-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0
Temperature (deg C): 32.0
Seasonal SL Press. (hPa): 1000.7
Seasonal Temp. (deg C): 20.0

Corrected Pressure (mm Hg): 757.6
Temperature (deg K): 305.0
Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg K): 293.0

CALIBRATION ORIFICE

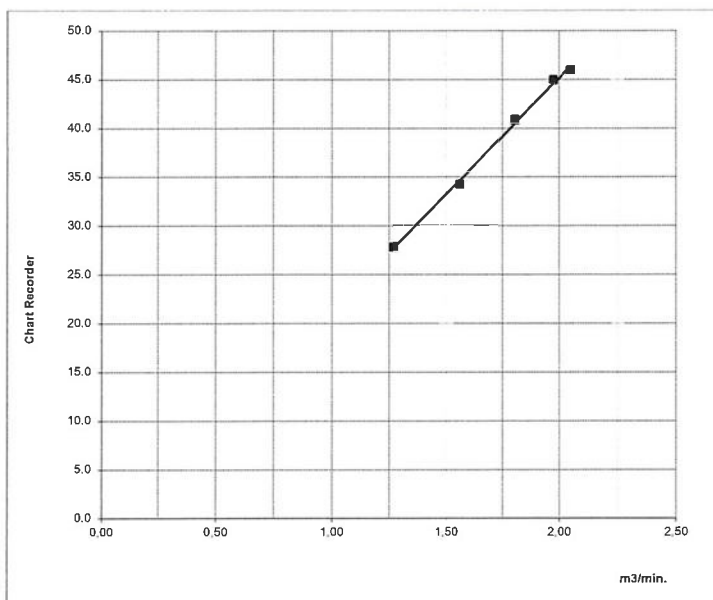
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	28.20	27.83	Slope = 23.8751
2	4.10	1.561	34.64	34.19	Intercept = -2.6309
3	5.50	1.806	41.38	40.84	Corr. coeff.= 0.9985
4	6.60	1.977	45.55	44.95	
5	7.10	2.050	46.50	45.89	# of Observations: 5

Range of Chart
at 40-60 CFM 52.40



Calibrated by : [REDACTED]

Approved by : [REDACTED]



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

PM10 High Volume Sampler Verification

Verification Report No. PM-6610046

SITE

PM-10 No.: 8456

Date: 23-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

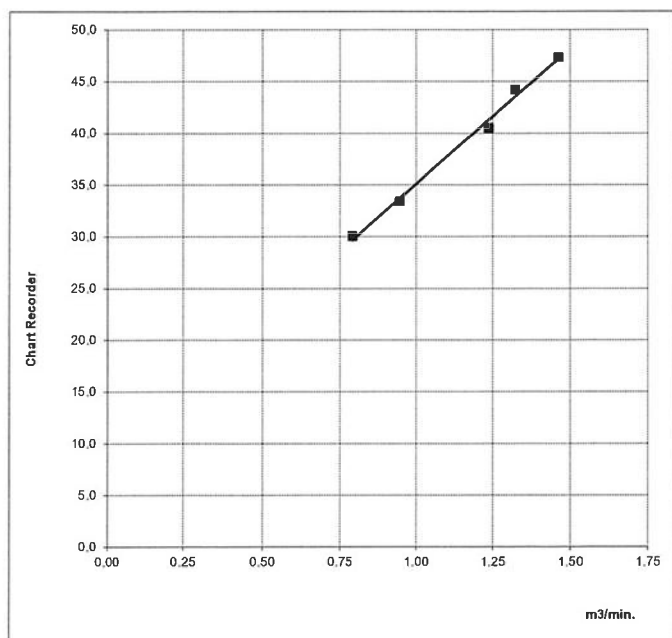
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>30.45</u>	30.05	Slope (m)= 26.0703
2	<u>3.60</u>	0.947	<u>33.84</u>	33.40	Intercept (b)= 9.0287
3	<u>6.20</u>	1.238	<u>41.00</u>	40.46	Corr. coeff.(r)= 0.9967
4	<u>7.10</u>	1.323	<u>44.75</u>	44.16	SFR = 1.167
5	<u>8.70</u>	1.463	<u>46.65</u>	47.30	SSP = 62.19
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 40.30



Test by : [REDACTED]

Approved by : [REDACTED]



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

PM10 High Volume Sampler Verification

Verification Report No. PM-6610047


SITE

PM-10 No.: 7750

Date: 26-Oct-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้

Test: 

Approval: 

CONDITIONS

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

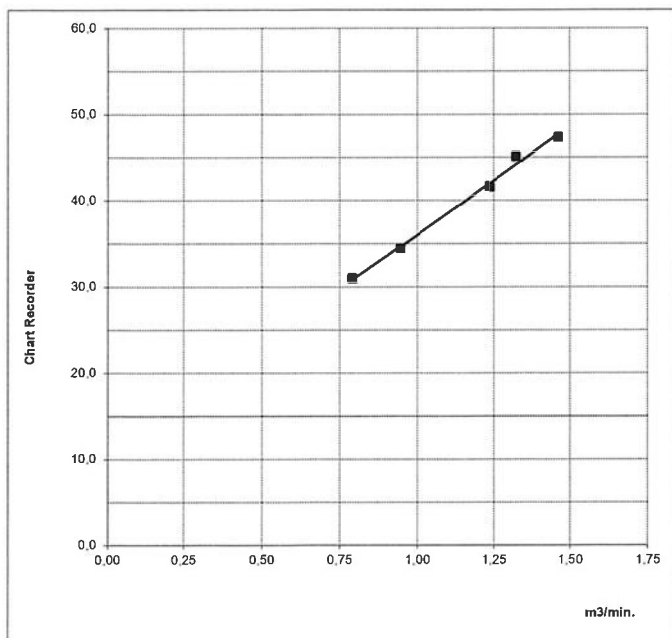
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>31.35</u>	30.94	Slope (m)= 25.1494
2	<u>3.60</u>	0.947	<u>34.85</u>	34.39	Intercept (b)= 10.8618
3	<u>6.20</u>	1.238	<u>42.10</u>	41.55	Corr. coeff.(r)= 0.9968
4	<u>7.10</u>	1.323	<u>45.65</u>	45.05	SFR = 1.167
5	<u>8.70</u>	1.463	<u>47.50</u>	47.30	SSP = 63.39
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.30



Test by : 

Approved by : 



บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

.TOPS-LAB Consultants CO., LTD

หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110 189

Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110 189

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

Analyzer Performance Test

Calibration Report No.: 6610039

Page:1/1

Calibrated Date: 26 October 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้น จำกัด

Instruments Information

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

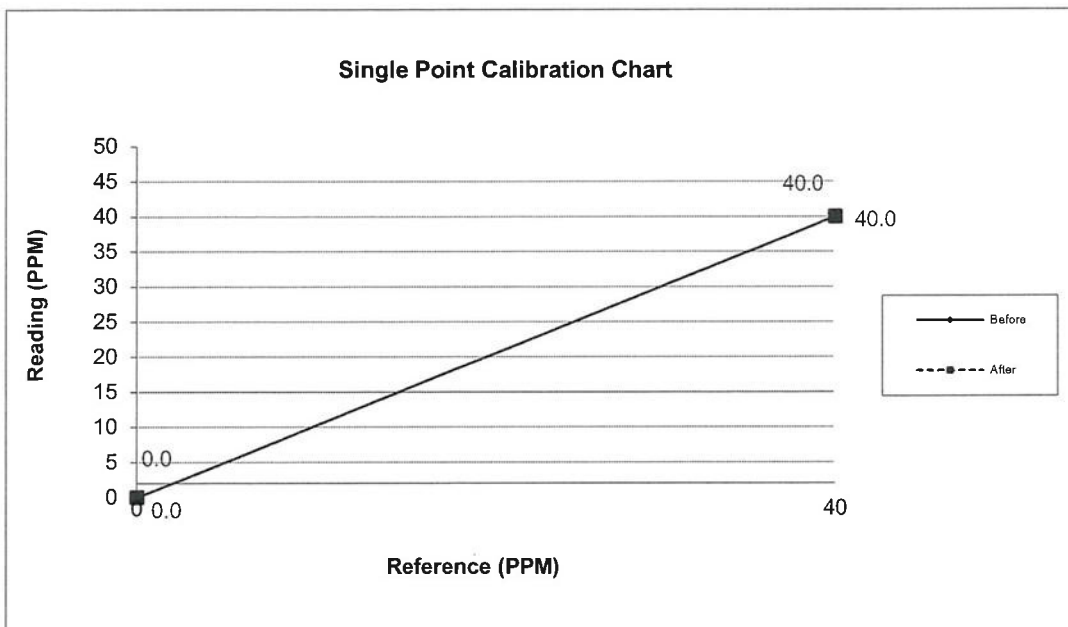
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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



Analyzer Performance Test

Calibration Report No.: 6610037

Page:1/1

Calibrated Date: 26 October 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

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

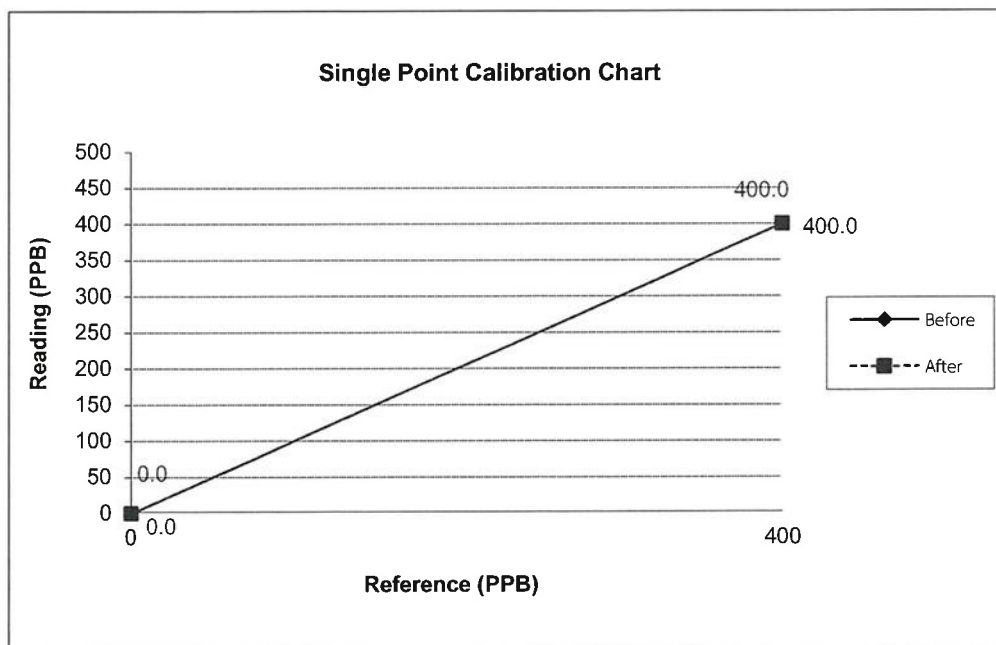
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator API Model 701 S/N: 596	NO Conc 45.74 PPM SO2 Conc 44.9 PPM CO Conc 4,490 PPM Expire Date: 6 November 2027

