



Calibration Date: 4/8/2016 Calibration By: KS

Calibration Due: 10/8/2016

Using: Ice bath and boiling water in beakers

Use Procedure: WI-L-AMER-MID-CALI-BP-845

Description: E&E Thermocouple System

Model: N/A

Serial: N/A

Asset #: 500

Room Temp: 71.7 Baro: 28.38

Today's boiling point of water: 210.11 F°

Thermocouple # and location	Boiling Water	Ice Bath
1) Flue Gas	212.0	31.8
2) Room Temperature	212.3	32.5
3) Dry Bulb (Tunnel)	212.4	30.8
4) Unused	212.3	31.0
5) Unit Top	212.3	30.9
6) Unit Back	213.4	31.4
7) Unit Right Side	212.5	30.9
8) Unit Left Side	212.1	31.0
9) Unit Bottom	213.8	31.2
10) Catalyst Downstream	214.0	31.7
11) Catalyst Center	212.9	32.2
12) aux	213.0	32.6
12) aux	213.1	32.7
14) aux	213.2	32.6
15) aux	212.8	31.7
16) aux	213.0	32.0
17) DGM (in train 1)	213.1	32.1
18) DGM (out train 1)	213.0	31.7
19) Filter (train 1)	212.9	31.9
20) Filter (train 1)	213.4	32.2
21) DGM (in train 2)	213.1	32.3
22) DGM (out train 2)	212.9	31.6

Average Deviation: 2.8 -0.2 1.3

Standard Deviation: 0.5 0.6 0.6

Overall MU at 95% CL: 6

Reviewed by: Paul Pratt

Date: 4/8/16

Measurement Uncertainty is calculated using the following formula:

$$\text{O.M.U.} = k \cdot \sqrt{(\text{A.D.})^2 + (\text{S.D.})^2 + (\text{R.M.U.}/2)^2}$$

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.