Eurachem News

A Focus for Analytical Chemistry in Europe

Issue 31 Autumn 2013

In this issue:

Words from the chair

Metrology disaster

A sunny summer day Ivan was going to the amusement fair Liseberg in Göteborg, Sweden not knowing that he will get a metrology surprise. His grandpa had talked about the roller-coaster and the bumper cars being the best attractions. However there was a metrology requirement – length over 130 cm. We measured at home before going and indeed Ivan was 130 cm. At the amusement park they had a guest service measuring the height and YES he was 130 cm and was given a metrology confirmation with a bracelet. Life was beautiful and the roller-coaster was hilarious as most of the other attractions. The bumper cars were planned as the last attraction before going home. Here came the metrology surprise. They wanted to check the height again and Ivan was now found to be 129 cm and not allowed to ride. The disaster was considerable.

As an analytical chemist/metrologist I would say that we need to 1) define the measurand and 2) consider uncertainty in relation to a lower limit. In this case major components of uncertainty are the variation during a day (up to 1 cm) and the repeatability limit (up to 0.5 cm). Maybe the measurements were correct but the 'test object' changed its height during the day. The definition of the measurand is a key point in measurement as we all know and now Ivan 6 years also knows this.

Eurachem growing older

Today Eurachem is still very active thanks to all dedicated members. I wish as chair to express my sincere gratitude to all of you. Eurachem will mark its 25th anniversary in 2014 and a task group chaired by Ricardo Bettencourt da Silva has been set up to arrange the celebration. We all look forward to this. We also plan to write a short history of the first 25 years – Alex Williams has already done the first 10 years that can be found at our website under About Eurachem, A history

Eurachem or EURACHEM

By the way, when I entered Eurachem it was sometimes EURACHEM. We have now decided that it is Eurachem and nothing else. Older documents will be revised accordingly.

Bertil Magnusson
Eurachem chair

PS Eurachem has a rolling plan of chairmanship for 2 years. So next year I will hand over the chairmanship to Wolfhard Wegscheider and become past chair.

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Report from the General Assembly

This year the Eurachem general assembly was held in Finland, perfectly organised by MIKES and Finntesting. We were in the MIKES institute in Espoo just outside Helsinki and the assembly dinner took place on a small beautiful island in the Helsinki archipelago.

At this general assembly, 33 delegates participated from 19 countries. Of the new member countries entering Eurachem in 2013 we welcomed delegates from Norway and Estonia. Serbia, which also entered Eurachem 2013, did not manage to come to our GA but has already been active by joining several of our working groups (WG). In all active WG we can see a steady increase in membership and this is important for our work and the future of Eurachem. Regarding the future, the general assembly approved the long term annual plan for Eurachem 2013–2017.

There were no changes in the Eurachem executive committee this year. However Eugenia Eftimie Totu was re-elected for another 3-year membership.

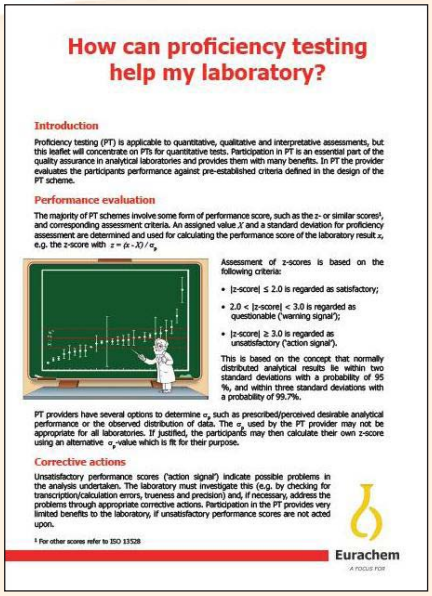
During this general assembly the issue for the discussion forum was the new ILAC Policy on the Traceability of Measurement Results P10:01/2013. This topic was chosen partly because of discussion in several countries about what this new policy will actually mean for accredited laboratories. Manfred Golze gave a presentation about the content of ILAC P10 and Eurolab's position. Today there is no clear information about how different accreditation bodies will adopt the policy but it should be implemented by 2014. We had a long discussion on how this could affect laboratories and the possible lack of harmonisation between different countries. It was decided that Eurachem would wait for the moment and revisit the issue once the policy is implemented, and that members would follow the implementation in their countries.

As usual we had presentations on on-going work within Eurachem, the working group reports and reports from the national delegates. Eurachem is represented in many stakeholder organisations and this year we had detailed information on the developments within the EA-EUROLAB- Eurachem proficiency testing group (EEE-PT), Eurolab, EURAMET Technical Committee for Metrology in Chemistry (TC MC), Inter-Agency meeting (IAM) and CODEX (food sector) Committee for methods of analysis and sampling (CCMAS).

Next GA is to be held in Lisbon in the week 19–23 of May where we will celebrate 25 years of successful work supporting measurement quality in chemical analysis. At this occasion we will also invite previous chairs of Eurachem to take part in this celebration.

New leaflet

The Eurachem Proficiency Testing Working Group has produced a leaflet on how proficiency testing can help laboratories. The leaflet can be found on the Eurachem website. The leaflet will shortly be translated into a number of European languages.



How can proficiency testing help my laboratory?

Introduction

Proficiency testing (PT) is applicable to quantitative, qualitative and interpretative assessments, but this leaflet will concentrate on PTs for quantitative tests. Participation in PT is an essential part of the quality assurance in analytical laboratories and provides them with many benefits. In PT the provider evaluates the participants performance against pre-established criteria defined in the design of the PT scheme.

