EUROMET Subject Field "Amount of Substance (AoS)"
2000 Annual Report

1. Report on agreed and recently completed projects

Project 332: Determination of trace elements in water.
Project was completed in 1999. Five laboratories measured the content of lead and cadmium in natural water sample. Isotope dilution mass spectrometry was used. The reference values were established by IRMM. Relative to the reference value the results are in good agreement, i.e. all results are within
± 3%. Identical samples were measured within CCQM, EA, etc. Results for this can be found in EUR 18724 EN Report.

Project 381: Comparison of electrolytic conductivity measurements
Regarding the wide interest and to avoid the duplication of the efforts project was transferred to CCQM Electrochemistry WG. A study, CCQM-P22 will be prepared on this topic.

Project 414: Comparison of ozone standards reference photometers
Due to the large number (18 participants from 16 countries) of participants the project is co-ordinated by two pilot laboratories (NPL, PTB).
The first action, the comparison of the primary ozone measurement standards, SRP 20 at NPL and SRP 19 at PTB, has been completed. This was done by using the PTB travelling standard to transfer the SRP 19 indication to NPL. The result is that the indications of both SRPs are linearly connected by a factor close to one. This result forms the basis for the comparisons with the participating institutes' ozone standard reference measuring instruments.
The protocol with the details for carrying out these comparison measurements has been prepared and sent out to the participants. It is expected that the comparison measurements will be completed until end of June 2000.

Project 422: Comparison of primary flow standards for calibration of mass flow controllers and similar systems.
This project has been carried out as a series of bi-lateral comparisons between LNE and four EUROMET laboratories (OFMET, PTB, IMGC and CMI) and two outside Europe (NRLM and NIST). Some results have already been published at various conferences.
Project will be brought to an end this year, but pilot laboratory is ready to continue the comparisons on bi-lateral basis.

Project 430: Harmonization of air quality measurements in EUROPE (HAMAQ).
The main objective of the project is evaluating the measuring capabilities in EUROPE. It concerned gases (CO, SO2, NO, NO2 and C6H6) required by the EU's air quality directive. The gas concentrations were selected according with limit value used at these directives.
This EU-funded project started with a study phase prior to the key comparison phase. After evaluation of the study the intercomparison exercise was repeated. The level of consistency was improved by a factor of two over that obtained in the first run. The project is now complete, and the final report was submitted.

Project 485: Standards and calibration facilities for automotive gases.
The project started as a consultation on facilities, to offer a number of laboratories the opportunity to test their current performance parallel to the CCQM-key comparison. Before the realization of the measurements the partners converted the project to a comparison performed according to the guidance document and linked to the CCQM key comparison.

The gas mixtures had been disseminated and a Draft A report would be prepared during the summer of 2000.

Project 500: Absorption spectroscopy as a potential primary method
The objective is to improve measurement capabilities for reactive gases. The project concerns measurements of HF at a nominal concentration of 500 ppm. It will involve both FTIR and diode-laser spectroscopy.
Further partners are welcome.

Project 528: Metals in water
This project is a subset of IMEP-12 concerning 10 elements relevant to the EC Drinking Water Directive. Reference values will be established mainly using IDMS. Metrology laboratories and field laboratories measure the same sample. In this way the international comparability and measurement capabilities will be demonstrated.
Project will be completed by the end of the year.

Project 546: Trace elements in polyethylene
The comparison is based on IMEP-13, content of Pb, Cd, Cr, Hg, S, Cl, As, Br in polyethylene are measured at levels relevant to the EUR packaging directive.
The comparison is now closed, final report is expected soon.

Project 548: Trace elements in sediments
The comparison is based on IMEP-14. (CCQM have already agreed that Pb and Cd in these IMEP-14 samples would be a pilot study.) Results are expected to be presented in April 2000.

Project 580: Key-comparison of ethanol/air standards
This key comparison will link with the CCQM-K7 comparison. Three laboratories participate in both comparison. Project will lead to equivalence of gas standards used for the calibration of evidential breath analyzers.

2. New project proposals

Project 527: Revision of terms for the revision of VIM
Euromet members are asked to consider the terms from chemical point of view and to contribute with appropriate term proposals.

All of the following new project proposals are subsets of different IMEP rounds:

Project 563: Trace and minor constituents in human serum (IMEP-17)

Project 565: Cadmium content in rice (IMEP-19)

Project 566: Determination of sulphur in fuel (IMEP-18)

Project 568: Pb content and Pb isotopic composition in wine (IMEP-16)

3. Meetings

The last contact persons (23 participants) meeting took place on 14 and 15 February in Budapest.

Main issues of discussion:

a. Dr Kaarls, Chair of CCQM, supplied information on MRA, key comparisons and their influence to field laboratories. It was very much appreciated that Chair of the consultative committee was present to inform contact persons about latest developments
   Connecting with MRA Appendix C severe difficulties arose with the use of the general template to chemical entries.
   The possible templates were widely discussed and argued. The final decision on the agreed format is waited from JCRB and CCQM

b. Rapporteur informed the meeting on EUROMET/EURACHEM cooperation and on the ToR what was drafted by a joint Working Party. Both AoS group and EURACHEM representatives welcome the joint activity of the two organizations, but many questions seem to be unsolved. It was emphasized that EUROMET must continue to operate as the RMO answering to the JCRB. Dr Kaarls said that it was clear that responsibility must remain with EUROMET and the NMI's - who are the signatories to the Meter Convention. He is concerned that the RMO's should organize themselves rapidly into a similar structure in order to reduce the pressure on CCQM to carry out all of the work in the area. He urged AoS to establish working groups that could meet more than once per year.

Concerning about the large number of participants of the future meetings there was consensus that working groups should be formed.

The views expressed by AoS are summarized to the EUROMET Committee in the following terms:

- EUROMET AoS agrees to establish working groups corresponding to those of CCQM as a matter of urgency,
- EUROMET AoS is able and willing to establish such working groups within the current framework of EUROMET AoS, and will do this in close consultation with EURACHEM.
- EUROMET AoS agrees the need to involve a larger number of laboratories in order to provide representative cover in all areas of the field amount of substance.
- EUROMET AoS endorses the spirit of the TOR in terms of a closer corporation with EURACHEM in the above, but foresees difficulties with the group becoming too large.

Forming of Working Groups is in progress
Next meeting on gas cmc tables: September 2000
Next plenary meeting: 15 - 16 February 2001 at SMÚ, Bratislava, Slovakia