



## Impact of Eurachem 25 years of activity<sup>1</sup>

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### Abstract

A review of the impact of Eurachem to the analytical community since its formation 25 years ago is presented and the review shows that Eurachem is on the right track to fulfil the aim of promotion of good quality in chemical measurements. After 25 years of existence Eurachem today is a pan-European organisation producing materials that are widely used by the analytical community within and outside Europe, and organising workshops that are very well attended. All material, guides, leaflets and workshop presentations, are related to important parts of the measurement cycle, improving the quality of analysis. The work of Eurachem is used in international standards and is well cited in the analytical literature. Eurachem material is today widely accepted by national accreditation bodies through close cooperation at international (ILAC), European (EA) and national levels between Eurachem and accreditation organisations.

### Introduction

The aim of Eurachem is to provide a focus for analytical chemistry and quality-related issues in Europe. The main objectives are establishing a system for the international traceability of chemical measurement results and the promotion of good quality practices.

Measurement quality is about fulfilling analytical requirements, which should be based on the intended use of the results. The quality objectives of any analysis can be illustrated by the measurement cycle (Figure 1). One could state that we have good quality when the client can take a correct decision on the basis of the analytical result,  $x \pm U$ .

The focus of Eurachem has mainly been on the measurement part, the analysis and evaluation work inside the laboratory. The main cornerstones for quality in the measurement part are:

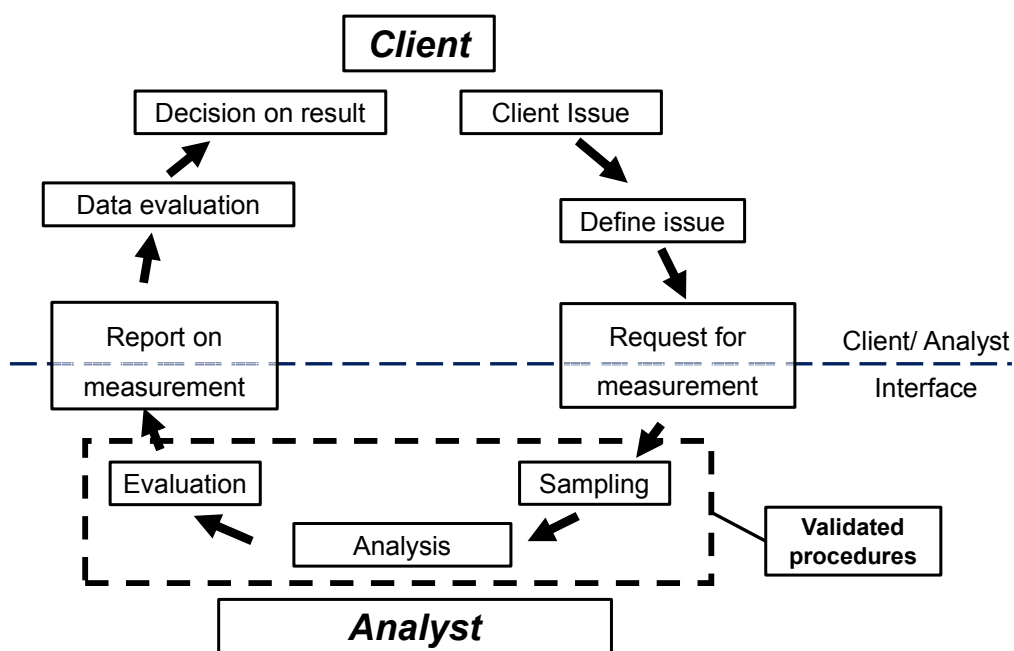
- Metrological traceability
- Method validation
- Measurement uncertainty
- Internal quality control
- Proficiency testing

These are, of course, the principal technical requirements in ISO/IEC 17025.

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<sup>2</sup> At the time of writing, B Magnusson is the Chair of Eurachem, and S Ellison and M. Patriarca are members of the Eurachem Executive Committee. S. Ellison was also Eurachem Vice-Chair for the period 2004-2006 and Chair 2006-2008.



