

Gauge Calibration at Troxler



Primary Calibration Standard Blocks

Troxler Electronic Laboratories, Inc. maintains a set of Primary Calibration Standard Blocks for density calibration. These blocks are identical in construction and composition to the Secondary Calibration Standard Blocks that are used by Troxler (and laboratories that are approved for calibration) to calibrate the density system or surface moisture/density gauges. The densities of the Primary Calibration Standard Blocks are traceable to master standards of NIST in Gaithersburg, MD, USA.

Troxler maintains permanent custody of all pertinent documentation provided by the certifying agencies, including measurement uncertainty, related to the traceability of measurements made on Primary Calibration Standard Blocks. Troxler also maintains documentation for establishing the densities of these blocks, including test data, procedures, internal measurement assurance policies, and uncertainty computations. These documents present clear evidence that Troxler meets the requirements for traceability claims regarding the Primary Calibration Standard Block density values.

Secondary Calibration Standard Blocks

The Primary Calibration Standard Blocks are used to establish the density values of the Secondary Calibration Standard Blocks that are manufactured by Troxler. To accomplish this task, a high precision, high-accuracy calibration of a Troxler surface moisture/density gauge is performed on the Primary Block. Once this calibration has been performed and confirmed, the gauge is used to measure a Secondary Block. After these measurements are complete, the data collected are used to assign an average gravimetric density value to the Secondary Block.

Troxler maintains permanent custody of the calibration certificates for this surface moisture/density gauge for each time it is calibrated on the Primary Standard Blocks. This gauge is reserved and maintained solely for measuring the densities of Secondary Blocks. Troxler also maintains permanent custody of density certification information for each Secondary Block it produces and provides the customer with a traceability certificate.

Troxler also maintains all documentation pursuant to the establishment of the densities of these Secondary Calibration Standard Blocks, including test data, procedures, internal measurement assurance policies, and uncertainty computations. These documents present clear evidence that Troxler meets the requirements for traceability claims regarding the Secondary Calibration Standard Block density values.

More Information

Surface moisture/density gauges that are calibrated by Troxler Electronic Laboratories (and laboratories that are approved for calibration by Troxler) are always calibrated on Secondary Calibration Standard Block that have been certified in the aforementioned manner. Troxler maintains permanent custody of the calibration certificates for each surface/moisture density gauge that it calibrates and provides the customer with a copy of this document.

All calibration certificates and reports provided by Troxler conform to the format specified by NIST Handbook 150, NVLAP Procedures and General Requirements, 2001.



Because of their careful treatment and stable structure and composition, one would not anticipate the density values of the Primary Calibration Standard Blocks to change appreciably with time. Nonetheless, to maintain the highest degree of accuracy and traceability in its measurements and standards, Troxler periodically constructs new Primary Calibration Standard Blocks in addition to re-measuring and re-certifying its Secondary Calibration Standard Blocks on a regularly scheduled basis. When the new Primary Calibration Standard Blocks are constructed, the current Primary Calibration Standard Blocks are removed from service. This practice is consistent with the following recommendation from NBS Handbook 145, Handbook for the Quality Assurance of Metrological Measurements:

"Routine recalibration of standards, particularly volumetric standards, even when a change of value is not anticipated, should be made with sufficient frequency to affirm their continued accuracy."

For more information on traceability, visit www.nist.gov/traceability.