

# EURACHEM – the first ten years

Alex Williams

Presented at the EURACHEM 10<sup>th</sup> Anniversary Meeting

Helsinki, June 1999

## Part 1

### Abstract

Part 1 of this history of EURACHEM deals with the development of the initial idea and the early consultations within Europe that led to definition of its aims and objectives, cumulating with its formal establishment in July 1989, followed by the signing of the MoU by sixteen countries by the end of 1990. Part 2 will describe the subsequent developments.

### Foreword

This history of the first ten years of EURACHEM must by its nature be a personal one, since I have been so closely involved in its creation and development that I would find it very difficult to write it in any other way. The development of EURACHEM has depended upon the efforts and ideas of many people. I hope that their invaluable contributions will be brought out as this history unfolds, but I apologise that if, due to oversight or lack of completeness in my research, I have omitted to include some important stages or contributions.

I have been fortunate to have access to two important sources of information, first the working files of myself and my colleagues at The Laboratory of the Government Chemist (LGC), during the formation stage of EURACHEM and the excellent records kept by the secretariat of all that has happened since EURACHEM was launched.

### The idea is born

Our files show that I started considering the need for a European organisation to provide a forum for discussing QA matters in analytical chemistry soon after I was appointed the Government Chemist in July 1987. The Department of Trade and Industry (DTI), to which LGC belonged, was preparing a White Paper\* setting out its policy for the provision of the basic framework for ensuring the international comparability of measurements carried out in the UK. In the past this policy had been mainly concerned with the provision of standards and measurement services for physical and engineering based industries. We felt at LGC that analytical measurements were of at least equivalent importance. We were therefore very pleased when our proposal was accepted for a section on analytical measurements to be included in the White Paper. For the first time, at least in the UK, this put the provision of a national measurement system for chemical analysis on the same footing as that for physical and engineering measurements. The section on chemical measurements also signalled our intention of developing this measurement infra

---

\* Measuring up to the Competition. HMSO Cm 728 July 1989. ISBN 0 10 10782 1

structure in collaboration with other countries in Europe, which was driven in part by the imminence of the European market opening measures.

Armed with this statement of government policy, we obtained the support of the management board of LGC and funding from DTI, for a programme of work called Valid Analytical Measurements (VAM), aimed at improving the quality of analytical measurements. This included developing European collaboration, by if necessary setting up a new organisation, tentatively called EUROCHEM, to provide a forum for discussions on how this collaboration could be established. At this stage it was referred to as EUROCHEM in analogy with EUROMET, which I had been instrumental in setting up a few years earlier to assist collaboration on the development of physical measurement standards. However the role envisaged for EUROCHEM was very different. There were established national laboratories in most European countries with the responsibility for the provision of physical measurement standards, which provided the traceability on which the comparability of physical and engineering measurements depended. There were no single chemical laboratories with similar responsibilities and it is far from clear whether the system of traceability that had been established for physical measurements could be transferred to chemical analysis. Thus EUROMET was a project based collaboration between national laboratories, whereas EUROCHEM was needed to provide a forum in which the problems of achieving comparability of analytical results could be tackled. It is interesting to recall that at the time that EUROMET was set up we considered whether or not to include chemical analysis, but there was little or no support for this, in fact there was quite strong opposition in some quarters. It is remarkable how far we have come since then!

### **The first steps**

At this stage it was not clear what form EUROCHEM would take, neither was it clear which organisations in Europe would be interested in becoming members. Of more fundamental importance it was even less clear how the problem of establishing comparability of measurements would be tackled. This was in direct contrast to EUROMET, where from the very start the members were known and the methodology of ensuring comparability was well established.

We decided that before talking to other organisations we should at least have an outline of how we believed that the comparability of results could be achieved and we came up with the following five basic requirements.

1. the use of validated methods, that have been
2. verified by measurements on reference materials and
3. checked by participation in inter-laboratory comparisons; utilised with
4. with a laboratory QA system
5. that was accredited by an approved accreditation agency.

We embodied these requirements in a document “EUROCHEM- a proposal for a Network of Analytical Laboratories in Europe” Appendix 1. We asked the Scientific Counsellors in our Embassies in Bonn and Paris to use this document to set up meetings with appropriate laboratories in Germany and France and also we sent it to contacts that we had in the EC, The Netherlands and Spain.

Together with a colleague Dr Don Packham, who was then a deputy director at LGC, I made numerous visits to laboratories and government agencies during the latter part of 1987 and the first half of 1988. Not surprisingly many of those to whom we spoke became active supporters of EUROCHEM and made significant contributions to its developments.

Almost all of those whom we consulted said that EUROCHEM was an excellent proposal and should be set up as quickly as possible. However a small number pointed out that in some areas the problems of comparability were already being addressed. This second point was very important and clearly indicated that EUROCHEM would need to work closely with and in support of existing organisations and would need to avoid duplicating their activities.

