



# Eurachem

**A focus for analytical chemistry in Europe**

## Words from the Chair....

### Ladies and gentlemen,

With a great pleasure I keep track of the growing international recognition of Eurachem and its unflagging effort in the field of metrology in chemistry. You may not be aware that several of our guides were translated to non-European languages. For instance the Quantifying Uncertainty in Analytical Measurement Guide is available in Japanese and Farsi. Some other guides are accessible in Farsi and are being translated to Chinese. We have also broadened our cooperation with other organisations such as AOAC Europe and initiatives such as Metrofood-RI. This year we were kindly invited by the Pancyprian Union of Chemists to participate in the special event held on the occasion of the 20<sup>th</sup> anniversary of the Convention of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction that took place in Nicosia during our GA week. I had a remarkable opportunity to address the audience with a short speech and here you can find its main part.

*Eurachem is a network of organisations in whole Europe, whose objective is to establish a system for the international traceability of the results from chemical measurements and to promote good quality practices. It has been hosting a forum for the discussion of common problems for more than 25 years. Eurachem provides a focus for analytical chemistry and quality related issues in Europe and beyond.*



David Milde speech at the OPCW event.

Photo: Michalis Ioannou

*Chemistry has obviously played a key role in the field of chemical weapons. I am not going to mention chemical reactions involved in the manufacturing process of chemical weapons. I am an analytical chemist and I would rather emphasize the contribution of analytical chemistry to the prevention of chemical weapons. Let me mention one personal experience. More than 10 years ago I collaborated with my colleagues at Palacky University (Czech Republic) on a research project funded by the Organization for the Prohibition of Chemical Weapons (OPCW, <https://www.opcw.org>), i.e. the implementing body of the Chemical Weapons Convention. This particular project was dedicated to the development of analytical methods for the determination of metabolites and precursors of chemical weapons containing nitrogen compounds. We put to use sophisticated instruments such as HPLC, CE, MS – you may not be familiar with them, but I can assure you that these are very beneficial instruments. I believe this example of close cooperation between a scientific institution and OPCW shows the positive impact of*

*activities supported by this organisation. This can lead to the development of general knowledge of humankind that can serve to better prevention of weapons of mass destruction. It is my firm belief that as a scientific organisation, Eurachem has significantly contributed to chemistry (and I hope not only to chemistry) by emphasizing the quality of measurement results and by showing chemists how to achieve it in a pragmatic way. Since we are still facing various cases of abuse of chemical weapons, or at least it is under suspicion, the role of OPCW is currently irreplaceable. And I do hope that the cooperation between OPCW and science and research that I am representing here as a university professor, researcher and Eurachem chairperson will be fruitful in the future. We live in a beautiful world that deserves to be without chemical weapons and all other kinds of weapons of mass destruction.*

David Milde

## News

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# EURACHEM WEEK 2017

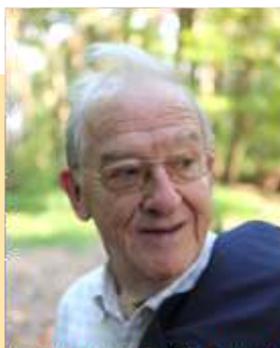
## Nicosia, Cyprus, 29 May-3 June

Eurachem Week 2017 was hosted in Nicosia, Cyprus from 29 May to 3 June; this was the second time that the Cypriot Chemists welcomed the Eurachem Family. The occasion was symbolic because May 2017 was the 20<sup>th</sup> Anniversary of active involvement in Eurachem activities. The General Assembly, the meetings of the Executive Committee and three Working Groups as well as a two-day Workshop were hosted at the University Campus, A.G.Leventis Building. Further to these, the Pancyprian Union of Chemists (PUC) - Division of Quality Assurance, in close cooperation with the Department of Chemistry of the University of Cyprus also managed to include a number of events in the week's programme, thus providing a representative sample of basic aspects of the island.

## Workshop on "Uncertainty in Qualitative and Quantitative Analysis", 29-30 May



*The Workshop was dedicated to the memory of Dr Paul De Bièvre (1933-2016) in appreciation of his overall contribution to Metrology in Chemistry and Eurachem activities and, in particular, to his support to training activities in Cyprus.*



The Workshop was prepared by the Organising Committee in close cooperation with the Scientific Committee. While the former undertook all practicalities, the members of the latter contributed to the preparation of the programme, undertook the review of abstracts as well as the assessment of posters and constantly offered their constructive comments during the whole procedure. From the very beginning the University of Cyprus and especially the Department of Chemistry supported the whole effort. The contribution of an enthusiastic group of students was also important.

It was the first time that a Eurachem Workshop was organised in cooperation with the Europe Section of AOAC International; at the same time, it was also supported by the Division of Analytical Chemistry of EuCheMS. More than 100 people, mostly young scientists, participated in the Workshop which was planned in such a way as to enlighten a wide range of applications. They came from 26 countries. i.e 19 member states, 2 EFTA countries, 3 ENP countries (Belarus, Georgia, Armenia), 1 Middle Eastern (Lebanon) and 1 Latin America (Colombia). The large number of speakers (17 for 18 lectures) made it necessary to provide for parallel sessions (2 each day). Poster authors were given the opportunity to have a short oral presentation (contributed communication) as well. The Scientific Committee selected 10 out of the 33 posters presented.

A Task Force Group of 4 members of the Scientific



More than 100 people, mostly young scientists, from all over the world participated in the Workshop. Photo: Michalis Ioannou

Committee undertook to assess the posters scoring them accordingly; three prizes were presented as follows: the first prize (the best poster) to V. Morgado, C. Palma, R.J.N. Bettencourt da Silva (University of Lisbon) for their poster "**Validation of heavy metals determination in marine sediments: A comparison of uncertainty evaluation approaches**" (P 26); the second prize to D. Louca-Christodoulou, O. Kourouzidou, M. Hadjigeorgiou, P. Hadjiloizou, M. Constantinou, P. Constantinou, M. Klavarioti (State General Laboratory, Cyprus) for their poster "Multi residue analysis of pesticide residues in fruits and vegetables" (P 24); the third prize to P. Constantinou, A.



From the left K.Tsimillis, then P. Constantinou, O. Kourouzidou and R. B. da Silva on behalf of the awarded authors and D. Milde. Photo: Elena Kelliris

Agapiou, D. Louca-Christodoulou, O. Kourouzidou (University of Cyprus and the State General Laboratory) for their poster "Determination of chlorate in food and water: validation study and estimation of measurement uncertainty" (P 17).

An outline of the programme appears in the table on page 3. The whole programme, lectures and poster presentations as well as the Book of Abstracts can be found on the Workshop website (<https://www.ucy.ac/eurachem2017>), as well as on the Eurachem website.

The Workshop was considered to be successful regarding both its content and the active participation and interaction of such a number of colleagues, especially young ones. Additional tasks and perspectives are now on the table; anyway the topic of the last lecture was "Future directions in measurement uncertainty".

Thanks are due to all speakers, the participants and the members of both the Organising and the Scientific Committee.

# The outline of the workshop programme

	DAY 1	DAY 2
General Sessions	Current Eurachem activities	Underestimating uncertainty?
	Approaches to evaluating measurement uncertainty	Is my uncertainty estimate reliable? Using data from CRMs, PT samples and standard methods
	Practical approaches for testing laboratories	Measurement uncertainty in compliance testing with a focus on EU food and feed legislation
	Traceability and uncertainty in qualitative analysis	Codex Alimentarius – Approaches to measurement uncertainty
Parallel Sessions	I : CLINICAL AND FORENSIC	I : QUALITATIVE ANALYSIS
	Measurement and diagnostic uncertainty in laboratory medicine	Contributed communications: <ul style="list-style-type: none"> <li>Validation and uncertainty evaluation of the identification of doping agents in sport by GC-MS/MS.</li> <li>Qualitative uncertainty (reliability) of chemical identification with High Resolution Mass Spectrometry.</li> <li>Analytical method selectivity – in metrology and in real life</li> </ul>
	Measurement uncertainty in quantitative metabolomics	
	Validation of PCR-based forensic DNA analysis methods	
	Validation of chromatographic methods in forensic science – focusing on uncertainty	
	Contributed communications <ul style="list-style-type: none"> <li>Uncertaintycalc: an R written web application hosts calculation of uncertainty for real time qPCR users.</li> <li>Uncertainties in the determination of VOCs in breath analysis.</li> </ul>	
	II : FOOD AND ENVIRONMENT	II : FOOD AND ENVIRONMENT
	Measurement uncertainty in microbiological examinations of foods	Contributed communications <ul style="list-style-type: none"> <li>Determination of pesticides in drinking, surface and ground water.</li> <li>Determination of stabilizers in nitrocellulose-based propellants before and after ageing.</li> <li>Estimation of the measurement uncertainty based on method validation according to alternative models.</li> </ul>
	Is the CZE a sufficient technique for determination of pathogens?	
	Measurement uncertainty in qualitative and quantitative wide - scope screening with LC-HRMS	
Uncertainties in nanoparticles research and development		
Contributed communications <ul style="list-style-type: none"> <li>Dietary risk assessment of nitrates in Cyprus and the relevant uncertainties</li> <li>Measurement uncertainty for the assigned value of the activity of alkaline phosphatase in a lyophilized milk reference material</li> </ul>		
Break-out Sessions	I : CLINICAL AND FORENSIC	I : QUALITATIVE ANALYSIS
	II : FOOD AND ENVIRONMENT	II : FOOD AND ENVIRONMENT
General Sessions	Breakout Sessions Reports	Breakout Sessions Reports
		Measurement uncertainty: Requirements set in the accreditation standards
		Future directions in measurement uncertainty

# The General Assembly, 1-2 June

## Introduction

The Chair, David Milde (Czech Republic) opened the General Assembly and Kyriacos Tsimillis on behalf of the local organizers welcomed the participants. The Rector Professor Constantinos Christofides welcomed the delegates in the University of Cyprus. He referred to the 25-year history of the University, its vision and perspectives underlining at the same time its important role for Cyprus, an unique case of a partly occupied member state of the European Union. 39 delegates from 25 countries attended the General Assembly which was hosted in the Senate Conference Room. Croatia, Hungary, Iceland, Latvia, the Netherlands, Serbia, Ukraine and Turkey were not represented at this year's GA.