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





Analyzer Performance Test

Calibration Report No.: 6610037

Page:1/1

Calibrated Date: 26 October 2023

Calibrated For: บริษัท ไพร์ม ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: CO Analyzer Model: 48C	Manufacturer ECOTECH S/N: 368
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Calibration System

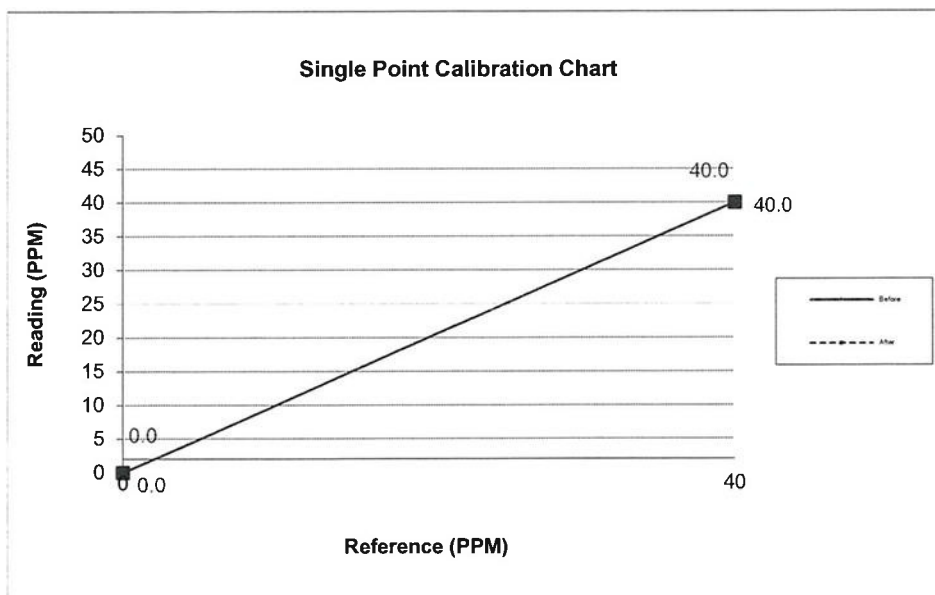
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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





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

Verification Test Report

Report No. : SLM-6610037

Calibrated Date : October 23, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____



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

Verification Test Report

Report No. : SLM-6610038

Calibrated Date : October 26, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 64356

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

**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

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6610051

TSP No.: 1947

Date: 30-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Technical: Approval: **CONDITIONS**

Sea Level Pressure (hPa): 1010.0
Temperature (deg C): 32.0
Seasonal SL Press. (hPa): 1000.7
Seasonal Temp. (deg C): 20.0

Corrected Pressure (mm Hg): 757.6
Temperature (deg K): 305.0
Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg K): 293.0

CALIBRATION ORIFICE

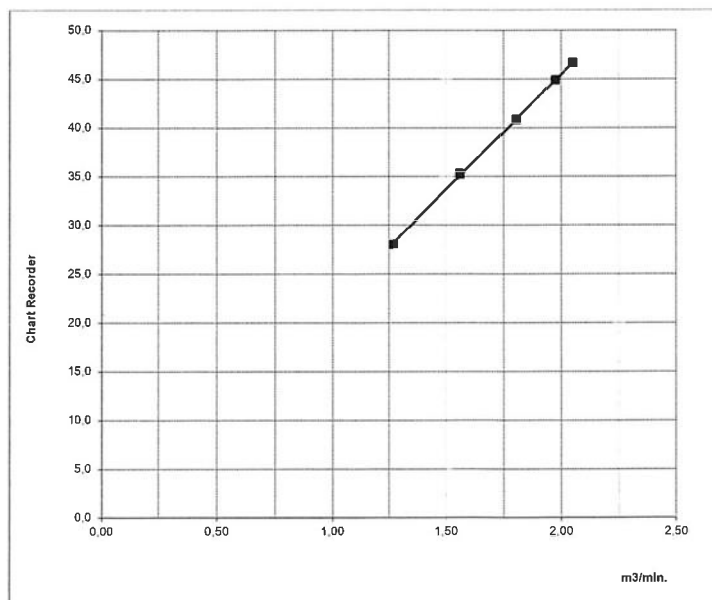

Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.70</u>	1.270	<u>28.40</u>	28.03	Slope = 23.7363 Intercept = -2.0075 Corr. coeff.= 0.9999 # of Observations: 5
2	<u>4.10</u>	1.561	<u>35.72</u>	35.25	
3	<u>5.50</u>	1.806	<u>41.35</u>	40.81	
4	<u>6.60</u>	1.977	<u>45.50</u>	44.90	
5	<u>7.10</u>	2.050	<u>47.24</u>	46.62	

Range of Chart
at 40-60 CFM 51.40

Calibrated by : Approved by : 

**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

PM10 High Volume Sampler VerificationVerification Report No. PM-6610048**SITE**

PM-10 No.: 8456

Date: 30-Oct-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Test: Approval: **CONDITIONS**

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

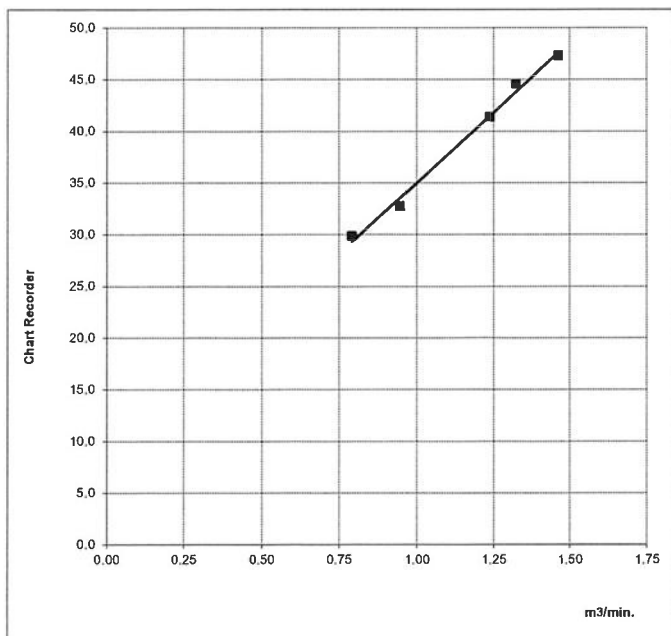
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>30.25</u>	29.85	Slope (m)= 27.2022
2	<u>3.60</u>	0.947	<u>33.15</u>	32.71	Intercept (b)= 7.7954
3	<u>6.20</u>	1.238	<u>41.90</u>	41.35	Corr. coeff.(r)= 0.9965
4	<u>7.10</u>	1.323	<u>45.10</u>	44.51	SFR = 1.167
5	<u>8.70</u>	1.463	<u>47.00</u>	47.30	SSP = 62.33
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.20

Test by : Approved by : 



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

Verification Test Report

Report No. : SLM-6610039

Calibrated Date : October 30, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

**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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6611024

TSP No.: 1947

Date: 6-Nov-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

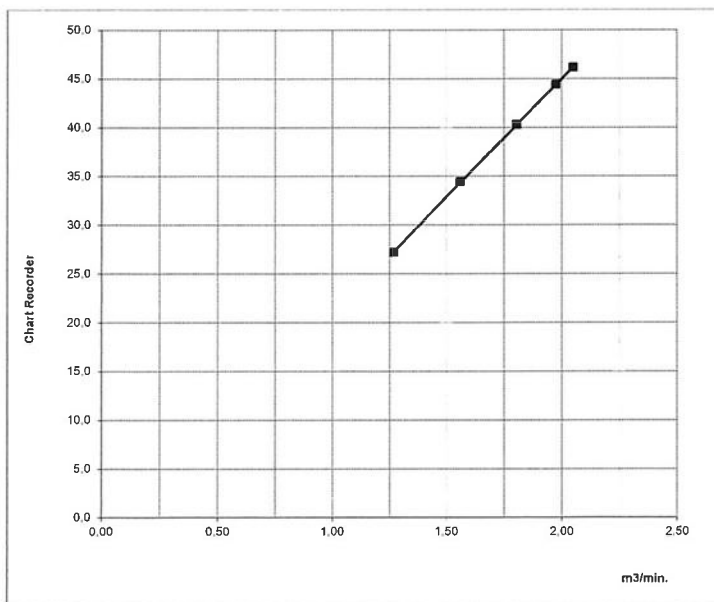
Qstd Intercept: -0.01962

Serial#: 3092

Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	27.55	27.19	Slope = 24.2883
2	4.10	1.561	34.90	34.44	Intercept = -3.5837
3	5.50	1.806	40.84	40.30	Corr. coeff.= 1.0000
4	6.60	1.977	45.00	44.41	
5	7.10	2.050	46.78	46.17	# of Observations: 5

Range of Chart
at 40-60 CFM 56.30

Calibrated by : [REDACTED]

Approved by : [REDACTED]



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

PM10 High Volume Sampler Verification

Verification Report No. PM-6611024


SITE

PM-10 No.: 8456

Date: 16-Nov-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test: 

Approval: 

CONDITIONS

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

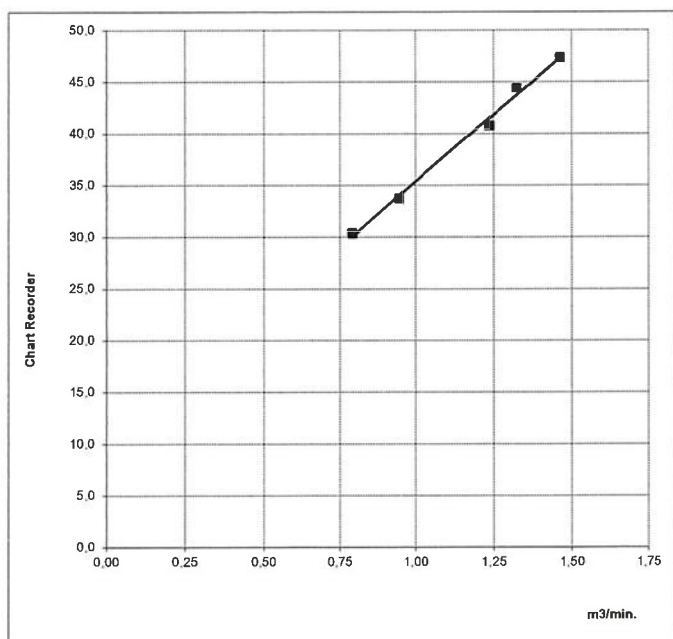
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