Performance evaluation

The majority of PT schemes involve some form of performance score, such as the z- or similar scores[1], and corresponding assessment criteria. An assigned value X and a standard deviation for proficiency assessment are determined and used for calculating the performance score of the laboratory result x, e.g. the z-score with $z = (x - X) / \sigma_p$

Assessment of z-scores is based on the following criteria:

- |z-score| ≤ 2.0 is regarded as satisfactory;
- 2.0 < |z-score| < 3.0 is regarded as questionable ('warning signal');
- |z-score| ≥ 3.0 is regarded as unsatisfactory ('action signal').

This is based on the concept that normally distributed analytical results lie within two standard deviations with a probability of 95 %, and within three standard deviations with a probability of 99.7%.

PT providers have several options to determine σ_p such as prescribed/perceived desirable analytical performance or the observed distribution of data. The σ_p used by the PT provider may not be appropriate for all laboratories. If justified, the participants may then calculate their own z-score using an alternative σ_p-value which is fit for their purpose.

Corrective actions

Unsatisfactory performance scores ('action signal') indicate possible problems in the analysis undertaken. The laboratory must investigate this (e.g. by checking for transcription/calculation errors, trueness and precision) and, if necessary, address the problems through appropriate corrective actions. Participation in the PT provides very limited benefits to the laboratory, if unsatisfactory performance scores are not acted upon.

[1] For other scores refer to ISO 13528

Eurachem

Workshop 2013

Workshop on Quality Assurance of Measurements from Field to Laboratory

During the Eurachem annual meeting 2013 Finntesting Association, Centre for Metrology and Accreditation (MIKES) and Eurachem organized a workshop on Quality Assurance of Measurements from Field to Laboratory at MIKES, Finland on 20–21 May. Altogether, 45 delegates from 12 countries participated in the workshop. Timo Hirvi, the Director General of MIKES, and Janne Nieminen, the Chair of Finntesting Association, hosted the workshop.

Bertil Magnusson, the Chair of Eurachem introduced the participants to Eurachem's organization, aims, major co-operations, guidance documents and main activities in the past and in the future and also to the items of the current workshop. He visualized/presented the measurement cycle starting from the client's needs proceeding via scientist's input until decisions made based on results of measurements. There were two main subjects in the workshop including the poster session and discussions: on the first day challenges related to on-site/on-line measurements and on the second day challenges on nanotechnology. On-line/on-site measurements covered several aspects such as education, analytical method development and validation, environmental measurements, industrial measurements, a mobile laboratory, specific analytical methods, research and traceability of data. The items related to nanotechnology ranged from status and future of nanotechnology, nanometrology in biomedicine, risk management in industrial nanomaterials, food sector, quality assurance of microarray data, measurements with magnetic nanoparticles, traceable dimensional measurements in nanoscale and practical solutions. The participants considered the scientific programme important and interesting according to the results of the feedback questionnaire.

A detailed programme and lectures are available on the website: www.eurachem.org/.

Anna-Liisa Pikkarainen

Working Group Reports

Education and Training WG

The Education and Training WG held a successful meeting in Espoo in May. The group continues to grow and we have welcomed new members form Norway, Spain, and Turkey. The group has made progress in a number of areas during the year. The questionnaire to ascertain the state of Education and Training in Metrology in member states has been completed. A web-based questionnaire was launched in October 2012 and kept open through to April 2013. A total of 148 complete surveys were submitted along with an additional 235 partially completed responses. A draft report summarising the responses was discussed at the WG meeting and further data analysis is planned to identify future actions for the WG. Thank you to everyone who took the time to complete and distribute the survey, and to Steve Ellison for building the survey.

The group has also prepared a 'Reading List' of key standards, guides, websites and books relevant to quality assurance in analytical measurement. The list is currently being finalised and will be made available on the Eurachem website.

The group agreed a significant new work item in May – the revision of the Eurachem/CITAC 'Guide to Quality in Analytical Chemistry: An Aid to Accreditation'. A task group is being formed to update the guide to bring it into line with the requirements of ISO/IEC 17025 and to ensure that the terminology is consistent with current international vocabularies.

Vicki Barwick

Method Validation WG

The outcome of the Working Groups activities during the workshop in Berlin, May 2012, gave inspiration for further developing and improving the Eurachem guidance on Method Validation.

The question has been whether this should be done solely in a revision of the 'Fitness for Purpose' guide – or it should be taken (partly) into a totally new, supplementary guideline. This was planned to be discussed at a meeting in connection with the EC meeting in Berlin, October 2012, but for different reasons that had to be cancelled.

By the end of 2012 the Eurachem Chair took the initiative to start up a process on first of all doing a necessary revision of the original document, focusing mainly on revising definitions and references, which have become obsolete in the meantime. Members of the WG volunteered for doing review on the various paragraph and coming up with suggestions for revision. Ulf Örnemark offered to work as editor on that process leading to a draft, revised document discussed at the WG meeting in Espoo. Further comments were collected before discussion at a two-day meeting in September 2013 in Berlin. Another WG meeting is planned for January 2014 in Rome.

The revised 'Fitness for Purpose' guide will still form the Eurachem basic view on method validation – and recommendation for planning and performing method validation studies. It is though also considered as an option to elaborate a supplementary guide, dealing with the issues which have come up during over the last decade, related to Method Validation, but which didn't find their way into the revised guide.

