ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT : MR MAGNUM FAN WORK ORDER : HK2502558

CLIENT : ENVIROTECH SERVICES CO.

ADDRESS : RM 712, 7/F, MY LOFT 9 HOI WING ROAD, SUB-BATCH : 1

THEN MUN. N.T. LIK DATE RECEIVED : 15-JAN-2025

TUEN MUN, N.T. HK

DATE RECEIVED : 15-JAN-2025

DATE OF ISSUE : 21-JAN-2025

PROJECT : ---- NO. OF SAMPLES : 1

CLIENT ORDER :---

General Comments

• Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the
 item(s) tested.
- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.
- Calibration was subcontracted to Envirotech Services Company.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

: HK2502558 WORK ORDER

SUB-BATCH

: 1 : ENVIROTECH SERVICES CO. CLIENT

PROJECT



| ALS Lab | Client's Sample ID | Sample Type | Sample Date | External Lab Report No. |
|---------------|-----------------------|----------------|-------------|-------------------------|
| HK2502558-001 | Sibata LD-3B (456666) | Equipments | 02-Jan-2025 | S/N: 456666 |

----- END OF REPORT -----

 $\mathsf{Page}: 2 \ \mathsf{of} \ 2$



Envirotech Services Co.

Rm. 712, 7/F My Loft, 9 Hoi Wing Roed, Tuen Mun, H.K. Tel: 2560 8450 Fax: 2560 6553

E-mail; envirotech@netvigator.com

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:

Laser Dust Monitor

Manufacturer:

Sibata LD-3B

Serial No.:

456666

Equipment Ref.:

N/A

ALS Job Order:

HK2500343

Standard Equipment

Standard Equipment:

High Volume Sampler (TSP)

Location:

Envirotech Room (Calibration Room)

Equipment Ref.:

HVS 8162

Last Calibration Date:

1-Jan-2025

Equipment Verification Results:

Verification Date:

2-Jan-2025

| Hour | Time | Mean Temp °C | Mean Pressure | TSP Level in mg (Standard Equipment) | Total Count (Calibrated Equipment) |
|------------|-----------|-----------------|------------------|--------------------------------------|------------------------------------|
| | | | (hpa) | (Y-Axis) | (X-Axis) |
| 1hr 00mins | 0900-1000 | 16.1 | 1023 | 0.096 | giaeb ta notista 76 holinom quite? |
| 2hr 00mins | 1005-1205 | 20.5 | 1022 | 0.147 | 160 |
| 3hr 00mins | 1330-1630 | 21.0 | 1022 | 0.268 | 248 |

Linear Regression of Y or X

Slope (K-factor):

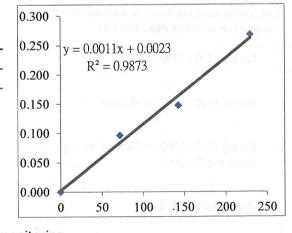
0.0011(mg)/Count

Correlation Coefficient (R):

0.9936

Date of Issue:

15-Jan-2025



Remarks:

- 1. Strong Correlation (>0.8)
- 2. Factor 0.0011 mg/Count should be applied for TSP monitoring

Operator:

P.F.Yeung

Signature

Val

Date: 15 Jan 2025

QC Reviewer:

