

Glossary of Terms

Standard Specification for Laboratory Weights and Precision Mass Standards

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Accuracy Class of Weights

A class of weights that meets certain metrological requirements intended to keep the errors within specified limits (definition from OIML R 111).

Adjustment

The process of changing the mass either by polishing or adding and subtracting material, to bring the mass within the tolerance of a specified class.

As Found

The value of the mass recorded by Rice Lake Weighing Systems after cleaning and before any adjustment based on a density of 8 g/cm³ at 20° C.

As Left

The value of the mass after any necessary adjustments are made based on a density of 8 g/cm³ at 20° C.

Buoyancy Correction

The calculation needed to compensate for the varying air density in order to ascertain the true mass value.

Calibration

The acts of determining the mass difference between a standard of known mass value and an “unknown” test weight or set of weights, establishing the mass value and conventional mass value of the “unknown,” and of determining a quantitative estimate of the uncertainty to be assigned to the stated mass or conventional mass value of the “unknown,” or both. Set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards (definition from International Vocabulary of Basic and General Terms in Metrology).

Certificate of Tolerance Test

Document that certifies that the subject weights are within specified tolerances. Referred to as an RLWS Certificate of Accuracy or RLWS Traceable Mass Value Report.

Certificate or Report of Calibration

Document that presents calibration results and other information relevant to a calibration (definition from NCSL Z-540-1-1994). Referred to as an RLWS Calibration Report or RLWS Traceable Certificate.

Conventional Mass

Conventional value of the result of weighing in air, in accordance to International Recommendation OIML R 33. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of a density of 8000 kg/m³ which it balances in air of density of 1.2 kg/m³ (definition from OIML R 33).

Correction

Mass values are traditionally expressed by two numbers, one being the nominal mass of the weight, and the second being a correction. The mass of the weight is the assigned nominal value plus the assigned correction. Positive corrections indicate that the weight embodies more mass than is indicated by the assigned nominal value.

Density

The unit of mass divided by its volume. For a precision calibration, density testing is required to calculate buoyancy correction. International Prototype Kilogram The platinum iridium cylinder maintained at the International Bureau of Weights and Measures (BIPM), at Sevres, France with an internationally accepted defined mass of 1 kg. Reference Standard A standard, generally of the highest metrological quality available at a given location, from which measurements made at that location are derived (definition from NIST/NVLAP Handbook 150).

Set of Weights

A series of weights, usually presented in a case so arranged to make possible any weighing of all loads between the mass of the weight with the smallest nominal value and the sum of the masses of all weights of the series with a progression in which the mass of the smallest nominal value weight constitutes the smallest step of the series (definition from OIML R 111). Tolerance (adjustment tolerance or maximum permissible errors) The maximum amount by which the conventional mass of the weight is allowed to deviate from the assigned nominal value. Tolerance test Verification that the conventional mass of the weights and their corresponding uncertainties as tested are correct within the maximum permissible errors of the respective weight class.

Traceability

Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (definition from International Vocabulary of Basic and General Terms in Metrology).

Uncertainty

Parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measured (definition from NCSL Z-540-1-1994). The range of values within which the true value is estimated to lie. U.S. National prototype standard Platinum iridium kilogram identified as K20, maintained at the National Institute of Standards and Technology, with value assigned relative to the International Prototype Kilogram provides the United States access to the mass unit. Weight (mass standard) A material measure of mass, regulated in regard to its physical and metrological characteristics: shape, dimension, material, surface quality, nominal value, and maximum permissible error (definition from OIML R 111).