The WG has decided to meet regularly twice a year after the meeting in September 2013.

The ToRs for the MVWG has recently been uploaded on the Eurachem website, including a list of the members of the WG at present (17 from 10 different countries). New members are always welcome!

Lorens P. Sibbesen

Measurement Uncertainty and Traceability WG

The working group met at LGC in Teddington in December 2012 and met during the Eurachem meetings in Helsinki in 2013.

The Traceability guide had been updating to bring it into line with VIM3. After some further editorial changes it sent to GA for approval for issue as a new version. The compliance guide had been examined to check whether it also needed updating but the changes identified did not warrant publishing a revised version.

The major items under discussion are MCS, preparing guidance on setting target uncertainty and when it is appropriate to use the standard deviation divided by the square root of the number of observations.

The WG has agreed to collaborate with NKML on organising a joint workshop on Measurement Uncertainty.

Alex Williams

Proficiency Testing WG

The Eurachem Proficiency Testing Working Group (PTWG) continues to make progress on a number of work activities:

- The leaflet on pre- and post- analytical proficiency testing has been translated into a number of other European languages which are now available on the Eurachem website.
- The latest PT leaflet – 'How can proficiency testing help my laboratory?' has been completed and is available on the Eurachem website. The leaflet will shortly be translated in to a number of European languages.
- The production of guidance on the evaluation of qualitative and interpretative results in PT schemes is progressing. A survey to current PT/EQA providers to enquire how they currently evaluate performance in qualitative schemes is being undertaken.
- The 8th PT workshop will be organized in Berlin on the 6th to 9th October 2014.

Topics to be covered will be:

- A review of ISO/IEC 17043
- User perspectives of PT
- Sampling PT
- The revised ISO 13528
- PT in developing countries
- Harmonisation of performance assessment in qualitative PTs

A training course on the interpretation of the revised ISO 13528 standard will be held in conjunction with the workshop. The Workshop will consist of invited lectures, short presentations, posters and working group discussions. Details of the Workshop are available at www.eurachempt2014.de

- Work has recently started on two new leaflets addressing the selection of PT schemes
- Planning and frequency of participation
- Selecting appropriate PT schemes

Brian Brookman

Qualitative Analysis WG

Eurachem's qualitative analysis working group is developing a guide on uncertainty for qualitative analysis. The title of the draft Guide is 'The Expression of uncertainties in qualitative analysis and testing'.

Following discussion at the 2012 GA, the draft was circulated for general comment; in part to assess whether substantial further work was needed. Following comments, a small drafting committee met in November 2012 to consider the comments and undertake revision. A revised draft has been prepared and is awaiting final editing with a view to issue for approval in the second half of 2013.

I would like to thank Ricardo Bettencourt da Silva and Bertil Magnusson for their considerable assistance in preparing the revised draft.

Steve Ellison

National Reports

The work within the national Eurachem organisations is one of the most important channels to convey our message to the laboratories and our stakeholders. Below you will find reports about activities in our national organisations.

Belgium

BELAB is member of Eurachem and Eurolab. In 2012 there was a change of president. In the context of increasing the activities of BELAB and to intensify the contact with the members, BELAB organized a survey on BELAC, the accreditation authority in Belgium.

The purpose of the survey was to get a picture about BELAC following the import of their renewed procedure, and to ask some general things about BELAC but especially increase the dialogue between BELAB-members and BELAC. In the survey there was also a possibility for the accredited institutes and labs to communicate comments and suggestions. The survey was created via Survey Monkey and 350 mails were sent out. After a period of one month a response of 62,5 % was obtained. The results gave a good view about how the relation between BELAC and their clients is.

BELAB has the intention to organize a workshop or seminar in late autumn. The subject is still not fixed but it will be chosen from the suggestions given in the survey.

The website will be renewed and more information will be sent to the members.

Members of the Executive committee of BELAB are member in several committees of BELAC.

Isabelle Vercruysse

Bulgaria

In 2012, aiming to intensify its activities, BULCHEM section moved to the Union of Metrologists in Bulgaria (UMB) www.smb-bg.org. For this purpose, in September 2012 during the XXII NATIONAL SCIENTIFIC SYMPOSIUM 'Metrology and Metrological Assurance 2012' with international participation, an agreement between UMB and Bulgarian Institute of Metrology was signed. By this transition of the section to UBM, the MoU condition for building of a national Eurachem network was fulfilled.

Activities of BULCHEM – BULGARIA

In 2012 supported by UBM, the Eurachem guide Terminology in Analytical Measurement: Introduction to VIM 3 was translated in Bulgarian language. The translated manual was disseminated in paper and electronic forms. The feedback received from the guide users was positive and the examples in the field of chemical and biochemical measurements were recognized useful for the analytical scientists.

Several seminars and specialized courses for representatives of laboratories for testing and calibration were organized on the subject of: Uncertainty in sampling. Assessment of the measurement uncertainty in testing. Laboratory practice and methodological issues when calibration of measurement instruments is carried out: pH-meters, spectrometers, chromatographs, spectrophotometers. Requirements to the calibration when it is a part of the method/procedure for a measurement. Requirements and procedures for sampling petroleum products.

BULCHEM section participated in two roundtables during the XXII NATIONAL SCIENTIFIC SYMPOSIUM with international participation 'Metrology and Metrological Assurance 2012':

- Methodological problems of training in Metrology.
- Updated information about decisions of the international metrological organizations and tendencies for reproducing the units of SI.