K.F.Ho

Signature

at the

Date: 15 Jan 2025

^{*}If R<0.5, repair or verification is required for the equipment

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

| Location : HVS ID: | 01.60 | | oft, Tuen M | un | | | Date of Calil | College Bright College Bright College | Jan-25 |
|--|--|--------------|-----------------------------|-----------|---------------------|-------------------|---|--|--|
| Name and | | TICOLL | IDIC Mada | 1 TO D. E | 170 | | Next Calibra | | Iar-25 |
| Ivallic allu | i Wodel . | 119CH | HVS Mode | - | | ONTO | Operator: | K.F | .Ho |
| | | | | CON | וווע | ONS | | ganetinely Islaemaesyn | |
| Pol 8 3038 1320 Pol 8 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 | Sea Level Pressure (hpa) Temperature (°C) | | | | | \$10 (F) (F) (F) | Corrected Pro | essure (mm Hg) (K) | 767.3 288.8 |
| | | | | CALI | BRA | TION (| ORIFICE | A Actorist has a sprag per | |
| | | | Make: Model: Serial#: | TE-5(| SCH)25A 2454 | .en .en .en | Qstd Slope Qstd Intercep | The state of the s | 08315 04938 |
| i can i | A CONTRACTOR OF THE CONTRACTOR | | notes | CALI | BRA' | TION | Lac arossar | Minori asiaté net anbaise | <u>est entles</u> |
| Plate | H2O(L) | H20(R) | H2O | Qs | td | I | IC | LINEA | AR |
| No. | (in) | (in) | (in) | (m3/r | 1 | (chart) | (corrected) | BEELD AFTER TO THE PARTY OF THE | ESSION |
| 18 | 6.4 | 6.4 | 12.8 | 1.7 | 77 | 62 | 63.30 | Slope= 35.208 | THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAME |
| 13 | 5.3 | 5.3 | 10.6 | 1.6 | 19 | 56 | 57.17 | Intercept= -0.001 | |
| 10 | 4.2 | 4.2 | 8.4 | 1.4 | 44 | 48 | 49.00 | Corr. Coeff.= 0.9959 | |
| 7 | 2.7 | 2.7 | 5.4 | 1.10 | 63 | 41 | 41.86 | | |
| 5 | 1.7 | 1.7 | 3.4 | 0.92 | 27 | 32 | 32.67 | | J292 10 10 |
| Calulations | | | | | | . Vái | on amount of the | <u>l lesto aperon lo equit de gene</u> Se criocità il alter poerchicos e | <u>Sanoriqui</u> Sentinais |
| | [Sqrt(H2O(F | Do /Dot-d\/r | Potd/To)\ bl | | IC 70 | | | Flow Rate | |
| | Pa/Pstd)(Tst | | 1 Sta/ 1 a))-0] | | | E | oran regal sut : of zinkun richkez | randerskriver nose utberedischer som er som | e de alevie 1907 - Otor |
| ic – ipgri | 1 41 5(4)(13) | (d/1a)] | | | 65 | | | eyab ays | Cours of Co |
| Ostd = stand | dard flow ra | te | | | 60 | | | to so well supposed. | 100 |
| | ted chart res | | | | 55 | Ē | | | |
| | nart response | | | | 50 | E | | | |
| n = calibra | tor Qstd slo | pe | | 1 2 | | E | bas endianol) | bottongiest a designation | inum qu h |
| = calibrat | or Qstd inte | ercept | | | 45 | 578 | - toa estata ge io principam te | | of the standard |
| | | | alibration (d | | 40 | É | cratical to Chair | equilibrity months by to | uas usson |
| a = actual | pressure dur | ring calib | ration (mm I | łg) | 35 | | | ijog tire monitoring at the thii sach <mark>s-cay rolling penc</mark> | SP) includ mosnos qu |
| or subsequ | ent calculat | tion of sa | umpler flow: | | 30 | - | * | • 2222 - | 1900 Janie |
| | (298/Tav)(P | | | | 25 | 1 = | bus anodsool a | usiangiaah ja nodata noka | inam razdi |
| | | | | | 20 | 500 | lot yeb-e dose | e per monitored station cet | area taubni |
| | | | | 1 | | E 303 | | | |
| n = sampl | 1 | | | | 15 | = | 37/027 | | |
| | r intercept | | | | 15 10 | = 10 | e (de r garante e trans | mu en gringen man nasom Josephander Grandern Brook lavel farek greek drivitae | rates bos Tarant te nolfornian |

Tav = daily average temperature

Pav = daily average pressure

0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9

Qstd(m3/min)



RECALIBRATION DUE DATE:

December 2, 2025

Certificate of Calibration

Calibration Certification Information

Cal. Date:

December 2, 2024

Rootsmeter S/N: 438320

Ta: 293
Pa: 757.4

°K

Operator: Jim Tisch

mm Hg

Calibration Model #:

TE-5025A

Calibrator S/N: 2454

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|-------------------|--------------------|---------------|----------------|---------------|----------------|
| 1 | 1 | 2 | 1 | 1.4200 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0170 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9090 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8700 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7140 | 12.8 | 8.00 |

| | Data Tabulation | | | | | | | |
|--------|-----------------|---|--------|----------|------------|--|--|--|
| Vstd | Qstd | $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$ | | Qa | √∆H(Ta/Pa) | | | |
| (m3) | (x-axis) | (y-axis) | Va | (x-axis) | (y-axis) | | | |
| 1.0093 | 0.7108 | 1.4238 | 0.9958 | 0.7013 | 0.8796 | | | |
| 1.0051 | 0.9883 | 2.0136 | 0.9916 | 0.9750 | | | | |
| 1.0031 | 1.1035 | 2.2512 | 0.9896 | 1.0886 | 1.3907 | | | |
| 1.0018 | 1.1515 | 2.3611 | 0.9884 | 1.1361 | 1.4586 | | | |
| 0.9965 | 1.3956 | 2.8476 | 0.9831 | 1.3769 | | | | |
| | m= | 2.08315 | | m= | 1.30443 | | | |
| QSTD | b= | -0.04938 | QA | b= | -0.03050 | | | |
| 2010 | r= | 0.99985 | | r= | 0.99985 | | | |

