

# STRATEGIC PLAN FOR EURACHEM 2018-2022

*This paper sets out the Mission, Key Objectives and Work Programme for Eurachem during the period 2018-2022. It has been prepared by the Eurachem Chair and the Eurachem Executive Committee.*

***Approved by Eurachem GA 2018.***

## **Mission**

- To promote best practice in analytical measurement<sup>1</sup>, i.e. chemical measurements, and in measurements where chemistry is coupled with other disciplines, e.g. physical, biological and clinical measurements.
- To develop strategies which will cater for new and emerging analytical technologies.
- To address the needs and expectations of the analytical community and their customers in the 21<sup>st</sup> century.

## **Key Objectives**

- To support national Eurachem groups and European networks as a mechanism for the exchange of information and the promotion of collaboration aimed at identifying and defining best practice in analytical measurement.
- To develop and publish guidance in the field of analytical measurement.
- To contribute to the development of international measurement systems which enable the results of analytical measurement to be metrologically traceable to authoritative, internationally recognised references, and, where feasible, to the SI.
- To collaborate with other European and international organisations concerned with the quality of analytical measurement.
- To help decision makers and users of analytical measurement appreciate the importance of quality issues and to encourage them to ask for evidence of the validity of the measurements they procure.
- To facilitate the mutual recognition and acceptance of analytical measurement and test results.
- To influence official policies related to analytical measurement.

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<sup>1</sup> In this context Eurachem understands “analytical measurement” as including measurement, testing and qualitative analysis.

## **WORK PROGRAMME (2018-2022)**

It is expected that tasks will be pursued jointly with other European and international organisations wherever appropriate.

### **Networking**

- The Eurachem General Assembly (GA) to meet once per year.
- The Eurachem Executive Committee (EC) to meet twice per year.
- All Working Groups (WG) to meet at least once per year and organise workshops as appropriate.
- Collaborate with other European and international organisations including those listed in Appendix 3.
- Periodically review the nature of collaborations with other organisations.
- Publish at least one newsletter per year.
- Maintain a website for Eurachem and use social media where appropriate.

### **Management and Organisation**

- Policy and procedural matters are agreed by the GA. There is a need to continually review procedures and add new documentation where appropriate. The following actions are proposed:
  - Review policy regarding appointment and expectations of Eurachem liaison representatives.
  - Document Eurachem secretariat procedures.
  - Document a policy for honours and awards.
  - Develop Procedure for the Development of Eurachem Guidance
  - Keep an up-to-date PowerPoint presentation and poster of Eurachem available for GA members on the member area of the Eurachem website.

## **Currently active Working Groups**

### ***Education and Training WG***

- Collate and evaluate information on the state of education and training in analytical science in different member states in particular with respect to the development of teaching aids and training materials on quality management which emphasise metrology.
- Engage with working analytical scientists, experts and other international organisations to contribute to the development of internationally harmonised terminology for analytical measurement.
- Contribute to the development and delivery of education and training in chemical metrology and quality assurance for both analytical scientists and the broader community by producing freely available guides and training materials. Details of materials to be agreed annually by the WG:
  - Complete the revision of the Guide ‘Terminology in Analytical Measurement: Introduction to VIM 3’
  - Review, and revise if necessary, the ‘Guide to Quality in Analytical Chemistry’ to take into account changes introduced by the revision of ISO/IEC 17025
  - Prepare information leaflet(s) explaining the managerial and technical changes in the revised version of ISO/IEC 17025

- Seek further translations of the terminology leaflet.
- In collaboration with other WGs publish and maintain, on the Eurachem website, a reading list of references relating to quality assurance for analytical measurements.
- Organise workshops in metrology in chemistry which bring together academic staff, industrial scientists, instrument manufacturers and students.