## Discussion forum

Three topics were presented and discussed, namely:

- The revision of ISO/IEC 17025
- measurement and diagnostic uncertainty in laboratory medicine, and
- METROFOOD-RI - a new Research Infrastructure for Promoting Metrology in Food and Nutrition.

## Progress on Eurachem work items

Some guides are currently under review; "Selection, Use and Interpretation of Proficiency Testing (PT) Schemes by Laboratories", "Quantifying Uncertainty in Analytical Measurement" and "Quality Assurance for Research and Development and Non-routine Analysis and Terminology in Analytical Measurement: Introduction to VIM 3". A new work item on the revision of the guide on "Selection and use of Reference Materials" has begun. The General Assembly also approved an activity to revise the guide on "Measurement Uncertainty Arising from Sampling". The guide "Setting and Using Target Measurement Uncertainty in Chemical Measurement" is published on the website.

## Communication issues and how new tools could be used more efficiently were discussed.

Reports from the WGs as well as national reports were also presented.



From the left Professor Constantinos Christofides, Joanna Z.-Hadrová, David Milde, Kyriacos Tsimillis, Marina Patriarca. Photo: Michalis Ioannou.



The General Assembly was hosted in the Senate Conference Room. Photo: Michalis Ioannou

## Presentations from stakeholders/liason organizations

Reports were presented from the following organisations

- European cooperation for Accreditation Laboratory Committee (EALC)
- EA-EULOLAB-Eurachem (EEE-PT) Proficiency Testing Working Group
- EUROLAB
- EURAMET Technical Committee on Metrology in Chemistry (TC-MC)
- European Association for Chemical and Molecular Sciences (EuCheMS)
- Nordic Methods Committee on Foods (NMKL)
- Cooperation on International Traceability in Chemistry (CITAC)
- Codex Committee on Methods of Analysis And Sampling (CCMAS)
- International Laboratory Accreditation Cooperation (ILAC/LC)
- International Union of Pure and Applied Chemistry (IUPAC)
- ISO-REMCO Committee on Reference Materials
- Joint Committee for Traceability in Laboratory Medicine (JCTLM) at BIPM.

## Next General Assembly...

will be held in Dublin, 17-18 May 2018.

## Meetings of the Working Groups, 31 May

Three Working Groups, namely "Education and Training, "Traceability and Measurement Uncertainty" and "Qualitative Analysis" met on 31 May.

## Special event on the occasion of the 20<sup>th</sup> anniversary of OPCW, 31 May

The event was hosted by the Mayor of Nicosia at the Town Hall and was organized by the Ministry of Foreign Affairs and the PUC. It was considered that on the occasion of the presence of scientists from all over Europe and beyond, such an event would efficiently confirm the message of the Organization for the Prohibition of Chemical Weapons (OPCW). After a welcome address by the Mayor of Nicosia Constantinos Yiorkadjis, the Permanent Secretary of the Ministry of Foreign Affairs Alexandros Zenon

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At the Nicosia Town Hall. Photo: Michalis Ioannou



Mr Philippe Denier speaks during the event. Photo: Michalis Ioannou

referred to the involvement of the Republic of Cyprus in the activities of OPCW.

The Chairs of Eurachem and PUC David Milde and Leontios Philotheou made brief remarks. Mr Philippe Denier, Director of Verification Division of OPCW, presented the important role of OPCW after a video message by the Director General Mr. Ahmet Üzümcü. A reception by the Major followed during which the participants enjoyed traditional music by the musical group "Santouto".



The traditional music group "Santouto". Photo: Michalis Ioannou

### Cultural Event and Dinner, 1 June

On the occasion of the 33<sup>rd</sup> Eurachem General Assembly, PUC organized a special cultural event followed by the official dinner. It was a journey through the roads of Cyprus tradition...



Snapshot from the concert. Photo: Michalis Ioannou.

After a short walk in the streets of the old city of Nicosia within the Venetian walls, a concert was held at the Cultural Centre "Axiotheas Mansion" of the University of Cyprus. The Evagoras Karageorgis Ensemble presented a selection of Cypriot music. This included an amalgam of



Snapshots from the Dinner. Photo: Michalis Ioannou

the sounds, rhythms and lyrics that flourished on the island of Cyprus in the last 2500 years.

The official dinner was offered in the "Old Power Station" restaurant.

### A trip to Pafos, the Cultural Capital of Europe 2017, 3 June

A small group spared an additional day to take advantage of the excursion to Pafos, the birthplace of Aphrodite. The trip included visits to a number of archeological and other interesting sites of Pafos, the Cultural Capital of Europe 2017, followed by a traditional lunch.

*Kyriacos Tsimillis*

Further information on the activities of the whole week as well as photos from all events can be found on <https://www.ucy.ac.cy/eurachem2017>.



GA participants. Photo: Michalis Ioannou

# 9<sup>th</sup> Eurachem Workshop on Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine

Portorož, Slovenia, October 2017



From 9 - 12 October, 199 delegates from 53 countries gathered in Portorož for this triennial event bringing together the world's leading proficiency testing (PT) providers, along with accreditation bodies, other regulators and a number of users of PT, in order to debate the latest developments in international standards and operational practice within the sector. The Workshop was organised by the Eurachem Proficiency Testing Working Group, in co-operation with CITAC and EQALM, and was supported by a number of organisations.

The workshop covered a number of key topics through keynote speakers, short presentations, poster presentations (57 in total) and discussion groups.

The key topics discussed were:

- The importance of interpretative PT schemes
- Traditional vs virtual PT items
- Changes to PTs in developing countries over the last 10 years
- Implementing ISO/IEC 17043 for sampling PTs
- Experience of the implementation of EA 4/18
- Use and treatment of measurement uncertainty in PT schemes

Prior to the workshop training sessions were held on the following topics:

- Basic PT statistics
- Advanced PT statistical techniques
- PT "language" and reports
- Graphical PT tools in ISO 13528

Feedback from the delegates reflected the great success of the event which provided good interactive participation and cross-fertilisation of ideas. Copies of many of the presentations and posters are available on the Eurachem website ([www.eurachem.org](http://www.eurachem.org)). A number of papers will be developed from the various presentations, including feedback from the working groups, and published as a topical focus in an issue of Accreditation and Quality Assurance (Springer Verlag).

*Brian Brookman*  
Chair, Eurachem PT Working Group  
LGC, UK

# ISO/IEC 17011:2017 is now available! What is changing?

On 14 August ISO/IEC FDIS 17011 - *Conformity assessment - Requirements for accreditation bodies accrediting conformity assessment bodies* was released; it reflected the comments on ISO/IEC DIS 17011 (submitted by 16 November 2016). Final comments on editorial issues were submitted by 9 October which was the deadline for voting as well. The outcome of the voting was positive and the new standard ISO/IEC 17011:2017 replaced the 2004 version.

As stated in the Foreword, the procedures used for the development of the document are those described in the ISO/IEC Directives Part 1 while editorial rules are those described in ISO/IEC Directives Part 2

([www.iso.org/directives](http://www.iso.org/directives)). The main changes are summarised in the Foreword:

- alignment with the CASCO common structure for standards and incorporation of CASCO common elements in clauses on impartiality, confidentiality, complaints and appeal and management system;
- recognition of proficiency testing as an accreditation activity;
- addition of new definitions for “accreditation scheme” (see clause 3.8), “flexible scope of accreditation” (see 3.7), “remote assessment” (see 3.26) and “assessment programme” (see 3.27);
- introduction of the concept of risk;
- incorporation of competence criteria in the document, including an informative annex on knowledge and skills.

