

AAP Policy and Guidance on Thermometer Selection and Records Cheat Sheet

General	<ul style="list-style-type: none"> • Thermistors only accepted for use within the range of -50 to 120°C • Accuracy statements will be compared to the KCDB and NIST IR 5340 values and will not be accepted if it is lower than these values
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Reference Thermometers	<ul style="list-style-type: none"> • Reference thermometers must be: Mercury-in glass, Thermocouples, Thermistors, PRTs -No alcohol thermometers • Standardized working thermometers can standardize ovens and be used for volume determinations • Readability must be equal or better than the working thermometers • TUR must be 2:1 (The estimated measurement uncertainty of the reference thermometer must be less than or equal to one-half the accuracy required of the working thermometers), unless already defined in the test standard • Must be calibrated at least every 3 years • Must be calibrated by an ISO/IEC 17025 accredited agency • The estimated Measurement Uncertainty must be on the calibration record • Thermodynamic calibration only (no electrical simulation)- <i>This only applies to digital thermometers</i> • Must be calibrated as one unit (probe attached to CPU)- <i>This only applies to digital thermometers</i> • Systematic error must be documented on calibration or standardization • Thermistors must be calibrated or standardized every 20°C throughout and bracketing the range of use. • Platinum resistance thermometers and thermocouples must be calibrated at a minimum of two points bracketing the range of use. For ranges over 100 °C, at least 3 test points shall be included • Liquid-in-glass thermometers must be calibrated or standardized at a minimum of two points bracketing the range of use
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Working Thermometers	<ul style="list-style-type: none"> • Working thermometers must be: liquid-in-glass, bi-metallic (Dial thermometers), thermistors, PRTs, thermocouples -No Infrared • Can be either calibrated or standardized • Thermodynamic calibration or standardization only (no electrical simulation)- <i>Digital thermometers</i> • Must be calibrated or standardized as one unit (probe attached to CPU)- <i>This only applies to digital thermometers</i> • Systematic error must be documented on calibration or standardization record • Can be used to standardize ovens and volume determinations -No EMU required • Manufacturer's accuracy statement must be equal or less than the accuracy of the test method • If the systematic error exceeds the accuracy requirement of the test method, the laboratory must apply a correction to their readings. • Platinum resistance thermometers and thermocouples must be calibrated at a minimum of two points bracketing the range of use. For ranges over 100 °C, at least 3 test points shall be included • Thermistors must be calibrated or standardized every 20°C throughout and bracketing the range of use
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