| | Calculatio | ns | |
|------------------|--|---------------|---|
| Vstd= | ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta) | Va= | ΔVol((Pa-ΔP)/Pa) |
| Qstd= Vstd/ΔTime | | Qa= | Va/ΔTime |
| | For subsequent flow ra | te calculatio | ns: |
| Qstd= | $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$ | Qa= | $1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$ |

| | Standard Conditions |
|---------------|-------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| | Key |
| ΔH: calibrato | r manometer reading (in H2O) |
| ΔP: rootsme | ter manometer reading (mm Hg) |
| Ta: actual ab | solute temperature (°K) |
| Pa: actual ba | rometric 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

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002 www.tisch-env.com

TOLL FREE: (877)263-7610 FAX: (513)467-9009

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES .



SUB-CONTRACTING REPORT

CONTACT

: MR MAGNUM FAN

WORK ORDER

HK2423104

CLIENT

PROJECT

: ENVIROTECH SERVICES CO.

ADDRESS

: RM 712, 7/F, MY LOFT 9 HOI WING ROAD.

TUEN MUN, N.T. HK

SUB-BATCH

DATE RECEIVED : 8-JUN-2024

: 1

DATE OF ISSUE : 17-JUN-2024

NO. OF SAMPLES : 1 CLIENT ORDER

General Comments

- Sample Information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) Is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.
- Calibration was subcontracted to Envirotech Services Company.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group WORK ORDER

: HK2423104

SUB-BATCH

PROJECT

: 1

CLIENT

: ENVIROTECH SERVICES CO.



| ALS Lab | Client's Sample ID | Sample Type | Sample Date | External Lab Report No. |
|---------------|-----------------------|----------------|-------------|-------------------------|
| HK2423104-001 | Sibata LD-3B (476664) | Equipments | 01-Jun-2024 | S/N: 476664 |

----- END OF REPORT -----



Envirotech Services Co.

Rm. 712, 7/F HM: 136, 1ft My Loft, G Hot Wing Road, Tuan Mun, H.K. Tot: 2560 8460 Fax: 2560 8563 E-mai: anviroschili

Equipment Verification Report (TSP)

| Equipment (| Calibrated: |
|-------------|-------------|
|-------------|-------------|

Type:

Laser Dust Monitor

Manufacturer:

Sibata LD-3B

Serial No.:

476664

Equipment Ref.:

N/A

ALS Job Order:

HK2421761

Standard Equipment

Standard Equipment:

High Volume Sampler (TSP)

Location:

Envirotech Room (Calibration Room)

Equipment Ref.:

HVS 8162

Last Calibration Date:

1-Jun-2024

Equipment Verification Results:

Verification Date:

1-Jun-2024

| Hour | Time | Mean Temp °C | Mean Pressure (hpa) | Concentration in µg/m³ (Standard Equipment) (Y-Axis) | Concentration in μg/m ³ (Calibrated Equipment) (X-Axis) |
|------------|-----------|-----------------|---------------------------|--|--|
| 1hr 00mins | 0910-1010 | 27.2 | 1008 | 13 | 15 |
| 2hr 00mins | 1015-1215 | 27.3 | 1008 | 27 | 30 |
| 3hr 00mins | 1315-1615 | 27.4 | 1008 | 71 | 73 |

| Linear Regression of Y or X | | IC 100 | | | |
|------------------------------|--------------------------------|--------------|---------------------------------------|--|-------------------------------|
| Slope (K-factor): | 1.2766(µg/m ³)/CPM | 90 - | | | |
| Correlation Coefficient (R): | 0.9980 | | y = 1.2766x - 1.9258 | A STATE OF THE STA | |
| Date of Issue: | 7-Jun-2024 | 70 - | $R^2 = 0.9961$ | | Activities and the control of |
| | | 50 - 40 - | | | |
| | | 30 - | | | |
| | | 20 | | | |
| | | 10 | · · · · · · · · · · · · · · · · · · · | 1 | |
| Remarks: | | 0 | 20 Ostd(m3/min) | 60 | 80 |