## Further to these...

Other changes compared with ISO/IEC 17011:2004 are listed below:

- The structure of the Standard is extensively changed in line with the format of the ISO 17000 series;
- It is stated that the following verbal forms are used:
  - “shall” indicates a requirement;
  - “should” indicates a recommendation;
  - “may” indicates a permission;
  - “can” indicates a possibility or a capability;
- Only ISO/IEC 17000 is included as normative reference (clause 2);
- Terms and definitions (clause 3);
  - Further to the definitions given in ISO/IEC 17000 (see above), some more are added as well, i.e. conformity assessment activity (clause 3.5), accreditation activity (3.9), impartiality (3.10), accreditation process (3.11), accreditation decision (3.13), granting accreditation (3.14), maintaining accreditation (3.15), reassessment (3.23), assessment technique (3.24), assessment plan (3.28), accreditation body personnel (3.29);
  - According to Note 1 to clause 3.8 (definition of accreditation scheme) accreditation scheme requirements include but are not limited to, ISO/IEC 17020, ISO/IEC 17021, ISO/IEC 17025, ISO/IEC 17024, ISO 17034, ISO/IEC 17043, ISO/IEC 17065, ISO 15189 and ISO 14065;

- In line with the above point, Note 1 to clause 3.5 (definition of conformity assessment activity) refers to conformity assessment activities covered by accreditation (not exclusively), i.e. testing, calibration, inspection, certification of management systems, persons, products and services, provision of proficiency testing, production of reference materials, validation and verification;
- Definitions for accreditation certificate and surveillance are deleted;
- Changes of two terms, i.e. technical expert (3.32) (instead of expert) and team leader (3.31) (instead of lead assessor) have been made;
- As mentioned earlier, the concept of risk is introduced in the Foreword of the new standard. This is reflected in a number of sub-clauses i.e. the ones dealing with impartiality (4.4.6 – 4.4.9, 4.4.13), financing and liability (4.5.2), determination of competence criteria (6.1.2.4), competence management (6.1.3.4), preparation for assessment (7.4.6), accreditation cycle (7.9.3), extending accreditation (7.10), improvement (9.6), management reviews (9.8.2). As a result...
  - No reference is made to preventive actions;
  - According to clause 4.1 “Legal entity”, the accreditation body can be part of a larger entity;
  - Clause 4 includes aspects which appear in clause 8 of the previous edition, e.g. contractual issues (see 4.2 “Accreditation agreement” and 4.3 “Use of accreditation symbols and other claims of accreditation”);
  - Clause 5 “Structural requirements” includes the provisions of 4.2 of the previous edition;
  - The provisions of clause 5 of the previous edition, now appear in clause 9 “Management system requirements”;
  - Human resources remain under clause 6, now titled “Resource requirements”;
  - Accreditation process remains under clause 7, now titled “Process requirements”;
  - A new clause 8 “Information requirements” includes the provisions of 4.4 “Confidentiality” in the previous edition in a more elaborated way;
  - Annex A (informative) provides for “Knowledge and skills for performing accreditation activities”. Table 1 therein provides a list of aspects with reference to the relevant sub-clause in the text. According to Note 3 conformity assessment scheme requirements include ISO 9001, ISO 14001, ISO 9096, WADA ISL, Energy STAR”.

*According to a Resolution of the Joint General Assembly of ILAC and IAF, all peer evaluation activities to be carried out after 1 July 2018 will use ISO/IEC 17011:2017 as the requirements document. Details of this transition plan are described in the document entitled “ISO/IEC 17011:2017 Transition Plan” dated 29 October 2017 available from ILAC website ([www.ilac.org](http://www.ilac.org)). The transition period ends in November 2020.*

Kyriacos Tsimillis

## METROFOOD-RI: a proposal for an infrastructure for promoting metrology in food and nutrition

Assuring access to healthy, nutritious and safe food is a worldwide challenge, involving international organizations, governments, regulators and control authorities, producers and traders, research, academic and training institutions, communicators and the general public. Measurements are involved in most of the processes leading to decisions in this area (for example: withdrawal of unsafe food; choice of sources of primary ingredients; assessment of nutritional supplements) as well as those aiming to address best practices, guidance and advice in terms of food production, handling and consumption. The quality and comparability of measurements in all fields of food analysis, as well as in areas addressing food production, nutrition, health effects and environmental impact, is a key-issue to determine reliable progresses toward this goal and the fruitful sharing of new knowledge. Within the framework of the European Strategy Forum on Research Infrastructures (ESFRI), the project METROFOOD-RI was developed to provide a platform for the development of different activities throughout the food chain, shared across different partners and competences, toward high quality measurement results and data collection, as well as basic and frontier research in food and nutrition. This initiative was presented to the Eurachem General Assembly at its meeting in Nicosia, Cyprus, 1-2 June 2017, who agreed to endorse the proposal, as it could be expected to effectively promote metrology in the food&nutrition sector, thus supporting improved quality of the results of research, production and control, with significant benefits for both consumers and industrial development. In particular, the project envisages a “Physical-RI”, composed by a “METRO” area, devoted to the development and validation of new methods and devices as well as to the production of (Certified) Reference Materials and a “FOOD” area involving experimental fields/farms/plants and kitchen labs for studying food quality, safety and authenticity all along the food chain. This is complemented by an “electronic-RI” aiming to provide a free access web platform to share and integrate information and data on the availability of metrological tools for food analysis, for example integrating existing databases on food composition, nutritional contents and levels of contaminants, in foods produced in different geographic regions by applying different technologies.

At this stage, the project, involving 48 partners from 18 European Countries, concluded its “Early Phase” as research infrastructure, presenting the plan for the future organization, as well as its managerial tools, quality system and reference networks. As “proof of concept” three new reference materials (rice grain, rice flour and oyster tissue) were prepared by the joint effort of the partners, and a prototype of the web - platform was developed and applied to manage and share the data generated in this process. Finally, the Workshop “Let’s shape our FOODure” (Brussels, 19 December 2017) explored, with several stakeholders, how the new research infrastructure METROFOOD-RI can help satisfying the customer's demand for healthy, nutritious, safe and (possibly) sustainable food. The role of metrology to demonstrate food quality and safety, as well as the authenticity of raw materials and products, through chemical and biological markers and fingerprints was clarified. Furthermore the impact of improved quality of data on innovation and sustainability of production and advancement of research in various disciplines related to food&nutrition was highlighted. The full operation of METROFOOD-RI is foreseen in 2023 but the various services will be progressively activated starting from 2019.

*Giovanna Zappa, Claudia Zoani,  
Marina Patriarca*

## Recommendations for Future Metrology Research in Europe

In October, the European Commission published the expert report on final evaluation of the European Metrology Research Programme (EMRP) and interim evaluation of the European Metrology Programme for Innovation and Research (EMPIR). The report, prepared by an independent expert group for the Commission, provides a clear endorsement of the metrology initiatives. It supports the full continuation of EMPIR, and suggests increasing the budget for a potential successor initiative. The expert group advocates increasing openness and inclusiveness to involve a wider measurement community, as well as ensuring effective coherence with other programmes.

Apart from evaluation of both research programmes, the report brings a short measurement and metrology historical background, the current status and future recommendations. Amongst the general trends in measurement/metrology, the report points, amongst other, to increasing need for reliable quantitative data in highly interconnected measuring systems, environment and the atmosphere, food and nano-science and scientific measurement in medicine.

Full report is available on [https://ec.europa.eu/research/evaluations/pdf/emrp-empir\\_expgrp\\_report\\_final.pdf](https://ec.europa.eu/research/evaluations/pdf/emrp-empir_expgrp_report_final.pdf)

*Nineta Hrastelj*

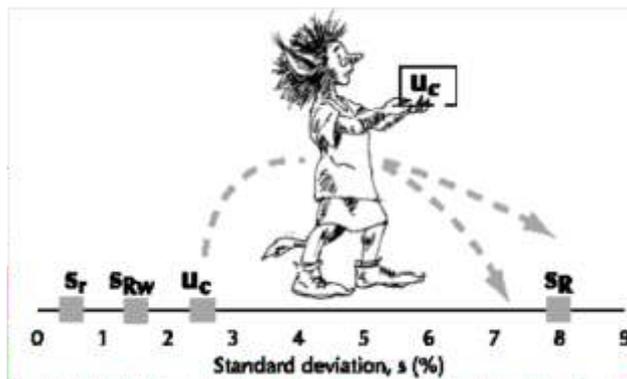
# NEWS \* NEWS \* NEWS \* NEWS

## Handbook for Calculation of Measurement Uncertainty

Based on experience gained by many laboratories using this approach to estimate measurement uncertainty a new edition 4 was published in 2017 of the Nordtest handbook TR 537.

Major updates are:

- Uncertainty over the measurement range – a separate section has been added, this being one of the major difficulties of applying this approach.
- Estimating standard deviation from duplicates – a pooled standard deviation is used instead of a factor applied to the mean range.
- Use of control chart limits for the within-lab reproducibility is pointed out more clearly.
- Harmonisation with ISO 11352 Water quality — Estimation of measurement uncertainty based on validation and quality control data. The ISO standard applies the approach to estimate measurement uncertainty presented in this handbook.



Recommended resources:

- Software MUKit – freely available software following in detail this approach to estimate measurement uncertainty.
- On-line course – a link is given to a course from University of Tartu presenting in detail this approach to estimate measurement uncertainty.

*Bertil Magnusson*

## 71<sup>st</sup> NMKL Annual Meeting

Eurachem cooperates with Nordic Committee on Food Analysis NMKL. At the 71<sup>st</sup> annual meeting of NMKL, held in Tampere Finland in August 2017, Dr Anna-Liisa Pikkarainen from Finntesting Association/Eurachem Finland gave a presentation on Eurachem's organisation, aims and activities in the field of quality issues. Both organisations cooperate internationally in the field of quality issues, to ensure the quality of analytical results.

*Anna-Liisa Pikkarainen  
Finntesting Association*

## Membership News

Armenia was accepted as an Associate Member of Eurachem and is represented at the GA by Levon Melikyan.

Hungary: Peter Fodor retired; the new Hungarian representative is Csilla Belvari from VITUKI Environmental Protection and Water Management Institute.

Serbia: Dragan Nikolic is succeeded by Jelena Bebic from Directorate of Measures and Precious Metals.

Switzerland: Two new delegates attended this year's General Assembly – Andrea Weide and Kathrin Breitruck.

Steve Ellison from the UK is now chairing the Measurement Uncertainty & Traceability WG since Alex Williams has retired.

Ricardo Bettencourt da Silva from Portugal has been appointed as the new chair of the Qualitative Analysis WG.

Joanna Znalezniona-Hadrova will serve as a treasurer until 2018.

# Working Group Reports

## Eurachem Education and Training Working Group

The Education and Training Working Group held a successful meeting during the General Assembly week in Nicosia in May. A key achievement of the group during the past year has been the revision of the Eurachem/CITAC 'Guide to Quality in Analytical Chemistry: An aid to accreditation'. The 3<sup>rd</sup> edition was published on the Eurachem website in January 2017. The revision brought the Guide into line with ISO/IEC 17025:2005 requirements and ensures that the terminology is consistent with current international vocabularies.

