Joint Committee for Traceability in Laboratory Medicine

Terminology

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Terminology

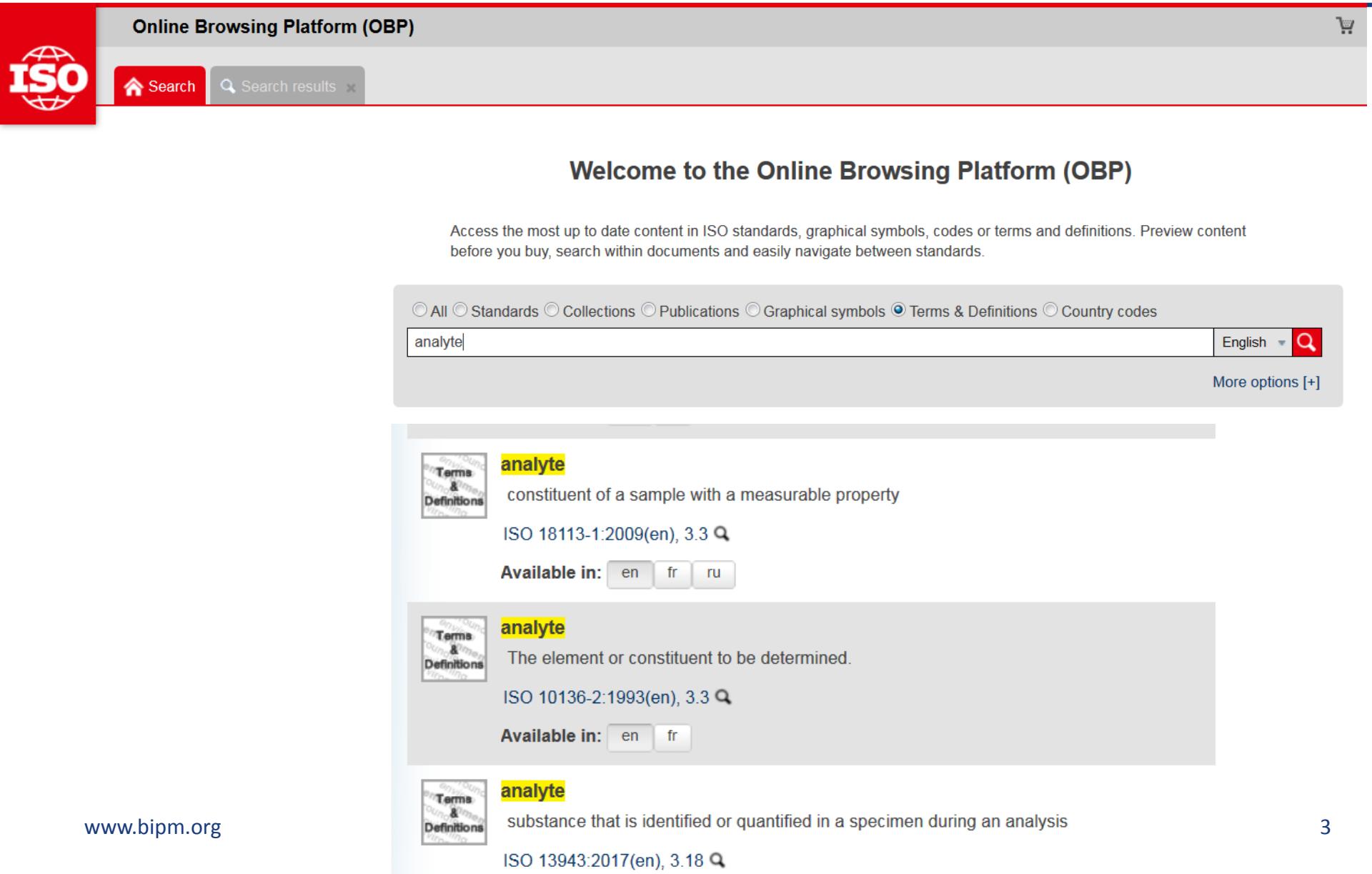
1. Understanding the words and phrases we are using

