

20th GAWG Recommendations on Harmonisation of CMCs for Gas CRMs

Background

- CRMs can be listed in the field “Mechanism for measurement service delivery” for chemistry CMCs (see “Guidelines for the Acceptance of Certified Reference Materials in Appendix C of the CIPM Mutual Recognition Arrangement” CIPM 2005/08).
- The relationship between the uncertainty of a measurement capability $u(\text{MC})$ and the uncertainty of a corresponding CRM, $u(\text{CRM})$ has not been reviewed consistently and has only been agreed on a case-by-case basis.
- The measurement uncertainty claimed for a CRM may sometimes be lower than that achieved in offering the typical measurement capability as considerable time may go into the analysis of a single CRM spanning many months of work and, in the case of gases, data from gravimetric preparation is also available. Therefore, it is accepted that $u(\text{CRM})$ may be less than $u(\text{MC})$, but there is no guidance indicating by how much.
- The KCWG are now introducing a more consistent approach to the review of CMCs and have asked the GAWG for guidance on this issue.

Following discussions at the 20th Meeting of the GAWG (November 2008), the following has been agreed:

- All claims for CMCs relating to the provision of CRMs must be accompanied by information describing the approach used to estimate their uncertainty.
- For CRMs prepared in “batch mode” this information must address the following sources of uncertainty:
 - Primary reference standards (PSMs) used for the certification
 - Certification with respect to PSMs
 - Batch homogeneity
 - Stability
- For CRMs prepared “when required” this information must address the following sources of uncertainty:
 - Gravimetric preparation
 - Verification
 - Stability
- In all cases, the information must explain the rationale for the mathematical method used to combine the individual uncertainties.

Implementation

- That RMOs should review all CMCs for CRMs according to this guidance during Cycle X.

MJTM, NPL, December 2008