



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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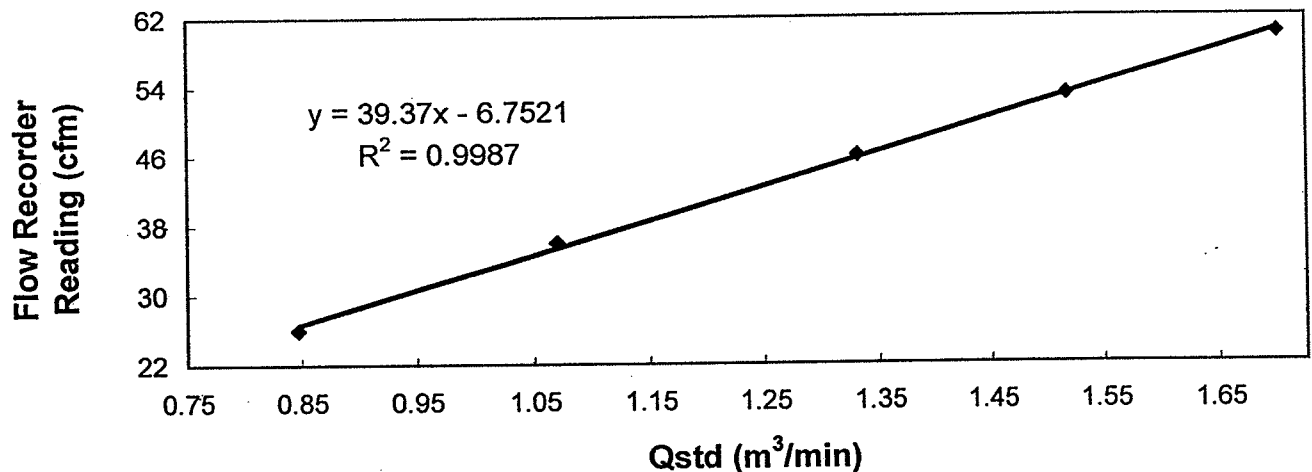
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 14 April 2008
Serial No. : 1173 (ET / EA / 003 / 17) Calibration Due Date : 13 June 2008
Method : Based on Operation Manual to perform 5-point calibration by using calibration kit
Tisch TE-5025 A

Results	Flow recorder reading (cfm)	60	53	46	36	26
	Qstd (Actual flow rate, m ³ /min)	1.70	1.52	1.33	1.07	0.85
	Pressure : 756.81 mm Hg	Temp. : 295 K				

Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)
Date of Calibration: 14 April 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 : MAK Kei Wai
MAK, Kei Wai
(Senior Technician)

Approved by : CHOW Hoi Tat
CHOW, Hoi Tat
(Asst. Environmental Officer)



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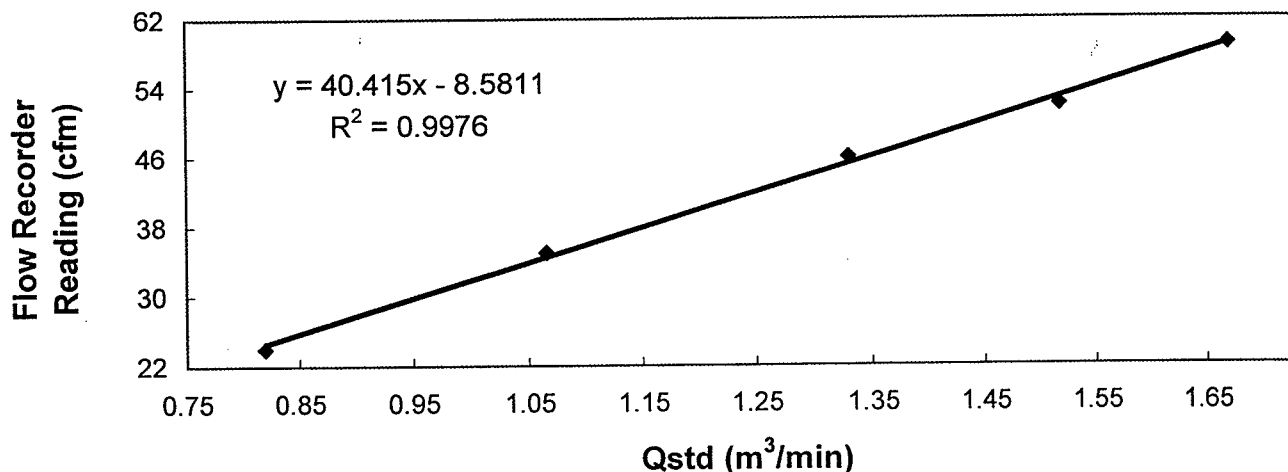
TEST REPORT

