The BIPM key comparison database Newsletter – No 15 – June 2011

Dear Reader,

Welcome to the 15th KCDB Newsletter.

This issue of the KCDB Newsletter is the first to be published after Prof. Michael Kühne became the Director of the BIPM on 1 January 2011 following Prof. Andrew Wallard's retirement.
It highlights some updates related to the BIPM, the CIPM MRA and the JCRB.
Following the designation of 2011 as "The International Year of Chemistry" by UNESCO and IUPAC, this issue of the Newsletter focuses particularly on the work in Metrology in Chemistry at the BIPM.
Other news, especially concerning the KCDB and the SI, is also included.

We wish you a pleasant time surfing our KCDB Newsletter No 15,
The BIPM KCDB Office

The KCDB Coordinator is grateful to Dr Robert Wielgosz, Director of the BIPM Chemistry Department, who acted as co-editor for this particular issue of the KCDB Newsletter.

To improve future editions of the KCDB Newsletter, please send your feedback to BIPM.KCDB@bipm.org so that we may meet your specific interests and concerns.
The complete series of *KCDB Newsletters* is available here.

The success story of the KCDB Newsletter No 15:

* "Comparisons in support of Air Quality and Greenhouse Gas Monitoring" by Dr Robert Wielgosz, BIPM, Director of the Chemistry Department, and Dr Martin Milton, NPL, Chair of the CCQM Gas Analysis Working Group (GAWG).

⇒ States Parties to the Metre Convention and Associates of the CGPM

Since the publication of the *KCDB Newsletter* No 14, the Kingdom of Saudi Arabia acceded to the BIPM on 11 February 2011, and the Republic of Zambia and Bosnia and Herzegovina became Associates of the CGPM on 10 December 2010 and 24 May 2011, respectively. This brings the current number of States Parties to the Metre Convention to 55, and of Associates of the CGPM to 33.

Over the same period, the BIPM registered some further signatures of the CIPM MRA:

- Mr Matthew Ranganai signed the CIPM MRA on 14 January 2011 on behalf of the National Metrology Institute NMI-SIRDC (Republic of Zimbabwe);
- Mr Mataa Mukelabai signed the CIPM MRA on 3 February 2011 on behalf of the Zambia Bureau of Standards (ZABS), Republic of Zambia;
- Mr Khemraj Ramful signed the CIPM MRA on 9 March 2011 on behalf of the Mauritius Standards Bureau (MSB), Republic of Mauritius; and
- Mr A. K. Fazlul Ahad signed the CIPM MRA on 25 March 2011 on behalf of the National Metrology Laboratory, Bangladesh Standards and Testing Institution (NML-BSTI), People's Republic of Bangladesh.

In addition, His Excellency Nabil Ameen Molla signed the CIPM MRA on behalf of the Saudi Standards, Metrology and Quality Organization (SASO), the Kingdom of Saudi Arabia, during the 14th meeting of the Directors of the National Metrology Institutes of Member States and Associates, held at the BIPM on 25 May 2011.

Signature of the CIPM MRA by Saudi Arabia, 25 May 2011, BIPM, Sèvres

From left to right, Mr Fahad T. Alharbi, Mr Maah S. Alhafz, His Excellency Nabil Ameen Molla, Prof. Michael Kühne, and Mr Abdulaziz Abdullah Alhabdan

As of 1 June 2011, the CIPM MRA has been signed by the representatives of 84 institutes – from 49 Member States, 32 Associates of the CGPM, and 3 international organizations – and covers a further 137 institutes designated by the signatory bodies as holders of specific national standards. Click here to access the full list of participants in the CIPM MRA.

See the full list of Member States and Associates

(Information taken from the BIPM website)

⇒ Change of BIPM Director (1 January 2011)

1 January 2011: Prof. Michael Kühne receiving one of the three keys to the BIPM vault from Prof. Andrew Wallard

The New Year 2011 marked the change of Directorship of the BIPM from Professor Andrew J. Wallard to Professor Michael Kühne.

Michael Kühne joined the BIPM in 2009 as Director Designate, before which he was a member of the Presidential Board of the Physikalisch-Technische Bundesanstalt (PTB), Germany. He is well known in the metrological community, bringing with him a scientific career in metrology as well as wide experience in scientific management, gained both in the PTB and as Chairperson of EURAMET e.V. (the European Association of National Metrology Institutes).

Upon his retirement, Prof. Wallard became a Director Emeritus of the BIPM.

The Director's Office

The Director's Office is a new structure of the BIPM, created by Michael Kühne in January 2011. It currently includes five members: the Director of the BIPM, Prof. Michael Kühne; two BIPM permanent staff, the International Liaison Officer, Mr Andy Henson, and the KCDB Coordinator, Dr Claudine Thomas; the JCRB Executive Secretary, Mr Ahmet Ömer Altan, on secondment from UME (Turkey) at the BIPM from 10 December 2010 to 9 December 2012; and Dr Takashi Usuda, on secondment from NMIJ/AIST (Japan) at the BIPM for approximately two years starting 18 September 2010, studying the economic impact of metrology. This structure enhances internal BIPM collaboration towards improved international cooperation.