### **The first meeting**

The actual date when an organisation moves from being just an idea and actually comes into existence is difficult to define. However the first meeting, under the EUROCHEM banner was held at LGC on 11 October 1998 and a list of those attending is given in Appendix 2.

It is interesting to examine the conclusions of this meeting particularly the one referring to the need to develop a technical analytical measurement infrastructure, since even at this early stage the problems that would need to be addressed were becoming clear. The meeting concluded that

Analytical measurement is important to trade and regulation. The mutual acceptance of results will play an important role in the success of a barrier-free European market.

Analytical measurement has special problems that make it distinct from physical measurement. There is considerable evidence that there are currently large discrepancies in analytical measurements made within the Community. The meeting agreed that these discrepancies would impinge on the free- flow of trade.

Existing initiatives toward harmonising laboratory accreditation and GLP will encourage the mutual acceptance of analytical data. The extent of the further development of these schemes, in analytical chemistry, will be limited because of a lack of an international technical infrastructure. (As exists for physical and engineering metrology.)

BCR has an important role to play in developing this technical infrastructure by bringing together chemical laboratories throughout Europe in order to solve common technical problems. However, the potential benefits to be derived from BCR are themselves limited by the lack of the national technical infrastructures required in order to disseminate the technology developed as part of the programme.

If analytical measurement is to be improved and harmonised then it is important to encourage the routine use of certified reference materials and validated methodology as well as participation in proficiency testing. This would be best achieved by co-operation of laboratories throughout the Community. The meeting recognised the need for a formal forum/market-place, which would set priorities and co- ordinate national efforts.

It was agreed that there was a need to develop a technical analytical measurement infrastructure throughout the Community to provide a foundation on which recognition agreements and the BCR programme could build. The next step would be to hold a second meeting (at the EC Geel Research Centre) with a slightly wider audience. In advance of this meeting a paper on the "Way Forward" would be prepared by the UK.

## **The Way Forward**

Soon after the first meeting Dr Packham retired and Dr Bernard King, who took an immediate interest in EUROCHEM, replaced him. A small planning meeting, to prepare the agenda for Geel was held at NMI in Delft on 12 December 1988. This was an important meeting for setting the future direction of EUROCHEM, since there was a long discussion on traceability. There was a concern as to whether it would be wise to give prominence to traceability in any publicity relating to the role of EUROCHEM, since it was felt that this was not a topic with which analytical chemists would identify. The concept of traceability was well understood for physical measurements and although chemists were used to applying it to measurement of physical quantities, such as mass and temperature, it was rarely applied to chemical measurements. However it was decided at that meeting that traceability was of such fundamental importance that establishing traceability should be clearly stated as one of the prime objectives of EUROCHEM. It was put down as the first item for the Geel meeting, which was held on 19 April 1989 and has been a topic for almost every meeting since. The other important topic identified was that of method validation. It is interesting to note that accreditation was also considered but it was thought that it would be difficult to get agreement on that topic across Europe at that time. Draft terms of reference were prepared for discussion at the meeting in Geel and further potential members were identified and a list of those attending is given in Appendix 2.

## **Terms of Reference**

At the next meeting in Strasbourg on 18 July 1989, the following draft terms of reference were discussed and these set the framework for the future direction of EUROCHEM.

### **EUROCHEM TERMS OF REFERENCE**

1. To provide a forum for lead European laboratories and other key organisations to promote the adoption of common principles of valid analytical measurement and collaboration on the various tasks required to achieve mutual acceptability of test data
2. To act as a focus for improving quality in analytical measurement by promoting, where appropriate and where possible using existing structures:
  - (a) awareness of analytical quality problems
  - (b) analytical quality management based on EN4500 and Good Laboratory Practice standards
  - (c) establishment of validated methods of measurement
  - (d) performance testing schemes, including guidelines for the operation of schemes '
  - (e) the preparation and use of reference materials

It is interesting to note that for some reason traceability did not get a mention! But this was rectified at the next meeting in Frankfurt when (e) was changed to

(e) measurement traceability, underpinned by reference materials.

### **EURACHEM is Created**

The publicity about the formation of EUROCHEM, that followed the first meeting in October 89, led to a complaint from an organisation that we had usurped their name. Although they had no legal claim to the name quite a number of other possible names were considered. At the meeting in Delft there was a strong feeling that we should keep to our original name, but at the meeting in Strasbourg in July, it was agreed that EURACHEM should be adopted, with the A standing for analytical.

Not only was the name agreed but also that it was now time to declare that EURACHEM had officially come into existence. The minutes of that meeting state as the first conclusion the “Creation of EURACHEM” and EURACHEM officially came into existence on 18 July 1989, with Dr R Kaarls as its first chairman.