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				

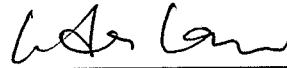
Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)
Date of Calibration: 11 June 2008



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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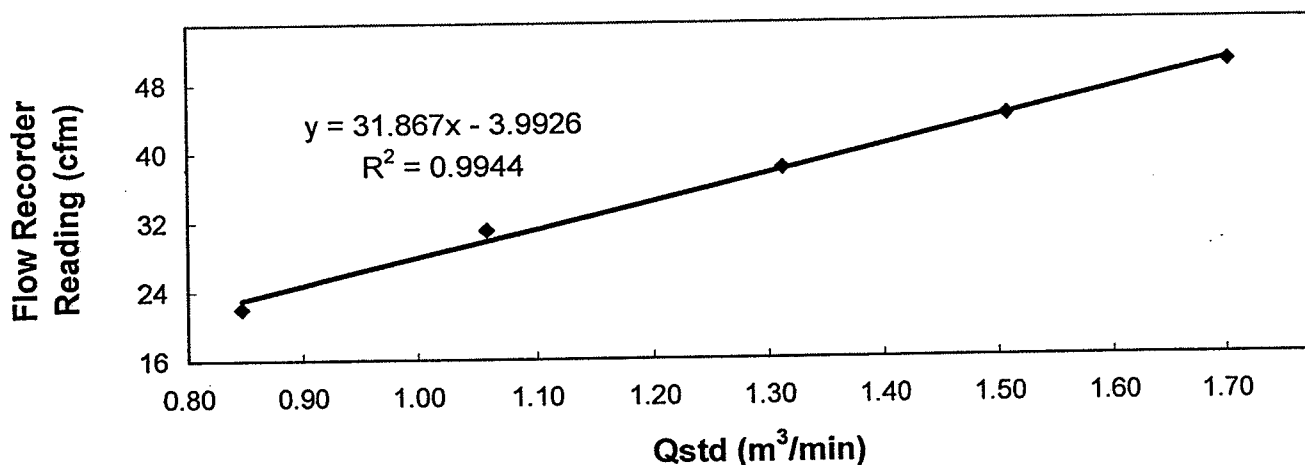
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 14 April 2008
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 13 June 2008
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results	Flow recorder reading (cfm)	50	44	38	31	22
	Qstd (Actual flow rate, m ³ /min)	1.70	1.51	1.31	1.06	0.85
	Pressure :	756.81 mm Hg			Temp. :	295 K

Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)
Date of Calibration: 14 April 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 : MAK, Kei Wai
MAK, Kei Wai
(Senior Technician)

Approved by : CHOW, Hoi Tat
CHOW, Hoi Tat
(Asst. Environmental Officer)



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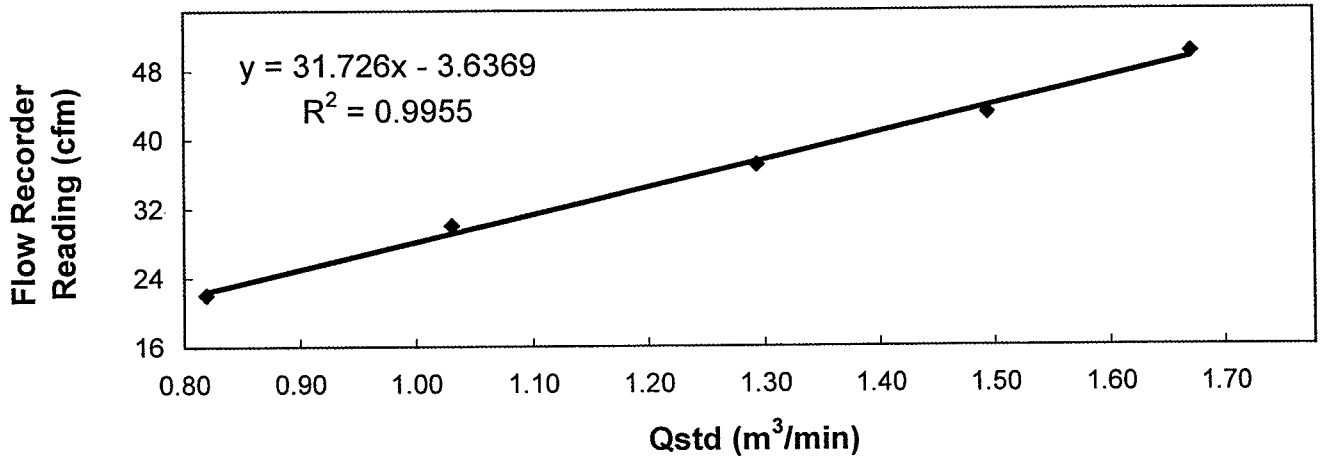
TEST REPORT