From left to right: Dr T. Usuda, Mr A. Henson, Prof. M. Kühne, Dr C. Thomas, and Mr A. O. Altan

An important week of meetings at the BIPM in May 2011

The 24th meeting of the General Conference on Weights and Measures (CGPM) will be held in Paris from 17 to 21 October 2011. One of the core topics on the agenda will be the discussion and approval of the Programme of Work of the BIPM for the four years 2013 to 2016, and the corresponding dotation. During the last meeting of the CGPM a number of delegates expressed the need to have preliminary discussions on these two subjects. The CIPM therefore invited **delegates from Member States** to an informal discussion at the BIPM in Sèvres on **26-27 May 2011**, devoted to the Programme of Work and the corresponding dotation.
This meeting was preceded on **24 May 2011 by a meeting of the CIPM** and on **25 May 2011 by a meeting of the Directors of the National Metrology Institutes** of Member States and Associates.

The meetings provided an opportunity to discuss issues of interest related to the proposed 2013 – 2016 Programme of Work and associated budget as well as the long-term strategy for the BIPM. These discussions will aid the BIPM, the CIPM and the Member States as they prepare for the October 2011 CGPM.

(Report by Mr Andy Henson, International Liaison Officer, BIPM)

On the possible future revision of the SI

At its 2010 meeting the CIPM drafted a Resolution for the CGPM, **Draft Resolution A**, to take note of the intention to redefine a number of SI base units in terms of invariants of nature, namely the kilogram, the ampere, the kelvin and the mole: the new definitions would be based on fixed numerical values of the Planck constant, h, the elementary charge, e, the Boltzmann constant, k, and the Avogadro constant, N_A, respectively. The definitions of all seven base units of the SI would also be uniformly expressed using the explicit-constant formulation, and specific *mises en pratique* should be drawn up to explain how to realize the definitions of each of the base units in a practical way.

The CIPM asked the CGPM to encourage the NMIs, the BIPM and academic institutions to maintain their efforts towards the experimental determination of the fundamental constants h, e, k and N_A, and also to foster communication, awareness and debate on the possible revision of the SI. To this aim, in February 2011, the BIPM launched the **"New SI"** web pages on its website, including "Why?", "What?", and "When?"
The new web pages also include the presentations given at the **Royal Society Discussion Meeting of 24-25 January 2011** on "The New SI: Units of measurement based on fundamental constants".
A page including "Frequently Asked Questions" was launched on 5 April 2011.

(Report by Dr Claudine Thomas, CCU Executive Secretary)

⇒ World Metrology Day – 20 May 2011

Metrology
Measurements in Chemistry
Chemical measurements for our life, our future

Press release
World Metrology Day has become an established annual event during which more than eighty States celebrate the impact of measurement on our daily lives, no part of which is untouched by this essential, and largely hidden, aspect of modern society. Previous themes have included topics such as measurements for innovation, and measurements in sport, the environment, medicine, and trade.

UNESCO and IUPAC decided to designate 2011 as *The International Year of Chemistry* (IYC 2011), a world-wide celebration of the achievements of Chemistry and its contributions to the well-being of humankind. Under the unifying theme "Chemistry - our life, our future," IYC 2011 provides a range of interactive, entertaining, and educational activities for all ages. The year 2011 is also the centenary of the Nobel Prize in Chemistry awarded to Madame Marie Curie, offering an opportunity to celebrate the contributions of women to science.

For more, click here

Message of the Director of the BIPM, M. Kühne
Message of the Director of the BIML, S. Patoray

(A project led by Mr Andy Henson, BIPM, together with BIML colleagues, see WMD Contacts)

The 2011 WMD poster

http://www.metrologyinfo.org/worldmetrologyday/

⇒ Awards received by BIPM staff members

Dr Joële Viallon received the best lecture award during GAS2011

**On 11 February 2011,
Dr Joële Viallon was awarded the GAS2011 prize for best lecture.**

The NEN (the Netherlands Standardization Institute) and ISO/TC 158 "Analysis of gases" organized the 6th international Gas Analysis Symposium & Exhibition (GAS2011) from 9 to 11 February 2011. It was a three-day symposium with seven sessions in parallel, all focused on market and research developments in the field of gas analysis. Over 220 attendees representing almost 30 nationalities world-wide attended with 60 lectures and 25 exhibitors contributed to the symposium.

