ANNEX D1   CALIBRATION CERTIFICATES FOR DUST MONITORING EQUIPMENT

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

Location ID: AM1	Date of Calibration:	20-Feb-24
Name and Model : TISCH HVS Model TE-5170	Next Calibration Date:	19-Apr-24
	Operator:	P.F.Yeung

CONDITIONS

Sea Level Pressure (hpa)	1017	Corrected Pressure (mm Hg)	762.8
Temperature (°C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make:	TISCH	Qstd Slope	2.07544
Model:	TE-5025A	Qstd Intercept	-0.03205
Serial#:	2454		

CALIBRATION

Plate No.	H2O(L) (in)	H20(R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	6.2	6.2	12.4	1.719	56	56.21	Slope= 30.370	
13	4.9	4.9	9.8	1.530	51	51.19	Intercept= 4.548	
10	3.6	3.6	7.2	1.313	45	45.17	Corr. Coeff.= 0.9989	
7	2.4	2.4	4.8	1.075	37	37.14		
5	1.5	1.5	3.0	0.853	30	30.11		

Calulations:

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

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

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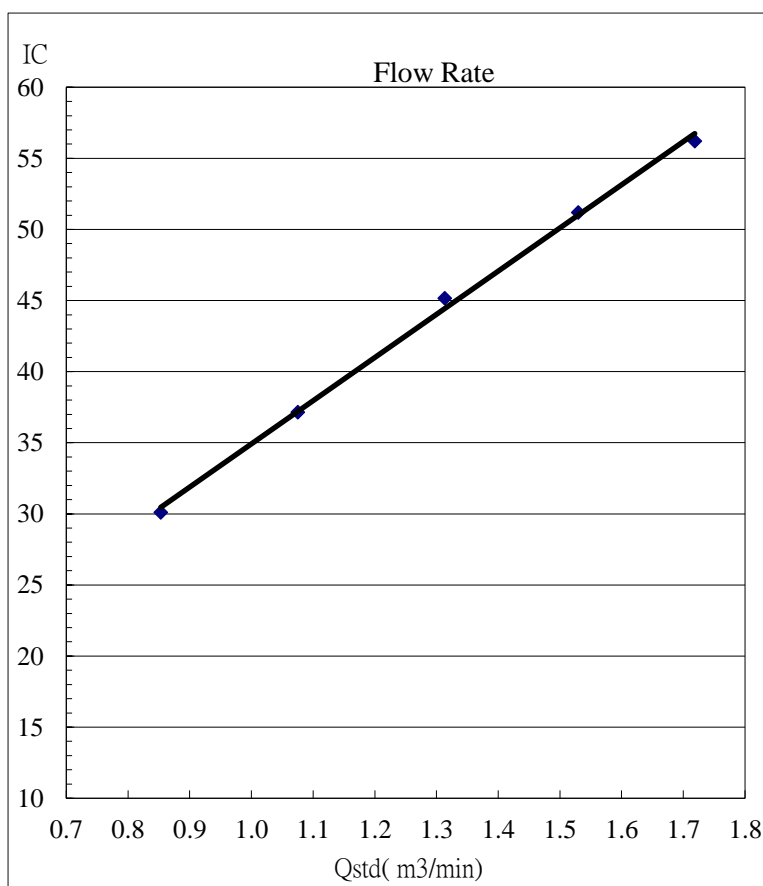
$1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)$

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

Flow Rate

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

Location ID: AM2	Date of Calibration:	20-Feb-24
Name and Model : TISCH HVS Model TE-5170	Next Calibration Date:	19-Apr-24
	Operator:	P.F.Yeung

CONDITIONS

Sea Level Pressure (hpa)	1017	Corrected Pressure (mm Hg)	762.8
Temperature (^{o}C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make:	TISCH	Qstd Slope	2.07544
Model:	TE-5025A	Qstd Intercept	-0.03205
Serial#:	2454		

CALIBRATION

Plate No.	H2O(L) (in)	H20(R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	6.5	6.5	13	1.759	52	52.20	Slope= 26.514
13	5.0	5.0	10	1.545	47	47.18	Intercept= 6.297
10	3.6	3.6	7.2	1.313	42	42.16	Corr. Coeff.= 0.9933
7	2.2	2.3	4.5	1.041	35	35.13	
5	1.4	1.5	2.9	0.839	27	27.10	

Calulations:

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

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

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:

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

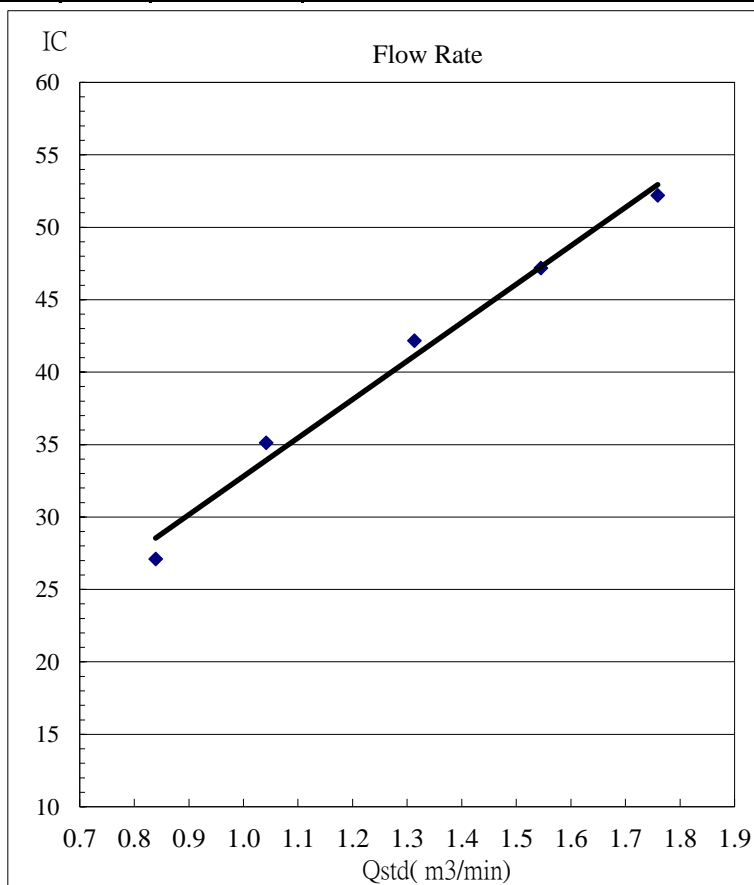m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