1 . Strong Correlation (>0.8)

2. Factor 1.2766(µg/m³)/CPM should be applied for TSP monitoring

*If R<0.5, repair or verification is required for the equipment

Operator:

P.F.Yeung

Signature

Date: 07 June 2024

QC Reviewer:

K.F.Ho

Signature

Date: 07 June 2024

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

Location: Rm. 712, My Loft, Tuen Mun Date of Calibration: 1-Jun-24 HVS ID: 8162 Next Calibration Date: 31-Aug-24 Name and Model: TISCH HVS Model TE-5170 Operator: K.F.Ho CONDITIONS Sea Level Pressure (hpa) 1008.2 Corrected Pressure (mm Hg) 756.2 Temperature (°C) 27.2 Temperature (K) 300.2 CALIBRATION ORIFICE TISCH Make: **Qstd Slope** 2.07544 Model: TE-5025A **Qstd Intercept** -0.03205 Serial#: 2454 CALIBRATION H2O(L) H20(R) Plate H₂O Ostd I IC LINEAR No. (in) (in) (in) (m3/min) (chart) (corrected) REGRESSION 18 6.5 6.5 13.0 1.742 62 61.63 Slope= 48.07 5.4 13 5.4 10.8 1.590 54 53.68 Intercept= -22.843 10 4.2 4.2 8.4 1.318 40 39.76 Corr. Coeff.= 0.9974 7 2.7 2.7 5.4 30 1.128 29.82

22

21.87

0.899

Calulations:

5

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]

1.7

3.4

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

1.7

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

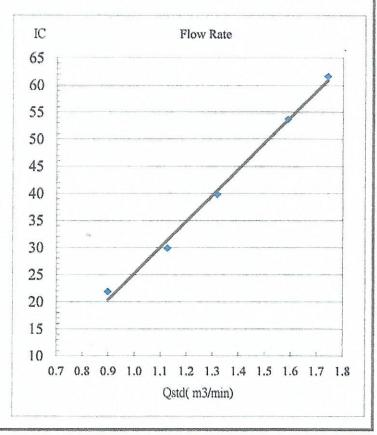
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





RECALIBRATION DUE DATE:

December 15, 2024

Certificate of Calibration

Calibration Certification Information

Cal. Date: December 15, 2023

Rootsmeter S/N: 438320

Ta: 295
Pa: 748.5

°K

Operator: Jim Tisch

mm Hg

Calibration Model #:

TE-5025A

Calibrator S/N: 2454

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|-------------------|--------------------|---------------|----------------|---------------|----------------|
| 1 | 1 | 2 | 1 | 1.4250 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0090 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9040 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8610 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7110 | 12.8 | 8.00 |

| | | Data Tabula | tion | | |
|--------|----------|---|--------|----------|---------------------------|
| Vstd | Qstd | $\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ | | Qa | $\sqrt{\Delta H (Ta/Pa)}$ |
| (m3) | (x-axis) | (y-axis) | Va | (x-axis) | (y-axis) |
| 0.9907 | 0.6952 | 1.4106 | 0.9957 | 0.6988 | 0.8878 |
| 0.9864 | 0.9776 | 1.9949 | 0.9914 | 0.9826 | 1.2556 |
| 0.9844 | 1.0890 | 2.2304 | 0.9894 | 1.0945 | 1.4037 |
| 0.9832 | 1.1420 | 2.3393 | 0.9882 | 1.1478 | 1.4723 |
| 0.9779 | 1.3754 | 2.8213 | 0.9829 | 1.3824 | 1.7756 |
| | m= | 2.07544 | | m= | 1.29961 |
| QSTD | b= | -0.03205 | QA | b= | -0.02017 |
| | r= | 0.99999 | | r= | 0.99999 |

| | Calculation | าร | |
|-------|--|---------------|---|
| Vstd= | ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta) | Va= | ΔVol((Pa-ΔP)/Pa) |
| - | Vstd/ΔTime | Qa= | Va/∆Time |
| | For subsequent flow ra | te calculatio | ns: |
| Qstd= | $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$ | Qa= | $1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$ |

| | Standard Conditions |
|----------------|------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| | Key |
| ΔH: calibrator | manometer reading (in H2O) |
| ΔP: rootsmete | er manometer reading (mm Hg) |
| Ta: actual abs | olute temperature (°K) |
| Pa: actual bar | ometric 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

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002 www.tisch-env.com

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