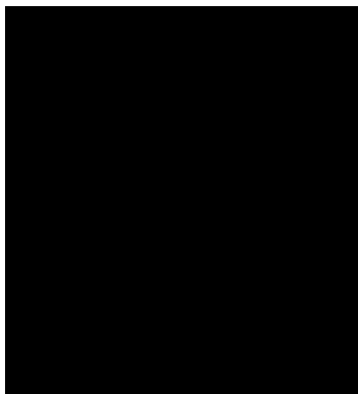
Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>30.76</u>	30.36	Slope (m)= 25.7434
2	<u>3.60</u>	0.947	<u>34.12</u>	33.67	Intercept (b)= 9.6305
3	<u>6.20</u>	1.238	<u>41.30</u>	40.76	Corr. coeff.(r)= 0.9969
4	<u>7.10</u>	1.323	<u>45.00</u>	44.41	SFR = 1.167
5	<u>8.70</u>	1.463	<u>47.20</u>	47.30	SSP = 62.54
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 39.80



Test by : 

Approved by : 



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

Verification Test Report

Report No. : SLM-6611020

Calibrated Date : November 6, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

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**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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6611025

TSP No.: 1947

Date: 13-Nov-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0
Temperature (deg C): 32.0
Seasonal SL Press. (hPa): 1000.7
Seasonal Temp. (deg C): 20.0

Corrected Pressure (mm Hg): 757.6
Temperature (deg K): 305.0
Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg K): 293.0

CALIBRATION ORIFICE

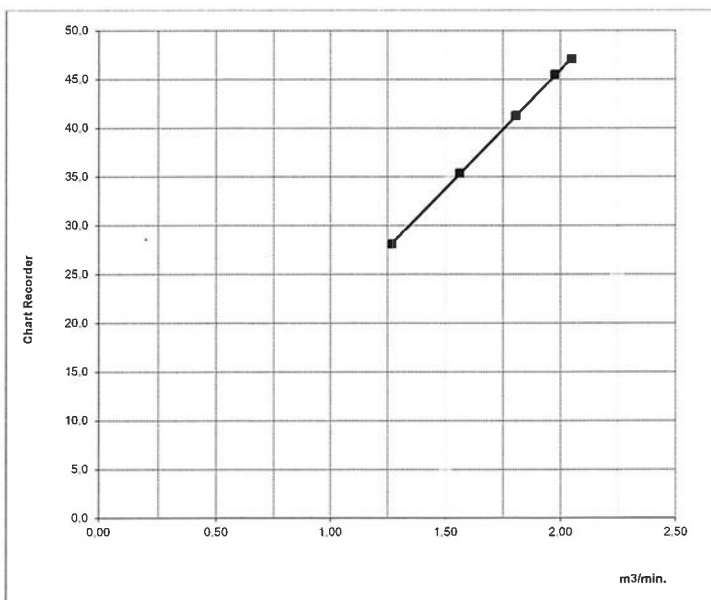
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	28.50	28.13	Slope = 24.3425
2	4.10	1.561	35.84	35.37	Intercept = -2.7224
3	5.50	1.806	41.79	41.24	Corr. coeff. = 0.9999
4	6.60	1.977	46.10	45.49	
5	7.10	2.050	47.68	47.05	# of Observations: 5

Range of Chart
at 40-60 CFM 54.70



Calibrated by : [REDACTED]

Approved by : [REDACTED]

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.

189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

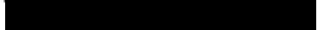
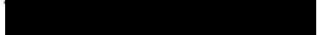
189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

TSP High Volume Sampler CalibrationCalibration Report No. TSP-6611026

TSP No.: 1945

Date: 13-Nov-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้Technical: Approval: **CONDITIONS**Sea Level Pressure (hPa): 1010.0Corrected Pressure (mm Hg): 757.6Temperature (deg C): 32.0Temperature (deg K): 305.0Seasonal SL Press. (hPa): 1000.7Corrected Seasonal (mm Hg): 750.6Seasonal Temp. (deg C): 20.0Seasonal Temp. (deg K): 293.0**CALIBRATION ORIFICE**

Make: Tisch Environmental, Inc

Qstd Slope: 1.29243

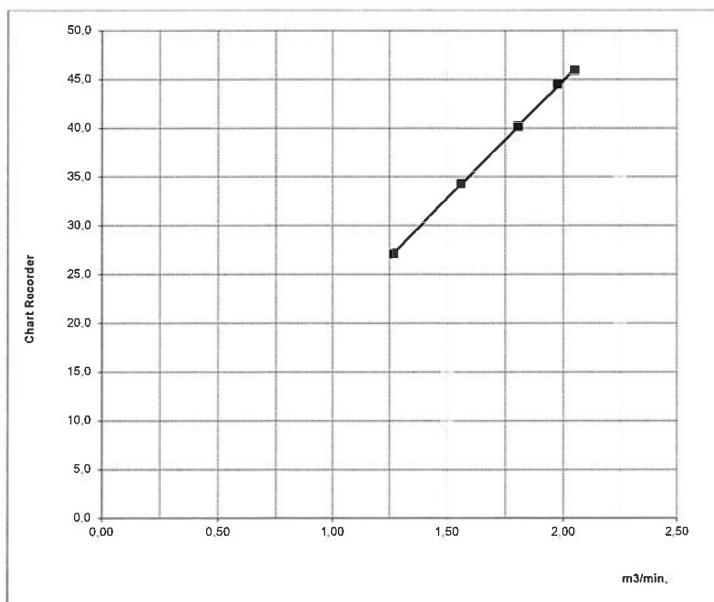
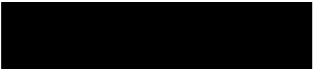
Model: TE-5025A

Qstd Intercept: -0.01962

Serial#: 3092

Date Certified: 20-Jun-23**CALIBRATIONS**

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.70</u>	<u>1.270</u>	<u>27.45</u>	<u>27.09</u>	Slope = <u>24.2820</u>
2	<u>4.10</u>	<u>1.561</u>	<u>34.75</u>	<u>34.29</u>	Intercept = <u>-3.6853</u>
3	<u>5.50</u>	<u>1.806</u>	<u>40.70</u>	<u>40.17</u>	Corr. coeff.= <u>0.9998</u>
4	<u>6.60</u>	<u>1.977</u>	<u>45.10</u>	<u>44.51</u>	# of Observations: <u>5</u>
5	<u>7.10</u>	<u>2.050</u>	<u>46.50</u>	<u>45.89</u>	

Range of Chart
at 40-60 CFM 55.80Calibrated by : Approved by : 



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

PM10 High Volume Sampler Verification

Verification Report No. PM-6611027

SITE

PM-10 No.: 8456

Date: 13-Nov-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Test: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa):	1010.0	Corrected Pressure (mm Hg):	757.6
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

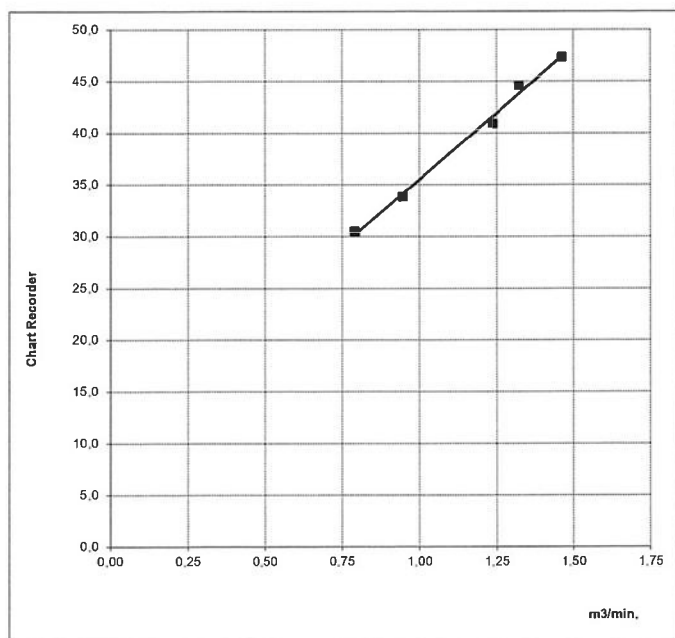
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.50	0.791	30.86	30.45	Slope (m)= 25.6712
2	3.60	0.947	34.24	33.79	Intercept (b)= 9.8164
3	6.20	1.238	41.45	40.91	Corr. coeff. (r)= 0.9969
4	7.10	1.323	45.15	44.56	SFR = 1.167
5	8.70	1.463	47.35	47.30	SSP = 62.70
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 40.30



Test by : [REDACTED]

Approved by : [REDACTED]

**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

PM10 High Volume Sampler VerificationVerification Report No. PM-6611027**SITE**

PM-10 No.: 7750

Date: 16-Nov-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้Test: Approval: **CONDITIONS**

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

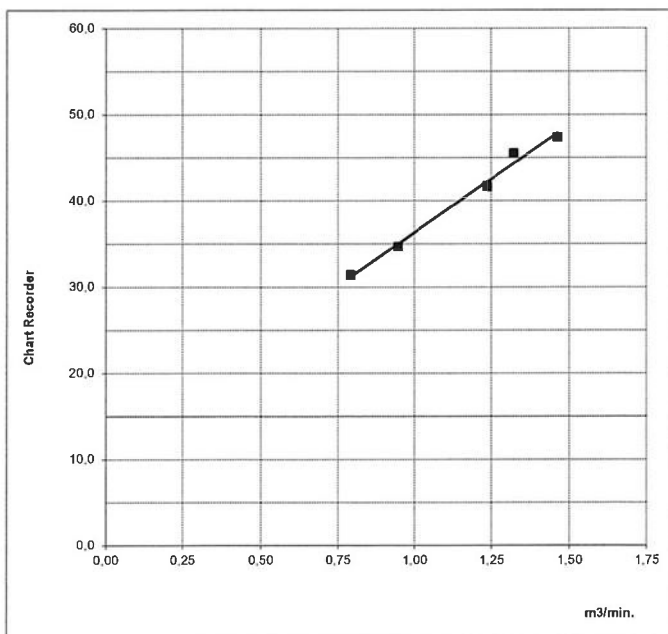
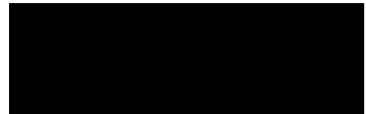
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>31.75</u>	31.33	Slope (m)= 24.7663
2	<u>3.60</u>	0.947	<u>35.14</u>	34.68	Intercept (b)= 11.5481
3	<u>6.20</u>	1.238	<u>42.20</u>	41.65	Corr. coeff.(r)= 0.9946
4	<u>7.10</u>	1.323	<u>46.10</u>	45.49	SFR = 1.167
5	<u>8.70</u>	1.463	<u>47.25</u>	47.30	SSP = 63.77
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 41.60

Test by : Approved by : 



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.: 6611026

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Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

