

FIXED POINT CALIBRATION FOR TYPE N THERMOCOUPLES IN THE 0°C TO 1000°C RANGE

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ABSTRACT

Fixed point calibration method is normally used for noble metal thermocouples. Basic metal thermocouples, on the other hand, are usually calibrated by comparison. This happens because of their electromotive force (emf) instability in short time. This paper tries to enlighten this discussion presenting results which confirm that type N thermocouples have the best emf stability among base metal thermocouples. The calibration method, laboratory facilities, results, and uncertainty budget are reported in this paper. Only sheathed thermocouples having compacted mineral oxide insulation were calibrated in four fixed points: silver, aluminium, zinc, and tin. Annealing effects and emf reproducibility are presented along 100h in several calibrations.