Following this agreement of the “official” existence on EURACHEM, there was a flurry of activity to prepare for the first meeting of EURACHEM under its new name to be held in Frankfurt on 9 November 1989.

It was decided that membership would be by invitation with representatives from the EC and EFTA countries and with representation from key organisations active in aspects of analytical QA. Also BCR would be invited to be a member.

LGC agreed to draft a document about EURACHEM, which could be distributed to relevant organisations throughout Europe. The document would explain the need, background, terms of reference, initial tasks and indicate those organisations with which EURACHEM would wish to liaise. The final text of this is reproduced in full in Appendix 3., since it sets out very clearly the purpose and objectives of EURACHEM. In particular it re-iterates the activities that EURACHEM will promote given in the terms of reference with the addition of

(e) measurement traceability, underpinned by reference materials.

and that

EURACHEM membership is open to experts from government, industry and academe-in EEC and EFTA countries”.

Prof.Müller, Director CBNM, Geel, agreed to organise Workshop on proficiency testing to be held at Geel in June 1990 and Prof. Leroy to organise a workshop on QA courses, to be held at Strasbourg in May 1990. Thus setting the scene for one of the major activities of EURACHEM; running workshops on topics aimed at improving the quality of analytical measurements.

The proposal to set up EUROLAB was also discussed at the Strasbourg meeting. It was recognised that EURACHEM would wish to liaise closely with this organisation, but we felt that analytical chemistry was sufficiently important to warrant keeping EURACHEM as a separate organisation outside of EUROLAB.

The membership of EURACHEM continued to grow as can be seen from the attendance list of the next meeting held in Delft on 5 April 1990 (Appendix 2.)

The main item discussed at this meeting was the draft MoU, which was being prepared for signing at the meeting to be held in Frankfurt in June. Two other points were raised, one, that EURACHEM should write a guidance document for the

implementation of EN 45001 in analytical laboratories and two, that a document on the evaluation of uncertainty should also be written. Both of these became important tasks for EURACHEM.

### **The Signing of the MoU**

Twelve countries (Austria, Belgium, Ireland, FRG, Finland, France, Italy, The Netherlands, Norway, Spain, Sweden, and the UK) and the CEC signed the MoU at the meeting on 26 June 1990 in Frankfurt. At the following meeting on 4 October 1990 in Paris, Denmark and Switzerland signed and Portugal and Luxembourg signed in December..

Also at the meeting in Paris Dr Bernard King took over as chairman because Dr Kaarls was unable to continue due to his being unexpectedly appointed chairman of WECC.

So by the end of 1990 EURACHEM was firmly established with a membership of sixteen countries, but the work to be undertaken had just begun and the issues to be tackled were of importance not just to Europe. The subsequent developments both in Europe and internationally will be described in part 2

# **EURACHEM – the first ten years**

**Alex Williams**

**Presented at the EURACHEM 10<sup>th</sup> Anniversary Meeting**

**Helsinki, June 1999**

## **Part 2**

### **Abstract**

Part 1 covered the early development of EURACHEM and its formal establishment in July 1989. This part covers the subsequent activities, describes the global developments that followed from initiatives taken by EURACHEM and also gives a description of the EURACHEM work programme including the workshops and seminars that have been organised and the EURACHEM guides that have been published.

### **Introduction**

Part 1 of this article covered the steps leading to the setting up of EURACHEM in July 1989, the definition of its aims and objectives and the identification of the important issues that needed to be addressed. Part 2 deals with the development of wider international collaboration and summarises what EURACHEM has achieved in its first ten years.

### **Global Developments**

The problems being tackled by EURACHEM were not just of importance to Europe, they required international programmes to provide solutions that would be acceptable worldwide.

Bernard King and I discussed how this international collaboration should be developed. I was keen to see chemical analysis integrated with the other work on measurement being carried out under the auspices of CIPM (Comité International des Poids et Mesures) and we also wanted collaboration established closer to the working level.

We took two initiatives which led eventually to establishing the CCQM (Comité Consultatif pour la Quantite de Materiere) under the auspices of CIPM and of CITAC (Co-operation in International Traceability in Analytical Chemistry)

I invited Dr Terry Quinn to visit me in April 1990 and I put to him my proposal for CIPM to set up a programme to support the establishment of traceability in chemical measurements. This not the place to write the history of CCQM, however Dr Quinn put a proposal to CIPM in September 1990<sup>1)</sup>, and at that stage they were only prepared to set up a working group to consider the proposal. The working group, of which I was fortunate enough to be a member, under the chairmanship of John Lyons

the then Director of NIST gave strong endorsement to the proposal. With this backing from the working group, Dr Quinn continued to support and develop the proposal and in September 1993, CIPM agreed to the establishment of the CCQM with the following terms of reference

- to advise the CIPM on matters relating to the traceability to the SI base units of quantitative chemical measurements;
- to co-ordinate the activities of the national metrology laboratories in establishing this traceability at the highest level;
- to keep under review the question of whether there is a need for a programme of work at the BIPM to support this activity.

