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Why Use Weights?

External weights are vital in maintaining quality control of laboratory balances. Compliance to ISO/IEC 17025 standards requires that equipment used for accuracy or validity of results be traceable, and have an approved method for validation of the balance. In complying with the ISO/IEC 17025 standard the user must ensure traceability and a method for validation of the balance. Traceability is not only defined by custody control of a substance but linking the substance to a national standard that defines the units of measurement for the substance. The quality of evidence can be compromised if incorrect determination of the substance is caused by an inaccurate balance indication. Quality programs that incorporate external weights can ensure accuracy and traceability of the balance.

Improve Accuracy with External Weights: Balances used for evidence validation must be calibrated on a regular interval. The normal interval is annually, but what happens if the balance has changed between calibrations.

The external weight can be used to determine the accuracy of the balance between calibrations. Changes in the balance can occur by excessive use or environmental condition. Accidents can happen when using balances or uncontrollable factors including; power surges, environmental factors and particles from samples contaminating the cell of the balance which can affect the operating condition of the balance. Implementation of the external weight in the quality validation process can identify changes in the balance.

A method to determine if the balance is operating properly requires external weights at the points that require validation. After the calibration services of the balance by the manufacture or an approved calibration vendor, perform the internal calibration of the balance. Place the external weights on the balance and record the indication. This test should be done as a minimum of 10 times to acquire and expected average value. Every time the balance is used, perform the internal calibration. Then place the external weight on the balance and record the indication. Compare the indication to the expected average and determine if value falls within the acceptance limit established by the quality process. When the external weight does not agree with the expected average value the user must investigate the problem. The error in the external weight value can help determine if the balance requires servicing prior to regular interval service.

Traceability: Traceability is defined as “property of the results of a measurement or the value of a standard whereby it can be related to stated references, usually a national standard through an unbroken chain of comparisons all having stated uncertainties”. Accredited mass laboratories can provide the needed traceability of the external weight. The weights will have a stated value and the associated uncertainty of the weight.

The key words to remember are accuracy and traceability. Establishing Good Laboratory Practices requires control of the balances used in the determination of a substance. This control can be achieved through external weights that are traceability and have stated values. Define the limits in the process, select the external weights required, and maintain the weights to improve your laboratory quality process and compliance to ISO/IEC 17025.

For more information visit our website at www.troemner.com or contact us at 1.800.352.7718.



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