



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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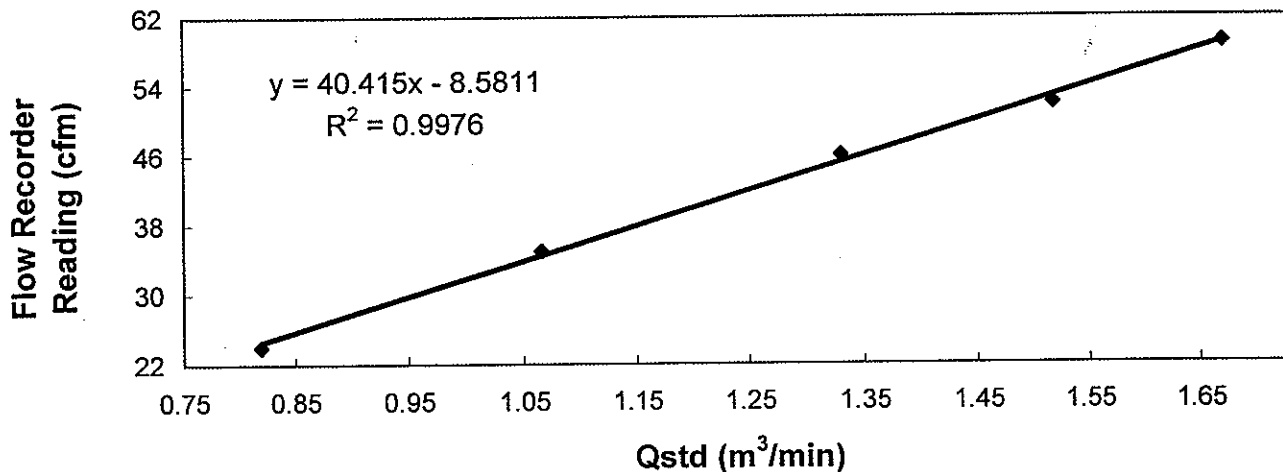
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 11 June 2008
Serial No. : 1173 (ET/EA/003/17) Calibration Due Date : 10 August 2008
Method : Based on Operation Manual to perform 5-point calibration by using calibration kit
Tisch TE-5025 A

| | | | | | | |
|---------|--|-------------|------|------|---------|-------|
| Results | Flow recorder reading (cfm) | 59 | 52 | 49 | 35 | 24 |
| | Qstd (Actual flow rate, m ³ /min) | 1.67 | 1.52 | 1.33 | 1.07 | 0.82 |
| | Pressure : | 751.6 mm Hg | | | Temp. : | 302 K |

Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)
Date of Calibration: 11 June 2008



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after 5-point calibration

The high volume sampler complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by :
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by :
LAW, Sau Yee
(Senior Environmental Officer)



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TEST REPORT

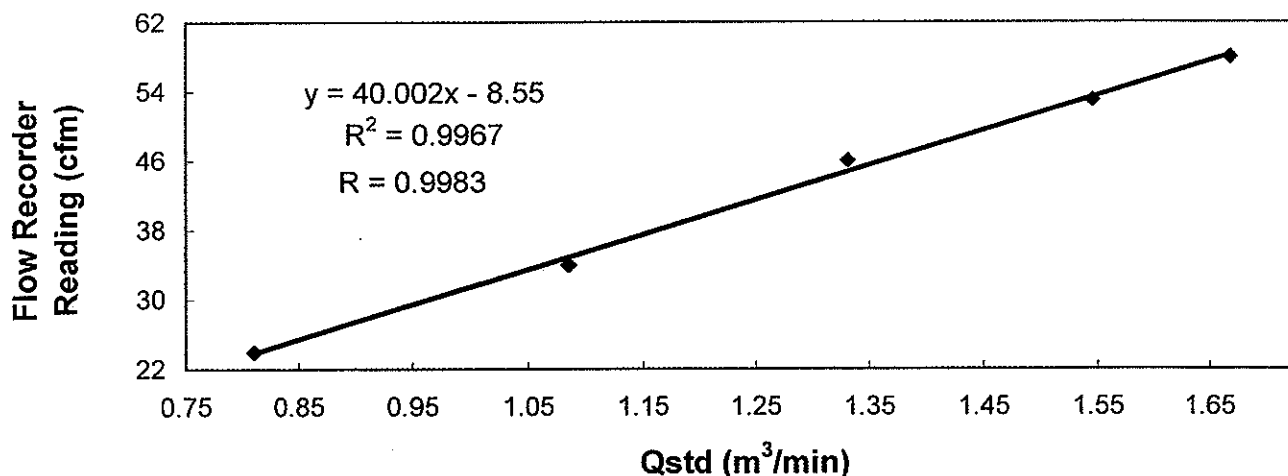
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 12 August 2008
Serial No. : 1173 (ET/EA/003/17) Calibration Due Date : 11 October 2008
Method : Based on Operation Manual to perform 5-point calibration by using calibration kit
Tisch TE-5025 A

