

# Eurachem 2005

*This paper sets out the Mission, Key Objectives and Work Programme for EURACHEM during the period 2000-2005. It has been prepared by the EURACHEM Chairs in collaboration with Executive Committee and approved by the General Assembly. References to other key documents and a summary of activities are also provided.*

## **Mission**

Improve the quality of chemical measurement, and measurements where chemistry is coupled with other disciplines, e.g. physics and biology, in order to meet the needs and expectations of their customers.

## **Key Objectives**

1. To promote best practice in chemical measurement and to develop strategies and work programmes which will cater for new and emerging analytical technologies and will meet the requirements of EURACHEM members and their customers in the 21<sup>st</sup> century.
2. To develop European networks and national EURACHEM groups as a mechanism for the exchange of information and the promotion of collaboration aimed at identifying and defining best practice in chemical measurement.
3. To contribute to the development of international chemical measurement systems which enable the results of chemical measurements to be traced to authoritative, internationally recognised references, and where feasible to SI.
4. To provide a robust input to and collaborate with other European and international organisations concerned with improvement of the quality of chemical measurement.
5. To help decision makers and users of measurements appreciate the importance of quality issues and to encourage them to ask for evidence of the validity of the measurements they procure.
6. To influence and collaborate with the Commission of the European Union and the EU programmes.

# Work Programme (2000-2005)

*(A number of tasks will be pursued jointly with other European and International organisations)*

## 1. Networking

- The General Assembly to meet once per year
- The Executive Committee to meet twice per year
- All Working Groups to meet at least once per year and organise workshops as appropriate
- Collaborate with other European and international organisations such as EA, EUROMET, EUROLAB, CITAC and ILAC (through the Laboratory Liaison Committee)
- Collaborate with and input into the EU's Framework Programme (for example in FP 5 the Generic Activity: Measurement and Testing)
- Publish at least one newsletter per year
- Maintain the internet homepage of EURACHEM
- Start creating a virtual institute for exchange of analytical measurement expertise and experience

## 2. Traceability

- Develop a strategy which provides both a pragmatic approach to measurement traceability and establishes links to internationally recognised references in collaboration with CCQM, CITAC, and EUROMET
- Prepare authoritative guides to support the development of a structured international chemical measurement system
- Facilitate the acceptance of traceability concepts and systems within the analytical chemistry community particularly in support of ISO/IEC 17025
- Organise workshops on Traceability of Chemical Measurements

## 3. Education and Training

- Contribute to the development and delivery of education and training of both analytical scientists and the broader community
- Raise awareness of the importance of analytical chemistry and the analytical aspects of the chemical curriculum
- Organise workshops on Education and Training for analysts
- Alert senior decision makers to the international problems of educating and training analytical chemistry and related disciplines
- Promote exchange of students and experts

## 4. Measurement Uncertainty (MU)

- Review the revised EURACHEM guide on measurement uncertainty and identify difficulties/shortcomings that analysts may experience with its use
- Undertake studies to provide further worked examples covering both complete analyses and unit operations; including sampling, subsampling, laboratory sampling and RMs
- Facilitate and promote the use of uncertainty statements by laboratories, customers and accreditation bodies
- Make a recommendation on the use of PT results and validation data in estimating MU
- Establish links between the new ISO/IEC 17025 and regulators and users
- Make recommendations on work which should be undertaken by EURACHEM on uncertainty of identification
- Develop a guidance document for MU in qualitative analysis and identification techniques

## **5. Proficiency Testing (PT)**

- Collaborate with EUROLAB and EA in order to prepare a directory of PT schemes across Europe
- Facilitate the organisation of PT schemes and the interlinking of schemes at both the international and European levels
- Contribute to the preparation of international protocols for organisers and users of PT schemes
- Contribute to the establishment of QA for PT schemes
- Encourage the establishment of traceable assigned values for PT studies
- Collaborate with EEE PT Working Group

## **6. Reference Materials (RM)**

- Collaborate with other European organisations to promote the use of RMs
- Provide guidance on the selection and use of RMs
- Provide guidance on the quality issues of RMs
- Help identify European requirements for new RMs and facilitate development projects
- Help the development of traceable links between RMs and international measurement standards
- Promote interlaboratory comparisons to develop RMs
- Facilitate the establishment of systems for traceable measurement in Europe, collate an inventory of suppliers/producers of traceable reference materials or network with other organisations who are active in this field
- Prepare a guide on reference materials in collaboration with EEE RM WG
- Collaborate with the EEE RM Working Group