2016 marked 5 years since the publication of the guide 'Terminology in analytical measurement: Introduction to VIM 3'. In line with Eurachem policies, the Working Group initiated a work item to review the Guide to identify what revisions (if any) are required. To assist with this process a short survey was launched in 2016 to seek opinions of users of the guide. In general the feedback was very positive but there were a number of suggestions for improvements to the Guide (the need for more examples covering a range of sectors was mentioned by a number of respondents). However, it was agreed that the feedback did not indicate that fundamental changes to the Guide are required. It was noted that many of the standards and other documents referenced in the Guide have been revised since 2011 so there is merit in updating the references. Given that the VIM is under revision, the group agreed that a minor revision of the TAM should be undertaken and this project is now progressing.

The new version of ISO/IEC 17025 was published in November 2017. In anticipation of this, the Working Group has prepared a leaflet to highlight the changes to the standard and what this means for laboratories.

In 2018 there will be a workshop on 'Data – Quality, Analysis and Integrity' in Dublin during the General Assembly week in Dublin. The Working Group is collaborating with Eurachem-Ireland on the organisation of this event.

Finally, the Working Group is also responsible for the 'Reading list' that is published in the publications area of the Eurachem website. The list is

reviewed annually and an updated version published on the website. The current members of the Working Group are listed on the Education and Training Working Group page on the website. If you are interested in joining the group, please get in touch!

*Vicki Barwick  
Chair, Eurachem ETWG*

## Method Validation Working Group

2016 - 17 has been the year where the WG has "got back to normal" after the preparation and accomplishment of the International Workshop in Gent on 9 - 10 May 2016 under the title "Method Validation in Analytical Science – Current Practices and Future Challenges"

An article, summing up the outcome of the many working group sessions has been elaborated and will be published in the international journal "Accreditation and Quality Assurance". Look out for it.

But in addition to elaborating the article, the outcome of the working group sessions has also been a great inspiration for the continued work in the WG.

The "normal" activities of the WG are mainly focusing on the ongoing work of expanding and improving the guidance on practical method validation. A list of subjects supplementing the existing "Fitness for Purpose" guide have been identified and in this period members of the group have been working on the following supplementary notes (probably to be added as annexes to the next version of the guide, but possibly also to be published as preliminary recommendations in the intermediate period):

- Linearity
- Selection (and validation) of Test Kits
- Dealing with Bias
- Extent of Validation/Verification
- Planning of Method Validation (establishing the protocol)
- Use of Blanks and Standard Addition

But more subjects are "in the pipeline" and the WG is also aware of possible needs for improvements of the existing text in the "Fitness for Purpose Guide" in a coming 3<sup>rd</sup> version (due around 2020). For that purpose a "Feed-back" facility will be

launched on the Eurachem website and inputs for necessary revision will be collected.

Furthermore the WG is working on identifying a number of illustrative examples on application of the various principles in the guide – also for eventual up-load on the website. Users of the guide are urged to provide good examples, which might serve as good inspiration for others (will be evaluated for relevance by the MVWG before presentation on the website).

The MVWG is also actively following the promotion and use of the validation guide around the world (incl. 6 translated versions by now). The promotion often goes through members of the WG actively using the guide in relation to various trainings and other presentations, but the MVWG is also preparing some leaflets and posters for promotion of the WG and the Guide (please contact for copies to be used at relevant events).

In August 2018 the WG has been invited to plan and conduct a special workshop on method validation as a part of the 22<sup>nd</sup> INTERNATIONAL MASS SPECTROMETRY CONFERENCE (IMSC) to be held in Florence, Italy, 26 - 31 August, 2018. 2 – 3 presentations will be given under the heading "Are MS based methods valid – i.e. Fit for Purpose?" as introduction to discussions among the participants.

Method Validation in analytical chemistry is still a hot topic – we do our best to follow the development

*Lorens P. Sibbesen  
Chair, Eurachem MVWG*

## Measurement Uncertainty Working Group and related topics

The Eurachem working group on Measurement Uncertainty and Traceability is responsible for four current Eurachem guides;

- Quantifying Uncertainty in Analytical Measurement, (2012)
- Traceability in Chemical Measurement (2003)
- Use of Uncertainty Information in Compliance Assessment (2007)
- Setting Target Measurement Uncertainty (2015)

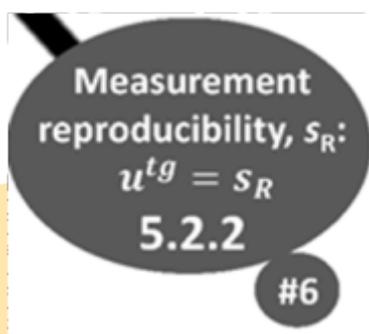
continued on page 11

# Working Group Reports

## Measurement Uncertainty Working Group and related topics c.d.

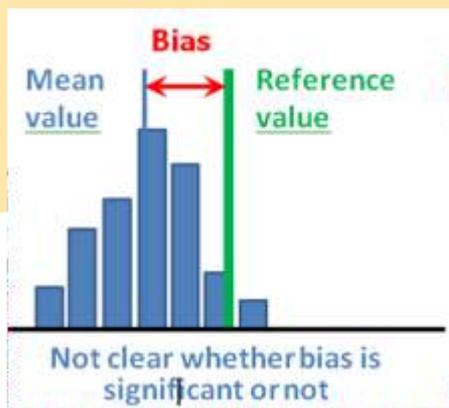
The Traceability Guide is undergoing a modest revision expected to be available in 2018. Eurachem guides are reviewed every five years and a decision is taken if a new revision will be undertaken.

As an introduction to our guides we publish 2-page leaflets. Below is an extract from the leaflet presenting the target uncertainty guide showing that you can base your target standard uncertainty on reproducibility data ( $s_R$ ) from a standardised method.



Extract from the Eurachem Target Uncertainty leaflet.

How to treat an observed bias is an on-going question. The working group published a leaflet on this topic in 2017 - note on *the treatment of an observed bias in analytical methods*.



Extract from the Eurachem "bias" leaflet

The working group will monitor developments in the handling of measurement bias with a view to preparing improved guidance on the treatment of an observed bias in uncertainty evaluation.

The working group is following development within the ISO group *Joint Committee for Guides in Metrology* (JCGM) and the uncertainty

issues in the ISO/TC69 *Applications of statistical methods*.

Developing and promoting an understanding of Bayesian methods for evaluating and utilising measurement uncertainty is an important task. The present GUM does not deal well with severely non-normal distributions, high uncertainty (> 30%) and cannot take account of prior information, such as the fact that a true concentration cannot be negative or that purity cannot exceed 100%. Bayesian methods can provide useful alternatives in these circumstances.

All the Eurachem guides and leaflets as well as several translations related to measurement uncertainty and metrological traceability, are available from the Eurachem website.

We all thank Alex Williams, who has been a very active chair for this working group from the start, and has now stepped down. The new chair is Steve Ellison and Bertil Magnusson takes over as Secretary for the WG.

Bertil Magnusson  
Secretary, Eurachem MUWG

## Qualitative Analysis Working Group

The Qualitative Analysis Working Group is currently working towards a guide on "The Expression of uncertainties in qualitative analysis and testing", a topic on which there is currently very little published guidance. "Qualitative analysis" includes, for example, the identification of chemical compounds using spectroscopic methods, or use of test kits that respond positively or negatively to the presence of a particular material. Although measurements are often involved in such analysis, the result is not usually numerical, so the usual concept of measurement uncertainty for quantitative measurement does not apply. Instead, uncertainty is expressed in terms of false response rates or other probabilistic statements. The Guide will provide information on the main metrics used for this purpose, focusing on the determination of different metrics and on their advantages and disadvantages.

The most important metrics in use at present include false positive and false negative rates, the 'sensitivity and specificity' measures derived from these and used in clinical practice, and the 'likelihood ratio' used heavily as a statement of 'strength of evidence' in forensic DNA interpretation and, where available the Bayesian 'posterior probability', which provides an indication of the probability that a conclusion is correct.

At its latest meetings, the group also agreed to include measures of precision for qualitative tests. In the qualitative context, 'precision' still relates to the agreement between results, as it does in quantitative analysis. It is, however, expressed in different ways, as concepts such as standard deviation do not apply well to qualitative data.

Including measures of precision has slowed the work, but the group are working hard under its new Chair, Ricardo Bettencourt da Silva, to prepare a draft for comment in 2018.

Steve Ellison  
Secretary, Eurachem QAWG

## Proficiency Testing Working Group



The EURACHEM Proficiency Testing Working Group (PTWG) has made good progress on a number of work activities during the past year:

- The 9<sup>th</sup> Eurachem PT Workshop was successfully organised in St Bernardin Resort, Portorož, Slovenia, during October 2017 – see page 6. Following the success of this workshop, the PTWG will start to put together plans to organize the 10<sup>th</sup> PT Workshop in 2020.
- The leaflet on "Proficiency Testing – how much and how often?" which was published in English towards the end of 2016 has now

been translated into a number of languages - French, German, Serbian, Swedish and Turkish.

- Two new leaflets are currently being developed on the following topics:
  - Use of surplus proficiency test items;
  - How to investigate poor performance in proficiency testing.