Results :


| | | | | | |
|--|---------------|------|------|------|------|
| Flow recorder reading (cfm) | 58 | 53 | 46 | 34 | 24 |
| Qstd (Actual flow rate, m ³ /min) | 1.67 | 1.55 | 1.33 | 1.09 | 0.81 |
| Pressure : 753 mm Hg | Temp. : 298 K | | | | |

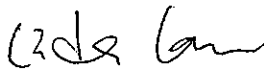
Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)
Date of Calibration: 12 August 2008



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after 5-point calibration

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TEST REPORT

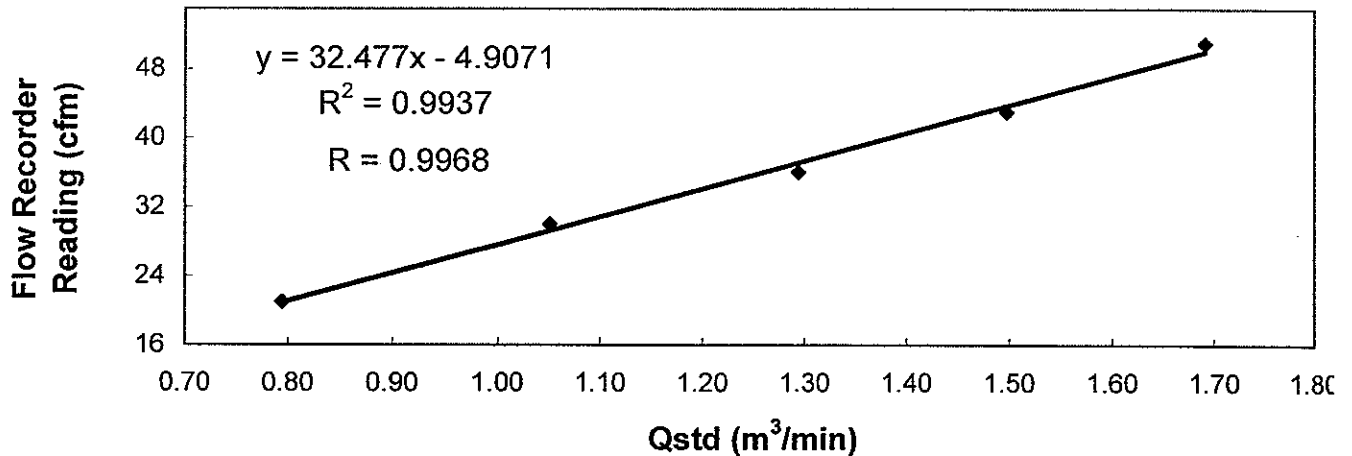
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 12 August 2008
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 11 October 2008
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results :

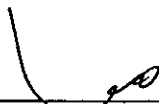
| | | | | | |
|--|-----------|------|---------|-------|------|
| Flow recorder reading (cfm) | 51 | 43 | 36 | 30 | 21 |
| Qstd (Actual flow rate, m ³ /min) | 1.69 | 1.50 | 1.29 | 1.05 | 0.79 |
| Pressure : | 753 mm Hg | | Temp. : | 298 K | |


Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)
Date of Calibration: 12 August 2008

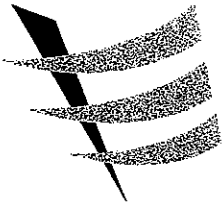


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by : 
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by : 
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TEST REPORT

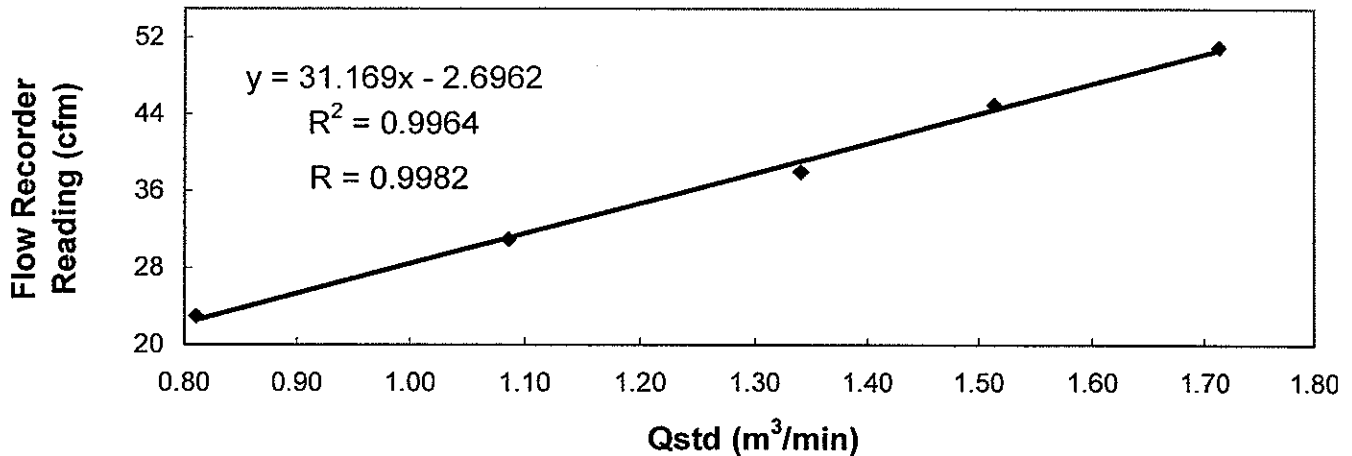
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 12 August 2008
Serial No. : 9912 (ET / EA / 003 / 15) Calibration Due Date : 11 October 2008
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results :

| | | | | | |
|--|-----------|------|---------|-------|------|
| Flow recorder reading (cfm) | 51 | 45 | 38 | 31 | 23 |
| Qstd (Actual flow rate, m ³ /min) | 1.71 | 1.51 | 1.34 | 1.09 | 0.81 |
| Pressure : | 753 mm Hg | | Temp. : | 298 K | |

Sampler 9912 Calibration Curve
Site: Sok Kwu Wan (AM-3)
Date of Calibration: 12 August 2008



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by :
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by :
LAW, Sau Yee
(Senior Environmental Officer)



