

# STRATEGIC PLAN FOR EURACHEM

## 2023-2027

*This paper sets out the Mission, Key Aims and Activities, and the Work Programme for Eurachem during the period 2023-2027. It has been prepared by the Eurachem Executive Committee following consultation with General Assembly members.*

*Approved by Eurachem General Assembly 25 May 2023.*

### **Mission**

To promote best practice in analytical chemistry<sup>1</sup> to address the needs and expectations of the analytical community and their customers.

### **Key aims**

- Provide a focus for analytical chemistry and quality related issues in Europe.
- Facilitate the mutual recognition and acceptance of analytical chemistry results.
- Support laboratories and other organisations in producing analytical results that are fit for purpose.
- Promote the importance of correct interpretation of analytical results.
- Maintain an active and sustainable network of national Eurachem groups.

### **Key activities**

- Identify and define best practice in ensuring the fitness for purpose of results from chemical analysis.
- Develop and publish guidance on best practice in analytical chemistry.
- Organise workshops and training events (face-to-face and online) to disseminate information and support laboratories and other stakeholders in ensuring quality in analytical chemistry.
- Develop strategies which will cater for new and emerging analytical technologies.
- Collaborate with other European and international organisations concerned with quality in analytical chemistry.
- Participate in policy setting related to analytical chemistry.

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<sup>1</sup> In this context Eurachem understands ‘analytical chemistry’ as including situations where chemistry is coupled with other disciplines (such physical, biological and clinical analysis). It is also understood as including measurement, testing and qualitative analysis, and to cover the whole ‘analytical cycle’ from understanding a client’s problem and collection of suitable samples, through to interpretation of results.

## **Work programme (2023-2027)**

Tasks will be pursued jointly with other European and international organisations wherever appropriate.

Progress will be reviewed regularly through reports to the Executive Committee (EC) and General Assembly (GA).

## **Management and organisation**

Policy and procedural matters are agreed by the GA. Documented policies and procedures are reviewed regularly and new documentation is developed where appropriate. The following activities are planned:

- Explore the advantages and disadvantages of legal entity status for Eurachem;
- Review policy regarding appointment and expectations of Eurachem liaison representatives;
- Establish guidance on the development and maintenance of Eurachem policy and procedure documents;
- Maintain an up-to-date document summarising Eurachem secretariat procedures.

## **Networking and events**

- The Eurachem GA to meet once per year.
- The Eurachem EC to meet at least twice per year.
- All Working Groups (WG) to meet at least once per year.
- Collaborate with other European and international organisations including those listed in Appendix 3.
- Review the nature of collaborations with other organisations at least annually.
- Organise at least two workshops/training events/conferences per year, with support from WGs as required.
- Establish a regular programme of online events (workshops/webinars/discussion forums), collaborating with liaison organisations where appropriate.

## **Communications, marketing and publicity**

- Maintain a website for Eurachem.
- Develop and maintain a list of contacts for promoting Eurachem activities and outputs.
- Distribute regular e-newsletters, with additional emails as required to promote specific activities.
- Use social media proactively to promote Eurachem activities and engage with stakeholders.
- Produce an annual newsletter.
- Review and update the Eurachem PowerPoint presentation and poster at least annually, with the current version made available to GA members in the member area of the Eurachem website.

This work is coordinated by the Communications Task Group (CTG).

## **New activities**

In consultation with the GA members (during the Discussion Forum at the GA meeting in May 2022) and other stakeholders, the EC has identified the following new work items.

- Investigate further areas of possible collaboration in relation to bioanalysis, while maintaining current liaison activities (e.g. with JCTLM, EA-LC Healthcare WG and NMKL).
- Collaborate with EUROLAB on the development of guidance on the management of computers and software in the laboratory.
- Investigate the feasibility of developing guidance to support the quality of measurements made outside of the laboratory (e.g. in relation to in situ/onsite measurements, Process Analytical Chemistry/Process Analytical Technology) through, for example, a workshop to identify challenges in this area.
- Monitor developments in relation to digital transformation in the international scientific and quality infrastructure (the ‘Digital SI’)<sup>2</sup>, identifying areas for collaboration where appropriate.
- Identify and review alternative formats for disseminating Eurachem guidance.
- Explore the possibility of establishing a new WG with a focus on providing guidance on ensuring the fitness for purpose of laboratory equipment.

## **Working Group activities**

The following core activities are common to all WGs.