The GAS2011 best lecture award was won by Dr Joële Viallon from the BIPM Chemistry Department, with her lecture entitled "**Dynamic generation of formaldehyde standards by permeation tubes: performance evaluation using FTIR and cavity ring-down spectroscopy techniques**", given during the session "Metrology, Accreditation & Chemometrics", chaired by Dr Martin Milton, NPL (GB). The work described the validation studies being performed at the BIPM in preparation for the key comparison CCQM-K90 on formaldehyde in nitrogen.

Dr Joële Viallon, receiving the best lecture award from Mr R.Wessel (ISO/TC 158 Chair)

Dr Takashi Usuda received the 2011 Ichimura Prize in Technology

Dr Takashi Usuda with his diploma and his prize (on the left of the picture)

**On 28 April 2011,
the New Technology Development Foundation (President: Prince Tomohito of Mikasa, a member of the Imperial Family of Japan) awarded the Ichimura Prize in Technology to Dr Takashi Usuda, for his contribution on improvement of the National Metrology Standard of Vibration Measurement.**

Dr Takashi Usuda developed a laser interferometer for vibration acceleration calibration. The laser interferometer enables high resolution and robust characterization of vibration noise*. He also established the national calibration programme for vibration acceleration in Japan. His achievements improved the Japanese metrology standard of vibration measurement and ensured the traceability of vibration measurements in industry to the national standard.

* T. Usuda *et al.*, Development of laser interferometer for a sine-approximation method, *Proc. SPIE* Vol. 4827, p. 29-36 (2002)

Purpose of commendation
Japanese entrepreneur, Mr. Kiyoshi Ichimura (1900-1968) known as the founder of the Ricoh San-Ai Group, established the New Technology Development Foundation to promote science and technology. The Ichimura Prizes were established to award those who contributed to disseminate science and technology. The Prizes are given annually to researchers or groups that make significant contribution to industries.

⇒ Feedback from the 26th meeting of the JCRB

The **26th meeting of the JCRB** took place at the BIPM on 21-22 March 2011. The JCRB convened for the first time under the chairmanship of Prof. Michael Kühne.

Dr Hoda Mohamed Eissa and Prof. Adel Basyouni Shehata from the Arab Federation for Metrology were invited as guests of the JCRB Chairman to participate in the discussion on an initiative to create a new Regional Metrology Organization (RMO) encompassing Arabic speaking countries.

Participants in the 26th meeting of the JCRB
21 March 2011, BIPM, Sèvres

BIPM Quality System
It was agreed that the BIPM would propose to the CIPM that RMOs be given the task of reviewing the Quality System (QS) of the BIPM on a rotating basis. The reviewing RMO would make comments and recommendations concerning the BIPM QS. Based on these recommendations the CIPM would make a decision on its approval. *(Action 26/1)*

Greyed-out Calibration and Measurement Capabilities (CMCs)
In accordance with Resolution 25/2 of the JCRB, a new procedure for the deletion of greyed-out CMCs that have remained in that status for more than five years was approved. Under the new procedure, a notice will be sent to the RMO Representative to the JCRB, the chair of the relevant RMO TC/WG, the chair of the RMOs TC/WG on Quality, and the NMI to which the greyed-out CMCs belong, when the five-year limit is reached. Unless the RMO representative responds to the notice with a clear plan to have the CMCs reinstated within a maximum period of one year, the CMCs will be deleted from KCDB. *(Resolution 26/2)*

Designated Institutes
In order to improve the quality of data supplied in the KCDB on the national metrology systems of countries participating in the CIPM MRA, the JCRB has decided that the authorized national bodies will be required to submit information on the specific designation scopes of new Designated Institutes to the BIPM before any information is published in the KCDB. The BIPM will also advise newly Designated Institutes of the expectation that they actively participate in the activities of the CIPM MRA. *(Action 26/3)*

ILAC/BIPM Joint Document on the Accreditation of NMI Services
The International Liaison Officer of the BIPM, Mr Andy Henson, presented the latest developments concerning the draft of the ILAC/BIPM Joint Document on the Accreditation of NMI Services to the JCRB. The purpose of the joint document is to provide guidance to national accreditation bodies on the subject. The International Liaison Officer has been charged with communicating the views of the JCRB on the draft document to ILAC, after which the subject will be discussed again at the next JCRB meeting. *(Action 26/5)*

Initiatives to form new RMOs in the Arab/Gulf Regions
The JCRB has noted and welcomes initiatives in the Arab/Gulf regions to form an RMO, which would allow the countries in the region to effectively participate in the CIPM MRA. However, until such time that the required levels of organization are achieved by these initiatives, the JCRB has decided to accept the offer from the AFRIMETS delegation to ask its membership to allow the participation of Arab countries outside of Africa in the activities of AFRIMETS, as an interim measure. *(Action 25/6)*

Draft CIPM MRA Guidelines for Authorship of Comparison Reports
A draft document of CIPM MRA Guidelines for authorship of key, supplementary and pilot study comparison reports was presented for discussion to the JCRB by the Secretary of the CIPM, Dr Robert Kaarls. The draft document is based on authorship criteria applied by NIST, NRC and PTB, which require "substantial intellectual contribution" to various aspects of the comparison. All listed authors will be jointly responsible for quality and content of the publication. The JCRB accepted comments on the proposed guidelines from RMOs with the aim of discussing the issue further at its next meeting. *(Action 26/7)*

Forthcoming meetings
The 27th meeting of the JCRB will be hosted by EURAMET in Vienna on 14-15 September 2011. The following meeting will be hosted at the BIPM on 21-23 March 2012.