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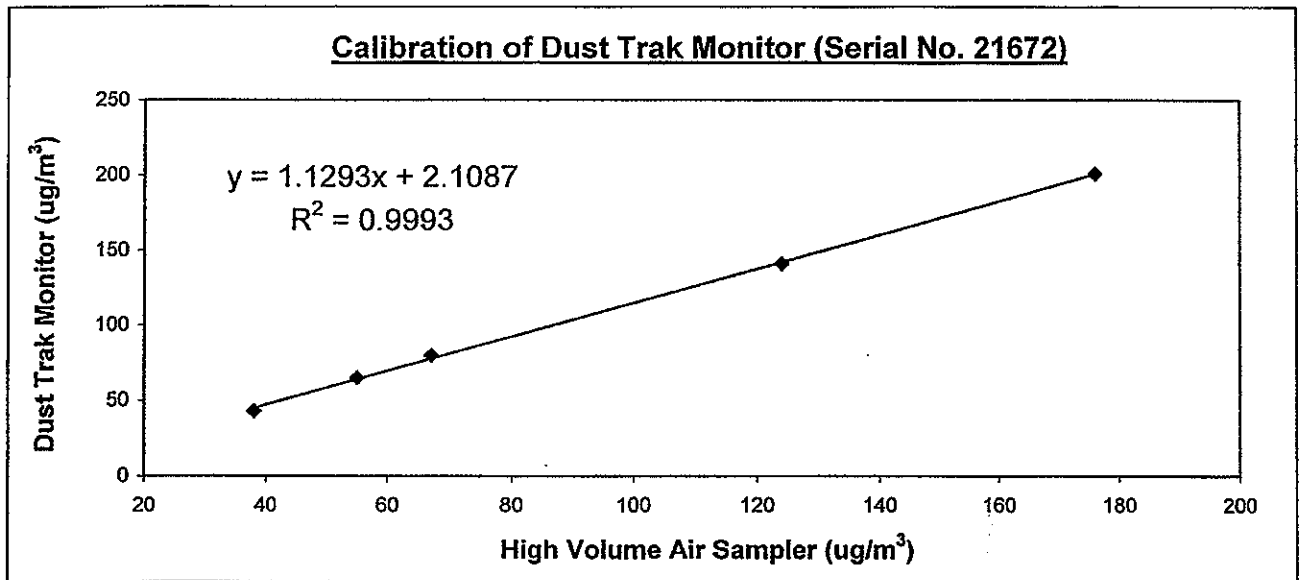
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak **Date of Calibration** : 14 March 2008
Serial No. : 21672 (ET / EA / 001 / 01) **Calibration Due Date** : 13 September 2008
Method : The Dust Trak Monitor and High Volume Air Sampler were placed together to perform five-point calibration under the same environmental condition.


Results :

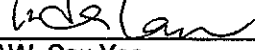
| | | | | | |
|--|----------------------------------|----|----|-----|-----|
| Dust Trak Monitor ($\mu\text{g}/\text{m}^3$) | 43 | 65 | 80 | 141 | 201 |
| High Volume Air Sampler ($\mu\text{g}/\text{m}^3$) | 38 | 55 | 67 | 124 | 176 |
| High Volume Air Sampler Serial No.: 1178 | Calibration Date: 21 / 03 / 2008 | | | | |



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / does not comply * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : 
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by : 
LAW, Sau Yee
(Senior Environmental Officer)