**Calibration Report
of
High Volume Air Sampler**

Manufacturer : Graseby GMW Date of Calibration : 11 June 2008
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 10 August 2008
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results	Flow recorder reading (cfm)	50	43	37	30	22
	Qstd (Actual flow rate, m ³ /min)	1.67	1.49	1.29	1.03	0.82
	Pressure :	751.56 mm Hg		Temp. :	302 K	

**Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)
Date of Calibration: 11 June 2008**

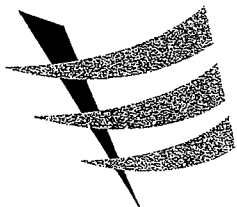


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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
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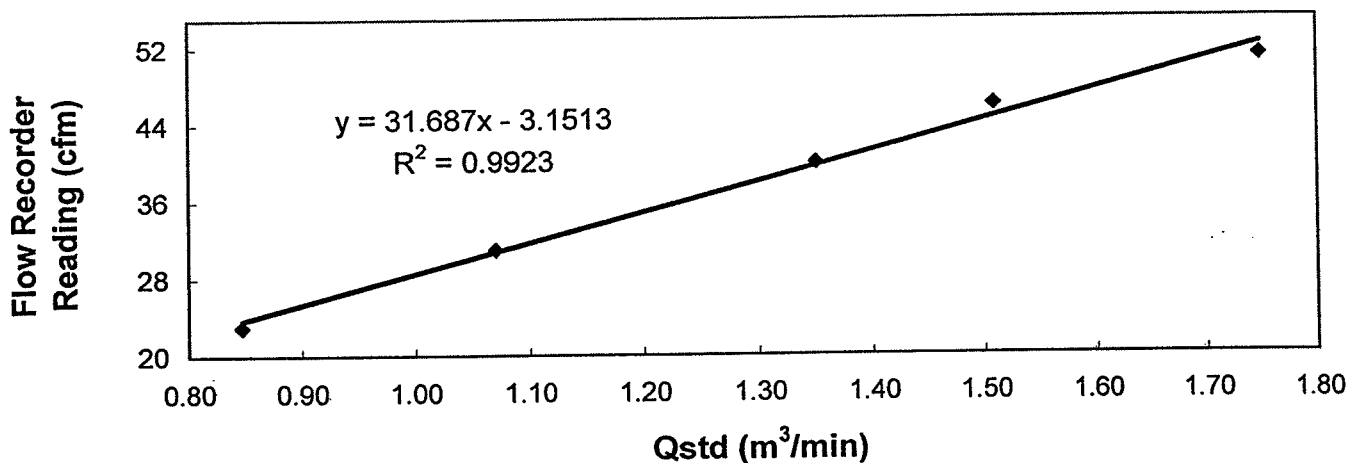
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 14 April 2008
Serial No. : 9912 (ET / EA / 003 / 15) Calibration Due Date : 13 June 2008
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results	Flow recorder reading (cfm)	49	44	39	30	25
	Qstd (Actual flow rate, m ³ /min)	1.71	1.52	1.34	1.05	0.83
	Pressure :	756.81 mm Hg			Temp. :	295 K

Sampler 9912 Calibration Curve
Site: **Sok Kwu Wan (AM-3)**
Date of Calibration: **14 April 2008**

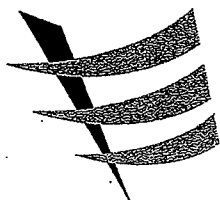


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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

Calibrated by : MAK, Kei Wai
MAK, Kei Wai
(Senior Technician)

Approved by : CHOW, Hoi Tat
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TEST REPORT