## **7. Analytical QA**

- Prepare and update the EURACHEM opinion on good practice in laboratory accreditation
- Prepare a guide on the QA of qualitative analysis and chemical identification
- Prepare a guide on QA in universities and research institutes
- Review EURACHEM guides to reflect the requirements of the new ISO/IEC 17025

## **8. Regulatory and Specification Limits**

- Consider problems associated with the formulation and interpretation of compliance with regulatory and specification limits
- Interpret analytical results vis a vis specification limits, together with the application of tolerances (global or analytical) frequently prescribed in legislation
- Establish the state of practice for the topics listed above and collate available literature and documents
- Interact with standardisation bodies to promote the development of performance-based standards for analytical methods, encouraging the use of measurement uncertainty and traceability as key performance characteristics
- Start discussion amongst regulators to ensure that future legal limits incorporate MU
- Prepare a guide on the specification of analytical requirements

## **9. Multidisciplinary Techniques**

**(e.g. Near Infra Red, Immunochemistry, Polymerase Chain Reaction, Chemometrics)**

- Establish a task group to investigate the development of quality systems for analytical techniques which incorporate molecular biology
- Consider issues relating to traceability, uncertainty, quality systems, etc. for multidisciplinary techniques with a view to developing guidelines for this area of analysis and chemical research

## Supporting References

- I. EURACHEM Memorandum of Understanding (signed by 28 countries and the CEC)
- II. Internal Structure of EURACHEM, November 2000 (<http://www.eurachem.bam.de>)
- III. A EURACHEM Letter to European Commission - DG XII, "*Development of a Structured Chemical Measurement System*", July 1998 (<http://www.eurachem.bam.de>)
- IV. Comparability and Traceability in Measurements of Amount of Substance: Report of a EURACHEM Workshop held in Geel, Belgium, on November 10-11, 1992; Analytical Proceedings, Vol 31, 377, December 1994
- V. Metrology in chemistry: Current activities and future requirements in Europe, King, B.; Walsh, M.; Carneiro, K.; Kaarls, R.; Komppa, V.; Nieto de Castro, C.; Lexow, J., 1999. Office for Official Publications of the European Communities, Luxembourg. 85 p. EUR : 19074, ISBN 92-828-7465-6

## List of Major Activities

### Workshops

Education and Training I	Strasbourg (FR)	September	1991
Comparability and Traceability	Geel (B)	November	1992
Good Automated Laboratory Practice	Barcelona (ESP)	March	1993
Proficiency Testing I	Noordwijkerhout (NL)	November	1993
Measurement Uncertainty I	Graz (AU)	September	1994
Proficiency Testing II	Noordwijkerhout (NL)	October	1995
Comparability and Traceability II	Noordwijkerhout (NL)	September	1996
Measurement Uncertainty II	Berlin (D)	September	1997
Education and Training II	Geesthacht (D)	September	1998
Measurement Uncertainty III	Helsinki (FIN)	June	1999
Reference Materials	Berlin (D)	May	2000
Proficiency Testing III	Boras (SE)	September	2000

### EURACHEM guides

- Accreditation for Chemical Laboratories (1993) by EURACHEM and WELAC (now EA)
- Accreditation Guide for Laboratories Performing Microbiological Testing (1996) by EURACHEM and EAL (now EA)
- The Fitness for Purpose of Analytical Methods: A Laboratory Guide to Method Validation and Related Topics (1998) by EURACHEM
- Harmonised Guidelines for the Use of Recovery Information in Analytical Measurements (1998) by IUPAC, ISO, AOAC Int., EURACHEM
- Quality Assurance for Research and Development and Non-routine Analysis (1998) by EURACHEM and CITAC
- Selection, Use and Interpretation of Proficiency Testing (PT) Schemes by Laboratories (2000) by EURACHEM
- Quantifying Uncertainty in Analytical Measurement, 2<sup>nd</sup> Edition (2000) by EURACHEM and CITAC

## Abbreviations

AOAC Int.	AOAC International
CCQM	Comité Consultatif pour la Quantité de Matière
CITAC	Cooperation for International Traceability in Analytical Chemistry
DG	Directorate-General
EA	European co-operation for Accreditation
EEE	The "triple E" organisations: EA, EURACHEM, EUROLAB
EU	European Union
EURACHEM	A focus for Analytical Chemistry in Europe
EUROMET	European Collaboration on Measurement Standards
IEC	International Electrotechnical Commission
ISO	International Standardization Organization
IUPAC	International Union of Pure and Applied Chemistry
MU	Measurement Uncertainty
PT	Proficiency Testing
QA	Quality Assurance
R&D	Research and Development
RM	Reference Material
WG	Working Group