- Develop and disseminate information on good practices in the form of guides, leaflets and posters, and encourage translation into member languages.
- Review and revise guidance in line with the procedure for development and maintenance of Eurachem guides.
- Organise and contribute to workshops and online events.
- Contribute to the annual review and revision of the online Eurachem Reading List of references relating to quality assurance for analytical chemistry.
- Follow and discuss developments in relevant standards committees.
- Maintain an up-to-date webpage summarising the WG terms of reference, membership and current and past activities.
- Collaborate with other WGs where appropriate to ensure that guidance produced is consistent.

Specific activities for each WG are outlined below.

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

- Collate and evaluate information on the state of education and training in analytical chemistry in different member countries, with a particular focus on the development of teaching and training

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<sup>2</sup> See BIPM Joint Statement of Intent on Digital Transformation a description of the SI Digital Framework (<https://www.bipm.org/en/liaison/digital-transformation>).

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 chemistry.
- Complete the revision of the ‘Guide to Quality in Analytical Chemistry’ to take into account changes introduced by ISO/IEC 17025:2017.
- In collaboration with other WGs, prepare short videos for the Eurachem YouTube channel to address and explain challenging topics in the field of metrology in chemistry.
- In collaboration with other WGs regularly review and publish, on the Eurachem website, a reading list of references relating to quality assurance for analytical chemistry.
- Organise workshops in metrology in chemistry which bring together academic staff, industrial scientists, laboratory experts, 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:
  - > 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 suite of documents relevant to 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.
  - > Developing detailed guidance on using in-house method validation data for measurement uncertainty evaluation.
  - > Undertaking a revision of ‘Quantifying Uncertainty in Analytical Measurement’ (QUAM:2012) to take account of recent Eurachem and other international guidance.
  - > Developing and promoting an understanding of Bayesian methods for evaluating and utilising measurement uncertainty.
  - > Monitoring developments in the handling of measurement bias with a view to preparing improved guidance on the treatment of bias in uncertainty evaluation.
  - > Monitoring current guidance available on the evaluation of uncertainty in biological measurements to see if further guidance is needed.
  - > Monitoring the use of machine learning in chemical and biological measurement to assess the need for guidance on uncertainty evaluation in such applications.
  - > Organise workshops to promote uncertainty evaluation.

### **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.
- Contribute to the harmonisation of the reporting of metrological traceability.

### **Method Validation WG**

- Function as a ‘Centre of Expertise’ in the field by identifying and developing best practices on how to ensure that analytical methods are fit for purpose before being applied in routine laboratory work.
  - > Through the expertise of WG members and collaboration with experts from other organisations, collate information on approaches to method validation in analytical chemistry and related disciplines (e.g. microbiology, molecular biology and qualitative testing).
- Explain the principles and possible practices of method validation and method verification studies, taking into account the principles of risk assessment when deciding on the extent of such studies.
- Provide guidance on method validation which will be applicable to all analytical laboratories and related disciplines, and meet the requirements of laboratories who must document the quality of their performance (e.g. for the purpose of achieving accreditation).
  - > Identify additional subjects for guidance, to be included in the regularly revised version of the ‘Fitness for Purpose’ Guide or issued as supplements to the guide.
  - > Seek participation in international events to provide information on the importance of valid methods and to seek information on new developments in the field which may require new approaches on validation.
- Follow and discuss new developments within analytical science and related disciplines, which may require new approaches regarding method validation, and develop guidance where required.
  - > Collaborate with the Sampling Uncertainty WG on the development of best practice in the validation of measurement procedures that include sampling.
  - > Identify the issues and challenges relating to validation of non-targeted methods.
- Collaborate with the Measurement Uncertainty and Traceability WG and Qualitative Analysis WG to ensure that guidance on the use of validation data in uncertainty evaluation is consistent.
- Collaborate with the Qualitative Analysis WG on validation of procedures used in qualitative analysis.

### **Proficiency Testing WG**

- Organise international workshops on proficiency testing in analytical chemistry, microbiology and laboratory medicine to promote best practice.
  - > Complete planning and delivery of a 10<sup>th</sup> Eurachem International Workshop on ‘Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine’ – to be held in 2023.
  - > Plan towards an 11<sup>th</sup> Eurachem International Workshop on ‘Proficiency Testing in Analytical Chemistry, Microbiology and Laboratory Medicine’

- Prepare, and translate, further information leaflets regarding topics of interest to PT, to encourage good practice across Europe, future leaflets to include:
  - > Understanding PT statistics
  - > Understanding PT performance assessment
- Develop guidance on the evaluation of qualitative and interpretative results in PT schemes.
- Contribute to the work programme of the EEE-PT WG and the ILAC-AIC 17043 WG.
- Follow the work of relevant standards committees, e.g. those revising ISO/IEC 17043 and ISO 13528.