2. Terminology in ISO standards

3. Vocabulary of Metrology (Measurement Science)

4. Everyday easy to understand definitions of terms (JCTLM TEP WG)

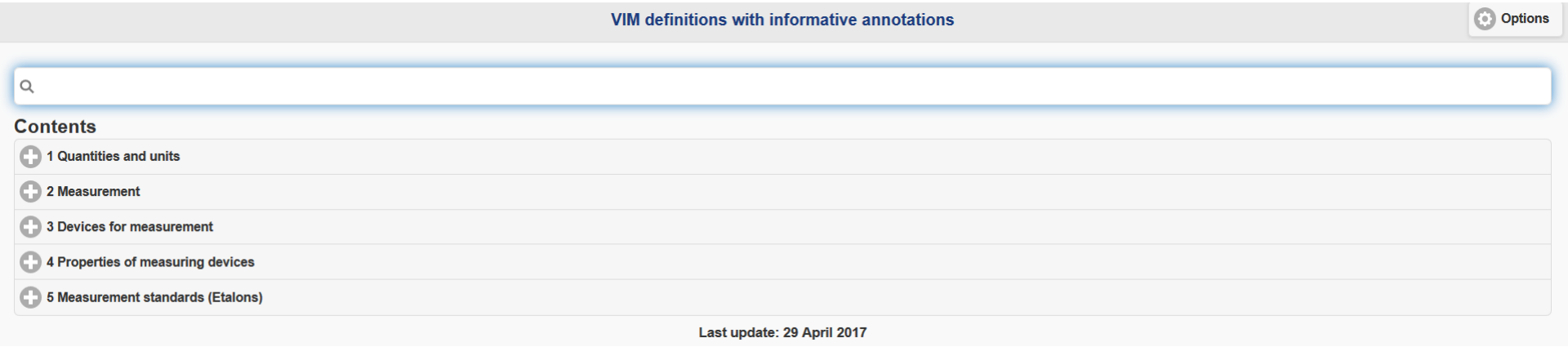
ISO Online Browsing Platform (OBP): Terms and Definitions

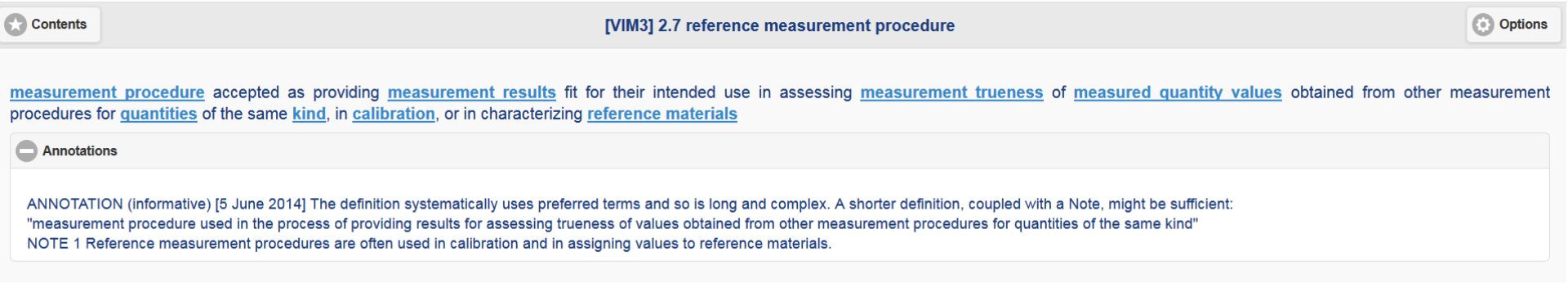


Joint Committee for Guides in Metrology (JCGM): Internationally agreed terminology related to measurement

The JCGM maintains and promotes the use of the Guide to the Expression of Uncertainty in Measurement (GUM) and the International Vocabulary of Basic and General Terms in Metrology (VIM).

