

General Concept of Calibration

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The term 'calibration' is apart from 'adjustment' though in practical work, sometimes, the term calibration is used to indicate adjustment. Even the equipments are adjusted unnecessarily by lab operators, because they don't know what calibration means. The confusion between calibration and adjustment is very frequent as many electronic instrument and in particular those used for physic-chemical analysis frequently require zero or/ & span adjustment before use, such as electronic balance, slide calipers.

The definition of calibration as per International Vocabulary of basic and general terms in metrology is- 'The set of operation which establish under specified conditions the relationship between values indicated by a measuring instrument or a measuring system or values represented by a material measure and corresponding known values of measurand. Known values indicate the true values attributed to the standards and equipment used as reference in the calibration.' Most measuring instrument or measures usually are not calibrated but adjusted by manufacturer or service providers to within specified tolerances which subsequently can be checked by a procedure usually referred to as verification and which may result in a statement by a verifying body sometimes called verification certificate.

The instrument needs to be adjusted when its verification is failed, that is, when its measured value is below or above the value of tolerance corresponding to standard value. After adjustment, the instrument needs to verify again to check if its measured value is within tolerance or not. The instruments which are non adjustable (after failure to meet tolerance) , their usability to be assessed.

Reference

Guide to Calibration, Organisation Internationale De Metrologie Legale (August 1989)- Accessed on 5 November, 2012 from <http://troemar.com/wp-content/uploads/2012/01/G007-e89.pdf>

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