### ***Qualitative analysis WG***

- Assess receptivity and the need for revising published guidance on evaluating the performance and uncertainty in qualitative analysis and testing.
- Contribute to the generalisation and harmonisation of the reporting of traceability statements of qualitative analysis results.
- Promote the integration of objective assessments of qualitative analysis fitness for purpose in analysis quality assurance.
- Promote the appropriate validation of procedures used in qualitative analysis methods in collaboration with the Method Validation WG.
- Promote the requirement to set objective criteria for the quality of qualitative analysis results.
- Organise a workshop to discuss the management of qualitative analysis reliability.

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

- Review and update as necessary the guide on ‘Selection and use of Reference Materials’ (2002) following the revision of the ISO Guides on RMs and other advances in this area to address the following topics:
  - > Types and classification of RMs
  - > Metrological traceability of RMs
  - > Importance of the accreditation of RM producers
  - > Availability of RMs
  - > Selection of RMs, based on fitness for purpose and quality
  - > Uses of RMs
  - > Assessment of the suitability of RMs
  - > Requirements for in-house RMs
  - > Handling / storage of RMs
  - > Special sectorial requirements
- Organise a workshop to promote the knowledge and implementation of the revised guide.

- Collect feedback on the revised guide from the wider audience through a form published on the website.
- In addition to the common WG activities described above, promote and disseminate good practice in the selection and use of RMs, by:
  - > Collecting, preparing and publishing worked examples of the selection and use of RMs, addressing different sectors of analytical sciences.
  - > Preparing short videos for the YouTube Channel addressing the role of RMs and the topics related to their selection and use.
  - > Supporting initiatives by national members to promote best practice in the selection and use of RMs.
- Follow advances in the area of production and use of RMs.
- Address further issues related to the selection and use of RMs.
- Collaborate with other Eurachem WGs to address, for example, academic and further education regarding RMs; the traceability and uncertainty of certified values; the role of RMs in method validation and proficiency testing; issues related to RMs in qualitative analysis.

### ***Sampling Uncertainty WG***

- Prepare guidance for the evaluation of uncertainties in measurement arising from the process of sampling. This guidance will be applicable to all chemical measurements that require the taking of a sample. It will provide guidance on the assessment of the uncertainty of the measurement that is caused by the process of sampling, and any physical preparation of the sample prior to analysis, and how this can be combined with estimates of uncertainty arising from the analytical process.
- Consider, and write Guidance, on validation of measurement procedures that include sampling, in collaboration with the Method Validation WG.
- Provide guidance on the evaluation of the uncertainty of measurements that are made in situ (i.e. without the removal of a physical sample), and the use of this information in the validation of these measurement methods.

### **Currently active Executive Task Groups**

#### ***Communications Task Group***

The management of Eurachem communications, marketing and publicity is an Executive function delivered through the CTG. This covers both communications with existing members and stakeholders, and promotion to the wider analytical community.

The primary role of the CTG is to support Eurachem in achieving its mission and key objectives by developing and delivering a marketing and publicity plan, and regularly reviewing the impact of activities. Activities in support of this objective shall include:

- Developing and maintaining an annual communications and publicity plan which will include activities linked to ‘world days’.
- Developing an improved understanding of the current Eurachem ‘audience’ and identifying key targets (e.g. through surveys of GA members, national networks and mailing list subscribers).

- Reviewing social media channels to ensure the most appropriate channels are being used to engage with different target audiences.
- Maintaining the Eurachem website and monitoring web traffic.
- Identifying opportunities to collaborate with stakeholders/liaisons to promote Eurachem (e.g. through newsletter/web articles).
- Encouraging and supporting all Eurachem members to participate in promotional activities (e.g. through providing templates/standard text for emails or other promotional material).
- Implementing metrics to monitor the impact of marketing and publicity activities.
- Engaging with WGs to increase the technical content (e.g. blogs and reports) on the Eurachem website.
- Completing a review of the format/content annual newsletter and developing proposals for the future development of the newsletter.