Current members of the PTWG are: Brian Brookman, UK (Chair); Tracey Noble, UK (Secretariat); Fatma Akcadag (Turkey); Kathrin Breitruck (Switzerland); Ewa Bulska (Poland); Owen Butler (UK); Laura Ciaralli, (Italy); Monika Horsky (Austria);

Michael Koch (Germany); Mitja Kolar (Slovenia); Caroline Laurent (France); Raquel Dragan Nikolic (Serbia); Murtula (Spain); Markus Obkircher (Switzerland); Colmán Ó Ríordáin (Ireland); Ulf Örnemark (Sweden); Marina Patriarca (Italy); Kees van Putten (The Netherlands); Piotr Robouch, (EU); Erika Sárkány (Hungary); Lorens Sibbesen (Denmark); Ulla Tiikkainen (Finland).

*Brian Brookman  
Chair, Eurachem PTWG*

## Uncertainty from Sampling Working Group

The Eurachem WG on Uncertainty from Sampling aims to revise 'The Eurachem/CITAC Guide on 'Measurement uncertainty arising from sampling: A Guide to methods and approaches', published originally in 2007. This modest revision, undertaken jointly with CITAC, EUROLAB, Nordtest and the UK RSC Analytical Methods Committee (AMC), is expected to take around 18 months.

*Mike Ramsey  
Chair, Eurachem USWG*

## National Reports

The work within our 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 the national organisations.

### BELGIUM

BELAB is the association of Belgian Laboratories and organizations involved in accreditation. BELAB is member of Eurachem and Eurolab. The association has an Executive Board with 9 members and counts 61 members in the GA. Members of the Executive committee of BELAB are represented in several advisory boards of BELAC (Belgian accreditation authority). Since 2012, BELAB is has been lead by Isabelle Verduyck (chair) and Philippe Dewolfs (vice-chair). BELAB organized on the 9<sup>th</sup> and 10<sup>th</sup> May 2016 together with the Method Validation Working Group of Eurachem, the workshop "Method Validation in Analytical Science- Current Practice and Future Challenge" in Gent. For the workshop 129 persons were registered and came from 24 different countries. Gent was also the venue for the Executive Committee of Eurachem (18 participants, 14 countries) and General Assembly of Eurachem (43 participants, 25 countries) and for the Eurachem working group "Education & Training, "Uncertainty & Traceability" (30 participants, 7 countries). In 2017, a BELAB seminar was organized in March in Brussels in English and Flemish. Nearly 160 persons (80 Flemish and 78 French

speaking people) from very different fields (pharmacy, textile, water, food, construction, etc.) attended the seminar "The New ISO17025: an introduction". This seminar was presented by Erik van Amelsfoort (The Netherlands) and Nicole Van Laethem (BELAC) and Ellen Somers (Executive director BELAC). In the introduction given by the president en vice president of BELAB, the work of BELAB, Eurachem and Eurolab was presented. At the General Assembly of BELAB in May, Ellen Somers (Executive director BELAC) presented the objectives of BELAC for 2018. Every year the activities and information of Eurachem are diffused by a presentation at the General Assembly of BELAB, through the website and via mailings to the members of BELAB. The Eurachem Newsletter is also distributed between the BELAB members. BELAB distributes also a newsletter twice a year by mail among the members with the latest news from BELAB and Eurachem.

*Isabelle Verduyck,*

### BULGARIA

During 2016, the Bulchem section within Union of Metrologists in Bulgaria has been involved in the following activities:

#### Training events were organized covering the following topics:

- Interlaboratory comparisons and proficiency testing - in March 2016 (30 participants);
- Method validation in June 2016 (27 participants);
- Application of requirements of ISO/IEC 17043 - training were organized in cooperation with Bulgarian accreditation Service - in July 2016 (20 participants);
- Sampling, development of plans for sampling - in December 2016 (10 participants).

**Discussion:** Practices for setting recalibration intervals of measuring instruments in relation to international recommendations (ILAC G24, Eurachem guide Accreditation for Microbiological Laboratories and etc.), including measuring instruments used - in the chemical field - in November 2016 (more than 100 participants)

**Bulgarian translation** of Eurachem Guide: Quantifying Uncertainty in Analytical Measurement, 3<sup>rd</sup> Edition (2012).

*Dimka Ivanova*

### CYPRUS

The Division of Quality Assurance was established in spring 2014 to operate under the Pancyprian Union (PUC); it was designated to undertake the role of the Cyprus Eurachem Committee. The Committee is now 20 years old! During the last year it has been focusing on the following:

## CYPRUS c.d.

### Organisation of the Eurachem Week 2017

A number of colleagues worked under the Organising Committee of the Eurachem Week 2017, hosted in Nicosia from 29 May to 3 June. The Committee was supported by an enthusiastic group of young graduates who used the opportunity of the Week to better understand some of the activities and the objectives of Eurachem. Further to organisational issues, the preparation of the Workshop organised at the beginning of the Week was carried out by the Scientific Committee.

### Contribution to the preparation of the Workshop 2018

The experience gained this year, especially some weak points, was communicated to the Irish colleagues to support them in their effort to organise the 2018 Workshop in Dublin.

### Awareness and training on the ISO/IEC DIS 17025

Further to an introductory open discussion on the then developments regarding the revision of ISO/IEC 17025 (23<sup>rd</sup> November 2016) a one-day workshop was organised on the 22<sup>nd</sup> February 2017. The Division was actively involved in the public consultation and commented on the ISO/IEC DIS 17025 published on the 29<sup>th</sup> December 2016, thus supporting the Cyprus Organisation for Standardisation (CYS) to formulate its position by 22<sup>nd</sup> March 2017. Further to this, there was active participation in another event organised by CYS in cooperation with the Cyprus Accreditation Body (CYS-CYSAB) on the 29<sup>th</sup> March 2017.



Photo: Lambis Elia

### Involvement in the work of Eurachem

There was active involvement in the work of the EC and the ETWG. This included, among others, the contribution to the revision of the Eurachem/CITAC 'Guide to Quality in Analytical Chemistry: An Aid to Accreditation' and the newly initiated work for the revision of the TAM

Guide.

### Translation of Eurachem leaflets

Emphasis was given to the translation into Greek of recently published Eurachem leaflets. This new activity with the involvement of students, is mostly oriented to the familiarization of the terminology both in English and Greek. It is expected that more colleagues will express their interest in participating in Working Groups.

### EuCheMS

The Division is also participating in the work of the Division of Analytical Chemistry of EuCheMS.

### Website

The activities of the Division appear on the website of the PUC (<http://chemistry.org.cy>). However, it has been realised that more effort needs to be made to make this tool more useful; in the meantime a website which was specifically constructed for the needs of the Eurachem Week namely <https://www.ucy.ac.cy/eurachem2017> is being updated with the outcome of the events, especially lectures and posters presented in the Workshop as well as the Book of Abstracts and photos from the whole week.

### The Secretariat of the Division...

consists of Dr Constantina Kapnissi-Christodoulou (University of Cyprus), Dr Despina Charalambous (Frederick University) and Dr Kyriacos Tsimillis.

*Kyriacos Tsimillis*

## CZECH REPUBLIC

Eurachem-CZ has been an independent organisation since 1993, with about 70 members currently, mainly analytical laboratories. Our main activities are focused on education and training. The Guide Setting and Using Target Uncertainty in Chemical Measurement was translated into Czech language and published together with a guidance focused on reference materials as an issue no 21 of series of our monographs called Qualimetrics last year. This document was presented by several introductory lectures at a local workshop dedicated to RMs and PTs in November 2016. The translation of the recently published Guide to Quality in Analytical Chemistry: An Aid to Accreditation has started this spring. We aim to publish it as an issue no 22 of Qualimetrics by

the end of the year. Our organisation issued two Newsletters with 8 pages of text for our members. The summer 2016 edition addressed challenges in the determination of volatile substances in water by GC/MS and LC/MS. The winter 2017 edition was dedicated mainly to human errors and reliability of results in a chemical laboratory.

Our members can find up-to-date information about our activities as well as many freely accessible leaflets on our webpage – [www.eurachem.cz](http://www.eurachem.cz). Members of the Executive Committee of Eurachem-CZ have closely cooperated with Czech Institute for Accreditation, Czech Metrological Institute, and EUROLAB-CZ within an association called 4E-CZ.

*David Milde*

## DENMARK

The number of members of Eurolab Denmark (nesting Eurachem activities in Denmark) has been rather constant over the last 3-4 years (now around 65), but the number of analytical laboratories has been decreasing slightly over this year due to merging of a number of single laboratories into big, multinational laboratory companies. The activities in Eurolab Denmark, directly related to Eurachem issues, are arranged in a specific network for Analytical Chemistry (and partly a parallel network for Microbiology). Around 90 and 60 persons from the various member laboratories are connected to the two networks respectively. Also in 2017 Eurachem/Eurolab Denmark has been very much focused on the up-coming revision of the ISO/IEC 17025 standard as most of our members among analytical and microbiological laboratories are accredited. The possible impact of the changes in such laboratories has been discussed at member meetings. A continued issue/challenge in relation to reliable analytical results is the contribution to uncertainty on the results stemming from the sampling and sample handling processes. This was highlighted at a meeting in the Analytical Chemistry network and it is obvious that the challenge is ongoing, not least in relation to the very wide variety of sample types, which are delivered to the analytical laboratories. Generally, Eurolab Denmark is representing the accredited laboratories in Denmark in relation to the Danish Accreditation Body,

## DENMARK c.d.

DANAK (appointing/supporting members for the various advisory groups within DANAK). Especially the discussions in the advisory groups related to Environmental Testing and another related to Food Testing are followed closely in the Network for Analytical Chemistry, as well as in the board for EuroLab Denmark.

*Lorens P. Sibbesen*

## ESTONIA

Eurachem activities in Estonia are coordinated by Estonian Environmental Research Centre (EERC). Two national representatives are Riin Rebane from EERC and Ivo Leito from University of Tartu. Eurachem activities in Estonia are mostly related to the general activities of EERC and University of Tartu.

