Annex D1

Calibration Certificates for Dust Monitoring Equipment

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location ID : AM1
Name and Model: TISCH HVS Model TE-5170

Date of Calibration: 24-Nov-21
Next Calibration Date: 24-Jan-22
Technician: Fai So

CONDITIONS

Sea Level Pressure (hPa)	1020.3	Corrected Pressure (mm Hg)	765.225
Temperature (°C)	19.0	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	6.20	6.20	12.4	1.700	59	60.42
13	4.70	4.70	9.4	1.481	52	53.25
10	3.70	3.70	7.4	1.314	46	47.11
7	2.40	2.40	4.8	1.059	36	36.87
5	1.50	1.50	3.0	0.838	28	28.67

LINEAR REGRESSION
Slope = 37.2995
Intercept = -2.4242
Corr. coeff. = 0.9993

Calculations :

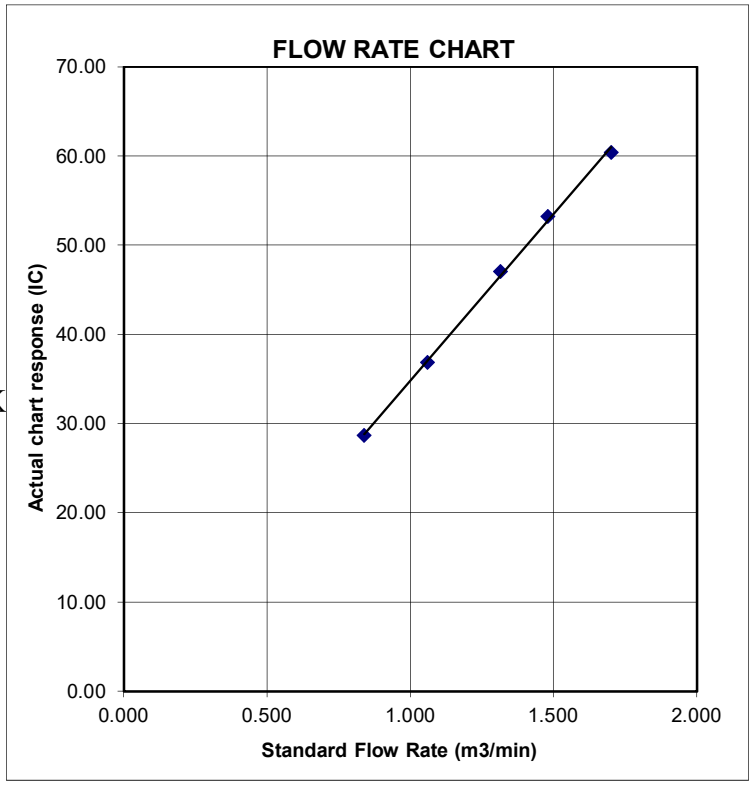
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = 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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location ID : AM2 Date of Calibration: 24-Nov-21
Name and Model: TISCH HVS Model TE-5170 Next Calibration Date: 24-Jan-22
Technician: Fai So

CONDITIONS

Sea Level Pressure (hPa)	1020.3	Corrected Pressure (mm Hg)	765.225
Temperature (°C)	19.0	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	7.20	7.20	14.4	1.831	51	52.23	Slope = 30.7872
13	5.50	5.50	11.0	1.601	46	47.11	Intercept = -3.3292
10	4.40	4.40	8.8	1.433	40	40.96	Corr. coeff. = 0.9980
7	2.70	2.70	5.4	1.123	30	30.72	
5	1.50	1.50	3.0	0.838	22	22.53	

Calculations :