Flow Rate

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

Location ID: AM3	Date of Calibration: 20-Feb-24
Name and Model : TISCH HVS Model TE-5170	Next Calibration Date: 19-Apr-24
	Operator: P.F.Yeung

CONDITIONS

Sea Level Pressure (hpa)	1017	Corrected Pressure (mm Hg)	762.8
Temperature (°C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make:	TISCH	Qstd Slope	2.07544
Model:	TE-5025A	Qstd Intercept	-0.03205
Serial#:	2454		

CALIBRATION

Plate No.	H2O(L) (in)	H20(R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	5.6	5.7	11.3	1.641	57	57.22	Slope= 27.283
13	4.3	4.3	8.6	1.434	52	52.20	Intercept= 12.645
10	3.3	3.2	6.5	1.249	46	46.17	Corr. Coeff.= 0.9985
7	2.0	2.0	4.0	0.983	40	40.15	
5	1.2	1.2	2.4	0.765	33	33.12	

Calulations:

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

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

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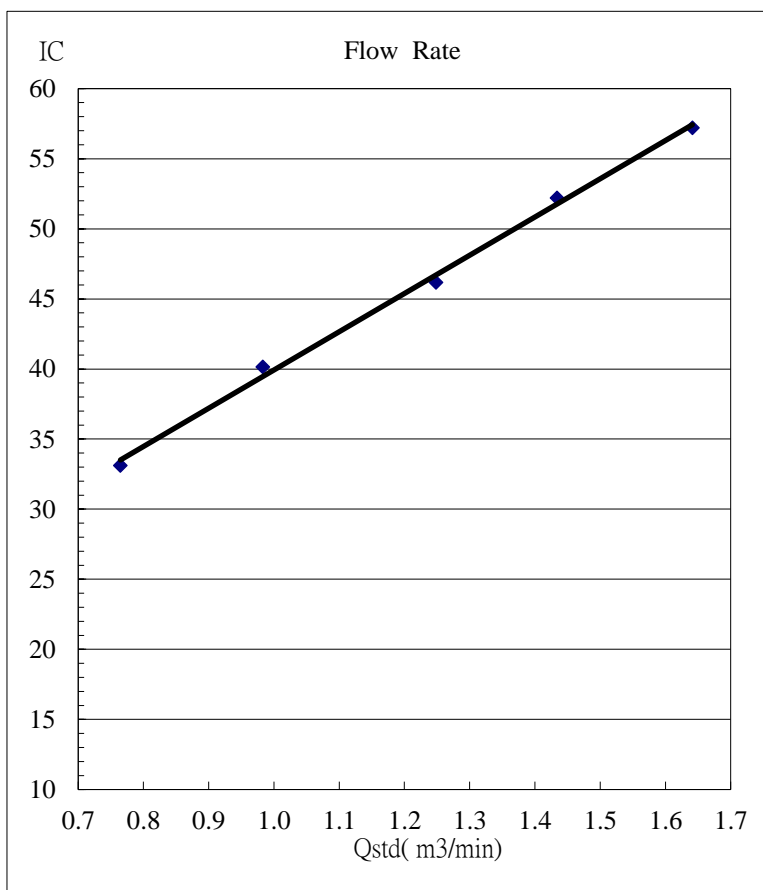
$1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)$

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

Flow Rate

TSP SAMPLER CALIBRATION CACULATION SPREADSHEET

Location ID: AM4		Date of Calibration:	20-Feb-24
Name and Model : TISCH HVS Model TE-5170		Next Calibration Date:	19-Apr-24
		Operator:	P.F.Yeung

CONDITIONS

Sea Level Pressure (hpa)	1017	Corrected Pressure (mm Hg)	762.8
Temperature (^{o}C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make:	TISCH	Qstd Slope	2.07544
Model:	TE-5025A	Qstd Intercept	-0.03205
Serial#:	2454		

CALIBRATION

Plate No.	H2O(L) (in)	H20(R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	6.0	6.0	12.0	1.691	57	57.22	Slope= 32.433
13	4.7	4.8	9.5	1.506	51	51.19	Intercept= 1.905
10	3.7	3.7	7.4	1.331	44	44.17	Corr. Coeff.= 0.9966
7	2.4	2.5	4.9	1.086	36	36.14	
5	1.5	1.4	2.9	0.839	30	30.11	

Calulations:

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

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

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

IC — Flow Rate chart, IC vs Qstd(m3/min)