Internal Calibration Report

of

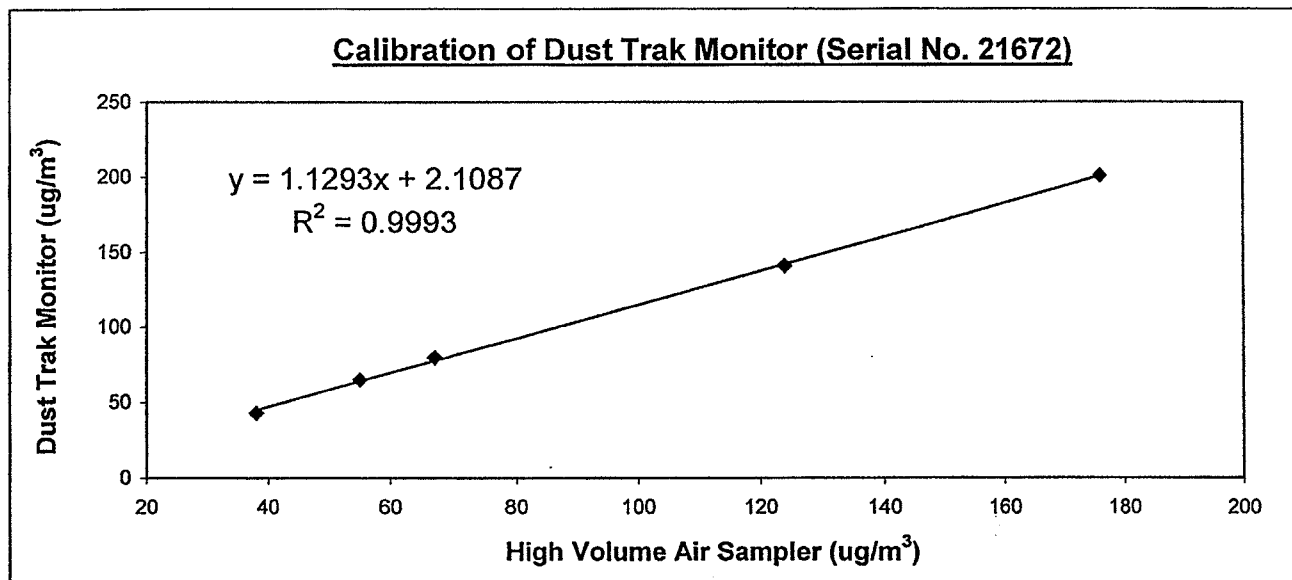
Dust Trak Monitor

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.

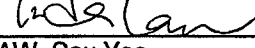
Results	Dust Trak Monitor ($\mu\text{g}/\text{m}^3$)	43	65	80	141	201
	High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	38	55	67	124	176
	High Volume Air Sampler Serial No.: 1178	Calibration Date: 21 / 03 / 2008				



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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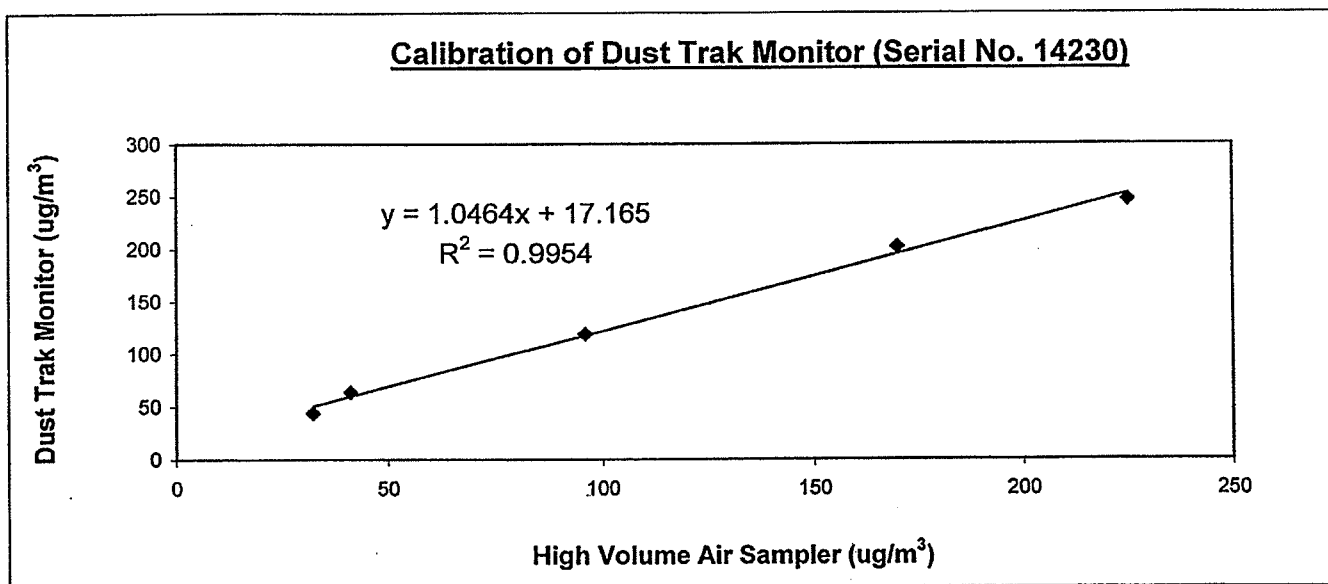
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 12 January 2008
Serial No. : 14230 (ET/EA/001/04) Due Date : 11 July 2008
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 ($\mu\text{g}/\text{m}^3$)	44	64	119	202	247
High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	32	41	96	170	225
High Volume Air Sampler Serial No.: 1178			Calibration Due Date: 20 January 2008		



