Information on REMCO



ISO Committee on Reference Materials

International Organization for Standardization



ISO in brief

ISO is the International Organization for Standardization. It has a membership of 162* national standards bodies from countries large and small, industrialized, developing and in transition, in all regions of the world. ISO's portfolio of more than 18500* standards provides business, government and society with practical tools for all three dimensions of sustainable development : economic. environmental and societal. ISO International Standards make a positive contribution to the world we live in. They facilitate trade, spread knowledge, disseminate innovative advances in technology, and share good management and conformity assessment practices.

*As of December 2009.

WHY REFERENCE MATERIALS ARE ESSENTIAL

Accurate measurements are an essential feature both of everyday life and economic activity. For example, they are needed to detect critical amounts of dangerous compounds in our food, to diagnose whether our bodies are functioning correctly for a healthy life, and to check whether a batch of steel is strong enough for the safe construction of a bridge.

Such measurements can only be performed when the corresponding measurement instruments have been properly calibrated. This is the same procedure as used when the accuracy of a set of weighing scales is checked by using a known standard weight. Consequently, materials which can be used for instrument calibration – such as the kilogram standard – are required. These are known as "reference materials".

Because vital decisions may depend on measurements such as the examples given above, there needs to be confidence in the measurement data. Therefore, the correct application of critical measurement procedures must also be controlled by using reference materials which are similar to the material to be tested, and for which the measured value is already known. In consequence, laboratories are able to verify their ability to measure accurately.

REMCO

ISO/REMCO is the ISO Committee on Reference Materials that carries out and encourages a broad international effort for the harmonization and promotion of reference materials, their production and their application. Its vision is to be the global centre of excellence with respect to issues relating to reference materials.

The Committee, which celebrated its 35th anniversary in 2006, has so far developed six ISO Guides and has contributed to symposia, workshops and congresses. ISO/REMCO activities focus on procedures for the production and use of reference materials. To fulfill this mandate, ISO/REMCO interacts with both stakeholders and clients.

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Objectives

- To establish definitions, concepts and classification of reference materials for use by ISO
- **To determine** the basic characteristics of reference materials in dependence on their use
- To formulate criteria for the selection of publications referenced in ISO documents
- To propose, as far as necessary, actions on reference material issues required to support other ISO activities
- **To prepare guidelines** for technical committees when dealing with reference material issues in ISO documents
- To deal with matters within the competence of the Committee, in relation with other international organizations and to advise the ISO Technical Management Board (TMB) on actions to be taken.



Publications

ISO Guide 30:1992/Amd 1:2008 – Revision of definitions for reference material and certified reference material.

ISO Guide 31:2000 – Reference material – Contents of certificates and labels.

ISO Guide 32:1997 – Calibration in analytical chemistry and use of certified reference materials.

ISO Guide 33:2000 – Uses of certified reference materials.

ISO Guide 34:2009 – General requirements for the competence of reference material producers.

ISO Guide 35:2006 – Reference materials – General and statistical principles for certification.

Other publication(s)

ISO/TR 10989:2009 – Reference materials – Guidance on, and keywords used for, RM categorization.

The role of reference materials in achieving quality in analytical chemistry (1997).









Guide structure

- ISO Guide 34 (in conjunction with ISO/IEC 17025) provides the definitive standard for reference material production used by accreditation bodies and the CIPM* world-wide.
- ISO Guide 34 details the fundamental quality system and technical requirements to produce reference materials (RMs) and certified reference materials (CRMs) at the highest level.
- ISO Guides 30, 31, 33 and 35 are supporting guidance documents to ISO Guide 34 and detail specific areas (shown below).

- These guides are used as "normative references" to ISO Guide 34, and should be read in conjunction with this document.
- ISO Guide 80 can be used in isolation and details the minimum requirements for the preparation of "in-house" materials.
- ISO Guide 79 will detail the requirements for the production of RMs used for "qualitative analysis" the testing of nominal properties, and should be read/used in conjunction with ISO Guides 30, 31, and 33.

* International Commitee for Weights and Measures.



Definitions

Reference Material (RM)

material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process

NOTE 1 - *RM is a generic term.*

NOTE 2 - Properties can be quantitative or qualitative, e.g. identity of substances or species.

NOTE 3 - Uses may include the calibration of a measurement system, assessment of a measurement procedure, assigning values to other materials, and quality control.

NOTE 4 - A RM can only be used for a single purpose in a given measurement. For instance, the same RM cannot be used for both calibration and validation of results in the same measurement procedure.

NOTE 5 - VIM has an analogous definition (ISO/IEC Guide 99:2007, 5.13), but restricts the term "measurement" to apply to quantitative values and not to qualitative properties. However, Note 3 of ISO/IEC Guide 99:2007, 5.13 specifically includes the concept of qualitative attributes, called "nominal properties".