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

Calibration System

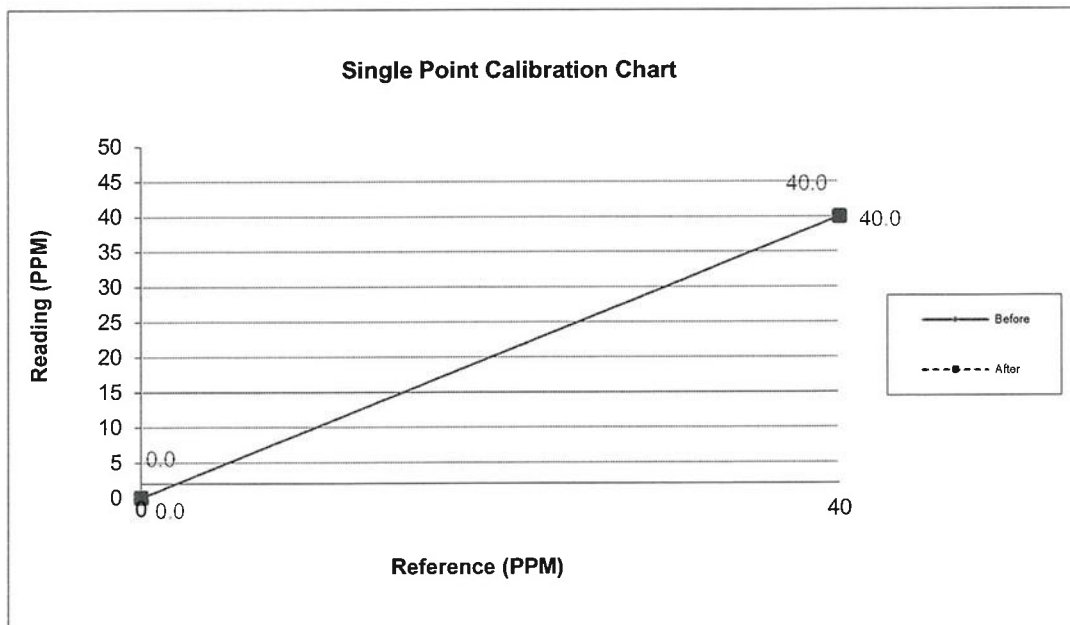
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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





บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

.TOPS-LAB Consultants CO., LTD

หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110 189

Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110 189

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

Analyzer Performance Test

Calibration Report No.: 6611027

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Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: NO2 Analyzer Model: 42C	Manufacturer API S/N: 384
---	------------------------------

Calibration System

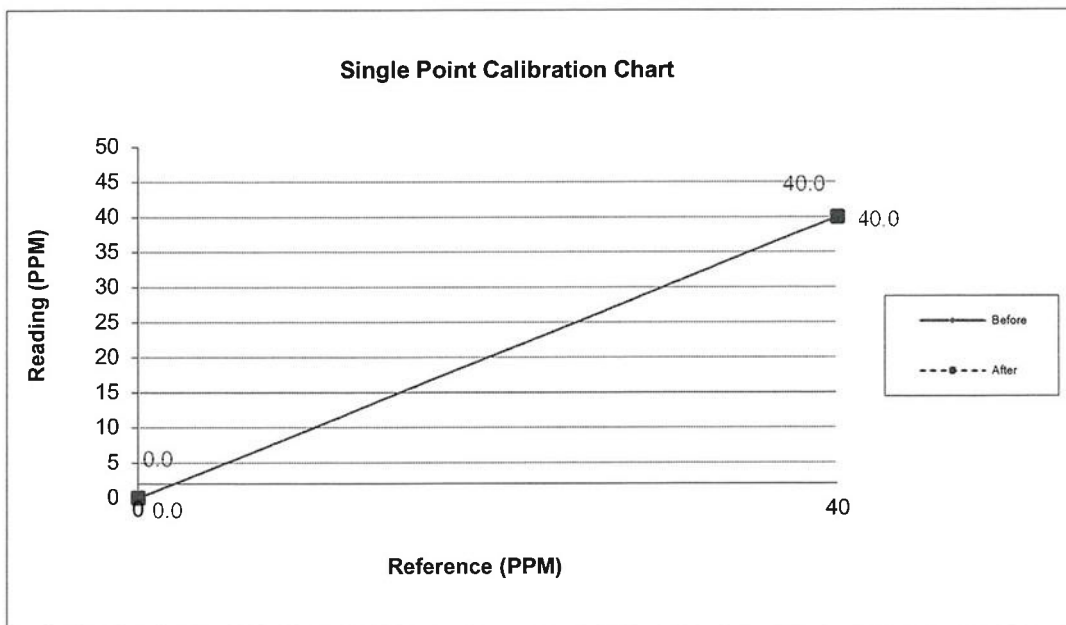
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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





Analyzer Performance Test

Calibration Report No.: 6611026

Page:1/1

Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: 43C	Manufacturer API S/N: 357
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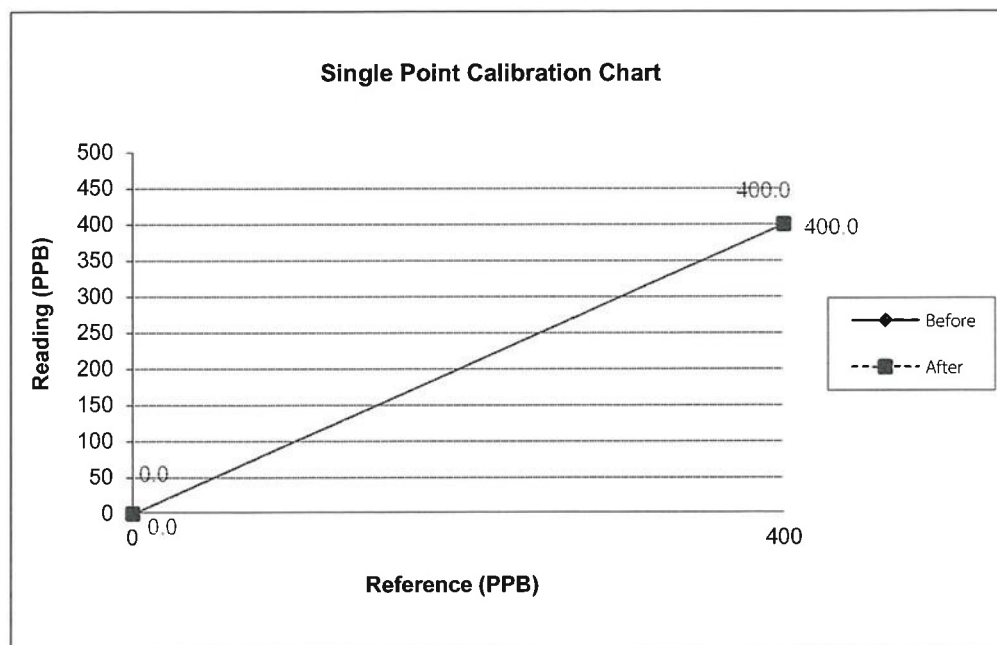
Calibration System

Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator API Model 701 S/N: 596	NO Conc 45.74 PPM SO2 Conc 44.9 PPM CO Conc 4,490 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °CHumidity: 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





Analyzer Performance Test

Calibration Report No.: 6611027

Page:1/1

Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: SO2 Analyzer Model: 43C	Manufacturer API S/N: 297
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Calibration System

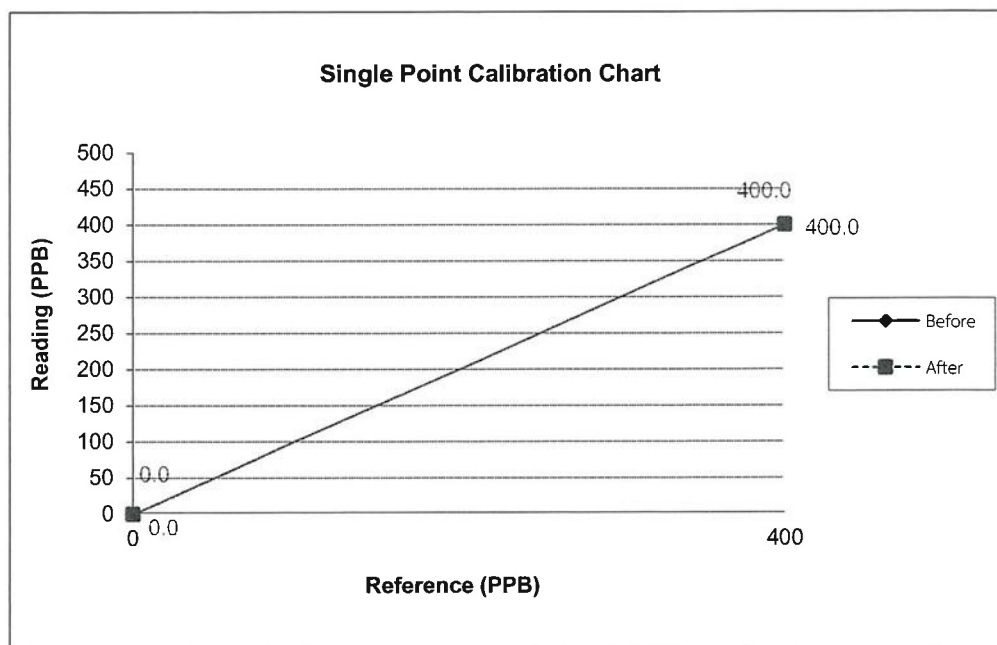
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator API Model 701 S/N: 596	NO Conc 45.74 PPM SO2 Conc 44.9 PPM CO Conc 4,490 PPM Expire Date: 6 November 2027

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



**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110 189

Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110 189

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

Analyzer Performance Test

Calibration Report No.: 6611016

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Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

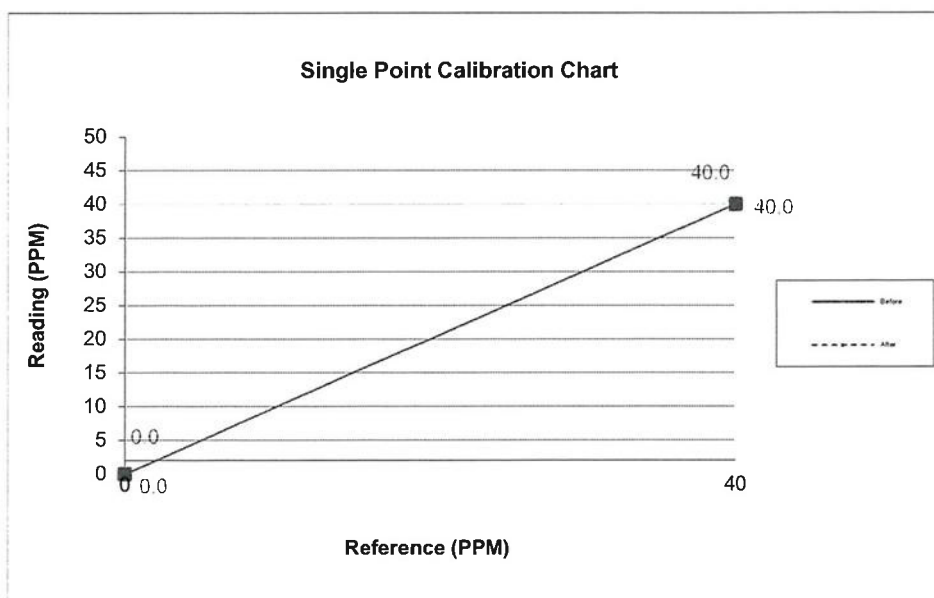
Analyzer Type: CO Analyzer	Manufacturer API
Model: 48C	S/N: 368