This is now one of the most active Consultative Committees and has an ongoing programme of key intercomparisons of primary methods of analysis. It has also led to many National Measurement Institutes, starting programmes on chemical analysis, which in turn has led to collaboration on these programmes in Europe being organised by EUROMET, a welcome reversal of the original decision to restrict the activities of EUROMET to physical metrology.

In some respects Bernard King had a more difficult problem in setting up international collaboration at the day to day working level of analytical chemists, since there was no organisation that clearly had the responsibility for this. However EURACHEM had not been alone in identifying the importance of such issues as traceability and comparability of analytical measurements, many other countries had identified these problems. Following discussions with contacts in many countries, CITAC was formed at an international workshop held in association with the Pittsburgh Conference in Atlanta in March 1993. Forty two delegates from sixteen countries attended the workshop to discuss how analytical chemistry activities could be developed to meet the needs of the 21st century. It identified a wide variety of issues to be addressed to ensure that analytical measurement made in different countries or at different times are comparable. These range from the development of traceable reference materials and methods to the harmonisation of analytical quality procedures.

The CITAC initiative aims to foster the collaboration between existing organisations to improve international comparability of chemical measurement. Current Working Group membership extends to nineteen countries worldwide with recent input from Brazil and New Zealand. Activities have centred on a few specific high priority activities and include:

- the compiling of a directory of certified reference materials under development
- preparation of quality system guidelines on the production of reference materials
- preparation of a directory of international chemical metrology activities
- defining criteria for establishing traceability to the SI
- the preparation of an international guide on quality in analytical chemistry

Many of these activities are strategic in nature, laying the foundations for the improvement of international analytical measurement. This reflects the added geographical complexities associated with world-wide organisation, such as the greater diversity in culture and technical approach. If the full benefits of improved analytical measurement are to be realised internationally, a truly global approach is needed.

CITAC has developed a very close working relationship with EURACHEM and most of the recent publications have been prepared and published jointly.



A third initiative, taken by Helmut Günzler and assisted by Paul De Bievre, led to Springer starting a new journal, Accreditation and Quality Assurance (ACQUAL), which covers all the topics of interest to EURACHEM, with Paul De Bievre as editor in chief and Helmut Günzler as editor in chief, managing editor.

### **EURACHEM's work programme**

EURACHEM started publishing its Newsletter in January 1991 and these Newsletters record its aims, work programme and achievements in detail, therefore only overview will be given of the highlights of EURACHEM's activities since 1991.

The membership grew rapidly and there are currently 28 member states. These and their date of joining are given in Appendix . 4 One of the strengths of EURACHEM is that as a condition of membership each country must set up its own National EURACHEM organisation through which it can distribute information about EURACHEM's activities and collect views on the issues being discussed by EURACHEM. Most countries have very active national organisations and have translated the EURACHEM guides into their own language and have held national seminars and workshops on the issues being discussed in EURACHEM.

Most of the issues of interest to EURACHEM have been addressed by working groups, which have prepared discussion papers, guides, workshops and seminars.

The Education and Training WG was the first to be set up in June 1990, as a task force under Dr Tolg to assist Prof. Leroy with the preparation for the first EURACHEM workshop on QA and training held in Strasbourg in September 1991. Prof. Neidhart subsequently took over as chairman and the WG has undertaken the preparation of a Glossary of analytical terms. Definitions and description of terms are published in English in ACQUAL together with translation of the term into other European languages. The WG held its second Workshop, " Concept for Teaching Quality" at GKSS in September 1998.

The working groups on "Reference Materials and calibration" with Dr Alain Marschall as chairman and "Proficiency Testing" with Dr Willem Corfino as chairman were set up in October 1990. Prof Paul De Bièvre subsequently took over as chairman of the PT WG and this later became a joint activity EUROLAB and EA. This WG has organised workshops in The Netherlands in November 1993 and in October 1995.

At the suggestion of Paul De Bièvre the first EURACHEM Workshop on "Comparability and Traceability on Measurements of Amount of Substance" was held in Geel, Belgium in November 1992 and this identified a number of issues regarding traceability that even now have not been finally resolved. A second workshop on traceability was held jointly with CITAC in The Netherlands in September 1996 and led by Paul De Bièvre, continuing attempts were also made to derive criteria for traceability to the SI unit, the mole. Currently this work is intended to be taken forward by a joint WG with EUROMET.