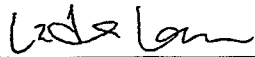
Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

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
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Approved by :


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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 14, 2008 Rootsometer 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			Qa slope (m) = 1.21546		
intercept (b) = 0.01311			intercept (b) = 0.00823		
coefficient (r) = 0.99996			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

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

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

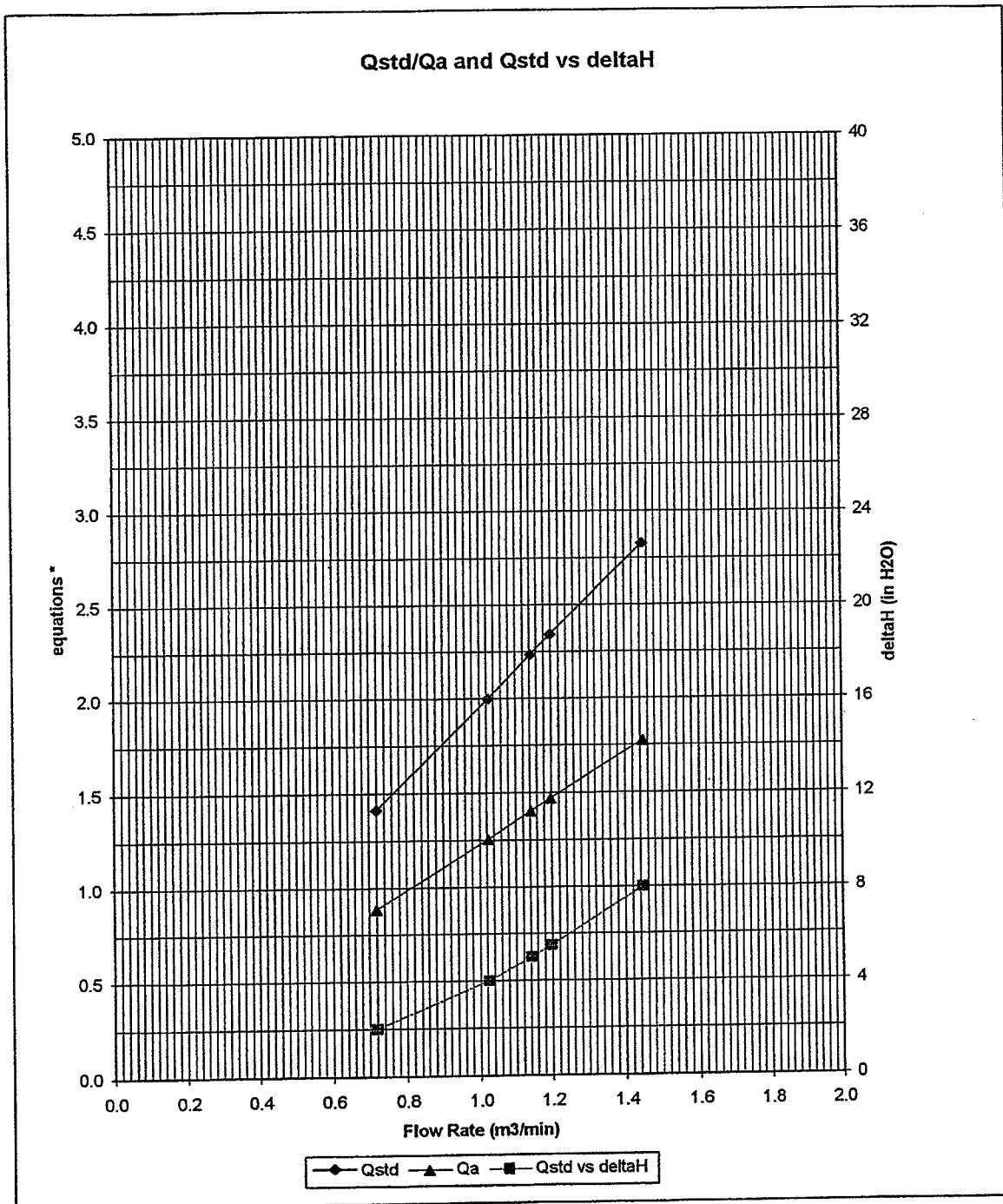
For subsequent flow rate calculations:

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



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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