

DRAFT OSU CALORIMETER REQUIREMENT

Calorimeter Specification:

1. One inch diameter, cylindrical, water-cooled, Gardon Gauge.
 - 1.1 Calibration range approximately 0 – 5 BTU (Watts)
 - 1.1.1 Foil diameter shall be .25 in. +/- .005 (-cm)
 - 1.1.2 Foil thickness shall be .0005 in +/- .0001 (-cm)
 - 1.1.3 Foil material shall be Thermocouple grade Constantan
 - 1.1.4 Temperature measurement shall be a copper constantan thermocouple
 - 1.1.5 Copper center wire diameter of .0005 in. +/- .0001 (-cm)
 - 1.2 The entire face of the calorimeter shall be lightly coated with "Black Velvet" paint having an emissivity of 96 or higher

Calorimeter Calibration:

2. Calibration method shall be by comparison to a like standardized transducer.
 - 2.1 Standardized transducer shall meet the specifications in 1. Above.
 - 2.1.1 It shall be calibrated against a primary standard by NIST.
 - 2.2 The method of transfer shall be a heated graphite plate.
 - 2.2.1 The graphite plate shall:
 - 2.2.1.1 Be heated electrically
 - 2.2.1.2 Have a clear surface area on each side of the plate of at least 2 in. x 2 in. (-cm)
 - 2.2.1.3 Be 1/8 in. +/- 1/16 in. thick (-cm)
 - 2.2.2 The two transducers shall be centered on opposite sides of the plate at equal distances from the plate.
 - 2.2.2.2 The distance of the calorimeter to the plate shall be no less than 1/16 in. (-cm) nor greater than 3/8 in. (-cm).
 - 2.3 The range used in calibration shall be at least 0-3.5 watts and no greater than 0-5 watts.
 - 2.4 The recording device used must record the two transducers simultaneously or at least within 1/10 of a second of each other.

*(-cm) metric conversions to be added.