Measurement of pH. Definition, Standards, and Procedures (IUPAC Recommendations 2002)

by R. P. Buck, S. Rondinini, A. K. Covington, F. G. K. Baucke, C. M. A. Brett, M. F. Camoes, M. J. T. Milton, T. Mussini, R. Naumann, K. W. Pratt, P. Spitzer, and G. S. Wilson

Pure and Applied Chemistry,
Vol. 74, No. 11, pp. 2169–2200 (2002)

The definition of a "primary method of measurement" has permitted a full consideration of the definition of primary standards for pH, determined by a primary method (cell without transference, Harned cell), of the definition of secondary standards by secondary methods, and of the question whether pH, as a conventional quantity, can be incorporated within the internationally accepted system of measurement, the International System of Units (SI, Système International d' Unités). This approach has enabled resolution of the previous compromise IUPAC 1985 Recommendations [*Pure Appl. Chem.* **57**, 531 (1985)]. Furthermore, incorporation of the uncertainties for the primary method, and for all subsequent measurements, permits the uncertainties for all procedures to be linked to the primary standards by an unbroken chain of comparisons. Thus, a rational choice can be made by the analyst of the appropriate procedure to achieve the target uncertainty of sample pH. Accordingly, this document explains IUPAC recommended definitions, procedures, and terminology relating to pH measurements in dilute aqueous solutions in the temperature range 5–50 °C. Details are given of the primary and secondary methods for measuring pH and the rationale for the assignment of pH values with appropriate uncertainties to selected primary and secondary substances.

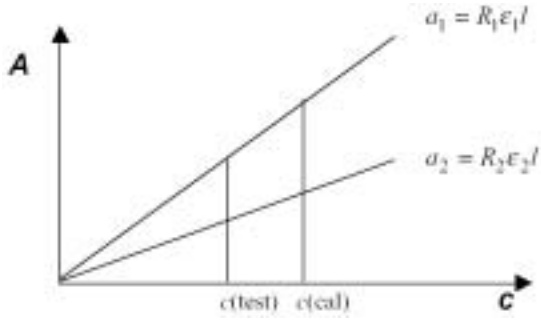
www.iupac.org/publications/pac/2002/7411/7411x2169.html

Use of the Term "Recovery" and "Apparent Recovery" in Analytical Procedures (IUPAC Recommendations 2002)

by D. T. Burns, K. Danzer, and A. Townshend

Pure and Applied Chemistry,
Vol. 74, No. 11, pp. 2201–2205 (2002)

The chemical community has used the term **recovery** to deal with two quite different experimental configurations. The terms **recovery** and **apparent recovery** are recommended to avoid confusion caused by the use of the term **recovery** to cover two distinct situations. These situations deal with: (a) the **yield** of a preconcentration or extraction stage of an analytical process (where **recovery** is recommended) and (b) the quantity **observed value/reference value**, obtained using an analytical procedure that involves a calibration graph (where **apparent recovery** is recommended).



For linear calibration graphs *c*(test) is independent of the slopes a_1 or a_2. The absolute values of R_1 or R_2 do not affect the value of *c*(test) provided that $R_1\mathcal{E}_1 l$ and $R_2\mathcal{E}_2 l$ are independent of *C*.

www.iupac.org/publications/pac/2002/7411/7411x2201.html

Impact of Scientific Developments on the Chemical Weapons Convention (IUPAC Technical Report)

by G. W. Parshall, G. S. Pearson, T. D. Inch, and E. D. Becker

Pure and Applied Chemistry,
Vol. 74, No. 12, pp. 2323–2352 (2002)

This document was prepared as a report from IUPAC to the Organisation for the Prohibition of Chemical Weapons (OPCW) to provide an evaluation of scientific and technological advances in the chemical sciences relevant to the Chemical Weapons Convention (CWC). The report is intended to assist OPCW and its Member States in preparation for the First Review Conference to be held on 28 April 2003. The CWC, now ratified by 145 nations and in effect since 1997, totally prohibits the production, storage, or use of