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008	NO Conc 54.81 PPM
S/N: 146-17299-169	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 °CHumidity: 47.0 %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





บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด

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หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110 189

Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110 189

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

Analyzer Performance Test

Calibration Report No.: 6611017

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Calibrated Date: 16 November 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: CO Analyzer Model: 48C	Manufacturer API S/N: 337
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Calibration System

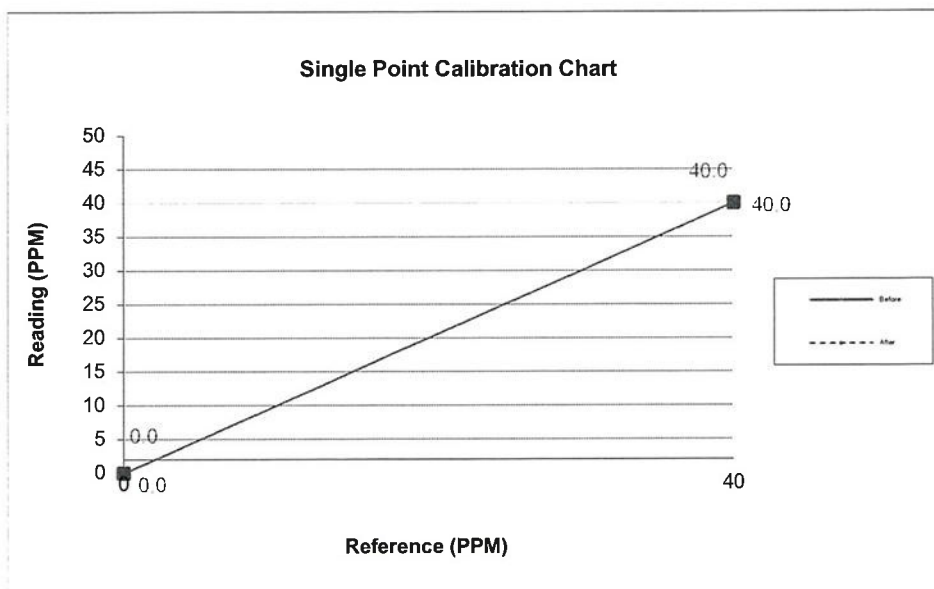
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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





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

Verification Test Report

Report No. : SLM-6611023

Calibrated Date : November 6, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 67601

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____



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

Verification Test Report

Report No. : SLM-6611024

Calibrated Date : November 16, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 64356

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

**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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6612011

TSP No.: 1947

Date: 24-Dec-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

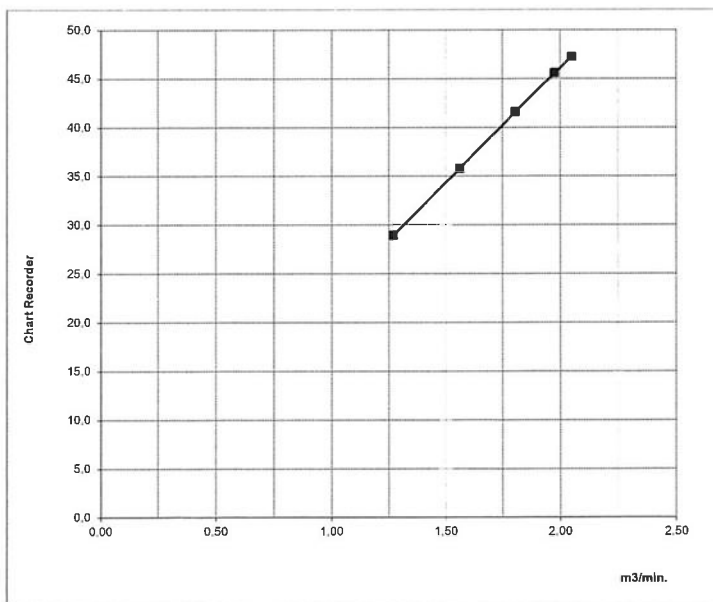
Qstd Intercept: -0.01962

Serial#: 3092

Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	29.30	28.92	Slope = 23.5115
2	4.10	1.561	36.25	35.77	Intercept = -0.9292
3	5.50	1.806	42.12	41.57	Corr. coeff.= 1.0000
4	6.60	1.977	46.20	45.59	
5	7.10	2.050	47.83	47.20	# of Observations: 5

Range of Chart
at 40-60 CFM 56.40

Calibrated by : [REDACTED]

Approved by : [REDACTED]



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

TSP High Volume Sampler Calibration

Calibration Report No. TSP-6612012

TSP No.: 1945

Date: 24-Dec-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้

Technical: [REDACTED]

Approval: [REDACTED]

CONDITIONS

Sea Level Pressure (hPa): 1010.0
Temperature (deg C): 32.0
Seasonal SL Press. (hPa): 1000.7
Seasonal Temp. (deg C): 20.0

Corrected Pressure (mm Hg): 757.6
Temperature (deg K): 305.0
Corrected Seasonal (mm Hg): 750.6
Seasonal Temp. (deg K): 293.0

CALIBRATION ORIFICE

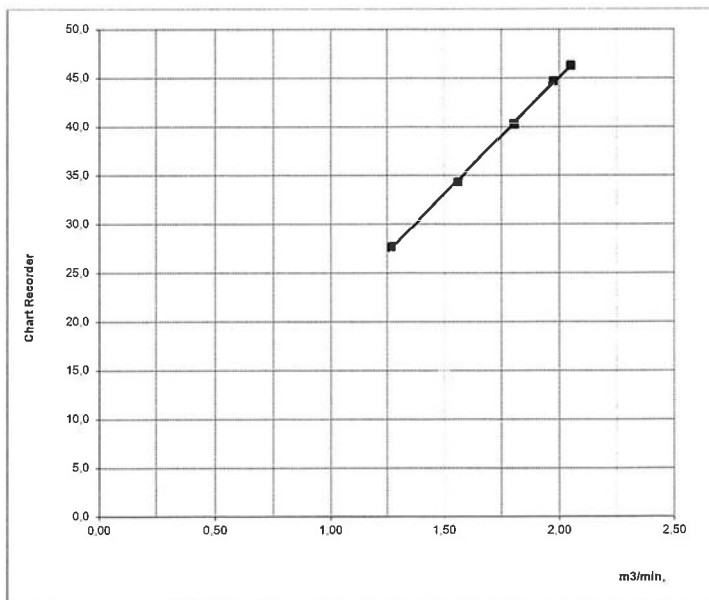
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Qstd Slope: 1.29243
Qstd Intercept: -0.01962
Date Certified: 20-Jun-23

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	1.270	28.00	27.63	Slope = 24.1004
2	4.10	1.561	34.75	34.29	Intercept = -3.1338
3	5.50	1.806	40.75	40.22	Corr. coeff.= 0.9997
4	6.60	1.977	45.30	44.71	
5	7.10	2.050	46.90	46.28	# of Observations: 5

Range of Chart
at 40-60 CFM 49.80



Calibrated by : [REDACTED]

Approved by : [REDACTED]

**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.

189 หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110

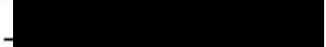

189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

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

PM10 High Volume Sampler VerificationVerification Report No. PM-6612011**SITE**

PM-10 No.: 8456

Date: 24-Dec-23

Location: บริเวณพื้นที่โครงการ (ก่อนกำแพงกันเสียง) ด้านทิศใต้Test: Approval: **CONDITIONS**

Sea Level Pressure (hPa):	<u>1010.0</u>	Corrected Pressure (mm Hg):	757.6
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

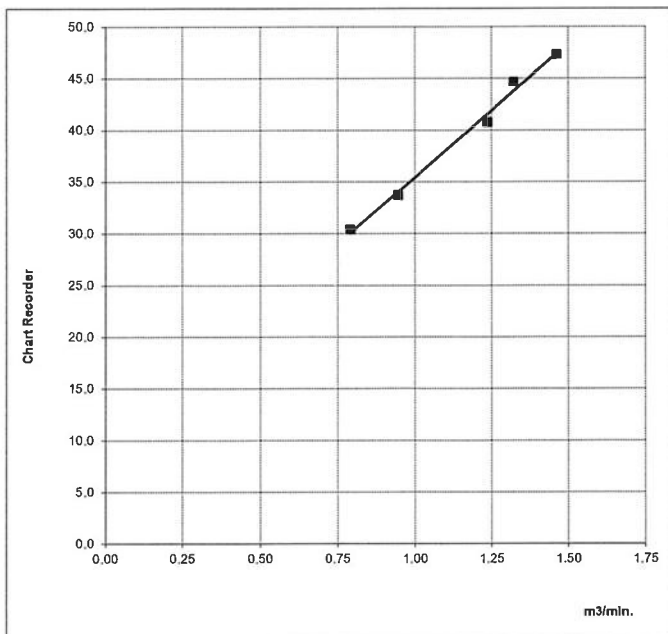
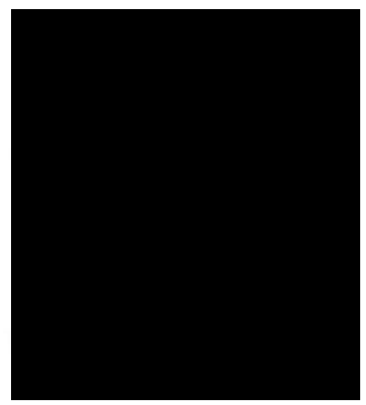
Make: Tisch Environmental, Inc
Model: TE-5025A
Serial#: 3092

Slope: 1.29243
Intercept: -0.01962
Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	<u>2.50</u>	0.791	<u>30.80</u>	30.40	Slope (m)= 25.8038
2	<u>3.60</u>	0.947	<u>34.15</u>	33.70	Intercept (b)= 9.6202
3	<u>6.20</u>	1.238	<u>41.30</u>	40.76	Corr. coeff.(r)= 0.9960
4	<u>7.10</u>	1.323	<u>45.23</u>	44.64	SFR = 1.167
5	<u>8.70</u>	1.463	<u>47.56</u>	47.30	SSP = 62.64
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 42.30

Test by : Approved by : 



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

PM10 High Volume Sampler Verification

Verification Report No. PM-6612012

SITE

PM-10 No.: 7750

Date: 24-Dec-23

Location: บริเวณพื้นที่โครงการ (หลังกำแพงกันเสียง) ด้านทิศใต้

Test:

Approval:

CONDITIONS

Sea Level Pressure (hPa): 1010.0

Corrected Pressure (mm Hg): 757.6

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

Slope: 1.29243

Model: TE-5025A

Intercept: -0.01962

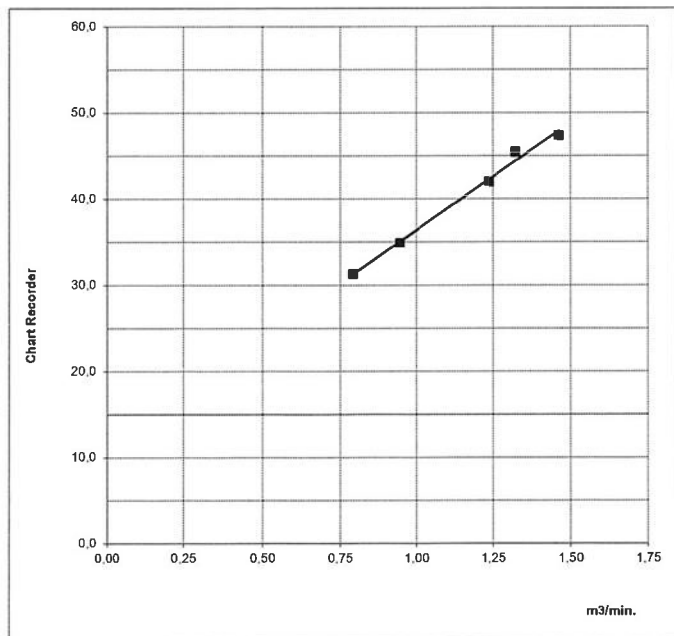
Serial#: 3092

Date Certified: 20-Jun-23

TEST

Plate or Test #	H2O (in)	Qa (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.50	0.791	31.64	31.22	Slope (m)= 24.7850
2	3.60	0.947	35.35	34.89	Intercept (b)= 11.5877
3	6.20	1.238	42.51	41.95	Corr. coeff.(r)= 0.9962
4	7.10	1.323	46.00	45.40	SFR = 1.167
5	8.70	1.463	47.60	47.30	SSP = 63.86
				0.00	# of Observations: 5

Range of Chart
at 36-44 CFM 39.40



Test by :

Approved by :



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.: 6612014

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพรัช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

Analyzer Type: NO2 Analyzer Model: 42C	Manufacturer API S/N: 384
---	------------------------------

Calibration System

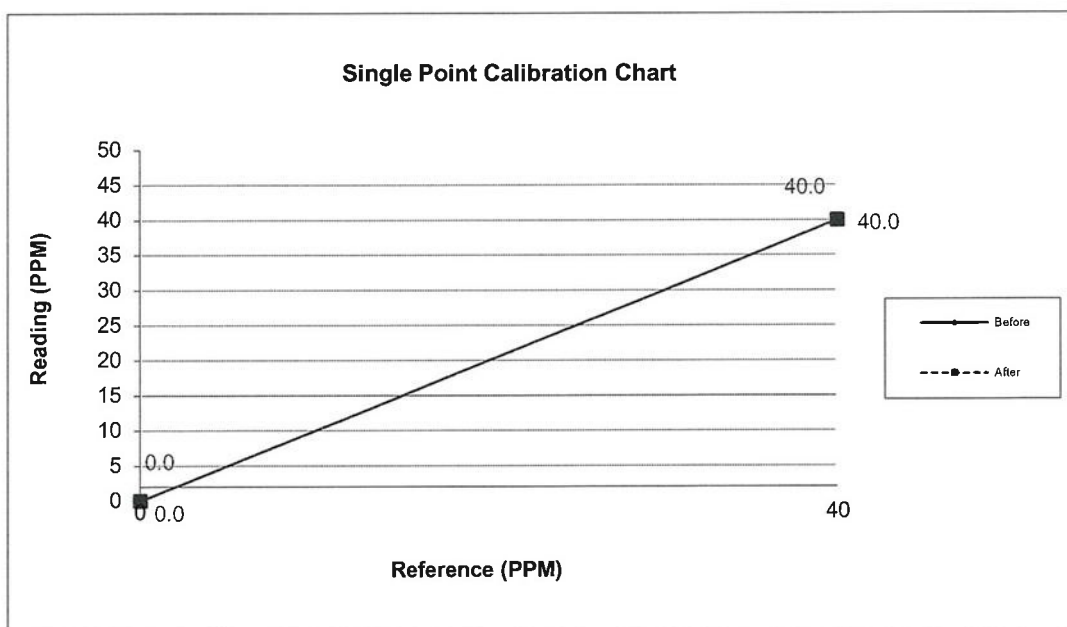
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator E07NI99E15A0002 S/N: EB0125123	NO Conc 54.81 PPM SO2 Conc 52.99 PPM CO Conc 4,469 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °C

Humidity: 47.0 %RH

Calibration Report

Status	Zero			Span		
	Reference (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



**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.: 6612015

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพรัช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

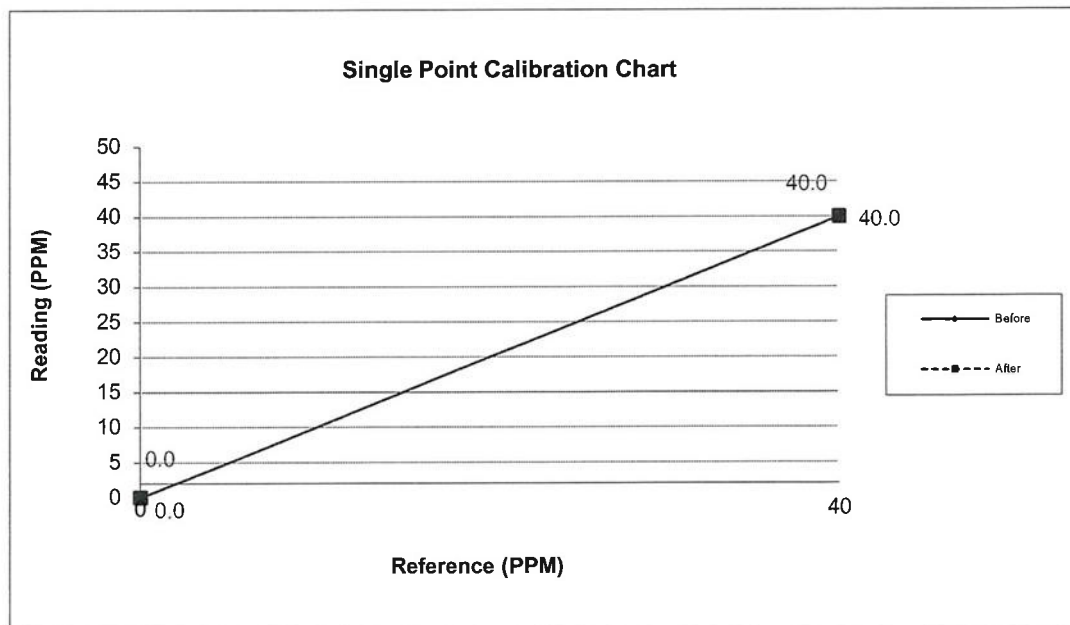
Analyzer Type: NO2 Analyzer	Manufacturer: API
Model: 42C	S/N: 362

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model: Thermo Electron Model 5008	NO Conc: 54.81 PPM
S/N: 146-17299-169	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 °CHumidity: 47.0 %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



**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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หมู่ที่ 3 ตำบลบางรักพัฒนา อำเภอบางบัวทอง จังหวัดนนทบุรี 11110 189

Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110 189

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

Analyzer Performance Test

Calibration Report No.: 6612015

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

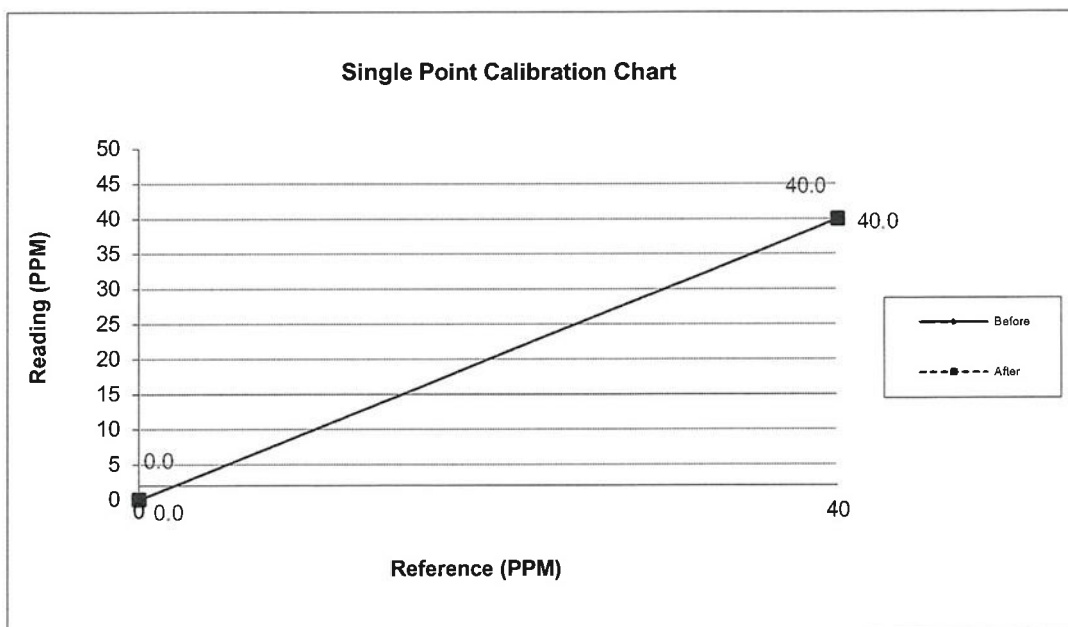
Analyzer Type: NO2 Analyzer Model: 42C	Manufacturer API S/N: 362
---	--

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 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 °CHumidity: 47.0 %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



**บริษัท ท็อปส์-แลบ คอนซัลแตนท์ จำกัด**

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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.: 6612012

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพร์ม ดีเวลลอปเม้นท์ จำกัด

Instruments Information

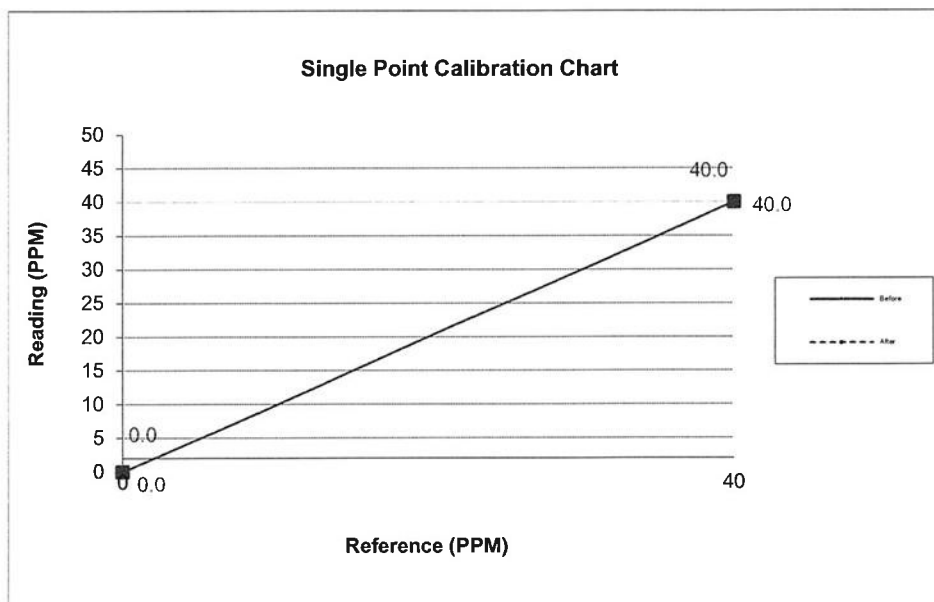
Analyzer Type: CO Analyzer	Manufacturer API
Model: 48C	S/N: 337

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008	NO Conc 54.81 PPM
S/N: 146-17299-169	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 °CHumidity: 47.0 %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



**บริษัท ทีโอพีส์-แลบ คอนซัลแตนท์ จำกัด**

TOPS-LAB Consultants CO., LTD.