(Report by Mr Ahmet Ömer Altan, JCRB Executive Secretary, BIPM)

*** CIPM MRA documents**

⇒ News from the KCDB

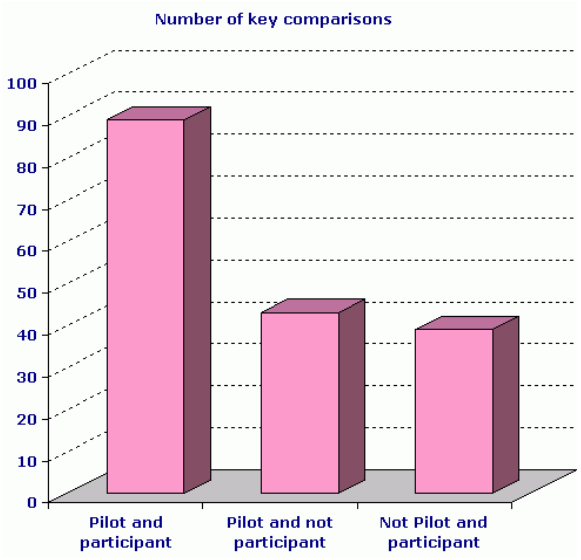
Key and supplementary comparisons

The key and supplementary comparisons database now contains 740 key comparisons (84 from the BIPM, 366 from the CCs, 1 from AFRIMETS, 101 from APMP, 28 from COOMET, 118 from EURAMET, and 42 from SIM) and 263 supplementary comparisons, which gives a total in excess of 1000. On average, about 40 new key comparisons are registered each year.

A comprehensive study of BIPM key comparisons is available in the KCDB Newsletter No 14.

Updated graphs illustrating the participation in key and supplementary comparisons were made available in the Statistics page of the KCDB on 16 May 2011.

The Final Reports of 66 % of the comparisons registered are currently posted in the KCDB. Tables of individual laboratory results, degrees of equivalence and graphs of equivalence are published in the KCDB for key comparisons only. Altogether, the KCDB currently holds a total of more than 1600 graphs of equivalence.



Involvement of the BIPM in key comparisons as of May 2011

The BIPM is involved in 171 key comparisons, of which 84 are BIPM key comparisons, i.e. series in time of bilateral comparisons between NMIs and the BIPM, based on international facilities maintained at the BIPM.

The BIPM acts as the Pilot Laboratory for 132 of these 171 key comparisons, although it may not participate in the exercises themselves. A typical example is CCTF-K001.UTC, the key comparison based on the computation of UTC: the BIPM is responsible for collecting data from time laboratories and observatories, and for producing and distributing the resulting time scale, but does not provide any data taken in its laboratory.

The BIPM may also participate in RMO key comparisons, without acting as the Pilot Laboratory, for the sake of linkage. An example is EUROMET.EM.BIPM-K11: BIPM participation made it possible to link the EURAMET results to those of the BIPM key comparison BIPM.EM-K11.b (10 V DC voltage, Zener diode).

Results of RMO and bilateral key comparisons are usually linked to those of the corresponding CIPM key comparisons. The most complete examples of linkage concern the families of key comparisons of 1 kg stainless steel standards "M.M-K1", vibration acceleration "AUV.V-K1", laboratory standard microphones type LS1P "AUV.A-K1" (seven key comparisons linked together in each case), and 10 V DC voltage Zener diodes "EM-K11.b" (six key comparisons linked together).
Many other examples of "big" families are recorded in the KCDB, but linked results are still only partly available. This means that the first round of key comparisons is not yet complete even though the CIPM MRA came into force some 11 years ago.

Note that the final reports of key and supplementary comparisons posted in the KCDB are also generally published in the *Metrologia Technical Supplement*.