Firstly, there are a growing number of people in both institutions, who are involved in the accreditation process in Estonia as technical assessors. This has increased the competence vastly. Additionally, EERC organizes proficiency testing under ISO 17043 and also provides seminars with topics such as how to evaluate PT results or specific validation parameters that are under close observation (limit of detection, uncertainty etc). Education is a large part of the Eurachem activities in Estonia. Ivo Leito is responsible for organizing Massive Open Online Courses (MOOC) such as "Estimation of measurement uncertainty in chemical analysis" and "LC-MS method validation". When the first one has been organized for few times already, the latter one was organized for the first time and altogether 303 people were registered from 61 countries. 224 participants actually started the course (i.e. tried at least one graded test at least once) and out of them 168 successfully completed the course. The overall completion rate was 55%. The completion rate of participants who started the studies was 75%. Meaning that it was a big success!

And lastly, a new project has been started called Estonian Centre of Analytical Chemistry (<http://akki.ut.ee/?lang=en>) with Ivo Leito as chairman and Riin Rebane as project manager. ECAC has been set up by the University of Tartu (UT), Tallinn University of Technology (TUT) and Estonian Environmental

Research Centre (EERC) and focuses on high quality chemical analysis and chemistry education in Estonia.

*Riin Rebane*

## FINLAND

Finntesting Association and Eurachem Finland - as a part of the association – organised two annual **meetings and seminars** with discussions in 2016. The members of the association – companies and individuals - were informed about events as well as on quality issues and activities through web pages.

The first seminar was about "25 years of FINAS accreditation" where Mr Risto Suominen, Director of FINAS, gave a presentation on the **renewal of the standard ISO/IEC 17025:2005** on general requirements for the competence of testing and calibration laboratories.

In the second seminar the main emphasis was put on **circular economy**, especially from the point of view of laboratories and their new possibilities. Mr Tero Eklin, Director of Laboratory of the Finnish Environment Institute (SYKE), presented an overview on the topic introducing new expected challenges concerning clients' needs on method development in the field measurement. Needs for traceability, metrology and cooperation are foreseen. Discussion about scope, need, and requirements of official methods and interpretation aspects from the point of view on circular economy continues also in 2017.

Traditionally, the association encouraged two students by delivering them **awards** based on their meritorious thesis where quality assurance aspects had been taken into account. The students presented their studies during the seminar: Ms Kaisu Räisänen (Metropolia, University of Applied Sciences) about "using internal audits to develop processes in the laboratory" and Ms Johanna Salo (University of Turku) about "antocyanins and metabolism after meal".

In 2016 Eurachem's **information leaflet** „Selecting the right proficiency testing scheme for my laboratory" was translated in Finnish. There are ten members in the executive board of the association.

The association has nominated members in working groups on national and international activities on quality issues including Eurachem General Assembly and Eurachem Working Groups.

*Anna-Liisa Pikkarainen*

## FRANCE

BIPEA took part of the activities of the PT WG and translated in French all the leaflets available produced by the group.

*Caroline Laurent*

## GEORGIA

**Georgian Laboratory Association (GeLab)** is the association of different kind of Georgian Laboratories (testing, calibration, industrial and academic labs), where most of them are involved in accreditation process. GeLab was established in 2013. It has a Board with 5 members and counts more than 20 member labs. The main activities of GeLab are focused on consultancy on requirements of ISO/IEC 17025, correspondingly on aid to accreditation, education and training. GeLab closely cooperates with the Georgian Accreditation Center (GAC) and with the Georgian National Agency for Standards in order to efficiently address the needs and expectations of member labs. In 2015, with the support of GeLab and TrainMiC program representatives, the Georgian national Trainers Team was established, which provides trainings for laboratory staff and interested persons. Trainings are organized in Tbilisi and also in different regions of Georgia as well. The training courses includes lectures, practical exercises and learning evaluation. Generally the main topics of the trainings are:

- Introduction to ISO/IEC 17025;
- Principles of Internal Auditing;
- Basics of Quality Assurance and Internal Quality Control;
- Introduction to Metrology in Chemistry (Metrological Traceability, Reference Materials, Sampling, etc.);
- Fundamentals of Measurement Uncertainty;
- Proficiency testing and Inter-Laboratory Comparisons;

## GEORGIA c.d.

GeLab is a member of Eurachem since 2014. It distributes the latest news from Eurachem among the members. The translation in Georgian language of Eurachem materials for actualization of existing training presentations is systematically ongoing.

According to requests from laboratories, it is desired to establish training events on following topics:

- ISO/IEC 17025:2017 Transition Training;
- Quality assurance in medical laboratories (ISO 15189);
- Quality Manager in Analytical Laboratory;
- Assuring of the requirements for microbiological tests based on international documents.

*Nino Manvelidze*

## GERMANY

The Committee on Chemical Analysis of Eurolab-D mirrors the European Eurachem activities. The Committee usually meets twice per year to receive the reports of the German delegates, to provide input to the Eurachem working groups and to discuss issues with national importance. Recently the translations of the leaflet on "Proficiency testing – how much and how often" and the Eurachem Method Validation Guide into German have been intensively discussed and finalized. Together with other committees of Eurolab-D and in cooperation with other organizations (e.g. the German accreditation body) a national symposium has been organized on "The New ISO/IEC 17025 – Consequences for the Laboratory" which attracted a large number of participants.

*Michael Koch*

## GREECE

The current Steering Committee of AGC/EEX has been elected in November 2015, for a three year term 01/01/2016-31/12/2018. During 2017 the following initiatives – among others – have been taken:

1. During the past year, the efforts to degrade the role of chemistry in the Greek educational system have been intensified. At this point discussions

concerning the teaching of chemistry- physics-biology as a consolidated module are taking place, by initiative of the Ministry of Education. The three associations of chemists, physics and biologists have reacted against this possibility, by issuing a joint communication.

2. During 2017 AGC/EEX continued its effort to present to the public unknown aspects of chemistry, used in everyday life. Athens, Thessaloniki and Patra hosted the "Science festival" and the "Night of the Researcher" events, at which the AGC/EEX was represented with great success.

3. The presentation of ISO/IEC 17025 was followed up by organized training seminars concerning (a) the EC DG SANTE document and the requirements of method validation dedicated to the analyses of pesticide residues in foods and (b) the statistics used for the data analysis of PTs.

4. Other seminars took place as well, including "Verification of microbiological methods - Estimation of uncertainty - Internal quality control".

5. In 2017 several private schools asked for a presentation of the profession of chemist in some events organized for their students. Members of our Association have undertaken this task and the response of the students was overwhelming.

6. During the "National Chemistry Day" (March 11), AGC/EEX organized (i) a "Careers day" in Thessaloniki for the undergraduate chemistry students in collaboration with the Chemistry Department of Aristotelian University of Thessaloniki. There was a presentation from a chemist who owns an analytical laboratory and (ii) a chemist demonstrated an everyday life in the lab, as part of the "Workshop for Internships" program.

7. In 2017, one of the two teams which represented AGC/EEX took the second place in the European Chemistry Experiment Contest "CHEMISTRY REDISCOVERED", while students from the Greek team won two bronze medals at the 49th International Chemistry Olympiad in Thailand.

8. AGC/EEX also organized many workshops on various fields, such as: (i) Research and Innovation related to the chemical industry, (ii) food contact

materials, (iii) nutritional supplements, (iv) circular economy and (v) important agricultural products.

9. Last but not at all least, AGC/EEX organized a two-day conference titled "INNOVATION and BUSINESS MAKING in the CHEMICAL INDUSTRY of the 21<sup>st</sup> CENTURY" in collaboration with (i) the Chemistry Departments of Athens and Ioannina, (ii) the Food Technology Departments of Athens and Thessaloniki and (iii) the Department of Dietetics and Nutrition of Thessaloniki (iv) the Association of the Greek Manufacturers of Packaging & Materials (AGMPM), (v) the Federation of Hellenic Food Industries (SEVT) and the (vi) Hellenic Association of Chemical Industries (HACI).

*Triantafyllia Sideri  
Eugenia Lampi  
Anna Stefanidou*

## IRELAND

The Eurachem Ireland committee met regularly throughout the year. The committee comprises people interested in analytical chemistry from the public sector, private sector and the academic sector. The committee organises two workshops each year - a TrainMiC® Workshop in Spring and an Analytical Chemistry Workshop in Autumn. The TrainMiC® Workshop is delivered by TrainMiC® Trainers trained by the JRC. The TrainMiC® programme has been separated into 3 Workshops designed to be independent of each other so attendees do not need to have attended the prior Workshops to benefit. TrainMiC® Workshop Part III took place on 25<sup>th</sup> April 2017. All places filled quickly showing the demand for these events. The topic for the 2016 Autumn Workshop was chosen based on feedback from attendees at previous Eurachem Ireland events. The Workshop 'Method Development (LC-MS/MS) and Method Validation' took place on 27<sup>th</sup> October 2016 with over 100 people attending and presenters from 8 different organisations. Feedback was positive and attendees requested additional similar events.

## IRELAND c.d.



Photo: Eurachem Ireland Workshop October 2016

The popular Eurachem Analytical Measurement Competition (EAMC) took place on 7 April 2017. The EAMC is held annually and the event is organised and run by the EAMC Committee, Eurachem Ireland Secretariat and by the host Institute of Technology/University. This year's EAMC competition was hosted by Dublin Institute of Technology. The judges were Ray Leonard formerly of Henkel Ireland Ltd., Tom Hannigan from Forensic Science Ireland and Darragh Cunningham from the Environmental Protection Agency. The day included a guest lecture from Vicki Barwick, Head of Commercial Training LGC (UK) and Chair, Eurachem Education & Training Working Group on the topic **Let's Agree to Agree - The Importance of Valid Measurements**. 25 teams from 13 colleges took part with Sligo Institute of Technology winning overall. Joint runners up were from Trinity College Dublin and Athlone Institute of Technology.