At the end of the year, a program for training courses was drawn up and discussed by the Program Board of UBM. In this program, provided on the web site of UBM is planned four courses with the participation of BULCHEM section to be arranged. The next two Eurachem guides are also envisaged to be translated in Bulgarian language:

- Selection, Use and Interpretation of Proficiency Testing (PT) Schemes (2nd Edition, 2011)
- Quantifying Uncertainty in Analytical Measurement, 3rd Edition (2012).

Czech Republic

In spring 2013 Eurachem Czech Republic celebrated twenty years of activity mainly within our country. It was nice opportunity to cast our minds back and also think about future plans that could be useful for laboratory community in the Czech Republic.

Two main activities from last year should be pointed out. The first one is preparation and organisation of six days course Quality Manager in Chemical Laboratory. This course finally took place in Prague in February and March and was attended by 12 participants which gave us very positive feedback. We had seven lecturers from Eurachem-CZ and two experts outside our organisation. It is intended to repeat this course in autumn with help of local organiser and we decided to open it also for participants from Slovakia. The translation of Eurachem Guide Terminology in Analysis into Czech language is the second important activity. This translation is nowadays finished and it will be published as new issue with no 18 of series of our monographs called Qualimetrics this summer.

Our organisation regularly issues two Newsletters for our members yearly. Each one contains eight pages of text. Summer edition 2012 focused on proficiency testing for a limited number of participants and comparison of results between two laboratories. Winter edition 2013 was devoted to our 20th anniversary. Our newsletters also bring information about local events and future plans.

We run webpage www.eurachem.cz and recently two new leaflets were published and are freely accessible. One of them is the translation of Eurachem leaflet on compliance assessment and the other one gives basic statistical information for the comparison of two methods.

Members of the Executive Committee of Eurachem-CZ were active in several technical committees of Czech Accreditation Body and presented many lectures on several local and also international conferences and workshops. In April 2013 we organised local TrainMiC© event in Olomouc with 13 participants mainly from academia.

David Milde

Finland

Finntesting Association's activities include those of Eurachem Finland and Eurolab Finland. The Association has 31 company members and 29 individual members. Finntesting Association has an executive board with 9 members. Finntesting Association has nominated members in Eurachem General Assembly, several Eurachem Working Groups and since 2012 in the Eurachem Executive Committee.

Finntesting Association had an annual seminar and a traditional annual meeting in 2012. The topic of the seminar was sampling focusing on environmental sampling, sampling for forensic purposes and accreditation. During the annual meeting there was a visit to the Finnish Institute for Verification of the Chemical Weapons Convention VERIFIN. VERIFIN supports the disarmament of chemical weapons by development of identification methods for chemical warfare agents. VERIFIN was nominated as the designated laboratory of Organisation for Prohibition of Chemical Weapons (OPCW) in 1998 among the first laboratories.

During 2012 Finntesting Association prepared for organizing the Eurachem annual meeting 2013 and the workshop on quality assurance of measurements from field to laboratory. Finntesting Association encouraged two students by delivering them awards based on student's meritorious thesis where quality assurance aspects had been taken into account. The Association also recognized the person for the successful work in the field of laboratory and reliable results during many decades.

Eurachem Finland
Finntesting Association

Italy

Eurachem in Italy is jointly supported by the National Institute for Research in Metrology (INRIM), the National Institute of Health (ISS) and the National Institute for Environmental Research and Protection (ISPRA). Its activity is aimed to promote the implementation of metrology concepts by analytical scientists and is carried out through the dissemination of relevant information, the organization of training events, the contribution to guidance documents and their translation in Italian.

In 2012, a training event on 'Application of metrology to measurements for health' was organized in Rome at ISS (November 26th–28th 2012) under the

joint auspices of Eurachem and TrainMiC® 'Training in Metrology in Chemistry' (www.trainmic.org), a programme initiated by the EC Joint Research Center Institute for Reference Materials and Measurements. The training course, which included lectures, practical exercises and learning evaluation, was attended by 30 participants. At INRIM a series of public conferences analyzed the linkage between the measurement of specific chemical quantities (e.g. bioassays, analysis of nano-particles …) and the knowledge attainable on the dispersion of pollutants in the environment and their effect on health.

The document 'Internal Quality Control. Handbook for Chemical Laboratories', NORDTEST TR 569, is now available in Italian and accessible on-line free of charge, as a National Institute of Health Report (Rapporti ISTISAN 12/29, www.iss.it) as well as on the Nordtest website. The translation in Italian of the Eurachem Guide 'Terminology in Analytical Measurement' has been completed and its publication is expected shortly.

Eurachem events, such as EURACHEM Workshops, were promoted through distribution of the available information. EURACHEM Italy contributes to the EURACHEM WGs: Education&Training, Proficiency Testing and Method Validation and to the joint EA-EUROLAB-EURACHEM WG Proficiency Testing and Accreditation.

Enzo Ferrara and Marina Patriarca

Poland

Presently, 79 laboratories are members of the Eurachem-PL, Section of Polish Chemical Laboratories in Club of Polish Testing Laboratories POLLAB. Since 10.12.2009 Eurachem-PL has been lead by Andrzej Brzyski (chair), Kinga Makuła (vice-chair), and the section secretariat is hosted by the Military Institute of Armament Technology in Zielonka, near Warsaw.