**Figure 1.** The measurement cycle, starting with a client issue which leads to a request to undertake measurement, followed by sampling (if required), analysis and reporting, and ending with a (client) decision based upon the result. Reproduced with permission from SP Technical Research Institute of Sweden

In recent years the work of Eurachem has been extended to include aspects of sampling and evaluation of the result. For example, the Guide on *Measurement uncertainty arising from sampling* [1] includes aspects of sampling and the Guide on *Use of uncertainty information in compliance assessment* [2] covers evaluation of the result against limits, taking measurement uncertainty into account.

Eurachem has worked extensively on all these quality issues and in this paper we assess the impact that Eurachem has had so far on the analytical community in Europe, that is, analytical laboratories, accreditation bodies, regulatory bodies and other authorities and stakeholders. The history of Eurachem's first 25 years is given in a separate paper in this issue of Accreditation and Quality Assurance.

### Assessing the impact of Eurachem

Eurachem works to assist laboratories in improving the quality of analytical measurement. However, over the 25 years since Eurachem was formed many organisations have been working towards the same general objective: for example individual European accreditation bodies, the European co-operation for accreditation (EA), Eurolab, EURAMET (the European Association of National Metrology Institutes), IUPAC (International Union of Pure and Applied Chemistry), CCQM (Consultative Committee for Amount of Substance – Metrology in Chemistry) and of course the laboratories themselves, have all played a part over the last quarter century and it is not possible to provide a simple measure of improvement attributable to any one organisation. Eurachem accordingly monitors its impact in terms of coverage, output, participation in Eurachem events and, more recently, evidence of uptake of its guidance in the literature and in standards issued by other organisations. To

to assess the impact of Eurachem on the analytical community in Europe we therefore will look at the following:

- Eurachem members – Coverage of European countries
- Liaisons
- Impact on accreditation, assessed through accreditation body reference to Eurachem guidance
- Material produced by Eurachem – Guides and leaflets;
  - Number of guides and leaflets
  - Number of translations
  - Use of the Eurachem website, [www.eurachem.org](http://www.eurachem.org), including downloads of guides
- Conferences and workshops organised by Eurachem and its members
- Standardisation
  - ISO standards citing Eurachem guidance documents
- Scientific literature
  - A literature survey of references to Eurachem and citations of Eurachem guidance documents.

### **Eurachem members**

In 2013 nearly all countries in Europe were members of Eurachem. Of the 39 countries in Europe with a population over 0.1 million, 32 were members of Eurachem – see Figure 2.

The list and contacts of organizations serving as representatives in Eurachem is available from the Eurachem Website.

### **Liaisons – cooperation with other organisations**

Currently Eurachem has formal liaison arrangements with the following European organisations: EA, EUROLAB, the Technical Committee of Metrology in Chemistry (TC-MC) within EURAMET, the European Commission, via the Institute for Reference Materials and Measurements (IRMM, one of the seven institutes of the Joint Research Centre (JRC), a Directorate-General of the European Commission), and the Division of Analytical Chemistry (DAC) of the European Association for Chemical and Molecular Sciences (EuCheMS, a network of European scientific and technical societies). On the international level the liaisons are: CITAC (Cooperation on International Traceability in Analytical Chemistry), CCQM, IUPAC and the CODEX Alimentarius Commission (via its Committee on methods of Analysis and Sampling). Informal links, via members of the Eurachem Executive serving in other capacities on the respective committees, are additionally maintained with AOAC International and its Sections, and ISO/REMCO, the ISO Committee on reference materials.

### **Impact on accreditation**

Many laboratories use Eurachem guidance documents in order to prepare for accreditation. It is therefore vital that the information in all the relevant Eurachem material is accepted by EA, as well as the national accreditation bodies. Eurachem therefore has close co-operation with EA as a liaison and as member of the EA laboratory committee. For example, the first version of the guide on accreditation for microbiology laboratories [3] was developed and published as a joint EA and Eurachem guide, and the recently published second edition [4] of the same guide included input from EA. (Note: although the 2013 revision of this Guide was undertaken in conjunction with EA, the 2013 edition is published solely as a Eurachem guide following changes in policy on development and publication of technical guidance within EA). The permanent working group between EA, Eurolab and Eurachem on "Proficiency Testing in Accreditation", currently chaired by Eurachem, has produced several joint guidance documents, including EA 4-18 *Guidance on the level and frequency*