*** Latest KC results published**

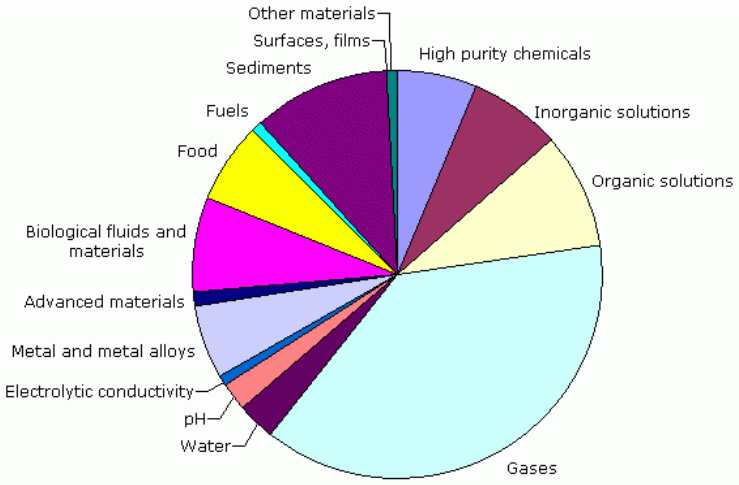
Calibration and Measurement Capabilities (CMCs)

At the beginning of June 2011, some 24000 CMCs had been published in the KCDB.

There is continuous movement related to temporary removal and re-instatement of CMCs, although the total number of temporarily removed ("greyed-out") CMCs has remained roughly constant (~ 400) for one year.

Up-to-date details on the number of CMCs currently published in the KCDB, per country and per metrology area, are available from the Statistics page of the KCDB. In addition, a record of the history of CMC publications (including greying-out and re-instatement following QS approval) is kept in the form of an EXCEL file, which is made available in real-time from the restricted-access part of the JCRB CMC website.

CMCs in Chemistry as published in the KCDB in May 2011



Distribution of the 4841 published CMCs according to chemical category

*** Latest CMCs published**

Visits to the KCDB website

During 2010, some 86000 visitors have opened a total of more than 1250000 KCDB web pages. The average number of monthly visits remains roughly constant (at a level of about 7200 visits each month), while the average number of pages consulted during each visit has increased significantly, as has the average duration of each visit. This suggests that the key communities who visit the KCDB website, NMIs, regulators, accreditors, commercial and industrial companies, and others are showing a growing interest in the information displayed.

All pages are visited equally, including the News page, the Statistics page, and the Newsletters; and PDF files of comparison reports and of CMC lists are regularly downloaded. Visitors come from all over the world, and link to the KCDB website from other websites (especially NMI websites), Internet search engines, and via personal bookmarking, direct URL address typing or using links provided via in e-mails.

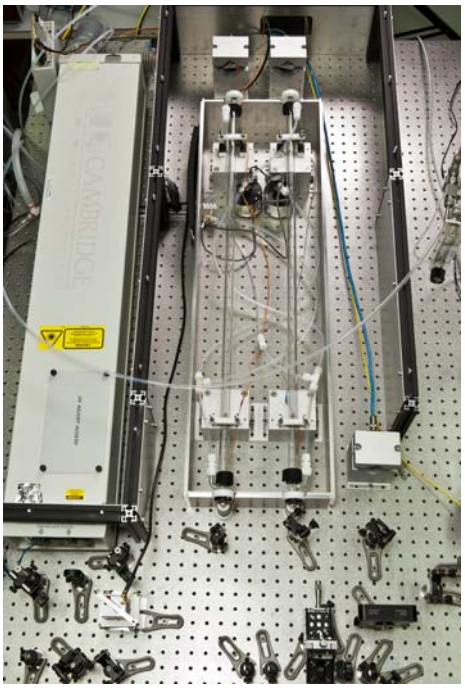
(KCDB Report by Dr Claudine Thomas, BIPM KCDB Coordinator)

⇒ Improving global traceability for Ozone measurement results

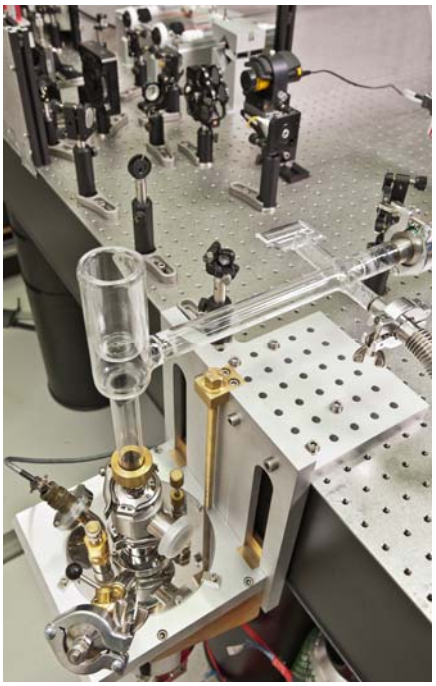
The reference method for the measurement of ground level ozone concentration is based on **UV absorption at 253.7 nm**, and is the method principally employed in **BIPM.QM-K1**, which establishes the consistency of surface ozone standards and thereby ground-level ozone measurements world-wide. The uncertainty of the reference measurements is dominated by the uncertainty of the ozone absorption cross section value at this wavelength. The conventional value used is the value measured by Hearn in 1961 [1], and the expanded uncertainty of this value has recently been estimated as 2.12 % [2].