## ***Measurement Uncertainty and Traceability WG***

### **Measurement Uncertainty**

- Facilitate and promote the use of uncertainty statements by laboratories, customers, legislators and accreditation bodies by (*inter alia*):
  - Engaging with the principal international bodies responsible for development of guidance on measurement uncertainty (for example, JCGM, ILAC, EA, and ISO) to identify emerging trends and to contribute to international development of primary guidance, particularly the GUM.
  - Reviewing existing Eurachem guidance on use of uncertainty information in compliance assessment to see if its revision or further guidance is needed when (a) the value of measurand is constrained (b) relative uncertainty is used and (c) when the uncertainty is proportional to the value of the measurand.
  - Monitoring developments in the handling of measurement bias with a view to preparing improved guidance on the treatment of bias in uncertainty evaluation.
  - Developing and promoting an understanding of Bayesian methods for evaluating and utilising measurement uncertainty.
  - Monitoring current guidance available on the evaluation of uncertainty in biological measurements to see if further guidance is needed.
- Organise workshops to promote uncertainty estimation.

### **Metrological Traceability**

- Promote concepts and systems of metrological traceability within the analytical chemistry community, particularly in support of laboratory accreditation in collaboration with appropriate metrology organisations (notably CCQM and EURAMET through TC-MC).
- Organise workshops including metrological traceability of chemical measurement results.
- Assess the understanding of metrological traceability principles in Europe and beyond, with a view to identifying, and providing guidance on, specific issues of concern.
  
- Contribute to maintain and update the relevant section on Measurement Uncertainty and Traceability of the Eurachem Reading List.

## ***Method Validation WG***

- Function as a “centre of expertise” in the field by assembling best practices on how to secure that analytical methods are fit for purpose before being applied in routine laboratory work.
- Explain the principles of method validation and method verification studies.
- Provide guidance on method validation which will be applicable to all chemical analytical laboratories and related disciplines (incl. microbiology testing) to meet the requirements for laboratory accreditation, also giving practical examples, quick references etc.

- Elaborate and disseminate information on good practices related to method validation in terms of leaflets, posters, articles as input to the analytical community.
- Organize and contribute to international seminars and workshops on issues related to method validation (taking in suggestions from various discussion fora for further development of guidelines);
- Follow and discuss new developments within analytical chemistry and related disciplines, which may require new approaches regarding method validation and implement such in currently revised guidance in the field;
- Assemble and maintain a list of relevant references on method validation to be included in the Eurachem reading list.
- Work on additional subjects for guidance, and will within the period do a review of the existing version of the “Fitness for Purpose” Guide with regard to a possible revision.

### ***Proficiency Testing WG***

- Plan towards a 10<sup>th</sup> Eurachem International Workshop on ‘Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine’ – to be held in 2020.
- Review and update as necessary the guide on ‘Selection, Use and Interpretation of Proficiency Testing (PT) Schemes in collaboration with the EEE-PT Working Group.
- Review, update and translate the current series of information leaflets on PT, which include:
  - Proficiency testing schemes and other interlaboratory comparisons
  - Pre- and post-analytical proficiency testing
  - How can proficiency testing help my laboratory?
  - Selecting the right proficiency testing scheme for my laboratory
  - Proficiency testing – How much and how often?
- Prepare, and translate, further information leaflets regarding topics of interest to PT, to encourage good practice across Europe, future leaflets to include:
  - Use of surplus PT materials
  - How to respond to an unsatisfactory performance score
- Develop guidance on the evaluation of qualitative results in PT schemes.
- Contribute to the work programme of the EEE-PT WG and the ILAC 17043 WG.
- Contribute to maintain and update the relevant section on PT of the Eurachem Reading List.

### ***Qualitative analysis and testing WG***

- Publish a guidance document for evaluating the uncertainty in qualitative analysis and testing.
- Promote the appropriate validation of procedures used in qualitative analysis.
- Promote the requirement to set objective criteria for the quality of qualitative analysis results.
- Organise a workshop to discuss the first edition of the guide to the expression of uncertainties in qualitative analysis and testing.
- Follow work of relevant standard committees.

### ***Sampling uncertainty WG***

- Revise ‘The Eurachem/CITAC Guide on ‘Measurement uncertainty arising from sampling: A Guide to methods and approaches’, in collaboration with EUROLAB, Nordtest and the UK RSC Analytical Methods Committee.

## **Working Groups to be established**

### ***Bioanalysis WG***

Eurachem wishes to establish an activity on biological measurements, an important developing sector. Eurachem will review options of establishing its own WG or cooperating with other organisations.