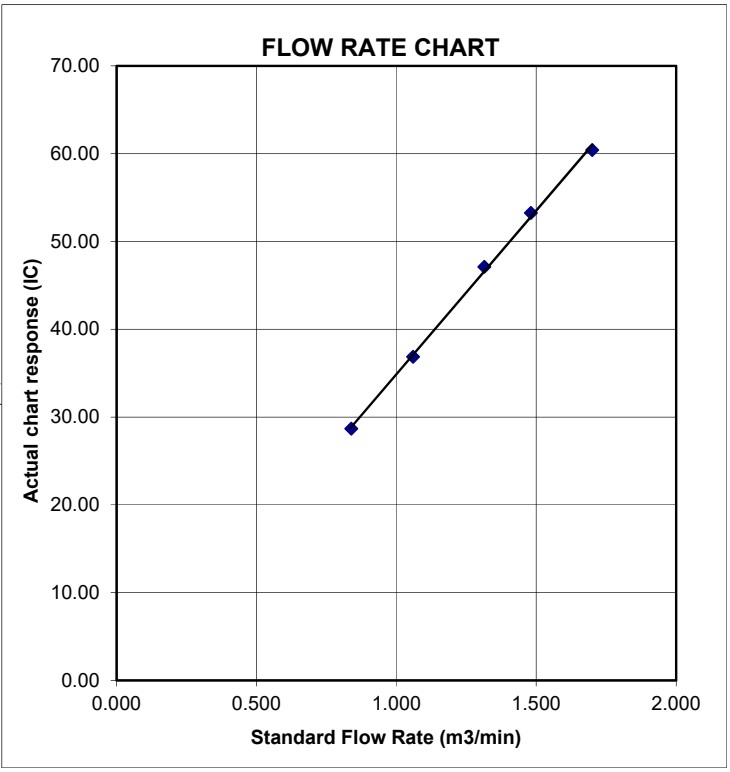
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = 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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location ID : AM3 Date of Calibration: 24-Nov-21
Name and Model: TISCH HVS Model TE-5170 Next Calibration Date: 24-Jan-22
Technician: Fai So

CONDITIONS

Sea Level Pressure (hPa)	1020.3	Corrected Pressure (mm Hg)	765.225
Temperature (°C)	19.0	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.80	6.80	13.6	1.780	54	55.30	Slope = 35.7467
13	5.50	5.50	11.0	1.601	50	51.20	Intercept = -6.9119
10	4.10	4.10	8.2	1.383	42	43.01	Corr. coeff. = 0.9944
7	2.70	2.70	5.4	1.123	34	34.82	
5	1.60	1.60	3.2	0.866	22	22.53	

Calculations :

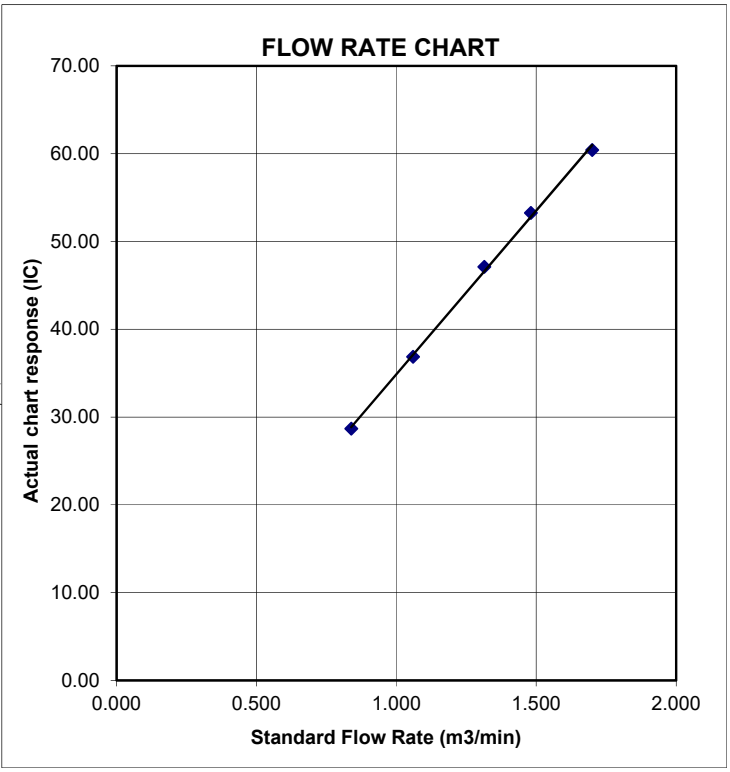
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = 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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location ID : AM4
Name and Model: TISCH HVS Model TE-5170

Date of Calibration: 24-Nov-21
Next Calibration Date: 24-Jan-22
Technician: Fai So

CONDITIONS

Sea Level Pressure (hPa)	1020.3	Corrected Pressure (mm Hg)	765.225
Temperature (°C)	19.0	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.30	6.30	12.6	1.713	49	50.18	Slope = 30.9360
13	5.20	5.20	10.4	1.557	45	46.08	Intercept = -2.2579
10	3.80	3.80	7.6	1.332	39	39.94	Corr. coeff. = 0.9984
7	2.50	2.50	5.0	1.081	30	30.72	
5	1.50	1.50	3.0	0.838	23	23.55	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = 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