The NIST SRP ozone reference standard operates on the principle of UV absorption, and acts as the primary standard for numerous national and international ozone monitoring networks (including the WMO/GAW stations). Several replicas of this instrument are maintained by the BIPM, one of them being the reference for international comparisons of national ozone standards coordinated by the BIPM.

During the last international comparison (2006) CCQM-P28, twenty-three UV absorption based ozone standards for ground level were compared with two realizations of an independent method for primary ozone concentration measurements based on gas phase titration systems developed by the NIES (Japan) and the BIPM. The 2 % to 3 % bias observed between the methods requires explanation and confirmation of the ozone absorption cross-section value, which represents the major uncertainty component in measurements based on UV photometry.



Gas cells and optics of the BIPM developed laser based ozone photometer that operates at 244.1 nm, 248.3 nm and 257.3 nm



Pure ozone cryogenic generation facility and short path-length cell for ozone absorption cross section measurements

Using an experience gained during a study of systematic biases and uncertainties in the NIST SRP [2], the BIPM is currently developing a **laser based ozone photometer** as a potentially new reference standard for ground level measurements and comparisons. The instrument will also be used to measure the (absolute) value of the absorption cross-section of ozone at three different wavelengths in the Hartley band, around 250 nm. The target standard uncertainty for these measurements is **0.5 % relative, potentially the lowest uncertainty ever obtained**. New relative measurements of absorption cross sections have recently been completed at the BIPM and are to be published. Absolute measurements of cross sections are in progress and are planned to be completed by the end of 2012.

This issue is at the heart of global concern regarding the accuracy of the ozone cross-section in a larger wavelength range, which impacts world-wide ozone monitoring performed with various instruments as recognised by the ASCO (Absorption Cross-Sections of Ozone) committee, working under the umbrella of WMO and IO_3C (International Ozone Commission), with which the BIPM collaborates.

1. Hearn, A.G., The absorption of ozone in the ultra-violet and visible regions of the spectrum, *Proc. Phys. Soc.*, 1961, **78**: 932-940.
2. Viallon, J., P. Moussay, J.E. Norris, F.R. Guenther, and R.I. Wielgosz, A study of systematic biases and measurement uncertainties in ozone mole fraction measurements with the NIST Standard Reference Photometer, *Metrologia*, 2006, **43**: 441-450.

(Report by Dr Robert Wielgosz, Director of the Chemistry Department, BIPM)

⇒ Comparisons on Purity - Organic Primary Calibrators

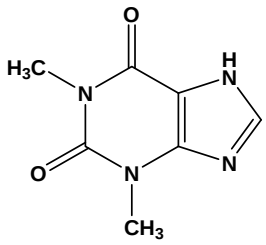
For all applications of organic analysis, which includes areas of critical economic and social importance such as environmental, clinical, pharmaceutical, food safety, primary produce and forensic testing among many others, **pure compounds are ultimately used as the primary calibrators and source of higher-order metrological traceability**. Access to organic compounds with correctly assigned purity is an essential element in the delivery of reliable, comparable measurements while the standard uncertainty associated with purity measurements establishes the baseline level of uncertainty achievable for any organic measurement procedure.

In the area of organic analysis, purity is generally described in terms of mass fraction of the main component in the material.
This can be determined either by approaches that directly measure the mass fraction or mole fraction of the main component, or by so-called "mass balance" approaches that estimate the mass fraction of all significant individual impurities and, by subtraction, provides a measure for the content of the main component. This latter approach is the most robust and widely applicable method for organic purity assignment.

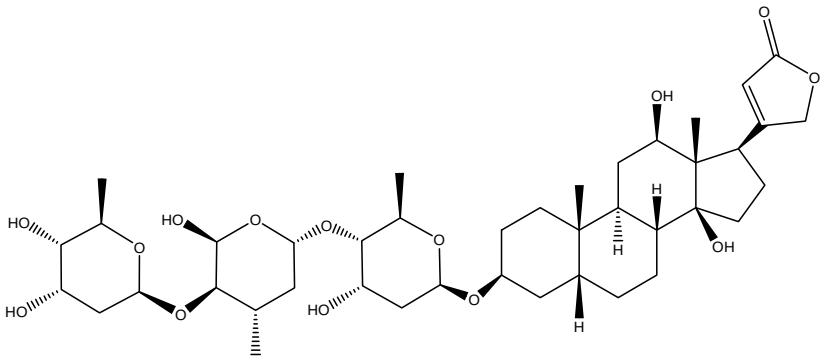
The BIPM is coordinating an ongoing series of comparisons in this area and has established unique laboratory facilities to support these activities, which are essential for realizing traceability and high accuracy chemical measurements. The comparisons run by the BIPM are part of the CCQM's Organic Analysis Working Group (CCQM-OAWG) strategy to enable NMIs to demonstrate their measurement capabilities in the area of organic analysis, and their basis for metrological traceability.
In recent years the BIPM has piloted:

- **CCQM-P20.e** - Theophylline purity;
- **CCQM-P20.f** – Digoxin purity;
- **CCQM-K55.a** – Estradiol purity;
- **CCQM-K55.b** – Aldrin;
- **CCQM-K55.c** – L- Valine (planned for 2012);
- **CCQM-K55.d** – Chloramphenicol (planned for 2013).