Eurachem Ireland communicates with its members via: mailing list; website; [www.statelab.ie/eurachem.html](http://www.statelab.ie/eurachem.html); LinkedIn group and articles in Irish Chemical News.

Ireland is well represented on Eurachem Working Groups and a number of new members from Ireland joined various Working Groups during the year.

The Eurachem Ireland Committee is busy organising Eurachem Week 2018 which will take place in Dublin Castle 14 - 18 May. The week begins with **Data - Analysis, Quality and Integrity**, an Eurachem International Workshop on 14 - 15 May followed by the General Assembly and related meetings on 16 - 18 May. We look forward to welcoming our colleagues to Dublin next year.

*Barbara O'Leary*

## ITALY

The National Institute of Health (ISS) and the National Institute of Metrological Research (INRIM) represent Italy in Eurachem. Collaboration is in place with other relevant national organizations, such as the Italian Accreditation Body (ACCREDIA), the Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), the Institute for Environmental Research and Protection (ISPRA) and a number of organizations at regional level. Activities focus on contributing to Eurachem guidance and its promotion to analytical laboratories at all levels, together with material from TrainMiC® (the "Training in Metrology in Chemistry" ([www.trainmic.org](http://www.trainmic.org)) programme, originated by the former European Commission Joint Research Centre, Institute for Reference Materials and Measurements.

The biggest achievement for the past year was the completion of the translation into Italian of the revised Eurachem guide "The fitness for purpose of analytical methods" (2<sup>nd</sup> Edition 2014), carried out by a working group including various Italian organizations and now available from the Eurachem and Eurachem-Italia websites as well as from the ACCREDIA website.

Within the past year, Eurachem guidance was promoted to a wider audience in a number of occasions. The Eurachem poster was presented to the National Reference Laboratories (NRLs) attending the Annual Workshop organized by the European Union Reference Laboratory for Chemical Elements in Food of Animal Origin (Rome, Italy, 28<sup>th</sup> September 2016) and to the delegates participating to the 2<sup>nd</sup> IMEKOFOODS Conference (Benevento, Italy, 1-3 October 2016). Presentations highlighting aspects of Eurachem guidance were given in various occasions (TrainMiC training events "Measurement uncertainty, sampling uncertainty and legal limits", on 24<sup>th</sup> of May 2016, and on "Updates on Reference Materials and Proficiency Testing (ISO /IEC 17043)", on 13<sup>th</sup> of September 2016, Foggia, Italy; training session on Reference Materials at the Annual Workshop of the EURL CEFAO; Topic "Measurement uncertainty" at the Session 1B, "Measurement Procedures in Mycotoxin Analysis" in the 2<sup>nd</sup> IMEKOFOODS Conference).

New developments in Eurachem Guides and leaflets, with particular reference to the revision of the "Guide to Quality in Analytical Chemistry: An Aid to Accreditation", were presented at the Annual Workshop jointly organized by three Italian NRLs (Heavy Metals in Food, Heavy Metals in Feed and Additives in Feed), held in Turin on 1<sup>st</sup> and 2<sup>nd</sup> December 2016. The recent initiative of Eurachem to revise the guide on "Selection and use of reference materials" was presented on invitation by ACCREDIA during the event "Reference materials: challenges and opportunities" held in Turin, Italy, 5<sup>th</sup> May 2017, as part of the A&T exhibition, to an audience of calibrating laboratories and reference material producers. Printed copies of the latest Eurachem Newsletter and of Eurachem leaflets were made available during the events. The recent Eurachem workshops ("Uncertainty in Qualitative and Quantitative Analysis", Nicosia, Cyprus, 29-30 May 2017, Proficiency Testing, Portorož, Slovenia, 9-12 October 2017) were promoted through the distribution of their announcements and links to mailing lists and through their publication on websites of Eurachem-Italia, ACCREDIA and other interested organizations. The relevant information was presented and distributed to the participants in the above-mentioned events. Italy also supported Eurachem by providing experts to contribute to the Eurachem Working Groups on: Education&Training, Proficiency Testing, Method Validation, as well as the joint EA-Eurolab-Eurachem WG on Proficiency Testing in Accreditation. A meeting of the MVWG was hosted in Rome, at ISS (Rome), in January 2017.

*Marina Patriarca*

## POLAND

Presently, 66 laboratories are members of the Eurachem-PL, Section of Polish Chemical Laboratories in Club of Polish Testing Laboratories POLLAB. Since 18.12.2013 Eurachem-PL has been lead by Andrzej Brzyski (chair), Ewa Bulska (vicechair), and the section secretariat is hosted by secretariat POLLAB.

Members of the Section are involved in organization of symposia organized

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every year by POLLAB. The main topic at XXII POLLAB Symposium (2016) was „**Improvement of laboratory work**”. In two rounds of the symposium was attended by over 400 participants.

We organized also a special topics meetings including invited lectures dedicated to selected subjects. In 2016 there was one meeting, where participants discussed about „**Process approach in laboratory and results of PT/ILC programs**”. In 2016 we organized 2 rounds ILC programs.

Eurachem-PL will continue its present policy to support laboratories in 2017. Our members will attend the Symposium POLLAB, section meetings and new ILC/PT programs.

*Andrzej Brzyski,*

## PORTUGAL

In 2016, the Portuguese delegates have been actively involved in the activities of the “Measurement Uncertainty and Traceability” and “Qualitative Analysis” Working Groups.

An Eurachem - PT working group translated some Eurachem leaflets to Portuguese (<http://ciencias.ulisboa.pt/pt/conferencia/eurachem>).

The dissemination of Eurachem activities and guidance have been performed in teaching Metrology in Chemistry at the University of Lisbon, Euromaster on “Measurement Science in Chemistry”, Erasmus Mundus on “Quality in Analytical Laboratories” and in TrainMiC training events. The publication of various papers on Analytical Chemistry and Metrology has also been used to publicize Eurachem guidance.

*Ricardo Bettencourt da Silva*

## ROMANIA

EURACHEM Romania Association continued its policy to support various laboratories from research institutes (INCDSB, ICECHIM, IMT, INMR), or from national and local agencies for public health, water and air quality control and environmental monitoring as well as from academic area enlarging their participation to various

actions organized by EURACHEM Romania and to be more involved in method validation procedures and PT schemes.

The main activity was the organization of the annual symposium, which became a tradition for EURACHEM Romanian Association. In mean time, translations of leaflets in Romanian language was done. Supported by its active members from the universities teaching staff, specialists, researchers and practitioners from specialized and accredited laboratories, EURACHEM Romania Association fulfilled in 2016 the followings:

- The National General Assembly of EURACHEM Romania
- Issue of the national publication of EURACHEM Informative Bulletin with papers related to the practical use of the reference materials in the analytical laboratory and the general and statistical principles of certification.
- Updating the web site <http://www.eurachem.ro> in order to assure a constant and dynamic information of our collaborators.
- Support and organize the “Petru Spacu” Analytical Chemistry and Coordinative Chemistry Contest for undergraduates students.

The activity for the previous year was presented at the General Assembly of EURACHEM Romania Association together with a research project funded by EU. Also, EURACHEM Romania fully supported and co-organized together with the University Politehnica of Bucharest the 2016 Edition of the already traditional students professional contest for analytical chemistry and coordinative chemistry “Petru Spacu” addressed to undergraduates students.

*Gabriel-Lucian RADU*

## RUSSIA

In Russia, from the second half of 2018, a gradual transition of accredited laboratories to new versions of the fundamental standards and normative references ISO/IEC 17025, 17011, 17034 is planned. In this regard, the **Association of Analytical Centers of Russia "ANaLiTiCa"** - the main representative of Eurachem in Russia (<http://analitica.org.ru/>), within the framework of the Technical Committee for Standardization, started developing national standards based on these international documents in 2017.

The Association "ANaLiTiCa" within the framework of the regular audit by the APLAC Commission, as the only international accreditation body in Russia, not merely successfully confirmed competence in the accreditation of testing laboratories and reference materials producers, but also expanded the scope of recognition in terms of accreditation of proficiency testing providers. Translation into Russian of all Eurachem leaflets and three Guides: The Fitness for Purpose of Analytical Methods, EURACHEM Guide, Quantifying Uncertainty in Analytical Measurement, EURACHEM/CITAC Guide, Terminology in Analytical Measurement –Introduction to VIM 3: EURACHEM Guide, are ready to publish.

New section in the journal "Reference Materials", devoted to Eurachem activities and documents was activated under the auspices of the **Ural Scientific Research Institute for Metrology (UNIIM)** (<http://www.uniim.ru/>) and the **Scientific Council on Analytical Chemistry of the Russian Academy of Sciences** (<http://www.rusanalytchem.org>), the

Commission on Metrology of Chemical Analysis. This section is devoted to the main directions of normative-methodical Eurachem activity, strategic plans and objectives in the field of metrology of chemical analysis. Here will be announced and discussed drafts of documents, planned activities, translations of some international materials into Russian.

State Service of Reference Materials (RM) are permanent based on UNIIM, responsible for the approval and authorization of RM in the Russian Federation, for the information support of RM in the Russian Federation and for the harmonization of Russian regulations on RM with international references.