The Section was established in 1992, preliminary name as POLLAB-CHEM, one of several sections of the Club of Polish Testing Laboratories POLLAB. Polish delegates have participated in various Eurachem meetings and GAs, as well as have been working in Eurachem WGs – PT, E&T, MU&T. Important tasks of the Section is to promote ideas related to the quality of chemical measurements and materials characteristics as well as distributing any information that member laboratories are interested in.

Members of the Section are involved in organization of symposia organized every year by POLLAB. The main topic at XVIII POLLAB Symposium (2012) was 'Technical requirements – part IV – The reliability of tests results'. Two rounds of the symposium was attended by over 400 participants.

We organized also a special section's meetings, at least one per year, including invited lectures dedicated to selected subjects. In 2012 there were two meetings, where participants discussed about 'Planning PT/ILC programs for accredited laboratories'.

In 2013 Eurachem-PL intend to continue present policy to support laboratories. Their members will attend in Symposium POLLAB, section meetings and new ILC/PT programs.

Andrzej Brzyski

Portugal

The Portuguese members, Ricardo Bettencourt da Silva and Olivier Pellegrino, were actively involved in the activities of the Measurement Uncertainty and Traceability Working Group. The elected Executive Committee (EC) member, Ricardo Bettencourt da Silva, also participated actively in various EC activities and in the scientific committee of the Eurachem workshops on 'Validation, Traceability and Measurement Uncertainty' and 'Key Challenges in Internal Quality Control'. In the end of the year, Ricardo Silva also contributed to the revision of the guide on 'Expression of Uncertainty in Qualitative Analysis and Testing' of the Qualitative Analysis Working Group. The guidance and activities of Eurachem have been disseminated, by the Portuguese team, in international and national workshops, research publications, training actions of laboratory practitioners, and to students of the University of Lisbon, Euromaster 'Measurement Science in Chemistry' and Erasmus Mundus in 'Quality in Analytical Laboratories'.

Ricardo Bettencourt da Silva

Romania

In the context of the continuous changes and the sustained preoccupation for the measurements and chemical analysis quality, Eurachem Romania Association continued its policy to support various laboratories enlarging its participation to various events organized either by Eurachem Romania, either by accredited bodies or universities, research institutes (INCDSB, ICECHIM, IMT, INMR), or from national and local agencies for public health, water and air quality control and environmental monitoring. Eurachem Romania is a non-profit professional organization established in 2000, being affiliated to the similar European organization Eurachem and also it is RENAR member. Eurachem Romania is focused on promoting mutually accepted principles at national level. During 2012, the University Valahia from Targoviste supported Eurachem Romania to organize the XI Annual Forum Eurachem – Romania on 21st September 2012 in Targoviste, Dambovita County. This event was hosted by the 1st Analytical Chemistry International Conference. At the XI Annual Forum Eurachem – Romania 7 speakers presented interesting papers such as those of Jens Andersen, from EuChems, 'Pooled calibrations and retainment of outliers improve chemical analysis', Petre Maxim, 'Traceability in the chemical and biological measurements in forensic science'. Also, Lorens Sibbesen, Chair of the Validation WG of Eurachem, gave a presentation: 'Actual challenges for the validation of analytical methods. Formal requirements.' On this occasion it was also held the general assembly of Eurachem Romania. Also, it was issued the national publication of Eurachem Informative Bulletin no.16, 2012, ISSN 1582-9057 with papers related to general and statistical principles of certification and the practical use of the reference materials in the analytical laboratory, and the new edition of the proficiency leaflet included.

President, Prof.dr.eng. Gabriel-Lucian RADU

Russia

Since then the Eurachem Education and Training WG conducted a questionnaire survey to ascertain the state of education and training in the field of metrology in analytical chemistry. The Russian respondents included representatives from universities, members of the Scientific Council of the Analytical Chemistry of Russian Academy of Sciences (RAS), experts on accreditation of analytical laboratories, metrologists.

At June 21, 2012 one of the Russian leading metrology institutes- All-Russia D.I. Mendeleyev Scientific and Research Institute for Metrology (VNIIM) (FGUP 'D.I.Mendeleyev VNIIM') in St. Petersburg celebrated 170 years. Today, VNIIM is one of the largest world centers of scientific and practical metrology. It is the leading Russian organization in the field of precise measurements in metrology and the major centre of national measurement standards in Russia.

VNIIM cooperates with many international organizations such as the International Committee of Weights and Measures (CIPM) and participates in the work of the Consultative Committee for Units (CCU). VNIIM is responsible for 8 subcommittees of the International Organization of Legal Metrology (OIML), participates in the work of four Technical Committees of the International Standards Organization (ISO), and participates in the work of the International Measurement Confederation (IMEKO). VNIIM specialists are heads of three of 17 Technical Committees of the Regional Metrology Organization COOMET and participate in the work carried out by two other Regional Metrology Organizations EURAMET. VNIIM takes part in the bilateral cooperation programs with the following National Metrology Institutes: PTB, Germany; LNE, France; KRISS, Korea; SMU, Slovakia; CMI, Czech Republic. The VNIIM specialists are authors of translation into Russian language of Eurachem guides and the International Vocabulary of Metrology – VIM 2.