Uncertainty of measurement was seen as an essential element of traceability and following the Workshop a WG on "Measurement Uncertainty" was set up with Alex Williams as Chairman. The WG held its first workshop in Graz, Austria in September 1994 and published the guide "Quantifying Uncertainty in Analytical Chemistry" in May 1995. This has proved to be a very popular guide and experience with its use was discussed at the second workshop at BAM, Berlin in September 1997. This

workshop put forward a number of recommendations for changes and additions to the second version of the guide and the draft of that version was discussed at the third workshop in Helsinki in June 1999.

Other WGs have been set up to carry out specific tasks. A joint WG with WELAC (now part of EA) set up in 1991 (chairman?) produced a guide, for the interpretation of quality assurance standards in the chemical laboratory. It contains specific technical guidance on good practice in the chemical laboratory and covers topics ranging from sampling to reference materials and measurement uncertainty. The document gives detailed guidance for the interpretation of EN45001 and ISO/IEC Guide 25 and may also be useful to those working towards certification to the ISO 9000 series of standards. Published in April 1993, over 800 copies have since been sold to organisations world-wide.

After successfully collaborating to produce guidance notes for chemical laboratories seeking accreditation to EN 45001, EURACHEM and EAL identified microbiology as being another area requiring similar attention., A joint WG under Dr Maire Walsh produced a guide “Accreditation for Microbiological Laboratories” This is a supplement to EN45001 and ISO/IEC Guide 25, and provides specific guidance for both assessors and laboratories. The guidance given may also be of use to those working towards certification by the ISO 9000 (EN 29000) series of standards and was published in April 1996.

EURACHEM and CITAC formed a joint working group, with Dr Kaarl Cammann as chairman, to develop a guide “QA in Non Routine Analysis”. This guide would assist laboratories in the establishment of best practice and QA systems for non-routine analysis and R&D. This WG examined the difficulty in applying quality assurance (QA) to research and development (R&D) and non-routine work. The benefits gained from a well-defined QA system are more difficult to realise when the tasks involved are less routine. The guide provides advice on good practice, which will facilitate the design and implementation of quality systems for non-routine situations, and provide a suitable level of assurance without being unduly burdensome nor stifling R&D creativity. It does this by considering QA requirements at three levels: organisational, technical and analytical task. The guide was presented at a workshop at EUROANALYSIS in Basel in September 1998.

EURACHEM also published in 1998 “The Fitness for Purpose of Analytical Methods (A laboratory Guide to Method Validation and Related Topics). The original draft of was written by LGC. It was subsequently developed through extensive consultation and provides useful advice on validation requirements, which differ from method to method; the compromise required between extensive replication (on statistical grounds) and time- and cost-efficient laboratory operation; how to determine between-laboratory performance measures when no other laboratory uses the method under examination.

### **What has been achieved?**

If we look back at the driving forces that led to the establishment of EURACHEM, then right at the beginning the need for a forum for discussing QA matters in analytical chemistry was identified. A forum in which the problems of achieving comparability of analytical results could be tackled and the development of an infrastructure for chemical measurements could be established.

The terms of reference define EURACHEM as a focus for improving quality in analytical measurement by promoting

- (a) awareness of analytical quality problems
- (b) analytical quality management based on EN4500 and Good Laboratory Practice standards
- (c) establishment of validated methods of measurement
- (d) performance testing schemes, including guidelines for the operation of schemes '
- (e) measurement traceability, underpinned by reference materials.

We have clearly established a forum for the discussion of these issues, both in EURACHEM itself and in the national EURACHEM organisations. But we have done much more than that, we have made considerable progress, through our guides and workshops, in solving the underlying problems involved. Through our initiatives we now have the provision of a fundamental base for analytical measurement as an established programme of the CIPM. The issues are now being discussed internationally through CITAC and much of the work published in the journal ACQUAL relates directly to issues identified by EURACHEM.

I think that we can be really proud of what has been achieved in the first ten years and I would like to record my thanks to all those who have contributed this and in particular to the officials (Table 1) who have devoted so much effort in support of EURACHEM.

### **What lies ahead?**

Although very good progress has been made, many technical problems remain to be solved, particularly problems associated with traceability and uncertainty. Thus there will be no shortage of technical issues for EURACHEM to tackle.

However after ten years the problems of maturity are beginning to emerge. Many of those currently active within EURACHEM have been involved since early in its development. There is need to find room for others to participate. Also much of EURACHEM's success has come from its informal organisational structure, which has allowed the WGs to organise workshops and seminars and to publish guides, virtually unconstrained by procedural regulations. As organisations mature there is always a tendency to formalise procedures, even to the extent where they restrict activity. EURACHEM is at that crossroads and must be aware of these dangers.