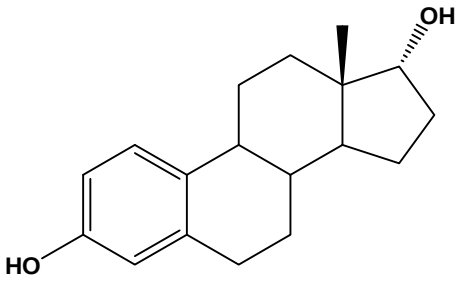
***Digoxin**: **a monitored cardiac drug**, high molecular weight, high polarity*

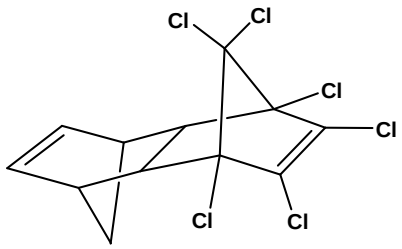


***Theophylline**: **a monitored therapeutic drug**, low molecular weight, medium polarity*



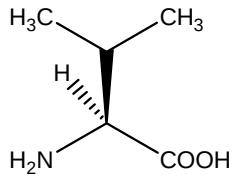
***Estradiol**: **a steroid hormone**, high molecular weight, medium polarity*



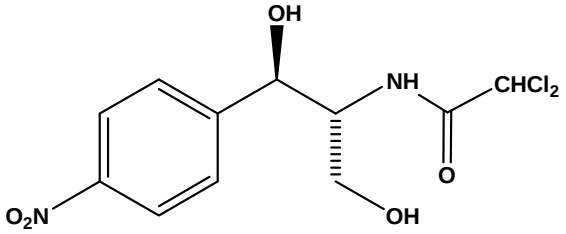


***Aldrin**: **a pesticide**, high molecular weight, low polarity*

These compounds were chosen to reflect current priorities within NMIs and to be representative of the variety of structural types, physical properties and measurement challenges provided by organic compounds, so that a small number of on-going comparisons can underpin NMI measurement capabilities for a wide range of organic compounds of differing relative molecular weight and polarity.



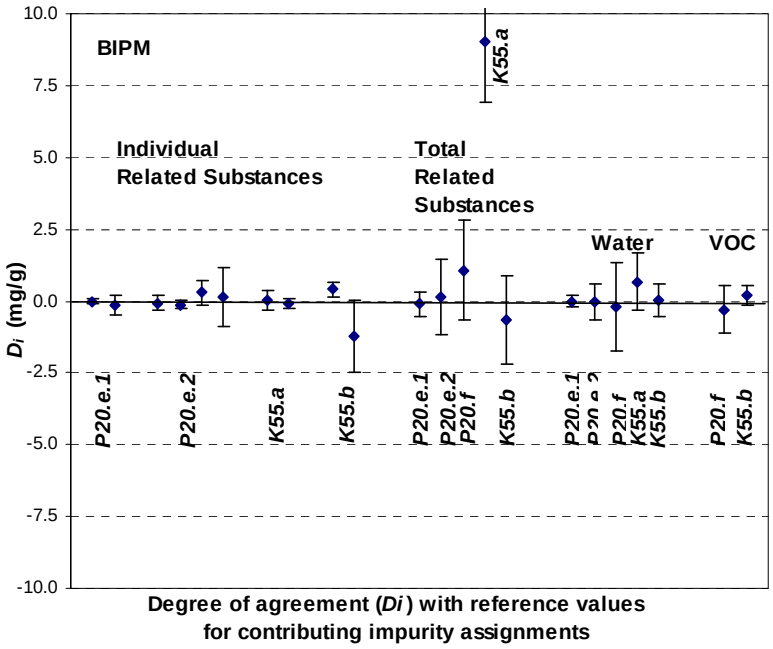
***L- Valine**: **an amino acid**, low molecular weight, high polarity*



***Chloramphenicol**: **an antibiotic**, high molecular weight, high polarity*

Reference values for the main classes of potential impurities (structurally related substances, water, volatile organic compounds or VOCs) are assigned from participants' results. These values are then combined to assign the reference value for the mass fraction of the main component.
For each participant and each class of impurity in each study, plots are prepared to show the extent of agreement, within their stated uncertainties, of a participant's reported result with the reference values. This provides a mechanism for the **ongoing demonstration of the robustness of individual NMIs capabilities for purity assignment** by the mass balance approach.