## **Appendix 1 – Eurachem Guides and Supplements**

### **Measurement uncertainty**

Use of Uncertainty Information in Compliance Assessment, 2<sup>nd</sup> edition (2021)

Measurement Uncertainty Arising from Sampling, 2<sup>nd</sup> edition (2019)

Setting and Using Target Uncertainty in Chemical Measurement (2015)

Quantifying Uncertainty in Analytical Measurement, 3<sup>rd</sup> edition (2012)

### **Method validation**

The Fitness for Purpose of Analytical Methods: A Laboratory Guide to Method Validation and Related Topics, 2<sup>nd</sup> edition (2014)

Planning and Reporting Method Validation Studies (Supplement) (2019)

Blanks in Method Validation (Supplement) (2019)

### **Proficiency testing**

Selection, Use and Interpretation of Proficiency Testing (PT) Schemes by Laboratories, 3<sup>rd</sup> edition (2021)

### **Qualitative analysis**

Assessment of Performance and Uncertainty in Qualitative Chemical Analysis (2021)

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

Accreditation for Microbiological Laboratories, 3<sup>rd</sup> edition (2023)

Terminology in Analytical Measurement: Introduction to VIM 3, 2<sup>nd</sup> edition (2023)

Guide to Quality in Analytical Chemistry: An Aid to Accreditation, 3<sup>rd</sup> edition (2016)

Quality Assurance for Research and Development and Non-routine Analysis (1998)

### **Traceability and reference materials**

Metrological Traceability in Chemical Measurement, 2<sup>nd</sup> edition (2019)

The Selection and use of Reference Materials (2002)

### **Guides published by other organisations**

Harmonised Guidelines for the Use of Recovery Information in Analytical Measurements (1998)

## **Appendix 2 – Eurachem Information Leaflets**

### **Accreditation**

ISO/IEC 17025:2017 – A new accreditation standard (2018)

### **Measurement uncertainty and traceability**

What is the uncertainty factor? (2021)

Use of uncertainty information in compliance assessment, 2<sup>nd</sup> edition (2021)

Traceability of analytical results (Updated 2019)

Setting target measurement uncertainty (2018)

Treatment of an observed bias, 2<sup>nd</sup> edition (2022)

Using repeated measurements to improve the standard uncertainty, 2<sup>nd</sup> edition (2016)

Information leaflet for lab customers concerning the quality of chemical analyses (2000)

### **Method validation**

The importance of method validation (2021)

### **Proficiency testing**

Let's call a PT scheme a PT scheme! (2022)

Proficiency testing schemes and other interlaboratory comparisons, 2<sup>nd</sup> edition (2022)

Pre- and post-analytical proficiency testing, 2<sup>nd</sup> edition (2022)

How can proficiency testing help my laboratory?, 2<sup>nd</sup> edition (2022)

Selecting the right proficiency testing scheme for my laboratory, 2<sup>nd</sup> edition (2022)

Proficiency testing – How much, and how often?, 2<sup>nd</sup> edition (2022)

How to investigate poor performance in proficiency testing, 2<sup>nd</sup> edition (2022)

Use of surplus proficiency test items, 2<sup>nd</sup> edition (2022)

PT schemes for sampling (2020)

### **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	Europe Section of AOAC International (MoU in place)
CCQM	Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology
CITAC	Cooperation on International Traceability in Analytical Chemistry
Codex CCMAS	Codex Committee on Methods of Analysis and Sampling
Codex IAM	Codex Inter-Agency Meeting
EA	European co-operation for Accreditation
EAAB	EA Advisory Board
EA-LC	EA Laboratory Committee
EA-LC/Healthcare WG	EA Laboratory Committee Healthcare Working Group
EEE PT	The ‘triple E’ organisations: EA, Eurachem, EUROLAB; Proficiency Testing in Accreditation
EuChemS-DAC	European Chemical Society – Division of Analytical Chemistry
EURAMET	European Association of National Metrology Institutes
EURAMET TC-MC	EURAMET Technical Committee of Metrology in Chemistry
EUROLAB	National Associations of Measurement, Testing and Analytical Laboratories (MoU in place)
ILAC	International Laboratory Accreditation Cooperation
ILAC-AIC	ILAC Accreditation Issues Committee
ILAC-LC	ILAC Laboratory Committee
ISO/TC 334	Reference Materials
ISO/TC 69/SC 6	Applications of statistical methods – Measurement methods and results
IUPAC	International Union of Pure and Applied Chemistry
JCTLM	Joint Committee for Traceability in Laboratory Medicine
NMKL	Nordic Committee on Food analysis (MoU in place)

## Appendix 4 – Abbreviations

CTG	Communications Task Group
EC	Executive Committee
GA	General Assembly
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
PT	Proficiency Testing
RM	Reference Material
SI	International System of Units
VIM	International vocabulary of metrology – Basic and general concepts and associated terms
WG	Working Group