### **Reference**

- 1) BIPM Proc.- Verb. Com. Int. Poids et Mesures, 1990, **58**, 98-100

## Table 1

### EURACHEM Officials

#### Originators

Alex Williams	July 1987	
Dr Don Packham	July 1987	July 1988

#### Chairmen

Dr Robert Kaarls	July 1989	March 1991
Dr Bernard King	March 1991	November 1993
Prof Paul Bièvre	November 1993	November 1995
Dr Maire Walsh	November 1995	November 1997
Dr Viekko Komppa	November 1997	[In post at the date of this document]

#### Secretaries

Dr Bernard King	July 1989	September 1994
Dr John Mason	September 1994	November 1997
Dr Werner Hässelbarth	November 1997	[In post at the date of this document]

## Appendix 1.

### EUROCHEM - A PROPOSAL FOR A NETWORK OF ANALYTICAL LABORATORIES IN EUROPE

There can be no doubt that practically every aspect of our daily lives and almost all national and international trade are at some stage dependent on analytical science and chemical measurements. Unfortunately, there is much evidence to suggest that there is a wide divergence of results from analyses carried out by different laboratories nationally and internationally.

The concept of the single European market in 1992 implies that analytical results generated in one Member State will be acceptable to others. The mutual recognition of results will require collaboration between national laboratories responsible for monitoring analytical quality.

During the past decade, a number of countries have introduced schemes to accredit measurement and testing services. These accreditation schemes initially concentrated on the areas of physical and engineering measurement and testing but are currently expanding into the chemical area. As part of their policy on completion of the market by 1992 the EEC are encouraging the harmonisation of testing requirements and procedures. The technical aspects of the harmonisation are being tackled, at least in part, by the BCR programme run by DGXII.

Unfortunately the chemical sector is far behind the physical and engineering sectors in being able to demonstrate the compatibility of the results of measurements carried out by different laboratories. One reason for this is that there is no structure for ensuring the compatibility of chemical measurements similar to the one that has been developed in the physical area. There is no international organisation similar to the Bureau International des Poids et Mesures neither is there any equivalent to the recently established EUROMET nor do most countries have the equivalent of a national standards laboratory for chemical measurements.

Assurance of analytical quality requires

- a) standardised methods
- b) certified reference materials
- c) inter-laboratory comparisons
- d) laboratory accreditation

As part of its initiative on quality assurance in chemical analysis, the Laboratory of the Government Chemist is seeking to ensure that analytical data generated in UK laboratories will be accepted throughout Europe. In addition to activities co-ordinated by the BCR, LGC aims to establish a network of direct links with national centres of excellence in chemical analysis in the member states, to be called EUROCHEM by analogy with the EUROMET collaboration on physical metrology.

For historical and other reasons analytical measurements are the responsibility of a number of organisations within each country. There is therefore a need to build up some appropriate structure within Europe. While in general no single laboratory will cover the whole range of analytical measurements, most of the work falls into the five sections of:

- environment
- public health
- food and agriculture

customs and excise, and  
forensic science.

To provide an appropriate structure it will be necessary to identify within each country a lead laboratory for each of the above sectors that would be prepared to take on a similar role to the one the national standards laboratory has for the physical measurements. They would then be responsible in association with the national accreditation organisation where it exists (e.g. RNE in France, NAMAS in the UK) for assisting in establishing the validity of measurements made by other analytical laboratories within the sectors in their country.

The LGC recognises that in Europe various departments of state will have specific interests. It could be that the total concept of EUROCHEM should be treated on a matrix basis defining areas and countries as follows:

AREA	UK	FRANCE	GERMANY	ITALY	etc
CUSTOMS	LGC				
CONSUMER PROTECTION	DTI				
FOOD	MAFF?				
HEALTH	DHSS?				
ENVIRONMENT	DofE?				
LEAD ORGANISATION	LGC				

It will be necessary to identify a lead laboratory in each country that will have the responsibility to ensure the validity of their own measurements by inter-comparisons with lead laboratories in other countries.

To arrange these inter-comparisons and to provide a forum to discuss the results, it is suggested that the lead laboratories form a club or network for which EUROCHEM might be an appropriate name. The European Commission would also be invited to be a member of the club and the inter-comparisons could be carried out as part of the BCR programme.