### ***Reference Materials (RM) WG***

- Establish a working group of experts nominated by GA members, EA and EUROLAB, to review and update as necessary the guide on ‘Selection and use of Reference Materials’ (2002) following the revision of the ISO/REMCO Guides on RMs.
- Promote good practice in the selection and use of RMs, by:
  - Preparing and translating an information leaflet.
  - Contributing to workshops/training events, with regards to the topic of RMs.
- Contribute to maintain and update the relevant section on RMs of the Eurachem Reading List.

## **APPENDIX 1 - CURRENT EURACHEM GUIDES**

### **Quality assurance, accreditation and terminology**

Guide to Quality in Analytical Chemistry: An Aid to Accreditation (2016)  
Accreditation for Microbiological Laboratories (2013)  
Quality Assurance for Research and Development and Non-routine Analysis (1998)  
Terminology in Analytical Measurement: Introduction to VIM 3 (2011)

### **Proficiency testing**

Selection, Use and Interpretation of Proficiency Testing (PT) Schemes by Laboratories (2011)

### **Measurement uncertainty and validation**

Quantifying Uncertainty in Analytical Measurement, 3rd Edition (2012)  
Measurement uncertainty arising from sampling (2007)  
Use of uncertainty information in compliance assessment (2007)  
Setting target measurement uncertainty (2015)  
The Fitness for Purpose of Analytical Methods: A Laboratory Guide to Method Validation and Related Topics (2014)

### **Traceability and reference materials**

Traceability in Chemical Measurement (2003)  
The Selection and use of Reference Materials (2002)  
Harmonised Guidelines for the Use of Recovery Information in Analytical Measurements (1998)

## **APPENDIX 2 - CURRENT EURACHEM INFORMATION LEAFLETS**

### **Proficiency testing**

Proficiency Testing Schemes and other interlaboratory comparisons (2005)  
How can Proficiency Testing help my laboratory? (2013)  
Selecting the right proficiency testing scheme for my laboratory (2015)  
Proficiency testing - How much, and how often? (2017)  
Pre- and post-analytical proficiency testing (2009)

### **Measurement uncertainty and traceability**

Information leaflet for lab customers concerning the quality of chemical analyses (2000)  
Traceability of Analytical Results (2005)  
Use of uncertainty information in compliance assessment (2009)  
Using repeated measurements to improve the standard uncertainty (2015)  
Treatment of an observed bias (2017)

### **Terminology**

You talk, we understand – The way out of the tower of Babel, An introduction to terminology in measurement (2015)

### **APPENDIX 3 - LIST OF COLLABORATING ORGANISATIONS/COMMITTEES**

AOAC-Europe	Association of Official Analytical Chemists
CCQM	Comité Consultatif pour la Quantité de Matière
CITAC	Cooperation for International Traceability in Analytical Chemistry
EA	European co-operation for Accreditation
EA/LC	Laboratory Committee of EA
EEE PT	The "triple E" organisations: EA, Eurachem, EUROLAB; Proficiency Testing in Accreditation
EuCheMS-DAC	European Association for Chemical and Biological Sciences, Division of Analytical Chemistry
EUROLAB	National Associations of Measurement, Testing and Analytical Laboratories
EURAMET	European Collaboration on Measurement Standards
TC MC	EURAMET Technical Committee for Metrology in Chemistry
IUPAC	International Union of Pure and Applied Chemistry
ILAC	International Laboratory Accreditation Cooperation
ILAC/AIC	Accreditation Committee
ILAC/LC	Laboratory Committee of ILAC
ISO-REMCO	Commission for Reference Materials of ISO
JCTLM	Joint Committee for Traceability in Laboratory Medicine
NMKL	Nordic Committee on Food analysis

### **APPENDIX 4 - ABBREVIATIONS**

GUM	Evaluation of measurement data – Guide to the expression of uncertainty in measurement
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
JCGM	Joint Committee for Guides in Metrology
MU	Measurement Uncertainty
PT	Proficiency Testing
R&D	Research and Development
RM	Reference Material
SI	International System of Units
VIM	International vocabulary of metrology – Basic and general concepts and associated terms