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EDITORIAL

Trade disputes involving chemical (analytical) measurement results can be won by developing and developed countries alike

Paul De Bièvre

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The application of the same rules to all partners is an accepted principle in international trade. One would think that, similarly, the same ought to be true for the application of basic metrological principles to chemical (analytical) measurements performed in the context of such trade. That could be useful to avoid—or settle—disputes that could go all the way up to the World Trade Organisation, WTO, with its court of dispute settlements.

Prohibiting import of food and drink is not permitted according to international rules unless protection of human health of the own population is at stake for the importing country. One assumes that this is applicable irrespective of whether the origin of any risk for health is "natural" (e.g., too high Se content because of Se-containing soil on which the traded vegetable was grown), or man-made (e.g., too high Cd content of seafood caused by waste water release to the sea very close to the place where the seafood was harvested). The importing country may refuse the goods if the toxic substance content of the food or drink exceeds upper limits, which were pre-established by toxicologists and medical doctors and accepted internationally by regulators.

Implementation of such upper limits, i.e., verification of whether such upper limits were exceeded, requires chemical measurement, of necessity. Hence, rules governing the process to achieve a reliable measurement result require intercontinentally agreed concepts and associated terms for 'measurement result' (which includes 'measurement uncertainty') and for "comparability of measurement results," of necessity based on their 'metrological traceability.' All of these concepts should be understood in the same way by trading partners, and the associated terms should have been translated into the language of the "other" partner on the basis of an identical understanding of each term. That means that the concept behind the term must have been defined and that definition agreed by the partners.

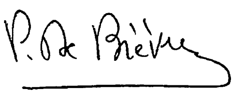
For example, there is no measurement result without measurement uncertainty since we cannot make "absolute" or "totally correct" measurements because of the inherent limitations of our measuring systems, measurement procedures, and ability to carry out measurements. But it is of paramount importance that the concept "measurement uncertainty" is understood and evaluated by the partners in the same way.

An international convention for the required definition of concepts and associated terms now exists in the form of an "International vocabulary of metrology. Basic and general concepts and associated terms—VIM" [1] containing a set of *consistent* definitions of the various concepts (and associated terms) needed in measurement. Any dispute in matters of a toxicity or non-toxicity of a given food or drink can now use this internationally agreed vocabulary. Times are over that so-called developed countries could simply claim that their measurement results are "right" and that those of their trade partner in a so-called developing country are of "lesser value." One does not necessarily need to be a big country, nor to have a big budget, nor to have available a big measurement institute, to obtain a measurement result that is reliable within its associated- and stated-measurement uncertainty. One has to provide a transparent metrological traceability chain (entry 2.42 in [1]) of the result and has to base the reasoning leading up to the result, on the concepts and associated terms of this vocabulary. Any measurement laboratory, big or small, and reasonably equipped with a good measurement infrastructure, can, regardless of the size of its country, obtain a reliable and respectable measurement result if it "thinks" and "acts" according to the concepts and

P. De Bièvre (✉)
Kasterlee, Belgium
e-mail: paul.de.bievre@skynet.be

terms laid down in this vocabulary. For example, one has to demonstrate that the result is traceable to a common ‘metrological reference’ (concept 2.6-1 in [2]) agreed a priori between partners. Other example: the measurement uncertainty (part of the measurement result) must have been evaluated in compliance with this other internationally agreed guide that is the “Guide for expression of uncertainty in measurement” [3].

The introduction of basic metrological principles in chemical (analytical) measurement is there to help, clarify, and underpin chemical (analytical) measurement results, so that the risk of disputes between these results can be minimized, or handled fairly if to be settled in a so-called “dispute settlement.”



Paul De Bièvre
Editor-in-Chief

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