

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0036

Project No. AM1 - Tin Hau Temple
 Date: 9-Jun-22 Next Due Date: 9-Aug-22 Operator: SK
 Equipment No.: A-01-05 Model No.: GS2310 Serial No. 10599

| Ambient Condition | | | |
|---------------------|--------------|---------------------|------------|
| Temperature, Ta (K) | <u>299.3</u> | Pressure, Pa (mmHg) | <u>754</u> |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|------------------|---|----------------|---------------|-----------------|
| Serial No. | <u>3864</u> | Slope, mc | <u>0.05922</u> | Intercept, bc | <u>-0.02420</u> |
| Last Calibration Date: | <u>31-Jan-22</u> | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |
| Next Calibration Date: | <u>31-Jan-23</u> | | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|-------------------|--------------------------------|---|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X-axis | ΔW (HVS), in. of water | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | <u>13.4</u> | 3.64 | 61.84 | <u>9.8</u> | 3.11 |
| 2 | <u>10.3</u> | 3.19 | 54.27 | <u>7.4</u> | 2.70 |
| 3 | <u>7.9</u> | 2.79 | 47.58 | <u>5.6</u> | 2.35 |
| 4 | <u>5.5</u> | 2.33 | 39.77 | <u>3.5</u> | 1.86 |
| 5 | <u>3.2</u> | 1.78 | 30.43 | <u>2.1</u> | 1.44 |

By Linear Regression of Y on X

Slope, mw = 0.0540 Intercept, bw : -0.2347
 Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation | |
|---|--|
| From the TSP Field Calibration Curve, take Qstd = 43 CFM | |
| From the Regression Equation, the "Y" value according to | |
| $mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ | |
| Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = <u>4.42</u> | |

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 9-Jun-22

Checked by: Henry Leung Signature: Date: 9-Jun-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0036

Project No. AM2 - Sai Tso Wan Recreation Ground
 Date: 9-Jun-22 Next Due Date: 9-Aug-22 Operator: SK
 Equipment No.: A-01-08 Model No.: GS2310 Serial No. 1287

| Ambient Condition | | | |
|---------------------|--------------|---------------------|------------|
| Temperature, Ta (K) | <u>299.3</u> | Pressure, Pa (mmHg) | <u>754</u> |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|------------------|--|----------------|---------------|-----------------|
| Serial No. | <u>3864</u> | Slope, mc | <u>0.05922</u> | Intercept, bc | <u>-0.02420</u> |
| Last Calibration Date: | <u>31-Jan-22</u> | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | <u>31-Jan-23</u> | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|------------------------|--------------------------------|--|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of water | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | <u>13.4</u> | 3.64 | 61.84 | <u>9.7</u> | 3.10 |
| 2 | <u>10.6</u> | 3.24 | 55.05 | <u>7.0</u> | 2.63 |
| 3 | <u>8.0</u> | 2.81 | 47.88 | <u>5.4</u> | 2.31 |
| 4 | <u>5.5</u> | 2.33 | 39.77 | <u>3.7</u> | 1.91 |
| 5 | <u>3.2</u> | 1.78 | 30.43 | <u>2.2</u> | 1.47 |

By Linear Regression of Y on X

Slope, mw = 0.0505 Intercept, bw : -0.0903
 Correlation coefficient* = 0.9972

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation | |
|---|-------------|
| From the TSP Field Calibration Curve, take Qstd = 43 CFM | |
| From the Regression Equation, the "Y" value according to | |
| $mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ | |
| Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = | <u>4.39</u> |

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 9-Jun-22
 Checked by: Henry Leung Signature: Date: 9-Jun-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0036

Project No. AM3 - Yau Lai Estate, Bik Lai House
 Date: 9-Jun-22 Next Due Date: 9-Aug-22 Operator: SK
 Equipment No.: A-01-03 Model No.: GS2310 Serial No. 10379

| Ambient Condition | | | |
|---------------------|--------------|---------------------|------------|
| Temperature, Ta (K) | <u>299.3</u> | Pressure, Pa (mmHg) | <u>754</u> |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|------------------|--|----------------|---------------|-----------------|
| Serial No. | <u>3864</u> | Slope, mc | <u>0.05922</u> | Intercept, bc | <u>-0.02420</u> |
| Last Calibration Date: | <u>31-Jan-22</u> | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | <u>31-Jan-23</u> | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|-------------------|--------------------------------|---|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X-axis | ΔW (HVS), in. of water | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | <u>12.9</u> | 3.57 | 60.69 | <u>9.1</u> | 3.00 |
| 2 | <u>10.1</u> | 3.16 | 53.75 | <u>6.8</u> | 2.59 |
| 3 | <u>8.1</u> | 2.83 | 48.17 | <u>5.3</u> | 2.29 |
| 4 | <u>5.0</u> | 2.22 | 37.94 | <u>3.2</u> | 1.78 |
| 5 | <u>2.8</u> | 1.66 | 28.49 | <u>1.8</u> | 1.33 |