Association "ANaLiTiCa" and Ural Research Institute for Metrology (with the participation of the State Service of Reference Materials), supports the proposal to hold a meeting of Eurachem General Assembly-2020 in Russia, Ekaterinburg. The satellite event of the General Assembly will be the International Conference on Reference Materials.

*Vasilisa Baranovskaia  
Maria Medvedevskikh*

## SERBIA

Contact organization for Eurachem activities in Serbia is Directorate of measures and precious metals (DMDM). Serbia's representatives in Eurachem are members of working groups WG Proficiency Testing, WG Measurement Uncertainty and Traceability and WG Education and Training. The vision was and still is to involve many related people and organizations in Serbia, particularly members of the Serbian Chemical Society and Serbian Biochemical Society, Association accredited laboratories and others. In Serbia there is no accredited PT providers, so activities regarding PT schemes are organized by DMDM. In 2016, are organized PT schemes in fields of temperature, refractive index and volume. Those activities are organized in full compliance with ISO/IEC 17034:2016.

In 2016 two PT leaflets were translated in Serbian language:

- WG Proficiency Testing leaflet "How much and how often"
- WG Education and Training leaflet "You talk, we understand – The way out of the tower of Babel".

From 21 to 22 December 2016 a TrainMiC (Training in Metrology in Chemistry) course was organized with the following topics: Traceability, Validation, Measurement Uncertainty, Sampling as a Part of a Measurement Procedure with Examples session EX-05-01-Nitrate-Water-IC.

In this moment Directorate of Measures and Precious Metals participates as a part of the European Metrology Programme for Innovation and Research (EMPIR). Four EMPIR projects has been developed as an integrated part of Horizon 2020, the EU Framework Programme for Research and Innovation. In field of Metrology in Chemistry Ministry of Economy participates in EMPIR project ENVCRM 14 RPT03.

*Dragan Nikolic*

## SLOVENIA

In the past months, several training events related to quality in analytical laboratories were organised by the Slovenian Institute of Quality and Metrology (SIQ). Some of them were one-day events, which focused on a specified topic, such as validation, measurement uncertainty or measurement traceability. Additionally,

the 8<sup>th</sup> school for quality in analytical laboratories took place in October. This is a five-day training event, which covers all quality related aspects of measurements, from measurement traceability to internal quality control, as well as ISO/IEC 17025 general requirements. To receive a certificate, the participants shall prepare and present a project on a topic from their laboratory.

This school has been granted 20 credit points by the Slovenian Chamber of Laboratory Medicine and



is listed as an official training for laboratory staff working in clinical laboratories.

Earlier in October, the 9<sup>th</sup> International Workshop on Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine, organized by the Eurachem Proficiency Testing Working Group in association with EQALM and CITAC, took place in Portorož, Slovenia, for which further information is available on

<https://www.eurachem.org/index.php/events/workshops/169-ws-pt-2017#prelim>

*Nineta Hrastelj*

## SPAIN

During 2016, Eurachem Spain was involved in the following activities:

1. Spanish translation of several documents from Eurachem:  
**Guide:** The Fitness for Purpose of Analytical Methods (April 2016)  
**Leaflet:** Using repeated measurements to improve the standard uncertainty
2. Working Group of Education and Training: collaboration in the revision of Guide to Quality in Analytical Chemistry - 3<sup>rd</sup> edition (2016).

3. Inclusion of two new active people into PT WG and EEE-PT WG.

4. General section on EURACHEM incorporated into the EuroLab Spain Newsletter.

5. Introduction of the Guide 'The Fitness for Purpose of Analytical Methods: A Laboratory Guide to Method Validation and Related Topics' in the Master of Chromatography – Universidad de Alcalá – Madrid.

6. XII SIMPOSIUM FELAB. held on 24<sup>th</sup> February 2016.

*Pedro Pablo Morillas*

## TURKEY

In 2016, Eurachem Turkey has been involved in the activities of the Education&Training Working Group, Method Validation Working Group, Measurement Uncertainty and Traceability Working Group. The EURACHEM Working Group delegates attended to the Working Group meetings, these include; attendance to the Education&Training WG, Measurement Uncertainty and Traceability WG meetings on 11<sup>th</sup> of May 2016 in Ghent, Belgium, attendance to the Eurachem Method Validation WG on 5<sup>th</sup> of October 2016 in Prague, Czech Republic, and attendance to the Method Validation Working Group on 30<sup>th</sup> of January 2017 in Rome, Italy. The activities included the contribution to the revision of the Eurachem Terminology Guide (TAM) in Education and Training Working Group, a study based on the information available in different guides as to whether "Validation or Verification should be carried out when test kits are used" in the Method Validation Working Group and the review of the translated document "The Fitness for Purpose of Analytical Methods" guide.

The dissemination of Eurachem activities have been performed in teaching Metrology in Chemistry at the Technical University in Gebze/Kocaeli. Training events were organized in TUBITAK UME facilities in Gebze/Kocaeli, covering the following topics; Introduction to Chemical Metrology/ Statistics for Analytical Measurements, Method Validation and Uncertainty in Chemical Analysis on 6<sup>th</sup> to 15<sup>th</sup> of March 2016 and on 10<sup>th</sup> of June 2016, Uncertainty in Chemical Analysis on 25<sup>th</sup> to 27<sup>th</sup>, 31<sup>st</sup> of May 2016, 9<sup>th</sup> to 11<sup>th</sup> and on 28<sup>th</sup> to 30<sup>th</sup> of November 2016. Eurachem Turkey is a member of TURKAK PT committee, and has been involved in the activities within the committee. Consultancy on Method Validation and Estimation of

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Measurement Uncertainty in Chemical Analysis was provided to different organizations in Turkey. The activities within the committee include; TS EN ISO/IEC 17043 Training was given on 6<sup>th</sup> to 8<sup>th</sup> April 2016 and 28<sup>th</sup> to 30<sup>th</sup> November 2016, Method Validation Training was given on 17<sup>th</sup> to 18<sup>th</sup> May 2016, TSENISO/IEC 17043 training was given on 6<sup>th</sup> to 8<sup>th</sup> April 2016 and 28<sup>th</sup> to 30<sup>th</sup> 2016.

A Practical Course on Method Validation and Estimation of Measurement Uncertainty was held in Pamukkale University, Faculty of Science and Arts, Department of Chemistry on 1<sup>st</sup> to 3<sup>rd</sup> November 2016. 20 graduate students from different universities in the fields of chemistry, environment, textile, food, agriculture, materials and biomedical engineering, pharmacy and medicine, technological sciences and basic science (chemistry, biochemistry and biology) participated to this event.

*Mine Bisel*

## UKRAINE

Since May 2016 the representatives of Eurachem-Ukraine have taken part in a row of the international events related to metrology in chemistry, including the meetings of ISO/REMCO, technical committees of the Regional Metrology Organisation COOMET – TC 1.8 "Physical chemistry" and TC 1.12 "Reference materials", working groups of the Metrology Commission of the Inter-State Council on standardization, Metrology, and Certification – on reference materials and interlaboratory testing, as well as Ukrainian conferences and seminars on quality assurance system for clinical laboratories; evaluation of measurement capabilities based on interlaboratory testing; natural gas analysis and others.

Ukrmetrteststandart, an institute that is responsible for the Ukraine's participation in Eurachem activities, has become the Ukrainian national coordinator for EPTIS, an international database of PT-schemes. Ukrainian representative is a member of the Eurachem Uncertainty and Traceability WG. Besides, Ukraine has contributed to reviewing the draft 3<sup>rd</sup> edition of the Eurachem/CITAC "Guide to Quality in Analytical Chemistry – An Aid to Accreditation". Further translations of Eurachem guides and leaflets into Ukrainian are planned.

*Mykhailo Rozhnov,  
Ovsiy Levbar*

## Upcoming meetings

### Eurachem Week 2018:



**Scientific Workshop on Data - Quality, Analysis and Integrity**  
14 - 15 May, Dublin Ireland

**Working Groups' meetings 16 May, Dublin Ireland**

**Eurachem General Assembly 17 - 18 May, Dublin Ireland**

Eurachem Ireland and the Eurachem Education & Training Working Group are delighted to warmly invite you to the Eurachem 2018 Scientific Workshop and General Assembly in Dublin Castle.

The "Data - Quality, Analysis and Integrity" workshop will be directly relevant to everyone involved in state, semi-state, pharmaceutical, analytical, medical, environmental and academic sectors.

#### Aims

Understand the importance of scientific data integrity and how to achieve it  
Understand risks and opportunities related to data  
Discuss future challenges in data quality, analysis, integrity and compliance  
Discuss the impact of new developments on data quality, analysis, integrity and security

#### Topics covered during the workshop will include:

Current Practices  
International guidance  
Extent of validation/verification studies  
Analysis of validation data  
Examples of best practices in different fields  
Analysis of meta-data  
Data management systems  
Operation of advanced instrumentation  
Accreditation requirements  
Future Challenges  
Future developments - Accreditation Body viewpoint  
Compliance assessment  
Risk based approaches to quality  
Validation of multiparameter methods  
Implementing principles of Quality by Design (QbD)  
Human errors  
Machine learning algorithms, including artificial neural networks

In addition to the presentations, participants will be given ample opportunity to discuss these subjects in detail and exchange experiences in a number of working group sessions.

Registration and submission of abstracts is now open at the workshop website [eurachem2018.com](http://eurachem2018.com)

We look forward to seeing you in Dublin in May.

*Barbara O'Leary,  
Eurachem Ireland Chair*

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To get involved in 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](http://www.eurachem.org).

## Eurachem Member Countries



Eurachem countries in green,  
Associate Member Armenia and  
Georgia not displayed