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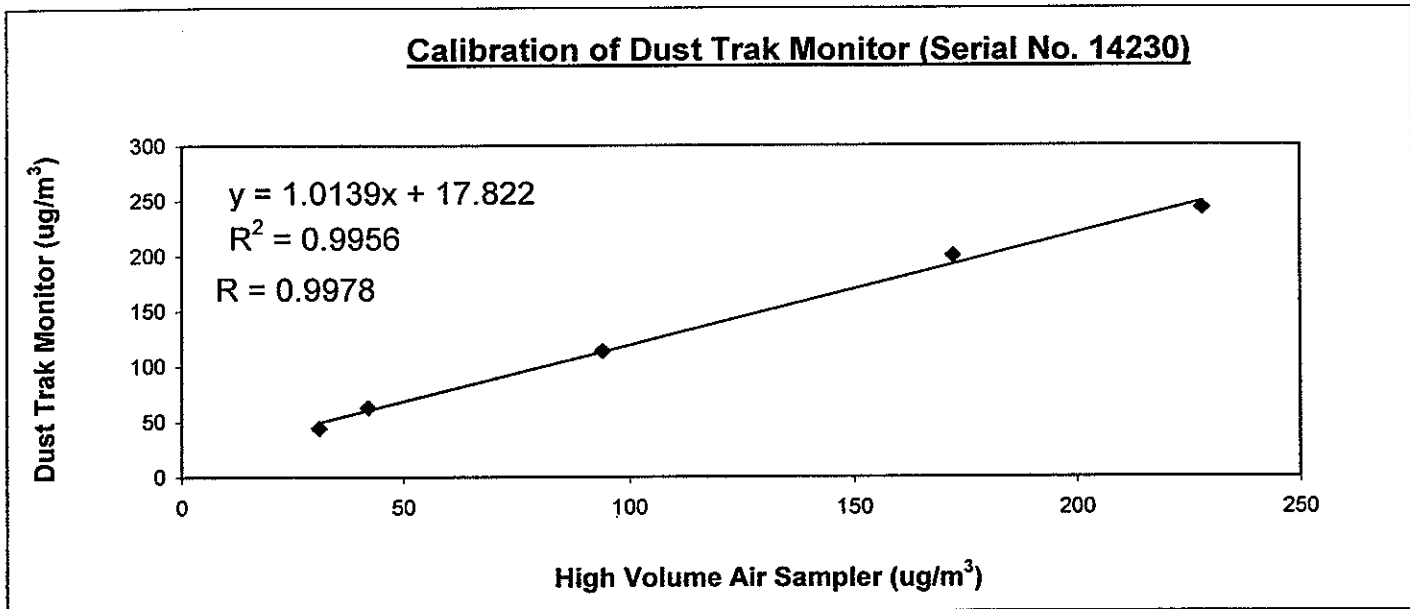
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak **Date of Calibration** : 12 July 2008
Serial No. : 14230 (ET/EA/001/04) **Due Date** : 11 January 2009
Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Sampler together under the same environmental condition


Results :

| | | | | | |
|--|----|----|---|-----|-----|
| Dust Trak Monitor (ug/m ³) | 44 | 63 | 114 | 200 | 243 |
| High Volume Air Sampler (ug/m ³) | 31 | 42 | 94 | 172 | 228 |
| High Volume Air Sampler Serial No.: 1178 | | | Calibration Due Date: 01 September 2008 | | |



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / does not comply * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : 
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by : 
LAW, Sau Yee
(Senior Environmental Officer)



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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 14, 2008 Rootmeter S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1172 Pa (mm) - 750.57

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORFICE DIFF H2O (in.) |
|----------------|-------------------|------------------|------------------|-----------------|--------------------|-----------------------|
| 1 | NA | NA | 1.00 | 1.3800 | 3.1 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9650 | 6.3 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8630 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8230 | 8.6 | 5.50 |
| 5 | NA | NA | 1.00 | 0.6770 | 12.7 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|--------|---------------|----------|--------|-------------|----------|
| 0.9935 | 0.7199 | 1.4125 | 0.9958 | 0.7216 | 0.8866 |
| 0.9893 | 1.0252 | 1.9976 | 0.9916 | 1.0276 | 1.2538 |
| 0.9870 | 1.1437 | 2.2334 | 0.9894 | 1.1464 | 1.4018 |
| 0.9862 | 1.1983 | 2.3424 | 0.9885 | 1.2011 | 1.4703 |
| 0.9807 | 1.4486 | 2.8251 | 0.9830 | 1.4521 | 1.7732 |

Qstd slope (m) = 1.94106
 intercept (b) = 0.01311
 coefficient (r) = 0.99996

Qa slope (m) = 1.21546
 intercept (b) = 0.00823
 coefficient (r) = 0.99996

y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$

y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

$V_{std} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$
 $Q_{std} = V_{std} / \text{Time}$

$V_a = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$
 $Q_a = V_a / \text{Time}$