By Linear Regression of Y on X

Slope, mw = 0.0514 Intercept, bw : -0.1580

Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.27

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 9-Jun-22

Checked by: Henry Leung Signature: Date: 9-Jun-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/0014

Project No. CKL 2 - Flat 103 Cha Kwo Ling Village
 Date: 5-May-22 Next Due Date: 5-Jul-22 Operator: SK
 Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956

| Ambient Condition | | | |
|---------------------|--------------|---------------------|--------------|
| Temperature, Ta (K) | <u>297.2</u> | Pressure, Pa (mmHg) | <u>759.3</u> |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|------------------|---|----------------|---------------|-----------------|
| Serial No. | <u>3864</u> | Slope, mc | <u>0.05922</u> | Intercept, bc | <u>-0.02420</u> |
| Last Calibration Date: | <u>31-Jan-22</u> | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |
| Next Calibration Date: | <u>31-Jan-23</u> | | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|------------------------|--------------------------------|--|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of water | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | <u>13.1</u> | 3.62 | 61.58 | <u>10.1</u> | 3.18 |
| 2 | <u>11.1</u> | 3.33 | 56.72 | <u>7.8</u> | 2.80 |
| 3 | <u>8.8</u> | 2.97 | 50.55 | <u>6.2</u> | 2.49 |
| 4 | <u>5.5</u> | 2.35 | 40.05 | <u>3.5</u> | 1.87 |
| 5 | <u>3.1</u> | 1.76 | 30.17 | <u>2.0</u> | 1.42 |

By Linear Regression of Y on X

Slope, mw = 0.0555 Intercept, bw : -0.3042
 Correlation coefficient* = 0.9972

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation | |
|---|--|
| From the TSP Field Calibration Curve, take Qstd = 43 CFM | |
| From the Regression Equation, the "Y" value according to | |
| $mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ | |
| Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = <u>4.34</u> | |

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 5-May-22

Checked by: Henry Leung Signature: Date: 5-May-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/0015

Project No. CKL 2 - Flat 103 Cha Kwo Ling Village
 Date: 5-Jul-22 Next Due Date: 4-Sep-22 Operator: SK
 Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956

| Ambient Condition | | | |
|---------------------|------------|---------------------|--------------|
| Temperature, Ta (K) | 302 | Pressure, Pa (mmHg) | 753.2 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|--|---------|---------------|----------|
| Serial No. | 3864 | Slope, mc | 0.05922 | Intercept, bc | -0.02420 |
| Last Calibration Date: | 31-Jan-22 | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 31-Jan-23 | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|------------------------|--------------------------------|--|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of water | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | 12.8 | 3.54 | 60.15 | 9.8 | 3.10 |
| 2 | 10.8 | 3.25 | 55.29 | 7.6 | 2.73 |
| 3 | 8.6 | 2.90 | 49.38 | 5.9 | 2.40 |
| 4 | 5.3 | 2.28 | 38.85 | 3.2 | 1.77 |
| 5 | 2.9 | 1.68 | 28.85 | 1.8 | 1.33 |

By Linear Regression of Y on X

Slope, mw = 0.0563 Intercept, bw : -0.3541

Correlation coefficient* = 0.9968

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.37

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 5-Jul-22

Checked by: Henry Leung Signature: Date: 5-Jul-22

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00160
Application No. : HP00040

Issue Date : 10 Jan 2022

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-08-07

Manufacturer: : SVANTEK

Other information :

| | |
|----------------|----------|
| Model No. | SVAN 957 |
| Serial No. | 21455 |
| Microphone No. | 22391 |

Date Received : 03 Jan 2022

Test Period : 10 Jan 2022 to 10 Jan 2022

Test Requested : Performance checking for Sound Level Meter

Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : **1. Information of the sample description provided by the Applicant.**
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

A handwritten signature in black ink, appearing to be 'Lee Wai Kit', written over a horizontal line.

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00160

Issue Date : 10 Jan 2022

Application No. : HP00040

Certificate of Calibration

Measuring equipment :

| | |
|---------------|------------------|
| Description | Sound Calibrator |
| Manufacturer | Brüel & Kjær |
| Model No. | TYPE 4231 |
| Serial No. | 2326353 |
| Equipment No. | N-02-01 |

Test Result :

| Reference value, dB | Indication value, dB | Deviation, dB | Allowed deviation, dB |
|---------------------|----------------------|---------------|-----------------------|
| 94.0 | 93.9 | -0.1 | ± 1.5 |
| 114.0 | 113.8 | -0.2 | ± 1.5 |

- Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00168
Application No. : HP00044

Issue Date : 25 Jan 2022

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-08-11

Manufacturer: : SVANTEK

Other information :

| | |
|----------------|----------|
| Model No. | SVAN 957 |
| Serial No. | 23852 |
| Microphone No. | 22454 |

Date Received : 20 Jan 2022

Test Period : 21 Jan 2022 to 21 Jan 2022

Test Requested : Performance checking for Sound Level Meter

Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

A handwritten signature in black ink, appearing to read 'Lee Wai Kit', is written over a horizontal line.