## Appendix 2.

Delegates attending the first meeting of EUROCHEM, held at LGC 11  
October 1988:

Mr A. Williams (Chairman)  
Director  
Laboratory of the Government Chemist UK

Mr Bergstrom-Nielson  
Chief Advisor National Food Agency  
Denmark

Mr B. Broderick  
NAMAS  
National Physical Laboratory UK

Dr Ramon Fedez Cienfuegos  
Red Espanola de Laboratorios de Ensayo  
Spain

Dr H Günzler  
BASF  
Federal Republic of Germany

Dr R. Kaarls  
Netherland Metrology Service Netherlands

Dr W. Mueller  
Director  
JRC Geel  
Commission of the European communities

Dr D. Packham  
Government Analyst  
Laboratory of the Government Chemist UK

Dr K Poulter  
National Physical Laboratory  
NMS-PU  
UK

Mr M. Van den Heuvel  
GLP Compliance  
Unit Department of Health  
UK

Dr Vollmer  
Bundesministerium für Umwelt Naturschutz und Reaktorsicherheit  
Federal Republic of Germany

Mr P Wagstaffe  
DG for Science, Research and Development BCR  
Commission of the European Communities

Apologies for absence were received from

Dr Bryden  
LNE  
France

#### Delegates attending EUROCHEM meeting Geel 19 April 89

Alex Williams	LGC, UK
Alan Barber	Commission of the EC - DG 111
Richard Lesser	Commission of the EC - CBNM
Bern Griepink	Commission of the EC - BCR-DG XII
Bernard King	UK - LGC
Helmut Günzler	GDCH, Fachgr. Analyt.Chem./BASF(BRD)
Anton Alink	NMI- van Swinden Laboratorium
Fjedor Esser	BAM-Berlin
Maurice Leroy	University Strasbourg, France
Werner Müller	Commission of the EC - CBNM
Alain Lamotte	CNRS, France
Paul De Bievre	Commission of the EC -CBNM
Alain Marschal	LNE, Paris, France
Adela Rodriguez	Commission of the EC - CBNM
Herbert Hansen	Commission of the EC - CBNM

#### Delegates attending EUROCHEM meeting, Strasbourg 18 July 89

Mr A. Williams	LGC
Dr R. Kaarls	NMI, VSL, Netherlands
Dr H Günzler	GDCH, Analytical Div, FRG
Dr F Esser	BAM, FRG
Dr B King	LGC, UK
Dr G Tölg	FRG ISAS
Dr W Müller	CEC CBNM
Dr B Griepink	BCR, CEC
Prof M Leroy	University Strasbourg, France



Dr J Monfret. MRT, France

**Delegates attending EUROCHEM meeting, Frankfurt 9 November 1989**

R. Kaarls NMI, VSL, Netherlands  
H. Günzler GDCH, Analytical Div, FRG  
H. Hey GDCH, Food Chemistry Div  
K. Begitt FRG GDCH, FRG  
A. Marschal LNE, France  
Mme J. Monfret MRT, France  
B. King LGC, UK  
A. Williams LGC, UK  
J. Forsten Technical Research Centre of Finland, Finland  
D. Carroll Irish Science and Technology Agency, Ireland  
B. Griepink BCR, CEC  
F. Esser BAM, FRG  
A. Alink NMI, Netherlands  
B. Schmidt Sonnenschein - verband der Chem. Industry, FRG (for Prof. Nader)  
G. Tolg FRG ISAS,  
W. Müller CBNM  
P. De Bievre CEC CBNM  
G. Vincent CEC MAE  
B Merken Belgium  
J Schlothman VDEL

**Delegates attending EURACHEM meeting 5 April 1990 Delft**

Mr. A. Alink VSL - the Netherlands  
Prof. Dr. P. De Bievre CBNM - Belgium  
Prof. Enquist Techn. Research Centre Finland  
Dr. E. Ent VSL - the Netherlands  
Dr F. Esser BAM - Berlin  
Prof. Dr. H. Gunzler GDCH/Fachgruppe Analytiache Chemie W. Germany  
Dr. R. Kaarls VSL - the Netherlands  
Dr. B. King Laboratory of the Government Chemist - UK  
Dr. M. Mansson Swedish National Testing Institute  
Dr. A. Marschal LNE - France  
Dr. V. Merken Ministry of Economic Affairs Belgium

Dr. P Radvila	Empa St Gallen - Switzerland
Dr. F.J. Spruit	Sterlab - the Netherlands
Dr P. Wagstaffe	BCR - Belgium
Dr. A. Williams	Laboratory of the Government Chemist UK