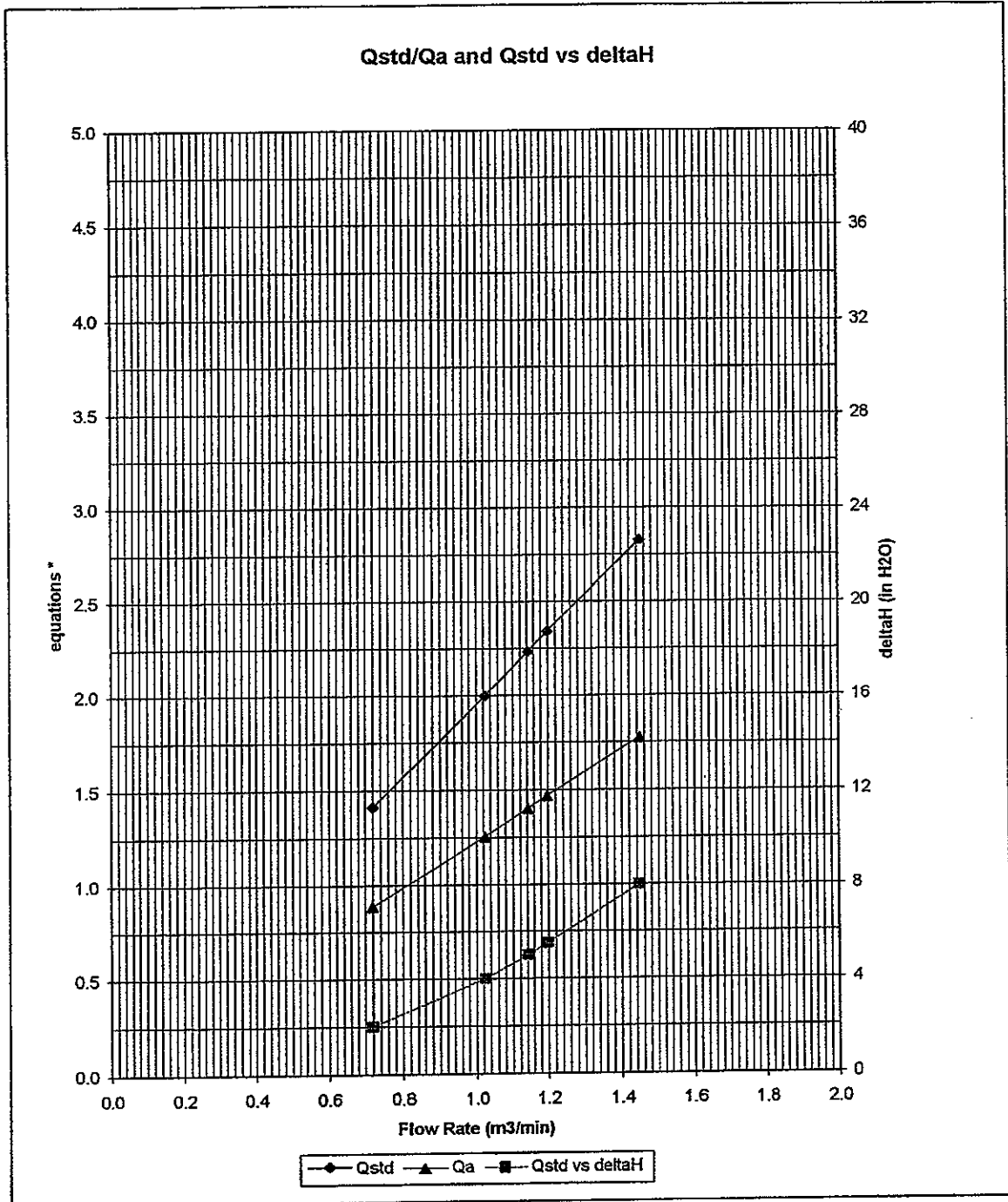
For subsequent flow rate calculations:

$Q_{std} = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$
 $Q_a = 1/m \{ [\text{SQRT} \text{H2O}(\text{Ta}/\text{Pa})] - b \}$



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:
$$\sqrt{\Delta H \left(\frac{P_a}{P_{std}} \right) \left(\frac{T_{std}}{T_a} \right)}$$

Qa series:
$$\sqrt{(\Delta H (T_a / P_a))}$$

1172