At the beginning of September on the initiative of the Ural Scientific Research Institute of Metrology (UNIIM) was held 1st International Scientific Conference 'Reference materials in measurement and technology' A conference dedicated to the International Year of the Water Cooperation, declared by UNESCO in the year 2013. In terms of the necessity to improve the accuracy of measurements in the field of environment protection during development of new technologies, processing, quality and product safety control requirements for reference materials significantly increase. The Conference covered issues of metrological traceability, the competence of reference material producers, ensuring compatibility and interoperability, harmonization of national requirements for reference samples with international practice, information assurance, etc. In the conference participated the specialists from Russia, countries of the CIS, and also Belgium, Bulgaria, Brazil, Great Britain, Germany, Poland, Slovakia and Philippines. Main journal on topics of development, certification and application of reference samples in Russia is the journal 'Reference materials', published by UNIIM.

The second congress of the Russian analysts, the large event, which gives the unique possibility to specialists for meeting and discussion, takes place in September 2013 at Moscow. At the congress new ideas, trends of analytical chemistry development, interdisciplinary coordination, role of chemical analysis for new technologies (nano-analysis, bio-analytics and others), MiC, the application of quality control in analytical chemistry, the certification of production will be discussed. In the program of congress the Scientific Conference 'Analytical Chemistry of Russia', the School of Young Scientists in Analytical Chemistry, the annual session of Scientific Council on Analytical Chemistry of RAS, Symposium on history and methodology of analytical chemistry, Symposium on the nano-analysis, Symposium on the test-methods of analysis, Symposium on the teaching of analytical chemistry, Symposium on the application of chemo metric in the chemical analysis, presentation of the producers of scientific equipment, exhibition of instruments and books, round tables will take place.

The members of scientific council on analytical chemistry of the RAS developed lexical ontology in the form of the bilingual (Russian – English) thesaurus of terms on general issues of analytical chemistry and metrology. The terminology of more than ten official Russian and international documents, including VIM is integrated in it. The developed resource is directed toward the assistance in the harmonization of terminology. Thesaurus is accessible with the address: www.wssanalytchem.org/ontology

Topics of the MiC systematically are traversed in the periodical 'Industrial laboratory. Diagnostics of materials', which is translated into the English. Resource is accessible with the address: www.zldm.ru

Baranovskaya Vasilisa

Sweden

Regularly two members meetings are held annually, one focusing on measurement quality issues and one on accreditation. The second meeting regarding accreditation was jointly organized in May 2013 with the Swedish accreditation body Swedac. From 2010 Eurolab/Eurachem Sweden is also represented in one of the advisory boards of Swedac.

During the meeting with Swedac in May 2013 discussion issues were among other things the new ILAC P10 document about traceability for laboratories accredited to ISO/IEC 17027 and ISO 15189. The outcome from this discussion was that in practice there is no change in the traceability requirements. We also discussed the good experience of the change from 12 to 16 month interval for visits to the accredited laboratory, accreditation in an international perspective. Our popular course in internal audits will also be given in 2013.

Bertil Magnusson

Turkey

The training group in the Chemistry Group Lab in UME in collaboration with EC JRC IRMM Programme TrainMiC has organised a TrainMiC training event in Gebze/Kocaeli (22nd–23rd of November 2012), covering the following topics; traceability of measurement results, selection and use of reference material, statistics in analytical chemistry, single laboratory validation of measurement procedures, internal quality control, sampling as part of measurement procedure, uncertainty of measurement principles, uncertainty of measurement approaches to evaluation, evaluation of proficiency testing results and case studies. The course was attended by 64 participants. The presentation was given in Turkish by the TrainMiC trainers from Turkey. In addition training on method validation and uncertainty in chemical measurement was organised in UME on 7th–11th of May 2012 and 12th–16th of November 2012. 63 participants attended the training courses, which included lectures and exercises.

Ukraine

In 2012–2013 Eurachem – Ukraine has paid the most attention to introducing the demands of ISO 17043, which is to be adopted as a national standard, into PT practice, particularly by preparing the draft guidance documents in line with ISO 17043 and participating in seminars. One of them has been held in cooperation with

newly-formed Association for Quality Assurance in Laboratory Medicine.

Translation of 'Terminology in Analytical Measurement – Introduction to VIM 3' Guide into Russian language was prepared and published.

The series of workshops devoted to natural gas measurements involving issues of metrological traceability, calibration, proper use of reference materials, and proficiency testing in the area of natural gas analysis was continued. Specific documents on metrological traceability in humidity and optical quantities measurements related to newly approved national measurement standards were developed.

United Kingdom

Eurachem activity in the UK continues to be coordinated between the Analytical Methods Committee of the Royal Society of Chemistry, and through LGC, who lead the UK Chemical and Biological Metrology programme.

The AMC (www.rsc.org/AMC/) has sub-committees concerned with sampling uncertainty/sampling quality, statistical methods and validation [of analytical methods] all of which complement interests and concerns of Eurachem. The AMC continues to publish Technical Briefs which reach all members of the analytical division of the RSC and are on-line for all to access and use: Briefs can be found by following the 'Technical Briefs' link at. www.rsc.org/AMC/. Topics for recent Technical Briefs include 'What causes the most errors in chemical analysis', 'Experimental Designs' and 'Checking the quality of contracted-out analysis'. Members of AMC regularly receive the Eurachem Newsletter and information on Eurachem activities.