### Delegates attending EURACHEM meeting in Strasbourg: 26 June 1990

Prof. M. Grasserbauer	Austrian Chemical Society	Austria
Dr V. Merken	Ministerie Economische Zaken Centraal Laboratorium	Belgium
Prof. P. De Bievre	Central Bureau for Nuclear Measurements	CEC
Dr M. Walsh	State Laboratory	Ireland
Prof. H. Gunzler	Society for German Chemists	FRG
Dr F. Esser	BAM	FRG
Prof. G. Tolg	ISAS	FRG
Dr K. Begilt	Ges. Deutscher Chemiker	FRG
Prof. V. Kompa	Technical Research Centre of Finland	Finland
Dr A. Marschal	LNE	France
Dr M. G. Del Monte Tamba	CSM/CNMR	Italy
Dr R. Kaarls (Chairman)	<i>NMI</i>	Netherlands
Dr H. Ent	<i>NMI</i>	Netherlands
Dr K. Birkeland	National Measurement Service	Norway
Dr H. P. Klemmetsen	National Measurement Service	Norway
Prof. M. Valcarel	University of Cordoba	Spain
Dr M. Mansson	Swedish National Testing Sweden and Research Institute	Sweden
Mr A. Williams	LGC	UK
Dr B. King (Secretary)	LGC	UK
Mr D. Rutland	LGC	UK

### **Appendix 3.**

#### **EURACHEM – A Focus for Analytical Chemistry in Europe**

Analytical chemistry is one of the foundations of modern society. It underpins the work of government, commerce and Industry and is vital for the enforcement of Law, the maintenance of public health, the protection of the environment and the manufacture of quality products. It has been estimated that about 5% of the gross national product of developed countries is devoted to chemical measurements.

For measurements to be effective they must be reliable and widely accepted. The demands being placed on Laboratories are increasing both in terms of the technical difficulty and concern for factors such as cost and quality.

The absence of primary chemical reference materials often leads to calibration difficulties and large measurement uncertainties. The resultant inaccuracy to financial and time penalties together with inadequate support for important regulation policy and investment decisions.

There is an urgent need to improve matters by establishing international traceability based on good quality assurance practices. Only by working together can analytical Laboratories produce results in which the customer, supplier and third parties can have confidence. The economic benefits of reducing the need for repeat testing are enormous.

EURACHEM has been created to help develop this confidence. It will provide a network for collaboration between European laboratories and other key organisations. In the first instance an ad-hoc group are co-operating to form the basis of this network.

EURACHEM will provide a forum for the discussion of common problems and the formulation of considered views on policy, organisational and technical issues. It will provide a framework within which European Laboratories can decide priorities and compare results.

EURACHEM will work with existing national and international organisations and will build on the strong sectoral and informal links, which exist between analytical chemists. Avoiding overlap with existing initiatives and areas of responsibility will be a priority.

EURACHEM will promote

- (a) Awareness of analytical quality problems
- (b) Analytical quality management based on EN45000 and Good Laboratory Practice standards
- (c) Establishment of validated methods of measurement based on internationally agreed guidelines
- (d) Measurement traceability underpinned by reference materials
- (e) Performance testing including the establishment of internationally agreed guidelines for operating schemes

EURACHEM membership is open to experts from government, industry and academe-in EEC and ETA countries. Liaison will be maintained with other organisations with an interest in chemical measurement. Business meetings will be supplemented by technical seminars and workshops. Communication with the wider analytical community will be aided by the publication of news in the chemical Literature.

Dr Robert Kaarls, Director of the Van Swinden Laboratory, Netherlands Measurement Institute, has been elected the first chairperson. Secretariat support is being provided by the United Kingdom Laboratory of the Government Chemist.

## Appendix .4

### EURACHEM Member States [at the time of writing]

<b>Nation</b>	<b>status</b>	<b>Date signed MoU</b>
1. 1. Austria	Member	June 26, 1990
2. Belgium	Member	June 26, 1990
3. Finland	Member	June 26, 1990
4. France	Member	June 26, 1990
5. Germany	Member	June 26, 1990
6. Ireland	Member	June 26, 1990
7. Italy	Member	June 26, 1990
8. The Netherlands	Member	June 26, 1990
9. Norway	Member	June 26, 1990
10. Spain	Member	June 26, 1990
11. Sweden	Member	June 26, 1990
12. United Kingdom	Member	June 26, 1990
13. Denmark	Member	October 4, 1990
14. Switzerland	Member	October 4, 1990
15. Luxembourg	Member	March 21, 1991
16. Portugal	Member	March 21, 1991
17. Greece	Member	November 1991
18. Iceland	Member	(?) 1992**
19. Czech Republic	Associate	May 25, 1994
20. Hungary	Associate	May 25, 1994
21. Poland	Associate	May 25, 1994
22. Russia	Associate	May 25, 1994
23. Slovakia	Associate	May 25, 1994
24. Slovenia	Associate	May 25, 1994
25. Cyprus	Associate	May 23, 1997
26. Lithuania	Associate	May 23, 1997
27. Malta	Associate	May 23, 1997
28. Turkey	Associate	May 23, 1997

\*\* Member since approximately that date. No record of a signature can be found

The associate members became full members in ## when the MoU was altered to admit European States who were not members of the EU or EFTA.

AOAC International  
Federation of European Chemical Societies  
NIST  
EU  
EUROM II  
also have representatives on the committee.