Certified Reference Material (CRM)

reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a certificate that provides the value of the specified property, its associated uncertain-

ty, and a statement of metrological traceability



NOTE 1 - The concept of value includes qualitative attributes such as identity or sequence.

Uncertainties for such attributes may be expressed as probabilities.

NOTE 2 - Metrologically valid procedures for the production and certification of reference materials are given in, among others, ISO Guides 34 and 35.

NOTE 3 - ISO Guide 31 gives guidance on the contents of certificates.

NOTE 4 - VIM has an analogous definition (ISO/IEC Guide 99:2007, 5.14).

Organization

REMCO is structured as shown below. The committee consists of Working Groups (WG) set up to implement a specific task, under two Steering Groups (SG1 and SG2). The Chairman's Advisory Group (CAG) provides input to the Chair from the group convenors.



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Membership*

P-members (participating)	O-members (observers)	
Participating countries: 33	Observer countries: 37	
Australia (SA)	Albania (DPS) *(C)	
Belarus (BELST)	Argentina (IRAM)	
Brazil (ABNT)	Azerbaijan (AZSTAND)	
Canada (SCC)	Barbados (BNSI)	
China (SAC)	Belgium (NBN)	
Czech Republic (UMMZ)	Bosnia and Herzegovina (BAS)	
Ecuador (INEN)	Brunei Darussalam (CPRU) *(C)	
France (AFNOR)	Cameroon (CDNQ)	
Germany (DIN)	Croatia (HZN)	
Hungary (MSZT)	Cuba (NC)	
India (BIS)	Denmark (DS)	
Indonesia (BSN)	Egypt (EOS)	
Iran, Islamic Republic of (ISIRI)	Estonia (EVS) *(C)	
Israel (SII)	Ethiopia (QSAE)	
Italy (UNI)	Finland (SFS)	
Japan (JISC)	Greece (ELOT)	
Kazakhstan (KAZMEMST)	Iraq (COSQC)	
Kenya (KEBS)	Ireland (NSAI)	
Korea, Republic of (KATS)	Latvia (LVS) *(C)	
Libyan Arab Jamahiriya (LNCSM)	Lithuania (LST)	
Mexico (DGN)	Malta (MSA)	
Mongolia (MASM)	Moldova, Republic of (INSM) *(C)	
Netherlands (NEN)	Namibia (NSI) *(C)	
Poland (PKN)	New Zealand (SNZ)	
Russian Federation (GOST R)	Norway (SN)	
Slovakia (SUTN)	Peru (INDECOPI)	
South Africa (SABS)	Portugal (IPQ)	
Spain (AENOR)	Romania (ASRO)	
Sweden (SIS)	Saudi Arabia (SASO)	
Switzerland (SNV)	Serbia (ISS)	
Thailand (TISI)	Slovenia (SIST)	
United Kingdom (BSI)	Tanzania, United Republic of (TBS)	
USA (ANSI)	Tunisia (INNORPI)	
	Turkey (TSE)	
	Ukraine (DSSU)	
of December 2009	Venezuela (FONDONORMA)	
Correspondent member	Viet Nam (STAMEQ)	

Liaison

International organizations in liaison with REMCO

AOAC International – (formerly Association of Official Analytical Chemists) http://aoac.org/

BIPM – International Bureau of Weights and Measures http://www.bipm.org/en/home/

CITAC – Cooperation on International Traceability in Analytical Chemistry http://www.citac.cc/

EURACHEM – (Network of organizations concerned with analytical chemistry in Europe) http://www.eurachem.org/

IAEA – International Atomic Energy Agency http://www.iaea.org/

IAG – International Association of Geonanalysts http://geoanalyst.org/

IFCC – International Federation of Clinical Chemistry and Laboratory Medicine

http://www.ifcc.org/

ILAC – International Laboratory Accreditation Cooperation http://www.ilac.org/

IRMM – Institute for Reference Materials and Measurements, JRC, European Commission http://www.irmm.jrc.be/html/ homepage.htm









IUPAC – International Union of Pure and Applied Chemistry http://www.iupac.org/

OIML – International Organization of Legal Metrology http://www.oiml.org/

PDG – Pharmacopoeia Discussion Group http://www.edqm.eu/en/page_614. php

UNEP – United Nations Environmental Programme, Harmonization of Environmental Measurement http://www.unep.org/

UNESCO – United Nations Educational, Scientific and Cultural Organization http://portal.unesco.org/en/ ev.php-URL_ID=29008&URL_ DO=DO_TOPIC&URL_ SECTION=201.html

WASPaLM – World Association of Societies of Pathology and Laboratory Medicine http://www.waspalm.org/

WHO – World Health Organization http://www.who.int/en/









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