Activities associated with the UK Chemical and Biological Metrology programme are described on the programme website at www.nmschembio.org.uk/. Activities of particular interest to Eurachem include a range of training courses, including courses on measurement uncertainty, analytical method validation and statistics for analytical chemists. In the next year LGC is planning new courses on effective experimental design, implementing ISO/IEC 17025 and using Excel for data analysis. The programme also provides guidance documents and reports; these can be found on the website above. The most recent is a 'Good Practice Guide for the Application of Quantitative PCR'.

Eurachem UK members have also contributed actively to the PT working group, E&T working group, Measurement Uncertainty and Sampling working groups.

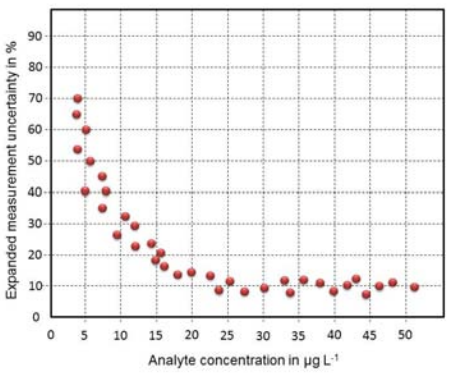
News and Reviews

Here Eurachem members can present important issues within Eurachem's field of interest. The views here are those of the authors and do not reflect Eurachem policy.

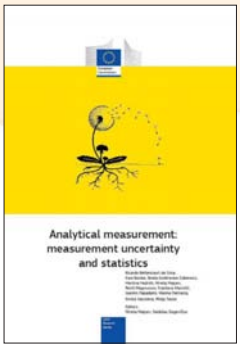
MUkit – Measurement Uncertainty Estimation Software updated – Now both absolute and relative uncertainty

Finnish Environment Institute (SYKE) has developed a computer program MUkit for measurement uncertainty estimation based on quality control and validation data. The principals are laid down in several documents e.g. 1) the Eurachem guide on uncertainty (www.eurachem.org), 2) a recent ISO standard 11352 and 3) a Nordtest report TR537. The approach presented in the software program is mainly based on the calculation methods presented in the Nordtest 537 report. The program is available with source code included for download free of charge on the Internet at www.syke.fi/envical and the Nordtest guide can be downloaded from the website: www.nordtest.info/tr537

The first version enabled user to carry out the relative measurement uncertainty estimations. In the updated version of MUkit, the user is able to choose the calculation approach between relative and absolute. This is highly needed improvement, since the measurement interval usually has to be divided into several ranges. In the lower concentration range for instrumental methods the absolute measurement uncertainty is constant while at higher concentrations the relative uncertainty is constant – see Appendix E.5 Documenting uncertainty dependent on analyte level in Eurachem /CITAC Guide, Quantifying Uncertainty in Analytical Measurement.



Teemu Näykki



New TrainMic book

The TrainMiC® life-long learning programme on metrology in chemistry, coordinated by the JRC Institute for Reference Materials and Measurements (IRMM), published the first book of training presentations. This book was published after two volumes dedicated to application examples of contents taught in presentations.

The book, entitled 'Analytical measurement: measurement uncertainty and statistics', includes four of the most requested presentations of TrainMiC courses, namely: 1) Measurement uncertainty – Part I Principles; 2) Measurement uncertainty – Part II Approaches to evaluation; 3) Statistics for analytical chemistry – Part I and 4) Statistics for analytical chemistry – Part II.

The first presentation aims at introducing the principles of the evaluation of the measurement uncertainty, including a specific application example. The second presentation describes alternatives to the modelling approach for the evaluation of the measurement uncertainty. The two presentations dedicated to statistical tools are divided in basic statistical concepts and tools, and linear regression and analysis of variance. The training material includes slides and speaker notes. More details about TrainMiC® can be found in the programme website (www.trainmic.org).

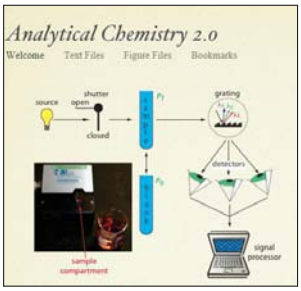
Ricardo de Bettencourt da Silva

NMKL Guideline on how to publish QA results in papers

The credibility of published analytical results depends to a large degree on the description of the analytical quality control procedures used prior to and during the analysis. If such procedures are not reported, or poorly described, together with the results, the reliability of the results may be questioned. The Nordic Committee on Food Analyses (NMKL) has published a protocol that gives guidance to authors, editors and referees/reviewers on important analytical quality control measures that should be reported in publications. The protocol is aimed at food analyses but parts of it can be generally applied to other fields.

The guide: Analytical Quality Control – Guidelines for the publication of analytical results of chemical analyses in foodstuffs can be found here: www.nmkl.org

Joakim Engman



Text book on analytical chemistry

Analytical Chemistry 2.0 is a freely available eText that is a revision of the textbook Modern Analytical Chemistry, originally published by McGraw-Hill in 1999. New to this edition are practice exercises (with worked solutions), which complement the worked examples, and instructions on using a spread sheet (Microsoft Excel) and computational software (R) for solving problems in statistics, calibrations and regression analysis, equilibrium chemistry, and method development and optimization. Main focus is not on metrology but some parts describe measurement uncertainty calculations. It can be found here: www.asdlib.org/onlineArticles/ecourseware/Welcome.html

Bertil Magnusson

Upcoming Meetings

Eurachem workshop Quality in Analytical Measurements and 25th Anniversary of Eurachem Lisbon, Portugal, 19 to 21 May 2014

Eurachem in co-operation with CITAC, University of Lisbon and RELACRE is organising a workshop on Quality in Analytical Measurements aiming at discussing measurement cycle from the analytical problem to measurement interpretation. The event is being organised by the Eurachem Measurement Uncertainty and Traceability Working Group with the collaboration of the Eurachem Working Groups on 'Method Validation', 'Proficiency Testing' and 'Education and Training'. The workshop will include invited lectures, short communications, poster sessions and breakout sessions. This event will also celebrate the 25th Anniversary of Eurachem.