Vocabulary of Metrology: Definitions and informative definitions





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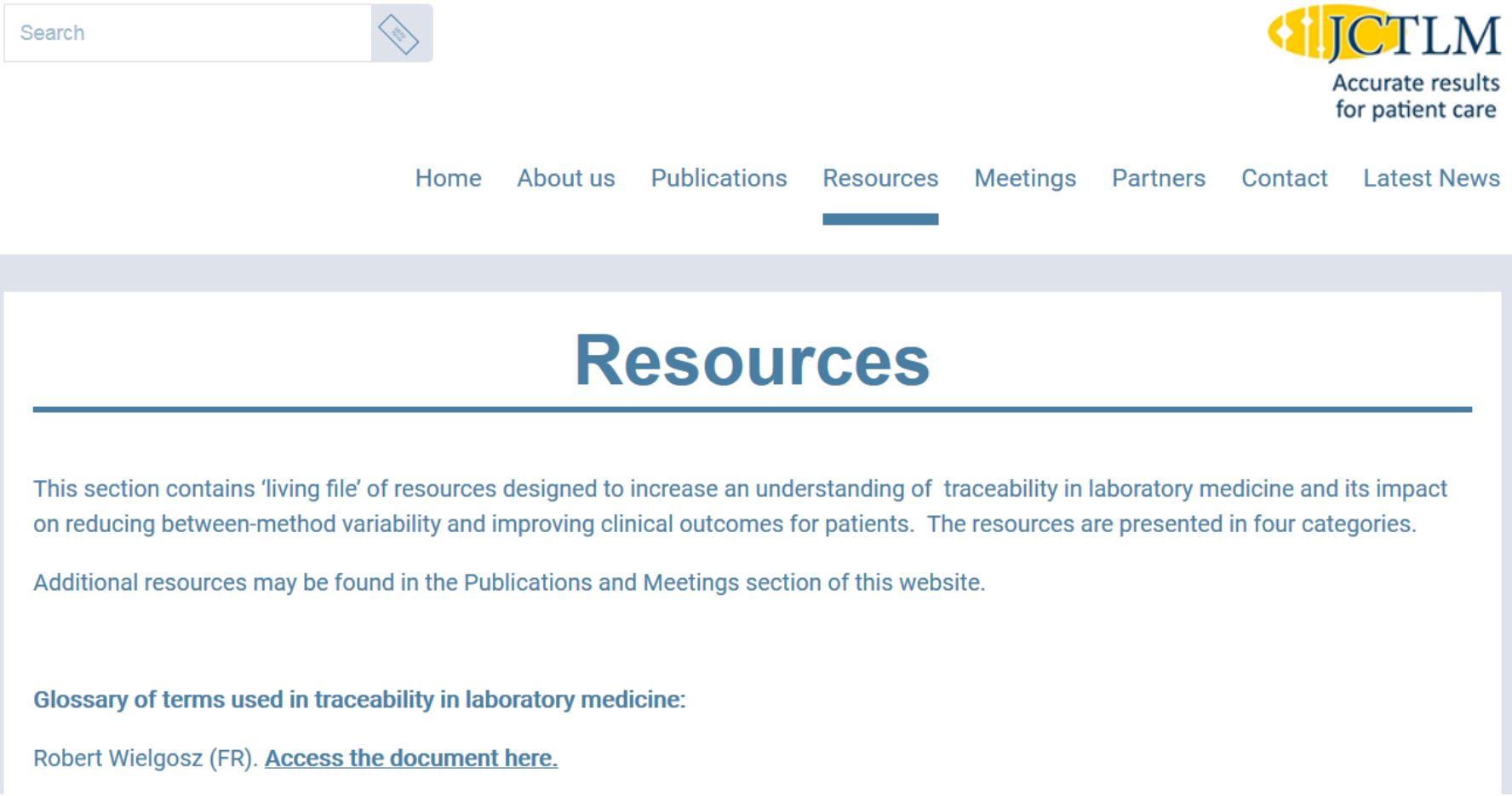

14 terms with easy to understand definitions

Everyday easy to understand definitions of terms (JCTLM TEP WG)

Term	Every day – Easy to understand definition	Formal Definition	Source
Calibration	**The determination of the relationship between an instrument response and the concentration of substance being measured.**	operation that, under specified conditions, in a first step, establishes a relation between the **quantity values** with **measurement uncertainties** provided by **measurement standards** and corresponding **indications** with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a **measurement result** from an indication NOTE 1 A calibration may be expressed by a statement, calibration function, **calibration diagram**, **calibration curve**, or calibration table. In some cases, it may consist of an additive or multiplicative **correction** of the indication with associated measurement uncertainty. NOTE 2 Calibration should not be confused with **adjustment of a measuring system**, often mistakenly called "self-calibration", nor with **verification** of calibration. NOTE 3 Often, the first step alone in the above definition is perceived as being calibration.	**VIM** http://www.bipm.org/utils/common/documents/jcgm/JCGM_200_2012.pdf
Calibrator	**A (certified) reference material used for calibration**	**measurement standard** used in **calibration** NOTE The term "calibrator" is only used in certain fields.	**VIM 3** http://www.bipm.org/utils/common/documents/jcgm/JCGM_200_2012.pdf
Certified Reference Material (CRM)	**A reference material with a certificate, normally provided by a manufacturer or specialist supplier, to calibrate or validate a measurement system**	**reference material**, accompanied by documentation issued by an authoritative body and providing one or more specified property values with associated uncertainties and traceabilities, using valid procedures EXAMPLE Human serum with assigned **quantity value** for the concentration of cholesterol and associated **measurement uncertainty** stated in an accompanying	**VIM 3** http://www.bipm.org/utils/common/documents/jcgm/JCGM_200_2012.pdf