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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.: 6612013

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Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพร์ม ดีเวลลอปเม้นท์ จำกัด

Instruments Information

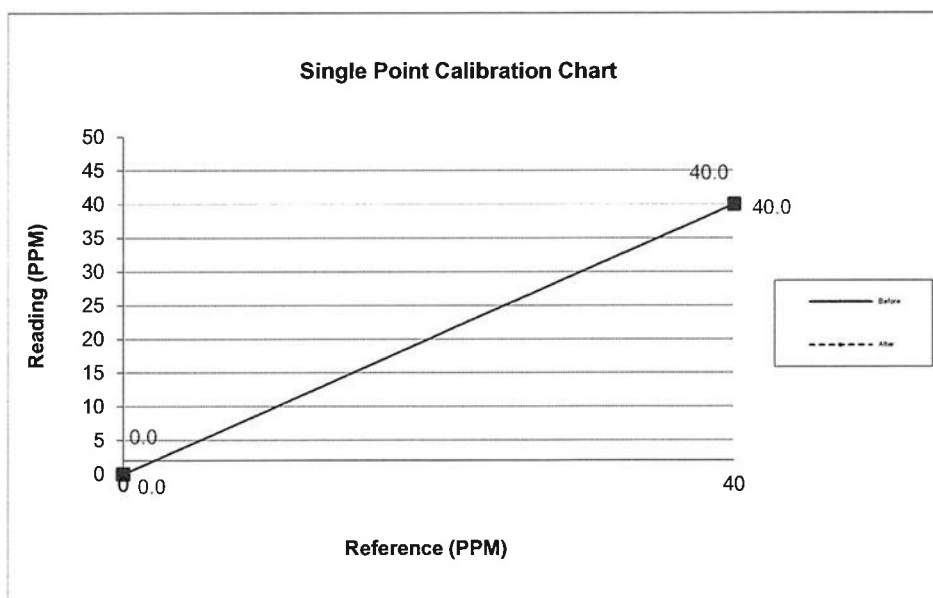
Analyzer Type: CO Analyzer Model: 48C	Manufacturer: API S/N: 368
--	---

Calibration System

Calibrator Unit	Standard Gas
Dilutor Model: Thermo Electron Model 5008 S/N: 146-17299-169 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 °CHumidity: 47.0 %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





Analyzer Performance Test

Calibration Report No.: 6612013

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

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

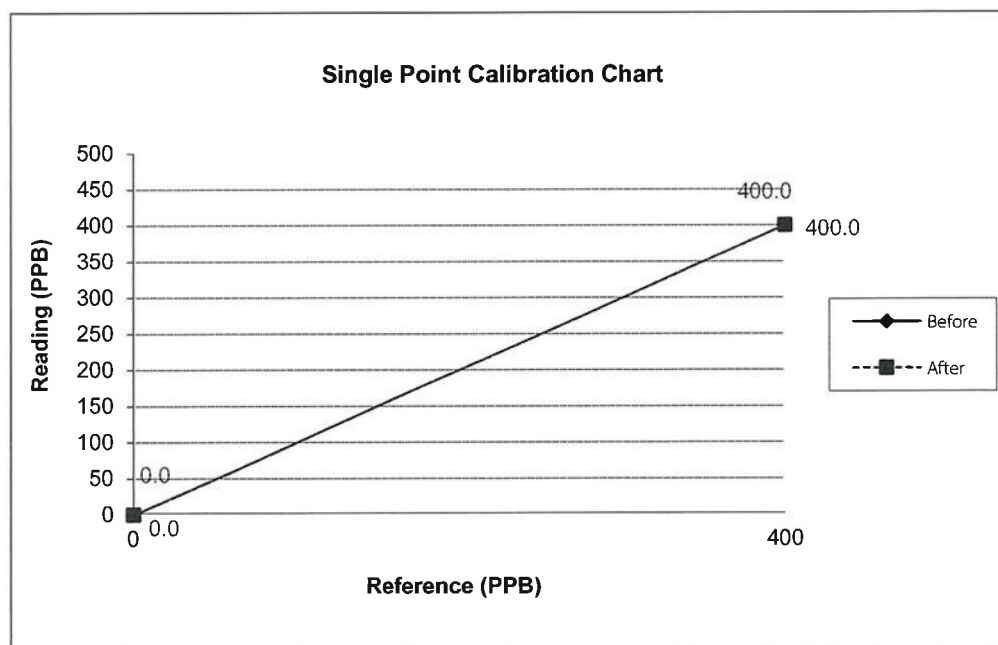
Calibration System

Calibrator Unit	Standard Gas
Dilutor Model: Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator: API Model 701 S/N: 596	NO Conc: 45.74 PPM SO2 Conc: 44.9 PPM CO Conc: 4,490 PPM Expire Date: 6 November 2027

Environment: Temperature 32.0 °CHumidity: 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





Analyzer Performance Test

Calibration Report No.: 6612014

Page:1/1

Calibrated Date: 24 December 2023

Calibrated For: บริษัท ไพร์ช ดีเวลลอปเม้นท์ จำกัด

Instruments Information

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

Calibration System

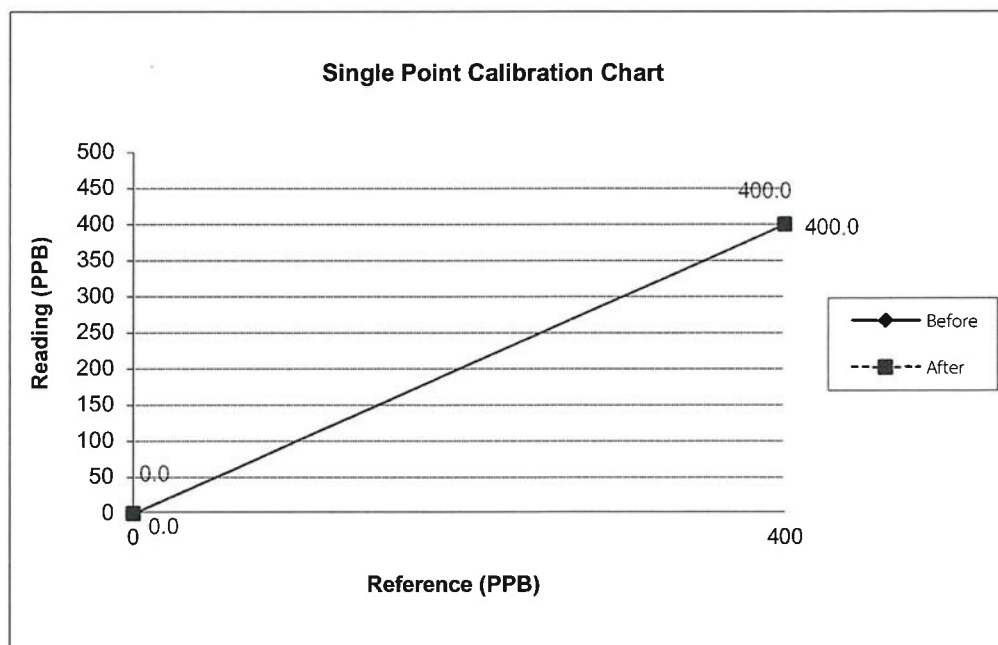
Calibrator Unit	Standard Gas
Dilutor Model Thermo Electron Model 5008 S/N: 146-17299-169 ZERO AIR Generator API Model 701 S/N: 596	NO Conc 45.74 PPM SO2 Conc 44.9 PPM CO Conc 4,490 PPM Expire Date: 6 November 2027

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



**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

Verification Test Report**Report No. :** SLM-6612008**Calibrated Date :** December 24, 2023**Equipment :** Sound Level Meter**Manufacturer :** ACO**Model :** 6226**Serial or ID No.** 67601**Reference Standard :** Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____

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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

Verification Test Report

Report No. : SLM-6612009

Calibrated Date : December 24, 2023

Equipment : Sound Level Meter

Manufacturer : ACO

Model : 6226

Serial or ID No. 64356

Reference Standard : Sound Calibrator Model QC-10

Serial No. QIK100282

Date of Calibration : February 22, 2023

Result of Test

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

Calibrated By : _____

Date : _____

Approve By : _____

Date : _____



National Institute of Metrology (Thailand)
Ministry of Higher Education, Science, Research and Innovation

Certificate of Calibration

Certificate No. : MW-0057-23
Issued by : Flow and Volume of Liquid Laboratory
Mechanical Metrology Department

Page 1 of 3 pages

MEASUREMENT ITEM : Orifice Gas Flow Device

MANUFACTURER : Tisch Environmental, Inc.

MODEL/TYPE : TE-5025A

SERIAL NUMBER : 1075

CUSTOMER : TOPS-LAB Consultants CO., LTD
189 Moo 3 Bangrakphatthana Bangbuathong
Nonthaburi 11110 Thailand

MEASUREMENT DATE : September 4, 2023

The reported measurement result relates only to the measurand and applies only at the time of measurement.

Reference:
MEC9036-01/23



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ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follows :

Temperature	: 23.0 ± 2.0	°C
Relative Humidity	: 55 ± 15	%RH

Calibration Condition:

Preconditioning	: 24 hours at ambient conditions.
Measurement Condition	: The average values during measurement are 23.4°C and 54 %RH.

MEASUREMENT METHOD:

The Orifice gas flow device was calibrated against NIMT's Standard Gas Meter Model DELTA S-Flow G65. The CP-MW 0009 was used as a calibration guideline.