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00168
Application No. : HP00044

Issue Date : 25 Jan 2022

Certificate of Calibration

Measuring equipment :

| | |
|---------------|------------------|
| Description | Sound Calibrator |
| Manufacturer | Brüel & Kjær |
| Model No. | TYPE 4231 |
| Serial No. | 2326353 |
| Equipment No. | N-02-01 |

Test Result :

| Reference value, dB | Indication value, dB | Deviation, dB | Allowed deviation, dB |
|---------------------|----------------------|---------------|-----------------------|
| 94.0 | 94.1 | +0.1 | ± 1.5 |
| 114.0 | 114.2 | +0.2 | ± 1.5 |

- Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00150
Application No. : HP00032

Issue Date : 16 Nov 2021

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-13-01

Manufacturer: : SOUNDTEK

Other information :

| | |
|------------|-----------|
| Model No. | ST-120 |
| Serial No. | 181001608 |

Date Received : 05 Nov 2021

Test Period : 08 Nov 2021 to 12 Nov 2021

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : **1. Information of the sample description provided by the Applicant.**
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

A handwritten signature in black ink, appearing to read 'Lee Wai Kit', is written over a horizontal line.

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00150
Application No. : HP00032

Issue Date : 16 Nov 2021

Certificate of Calibration

Measuring equipment :

| | |
|---------------|------------------|
| Description | Sound Calibrator |
| Manufacturer | Brüel & Kjær |
| Model No. | TYPE 4231 |
| Serial No. | 2326353 |
| Equipment No. | N-02-01 |

| | |
|----------------|-----------------|
| Description | Sound Meter |
| Manufacturer | BSWA Technology |
| Model No. | BSWA 308 |
| Serial No. | 570188 |
| Microphone No. | 570608 |
| Equipment No. | N-12-03 |

Test Result :

| Reference value, dB | Indication value, dB | Deviation, dB | Allowed deviation, dB |
|---------------------|----------------------|---------------|-----------------------|
| 94.0 | 94.1 | +0.1 | ± 0.3 |
| 114.0 | 114.0 | 0.0 | ± 0.5 |

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 29-May-22
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 29-Jul-22
 Model No.: LD-5R
 Serial No.: 972778
 Equipment No.: SA-01-07 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 735 CPM
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 735 CPM

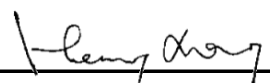
| Calibration of 1 hr TSP | | |
|---|---|---|
| Calibration Point | Laser Dust Monitor | HVS |
| | Mass Concentration (µg/m ³) X-axis | Mass concentration (µg/m ³) Y-axis |
| 1 | 75.0 | 157.0 |
| 2 | 66.0 | 136.0 |
| 3 | 53.0 | 113.0 |
| Average | 64.7 | 135.3 |
| By Linear Regression of Y on X Slope , mw = <u>1.9837</u> Intercept, bw = <u>7.0572</u> Correlation coefficient* = <u>0.9969</u> | | |
| Set Correlation Factor | | |
| Particulate Concentration by High Volume Sampler (µg/m ³) | | 135.3 |
| Particulate Concentration by Dust Meter (µg/m ³) | | 64.7 |
| Measureing time, (min) | | 60.0 |
| Set Correlation Factor , SCF | | |
| SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] | | <u>2.1</u> |

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 29-May-22
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 29-Jul-22
 Model No.: LD-5R
 Serial No.: 972779
 Equipment No.: SA-01-08 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 744 CPM
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 744 CPM

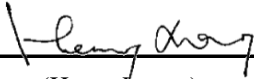
| Calibration of 1 hr TSP | | |
|---|---|---|
| Calibration Point | Laser Dust Monitor | HVS |
| | Mass Concentration (µg/m ³) X-axis | Mass concentration (µg/m ³) Y-axis |
| 1 | 76.0 | 158.0 |
| 2 | 65.0 | 137.0 |
| 3 | 54.0 | 114.0 |
| Average | 65.0 | 136.3 |
| By Linear Regression of Y on X Slope , mw = <u>2.0000</u> Intercept, bw = <u>6.3333</u> Correlation coefficient* = <u>0.9997</u> | | |
| Set Correlation Factor | | |
| Particulate Concentration by High Volume Sampler (µg/m ³) | | 136.3 |
| Particulate Concentration by Dust Meter (µg/m ³) | | 65.0 |
| Measuring time, (min) | | 60.0 |
| Set Correlation Factor , SCF | | |
| SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] | | <u>2.1</u> |

