

Intertek Testing Services NA Inc.

Middleton, Wisconsin

Calibration Date: 1.19/11

Next Calibration Due: 6/19/2011

Page 1 of 2

Calibrated By: JS

Reviewed By: BL

Date: 1/19/11

This sheet and the MU of Y sheet must be printed and handed in to the calibration administrator. See tabs below.

Use Procedures: MID-OE-LAB-005

Barometer: 29.06

Meter Number 3 Inventory Number: 14

Run Number	Meter Initial	Barometric Pressure	Spirometer Temperature	Vapor Pressure of H ₂ O (Hg)	Meter Temperature	Meter Pressure	Measurement Inches	Spirometer Volume	Meter Final	Y
1	458.174	29.06	70.0	0.7195	70.2	1.2	22.8750	1.0398	459.172	1.0419
2	462.072	29.06	69.5	0.7145	70.2	1.2	22.7500	1.0341	463.075	1.0068
3	463.076	29.06	68.6	0.7195	70.0	1.2	21.7500	0.9886	464.990	1.0283
4	464.990	29.06	68.6	0.7145	70.0	1.2	23.9380	1.0881	465.995	1.0589
5	465.995	29.06	69.5	0.7195	70.2	1.2	23.9380	1.0881	466.998	1.0594
6	467.064	29.06	69.3	0.7145	70.0	1.2	23.6250	1.0739	468.059	1.0541
								1.0521	AVERAGE	1.0416
								0.0389	STDEV.	0.0207709
									MU of Y	0.0415563

Meter Number 1 Inventory Number: 13

Run Number	Meter Initial	Barometric Pressure	Spirometer Temperature	Vapor Pressure of H ₂ O (Hg)	Meter Temperature	Meter Pressure	Measurement Inches	Spirometer Volume	Meter Final	Y
1	953.310	29.06	70.0	0.7320	70.1	1.2	23.438	1.0654	954.315	1.0335
2	951.305	29.06	68.6	0.6978	69.9	1.2	23.688	1.0767	952.315	1.0430
3	952.315	29.06	68.6	0.6978	69.8	1.2	23.2500	1.0568	953.310	1.0390
								1.0663	AVERAGE	1.0385
								0.0100	STDEV.	0.0047802
									MU of Y	0.0096234

Inventory Number: 12

Run Number	Meter Initial	Barometric Pressure	Spirometer Temperature	Vapor Pressure of H ₂ O (Hg)	Meter Temperature	Meter Pressure	Measurement Inches	Spirometer Volume	Meter Final	Y
1	995.577	29.06	68.3	0.6909	69.5	1.2	22.313	1.0142	996.572	0.9973
2	996.572	29.06	68.5	0.6955	69.0	1.2	22.625	1.0284	997.571	1.0058
3	998.577	29.06	68.8	0.7024	69.2	1.2	22.4380	1.0199	999.575	0.9980
								1.0208	AVERAGE	1.0004
								0.0071	STDEV.	0.0047
									MU of Y	0.00941
									MU of Y	0.0188521

Accuracy of reading measment : +/- 1/32 inches
Accuracy of reading measment : +/- 1/32 inches
Accuracy of reading meter dial: +/- .0001 cu/ft.

0.739

Measurement Uncertainty is calculated using the following formula:

$O.M.U. = k \cdot \sqrt{(A.D.)^2 + (S.D.)^2 + (R.M.U.)^2}$
O.M.U. = Overall Measurement Uncertainty
A.D. = Average Deviation of the difference of all measured results compared to the reference value.
S.D. = Standard Deviation of the difference of all measured results compared to the reference value.
k = Confidence Factor (2 for 95% confidence)
R.M.U. = Standard Measurement Uncertainty of Reference Measurement Equipment. R.M.U. is considered as the measurement uncertainty as stated on calibration certificates of equipment, or the tolerance listed in the calibration standard of the test equipment.

G:\MID_Depts\Calibrations\Procedures and Verifications\MID-OE-LAB-005 E&E Dry Gas Meters (I)