TABULATION OF RESULTS:

The tables on the next page give the measured values.

UNCERTAINTY OF MEASUREMENT:

The stated uncertainty is the expanded uncertainty which is obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. It has been determined in accordance with EA publication EA-4/02M:2013 "Evaluation of the Uncertainty of Measurement in Calibration" and "JCGM 100:2008 Evaluation of measurement data - Guide to the Expression of Uncertainty in Measurement (GUM 1995 with minor corrections)". The value of the measurand lies within the assigned range of values with a probability of 95 %.

TRACEABILITY:

This certificate provides a traceability of the measurement to recognized the national standards, and to the realization of the International System of Units (SI).



MEASUREMENT RESULTS:

The Orifice gas flow device was calibrated by direct comparison method with the Gas Meter standard. The Humid air was used as a medium in the system. The standard conditions are 25°C (298.15 K) and 760 mmHg for standard temperature and standard pressure respectively.

Table 1. The results of Q actual calibration data

Plate	Flow rate m^3/min	Pressure [Pa] mmHg	Temperature [Ta] °C	Temperature [Tm] °C	Δp _Meter mmHg	Δp _Orifice inH ₂ O	Y	Actual Flow [Q_a] m^3/min
1	0.695	750.565	23.19	23.04	55.512	1.668	0.812	0.644
2	0.910	750.471	23.12	22.99	53.354	2.876	1.065	0.845
3	0.997	750.440	23.07	23.02	37.774	3.642	1.199	0.947
4	1.064	750.400	23.11	22.97	30.912	4.233	1.293	1.021
5	1.170	750.452	23.10	22.97	26.158	5.157	1.427	1.130

Slope (m): **1.27175**

Intercept (b): **-0.00768**

Correlation coefficient (r): **0.99982**

Uncertainty ($k=2$): **0.015** m^3/min

Table 2. The results of Q standard calibration data

Plate	Flow rate m^3/min	Pressure [Pa] mmHg	Temperature [Ta] °C	Temperature [Tm] °C	Δp _Meter mmHg	Δp _Orifice inH ₂ O	Y	Standard Flow [Q_{std}] m^3/min
1	0.695	750.565	23.19	23.04	55.512	1.668	1.287	0.640
2	0.910	750.471	23.12	22.99	53.354	2.876	1.690	0.840
3	0.997	750.440	23.07	23.02	37.774	3.642	1.902	0.941
4	1.064	750.400	23.11	22.97	30.912	4.233	2.051	1.014
5	1.170	750.452	23.10	22.97	26.158	5.157	2.264	1.123

Slope (m): **2.03045**

Intercept (b): **-0.01218**

Correlation coefficient (r): **0.99982**

Uncertainty ($k=2$): **0.016** m^3/min

End of Certificate of Calibration

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E07NI99E15A0002
Cylinder Number: EB0125123
Laboratory: 124 - Durham (SAP) - NC
PGVP Number: B22019
Gas Code: APPVD

Reference Number: 122-401652592-1
Cylinder Volume: 143.7 Cubic Feet
Cylinder Pressure: 2016 PSIG
Valve Outlet: 660
Certification Date: Nov 06, 2019

Expiration Date: Nov 06, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/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 mole/mole 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	55.00 PPM	54.81 PPM	G1	+/- 0.9% NIST Traceable	10/29/2019, 11/06/2019
NITRIC OXIDE	55.00 PPM	54.80 PPM	G1	+/- 0.9% NIST Traceable	10/29/2019, 11/06/2019
SULFUR DIOXIDE	55.00 PPM	52.99 PPM	G1	+/- 1.0% NIST Traceable	10/29/2019, 11/06/2019
METHANE	180.0 PPM	172.9 PPM	G1	+/- 0.7% NIST Traceable	10/29/2019
PROPANE	180.0 PPM	178.5 PPM	G1	+/- 1.3% NIST Traceable	10/30/2019
CARBON DIOXIDE	950.0 PPM	958.7 PPM	G1	+/- 0.6% NIST Traceable	10/29/2019
CARBON MONOXIDE	4500 PPM	4469 PPM	G1	+/- 0.7% NIST Traceable	10/30/2019
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	16060657	CC465102	50.42 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Jun 27, 2020
PRM	PRM	D562879	10.01 PPM NITROGEN DIOXIDE/AIR	+/- 1.9%	Aug 17, 2018
NTRM	17060225	EB0079096	100.3 PPM NITRIC OXIDE/NITROGEN	+/- 1.0%	Jul 23, 2023
RGM	12362	SG916305BAL	4.701% % PROPANE/NITROGEN	+/- 0.3%	Jun 04, 2020
GMIS	124206889114	CC322698	4.432 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Aug 15, 2021
NTRM	14010338	ND48595	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.9%	Apr 17, 2024
NTRM	12060910	CC356255	98.05 PPM METHANE/NITROGEN	+/- 0.6%	Dec 22, 2023
NTRM	10060806	CC317625	933.7 PPM CARBON DIOXIDE/NITROGEN	+/- 0.5	May 09, 2020
NTRM	080123	KAL004604	4857 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	Jun 07, 2024
GMIS	124504060104	CC86856	4.8803 % PROPANE/NITROGEN	+/- 0.4%	Oct 22, 2023

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
Nicolet 6700 AHR0801549 CO2	FTIR	Oct 17, 2019
Horiba VIA510 CO RS2EGL6K	Nondispersive Infrared (NDIR)	Oct 30, 2019
Nicolet 6700 AHR0801549 CH4	FTIR	Oct 17, 2019
Nicolet 6700 AHR0801549 NO	FTIR	Oct 17, 2019
Nicolet 6700 AHR0801549 NO	FTIR	Oct 17, 2019
Varian 3800 C3H8	Gas Chromatograph	Oct 02, 2019
Nicolet 6700 AHR0801549 SO2	FTIR	Oct 17, 2019

Triad Data Available Upon Request

NOTES: GROSS WEIGHT: 28,750 g

NET WEIGHT: 4,327.9 g

Signature on file

Approved for Release



Certificate of Calibration

Certificate Number : SPR23050025-1

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Customer : TOPS-LAB Consultants CO., LTD.

189 Moo. 3 Bangrakphatthana Bangbuathong Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : ACO

Model : 6236

Serial Number : 61836

ID. Number : TLC-S-003

Environmental Conditions

Ambient Temperature : $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Received Date : 03 May 2023

Relative Humidity : $50\% \pm 15\%$

Calibration Date : 03 May 2023

Location of Calibration : In-Lab

Recommend Due Date : 03 May 2024

Calibration Procedure : SP-CPE-04-01

Date of Issue : 04 May 2023

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

All calibrations are performed within manufacture's specifications. The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand) Co., Ltd.

Calibrated by : Mr.Chumpon Dokpikul

Approved by :

Calibration Officer



Calibration Report

Certificate Number : SPR23050025-1

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP. 114/0166	17 Jan 2024

Traceability

This certification is traceable to the International System of Unit maintained at :

TISTR - Thailand Institute of Scientific and Technological Research



Result of Calibration

Certificate No. : SPR23050025-1

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Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.9	113.8	-0.1	-0.2	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Note:

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

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

- End of Certificate -



CLC
Accredited
ISO/IEC 17025

CALIBRATION LABORATORY Co., LTD.

2/10-11,14,55 Soi Prasert Manukit 29 Yaek 4, Prasert Manukit Rd., Ladphrao, Bangkok 10230

Tel. 02-578-0353-4 Fax: 02-578-2672 www.cal-laboratory.com E-mail:sale@cal-laboratory.com



NSC-TISI-TIS 17025
CALIBRATION 0059
CLC

CERTIFICATE OF CALIBRATION

FOR

NOMENCLATURE : VIBRATION METER
MANUFACTURER : INSTANTEL
MODEL / TYPE : 721A2501/721A2901
SERIAL NO. : UM10797/UM10797
CLID. NO. : 251700879
JOB CONTROL NO. : 231111125504

CUSTOMER : TOPS - LAB CONSULTANTS CO., LTD.
189 MOO 3 BANGRAKPHATTHANA
BANGBUATHONG NONTHABURI 11110

DATE OF RECEIVED : 11 November 2023

DATE OF ISSUED : 15 November 2023

Report of calibration screening must not be taken in part. Except complete. Without the approval of the Calibration Laboratory Co., Ltd.

Calibrated By :

Suwit Phuanbusabong



Approved By :



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

Certificate No. Q23125504

F3-011-04/01-12

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@clccalibration

REPORT OF CALIBRATION FOR

NOMENCLATURE : VIBRATION METER
MANUFACTURER : INSTANTEL
MODEL / TYPE : 721A2501/721A2901
SERIAL NO. : UM10797/UM10797
DATE OF CALIBRATION : 13 November 2023

ENVIRONMENT CONDITIONS :

Temperature : $(23 \pm 2) ^\circ\text{C}$

Relative Humidity : $(55 \pm 15) \% \text{RH}$

PROCEDURE USED :

This instrument was calibrated under procedure No. **WI-305-127** based on **ISO 16063-21** as calibration guideline.
The calibration was performed by using Digital Multimeter, Programmable Timer/Counter and Vibration Calibrator Amplifier which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

1. Vibration Calibrator, The Modal Shop Model 9110D S/N. 11424.
2. Programmable Timer/Counter, Philips Model PM6680B S/N. SM607101.
3. Digital Multimeter, Keysight Technologies Model 3458A S/N. MY59352733.

TRACEABILITY :

1. The measurements are traceable to International System of Units (SI), through National Institute of Metrology (Thailand) Certificate No. AV-0030-23, Due Date 26 June 2024.
2. The measurements are traceable to International System of Units (SI), through Aeronautical Radio of Thailand Ltd. Certificate No. 07-0043/23 , Due Date 12 April 2024.
3. The measurements are traceable to International System of Units (SI), through National Institute of Metrology (Thailand) Certificate No. EE-00010-23, Due Date 27 March 2024.

UNCERTAINTY :

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

Certificate No. Q23125504

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CONDITION OF CALIBRATION ITEM : GOOD

MEASUREMENT RESULTS : (X) without adjustment () adjustment

CALIBRATION DATA

VELOCITY RESULT

Test point		Mode	STD Reading	DUC Reading	Correction	Uncertainty
(mm/s)	(frequency)		(mm/s)	(mm/s)	(mm/s)	± (% of rdg.)
10.000	160 Hz	peak	10.000	10.217	-0.217	1.9
20.000	160 Hz		20.000	20.403	-0.403	1.9
30.000	160 Hz		30.000	30.598	-0.598	1.9
40.000	160 Hz		40.000	40.771	-0.771	1.9
50.000	160 Hz		50.000	50.887	-0.887	1.9

Note. The Scope of Accredited TISI Certificate No. 23-LB0092 Issue 02 Page 62 of 138

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

End of Certificate

Certificate No. Q23125504

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@clccalibration