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Limited)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

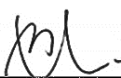
Description: Digital Dust Indicator Date of Calibration 29-May-22
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 29-Jul-22
 Model No.: LD-5R
 Serial No.: 972781
 Equipment No.: SA-01-10 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 734 CPM
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 734 CPM

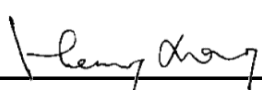
| Calibration of 1 hr TSP | | |
|--|---|---|
| Calibration Point | Laser Dust Monitor | HVS |
| | Mass Concentration (µg/m ³) X-axis | Mass concentration (µg/m ³) Y-axis |
| 1 | 78.0 | 157.0 |
| 2 | 66.0 | 136.0 |
| 3 | 53.0 | 110.0 |
| Average | 65.7 | 134.3 |
| By Linear Regression of Y on X Slope , mw = <u>1.8817</u> Intercept, bw = <u>10.7708</u> Correlation coefficient* = <u>0.9993</u> | | |
| Set Correlation Factor | | |
| Particulate Concentration by High Volume Sampler (µg/m ³) | | 134.3 |
| Particulate Concentration by Dust Meter (µg/m ³) | | 65.7 |
| Measuring time, (min) | | 60.0 |
| Set Correlation Factor , SCF SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] <u>2.0</u> | | |

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Limited)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)



| |
|-------------------------|
| RECALIBRATION |
| DUE DATE: |
| January 31, 2023 |

Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|-----------------------------|-----------|-------|
| Cal. Date: January 31, 2022 | Rootsmeter S/N: 438320 | Ta: 294 | °K |
| Operator: Jim Tisch | | Pa: 752.6 | mm Hg |
| Calibration Model #: TE-5025A | Calibrator S/N: 3864 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.4490 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0320 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9160 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8730 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7230 | 12.7 | 8.00 |

| Data Tabulation | | | | | |
|-----------------|---------------|--|-----------|-------------|---|
| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis) |
| 0.9995 | 0.6898 | 1.4169 | 0.9957 | 0.6872 | 0.8839 |
| 0.9952 | 0.9643 | 2.0037 | 0.9915 | 0.9608 | 1.2500 |
| 0.9932 | 1.0843 | 2.2402 | 0.9895 | 1.0802 | 1.3976 |
| 0.9920 | 1.1363 | 2.3496 | 0.9883 | 1.1321 | 1.4658 |
| 0.9868 | 1.3649 | 2.8337 | 0.9831 | 1.3598 | 1.7678 |
| QSTD | m= | 2.09281 | QA | m= | 1.31048 |
| | b= | -0.02426 | | b= | -0.01514 |
| | r= | 0.99993 | | r= | 0.99993 |

| Calculations | |
|---|--|
| Vstd= $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$ | Va= $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$ |
| Qstd= Vstd/ΔTime | Qa= Va/ΔTime |
| For subsequent flow rate calculations: | |
| Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | Qa= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$ |

| Standard Conditions | |
|---|-----------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: calibrator manometer reading (in H2O) | |
| ΔP: rootsmeter manometer reading (mm Hg) | |
| Ta: actual absolute temperature (°K) | |
| Pa: actual barometric pressure (mm Hg) | |
| b: intercept | |
| m: slope | |

| RECALIBRATION |
|--|
| US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30 |

Certificate of Calibration - Wind Monitoring Station

Description: Yau Lai Estate, Bik Lai House
 Manufacturer: Davis Instruments
 Model No.: Davis7440
 Serial No.: MC01010A44
 Equipment No.: SA-03-04
 Date of Calibration: 19-Feb-2022
 Next Due Date: 19-Aug-2022

1. Performance check of Wind Speed

| Wind Speed, m/s | | Difference D (m/s) |
|-------------------------|-----------------------|--------------------|
| Wind Speed Reading (V1) | Anemometer Value (V2) | $D = V1 - V2$ |
| 0.0 | 0.0 | 0.0 |
| 1.5 | 1.5 | 0.0 |
| 2.5 | 2.5 | 0.0 |
| 4.2 | 4.3 | -0.1 |


2. Performance check of Wind Direction

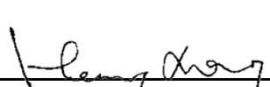
| Wind Direction (°) | | Difference D (°) |
|-----------------------------|---------------------------|------------------|
| Wind Direction Reading (W1) | Marine Compass Value (W2) | $D = W1 - W2$ |
| 0 | 0 | 0.0 |
| 90 | 90 | 0.0 |
| 180 | 180 | 0.0 |
| 270 | 270 | 0.0 |

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: 
 Wong Shing Kwai

Approved by: 
 Henry Leung