Venue

The workshop will be held in Lisbon, Portugal. Lisbon is its beautiful capital city where it is possible to visit magnificent monuments of various historical periods, from before the 12th century, to those celebrating the maritime achievements of the 15th and 16th centuries, and of more recent age, such as the world's largest collection of royal coaches, and the Pena National Palace of Sintra, one of the world´s major expressions of 19th century Romanticism. The month of May is a particularly nice time of the year to enjoy sightseeing and to taste the best sea fish and tasty fruits. The workshop will take place in Hotel Mundial.

Scientific programme

Considerable attention has been paid in the last decade to improvement in the quality of analytical measurements in order to be able to interpret and fulfil demands of an individual, organisation or society. This has been achieved, for example, by increased participation in PT schemes, wider availability of CRMs and greater attention being paid to traceability and uncertainty evaluation.

This workshop will consider the most challenging technical details of the analytical process, including the chemical description of the analytical problem, producing measurements with adequate traceability and uncertainty, interpreting results based on objective evidence and

reporting results to the client. Breakout sessions will provide the opportunity to identify areas where problems remain.

These discussions will be complemented with sessions on how to train laboratory staff and clients to contribute to the successful production and use of analytical results to solve the most challenging societal problems.

The workshop will include invited lectures, short communications, poster session and breakout sessions on important topics of the whole measurement process from defining the purpose of the measurement through to utilisation of the final result. Topics covered will include:

1. Specification for measurements
2. Product compliance assessment
3. Procedure Validation/ Verification
4. Measurement Uncertainty
5. Measurement Traceability
6. Proficiency testing
7. Training

Registration

Submission of abstracts, registration and hotel reservations is now open via the Workshop website: www.fc.ul.pt/conferencia/eurachem-2014

The registration fee includes a book of abstracts, three lunches, coffee breaks and workshop dinner. A discount will be given to early registration before 31 March 2014.

Workshop Secretariat
Phone: + 351 21 750 0959
Fax: + 351 21 75 00088
Email:mailto:eurachem2014@fc.ul.pt

Ricardo Bettencourt da Silva
Chair of Local Organising Committee
University of Lisbon, Portugal

Eurachem 30th General assembly and working group meetings

In connection with the workshop some Eurachem working groups will have meetings on 21 and 22 May 2014. An anniversary dinner and celebration will be held on 21 May 2014. The General assembly will be held on 22 and 23 May 2014.

Registration:

www.fc.ul.pt/conferencia/eurachem-2014

8th Workshop on Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine Berlin (Germany), 6–9 October 2014

The Eurachem Proficiency Testing Working Group (www.eurachem.org), in co-operation with CITAC (www.citac.cc) and EQALM (www.eqalm.org), is organising the 8th event of a series of Workshops addressing current practice and future directions of proficiency testing (PT) and external quality assessment (EQA) in analytical chemistry, microbiology and laboratory medicine.

Venue

The Workshop will be held in Berlin, an exciting city of contrasts. Forever evolving it provides a countless variety of historical and modern attractions. Berlin has over 170 museums, making the city one of the world's prime locations for first-rate historical art collections, cultural exhibitions as well as museums of science and technology. Berlin has good airline connections. The workshop will take place in andel's Hotel Berlin.

Technical Programme

The Workshop will be structured to include training sessions, key-note lectures, short presentations, working group discussions and poster sessions, to enable interactive participation and cross-fertilisation of ideas. The official language of the Workshop will be in English. Invited lectures and accepted presentations/posters will be considered, through peer-review, for publication as full papers as a topical focus in an issue of Accreditation and Quality Assurance (Springer Verlag).

Training Sessions

Training sessions, which are open to Workshop participants, will be on 'ISO 13528 and beyond'

Lectures and Working Group Topics

- Review of ISO/IEC 17043
- User perspective of PT/EQA
- Sampling PT/EQA
- The revised ISO 13528
- PT/EQA schemes in developing countries
- Harmonisation of performance assessment in qualitative PT/EQA

Who should attend?

The Workshop will provide an excellent opportunity for PT/EQA scheme organisers, and end-users of PT/EQA (laboratories, accreditation bodies, regulators and the laboratories' customers) to come together and share their views.

Registration

Submission of abstracts, registration and hotel reservations is now open via the Workshop website

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Brian Brookman
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Standards Proficiency Testing, Bury, UK

Eurachem/NMKL workshop on Measurement uncertainty for food laboratories

Eurachem and the Nordic Committee on Food Analyses, (NMKL) are planning a workshop on measurement uncertainty. How to handle uncertainty connected to bias will be one of the issues. The workshop will be aimed at Nordic food and feed laboratories and will be held in one of the Nordic capitals in September 2014.

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To get involved with Eurachem in your nation, contact the Eurachem Secretariat for details on how to contact your national representatives or visit the Eurachem website www.eurachem.org.

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Eurachem member countries in green. Note that on this map the Eurachem associate member country Georgia is missing.