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Traceability	**A demonstrable link between a patient sample/routine measurement result and a Reference Measurement Procedure /Certified Reference Material.**	property of a **measurement result** whereby the result can be related to a reference through a documented unbroken chain of **calibrations**, each contributing to the **measurement uncertainty** NOTE 1 For this definition, a 'reference' can be a definition of a **measurement unit** through its practical realization, or a **measurement procedure** including the measurement unit for a non-**ordinal quantity**, or a **measurement standard**. NOTE 2 Metrological traceability requires an established **calibration hierarchy**. NOTE 3 Specification of the reference must include the time at which this reference was used in establishing the calibration hierarchy, along with any other relevant metrological information about the reference, such as when the first calibration in the calibration hierarchy was performed. NOTE 4 For **measurements** with more than one **input quantity in the measurement model**, each of the input **quantity values** should itself be metrologically traceable and the calibration hierarchy involved may form a branched structure or a network. The effort involved in establishing metrological traceability for each input quantity value should be commensurate with its relative contribution to the measurement result. NOTE 5 Metrological traceability of a measurement result does not ensure that the measurement uncertainty is adequate for a given purpose or that there is an absence of mistakes. NOTE 6 A comparison between two measurement standards may be viewed as a calibration if the comparison is used to check and, if necessary, correct the quantity value and measurement uncertainty attributed to one of the measurement standards. NOTE 7 The ILAC considers the elements for

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Measurement uncertainty	**The smallest range of values that reasonably includes the true value of a measurand, i.e. X ± Y, where X is the measurement result and Y, which by convention is greater than or equal to zero, is the uncertainty of X.** **This is the reliability range of a measurement result expressed as a plus / minus value.** **Many things can influence how well a measurement result can be made; such as the operating conditions, instrument used etc.**	non-negative parameter characterizing the dispersion of the **quantity values** being attributed to a **measurand**, based on the information used NOTE 1 Measurement uncertainty includes components arising from systematic effects, such as components associated with **corrections** and the assigned quantity values of **measurement standards**, as well as the **definitional uncertainty**. Sometimes estimated systematic effects are not corrected for but, instead, associated measurement uncertainty components are incorporated. NOTE 2 The parameter may be, for example, a standard deviation called **standard measurement uncertainty** (or a specified multiple of it), or the half-width of an interval, having a stated **coverage probability**. NOTE 3 Measurement uncertainty comprises, in general, many components. Some of these may be evaluated by **Type A evaluation of measurement uncertainty** from the statistical distribution of the quantity values from series of **measurements** and can be characterized by standard deviations. The other components, which may be evaluated by **Type B evaluation of measurement uncertainty**, can also be characterized by standard deviations, evaluated from probability density functions based on experience or other information. NOTE 4 In general, for a given set of information, it is understood that the measurement uncertainty is associated with a stated quantity value attributed to the measurand. A modification of this value results in a modification of the associated uncertainty.

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Commutability	**The ability of a reference material to behave in the same way as a human sample when measured with a routine test kit.**	property of a **reference material**, demonstrated by the closeness of agreement between the relation among the **measurement results** for a stated **quantity** in this material, obtained according to two given **measurement procedures**, and the relation obtained among the measurement results for other specified materials NOTE 1 The reference material in question is usually a **calibrator** and the other specified materials are usually routine samples. NOTE 2 The measurement procedures referred to in the definition are the one preceding and the one following the reference material (calibrator) in question in a **calibration hierarchy** (see ISO 17511). NOTE 3 The stability of commutable reference materials should be monitored regularly.