As an example, the agreement of BIPM results with the derived reference values by impurity class are shown in the figure below for all the comparisons coordinated to date by the BIPM



Degree of agreement (*Di*) with reference values for contributing impurity assignments

The results demonstrate excellent overall agreement of our data with the reference values for all classes of organic impurity present in the range of analytes encountered in the course of these comparisons.

The current series of CCQM purity comparisons coordinated by the BIPM extends to purity capabilities for compounds that have a relative molecular mass generally smaller than 500. Extension of the series of comparisons to purity of **higher molecular weight compounds is required to underpin NMI capabilities** for large molecules. The NIST and BIPM are currently collaborating on a project on Angiotensin I purity, a large molecule peptide involved in blood pressure regulation, in order to develop methods for future large molecule purity comparisons.

(Report by Dr Robert Wielgosz, Director of the Chemistry Department, BIPM)

⇒ Joint Committee for Traceability in Laboratory Medicine, JCTLM

A database of Reference Materials, Methods and Services for *in vitro* diagnostics

The JCTLM was created in 2002 by a **Declaration of Cooperation** between the International Committee of Weights and Measures (**CIPM**), the International Federation for Clinical Chemistry and Laboratory Medicine (**IFCC**), and the International Laboratory Accreditation Cooperation (**ILAC**) in response to the implementation of the European Community Directive 98/79/EC on *in vitro* medical devices, and its essential requirements on metrological traceability.
In 2011, the Global Harmonization Task Force (GHTF) published guidance on metrological traceability of calibrator and control material values in their Summary Technical Documentation for Demonstrating Conformity to the Essential Principles of Safety and Performance of *in vitro* diagnostic Medical Devices (GHTF/SG1/N063:2011).

The JCTLM Executive Committee oversees the operations of the JCTLM, and its Working Group 1 and Working Group 2 establish lists of available higher order reference materials, measurement procedures/methods and measurement laboratory services with respect to the technical basis laid down in the JCTLM Framework, notably the conformity of reference materials and reference measurement procedures with respect to appropriate international documentary standards (**ISO 17511, 15193** and **15194**), and reference measurement services provided by laboratories operating in compliance with **ISO 15195** and **17025**. The reference materials, methods and services listed in the JCTLM database can be used by the IVD industry and other users to meet requirements for traceability for *in vitro* diagnostic and laboratory medicine measurements.

Logos of the three sponsoring organizations of the JCTLM

As of May 2011, the **JCTLM database** contained:

- 247 Certified Reference Materials
- 152 Reference Measurement Methods covering 73 analytes, and
- 86 Reference Measurement Services listed from 10 laboratories.

(Report by Dr Robert Wielgosz, Director of the Chemistry Department, BIPM)

*** JCTLM website**

⇒ Advance notice

"50 Years: Reflecting On The Past - Looking To The Future"

To be held on 21–25 August 2011 at the Gaylord National Convention Center, Maryland, United States

In 1961 the measurement community saw the need to band together as the National Conference of Standards Laboratories to address common needs of our industry. Thinking back to that time, how did people get their data reduced without hand-held calculators? Without personal computers? How did we quickly communicate before facsimile machines? The internet? It's amazing how were we able to ensure interoperability before all of these tools came onto the scene, isn't it? Technology has sure changed in the last fifty years – and quickly!

Now, in 2011 on our golden anniversary, we still need to band together to address common needs – and we still need to demonstrate the value and impact of accurate and traceable measurement results. We are also certainly a more international group now. Even our name has changed to NCSL International and we have seen a decade of greater international collaboration. But, the old adage is still true: "the more things change, the more they stay the same". We are still in the position of having to make the case for metrology. So, how do you demonstrate the impact of your work?

As we leave the last fifty years behind us, and kick off the next fifty years with an updated mission and vision, let's reflect on what the next fifty years will bring. Imagine it! Dream it! Create it! Share your thoughts!

Consider what technology, culture, and the environment will require from the measurement community in 2061…

Whether it's research, application, manufacturing, publications, education or training, submit a paper or coordinate a panel session to reflect on the past, look toward the future, show how things have changed, demonstrate how they have stayed the same, or help imagine and create a new and exciting future! Come to see, hear, participate, and have fun in the celebration!

NCSLI Conference 2011

"Added value through better measurement"

To be held on 3–6 October 2011 in Paris, France

In any quality process, measurement is an essential decision-making element, a vehicle of performance, a control for industrial risks, and for credibility: the example of disaster management at Fukushima proves it!

The current trend is for economic recovery: new projects begin in sectors where there was previously a slowdown, professional morale has picked up and headhunters are also actively searching for metrologists.

The International Metrology Congress is the place for experts, manufacturers and industrial users to exchange technical expertise in the field of metrology. It aims to demonstrate that measurement is a tool for improving industrial processes.

Press release
International Congress of Metrology

* **Calendar of meetings held at the BIPM**
* **Other conferences, workshops and general assemblies**