

## Education: the way to CRM awareness in the laboratory

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Recently I've talked to a number of European RM producers whilst investigating aspects of the production and distribution of RMs for the UK Department of Trade and Industry's VAM Programme. Details of the project were reported earlier this year in *SE* 16/4 and the results of the survey will be published in *SE* early in 2005.

Although not part of the main aims of the project I took the opportunity to ask how the producers communicated with both end users and other producers. I asked if they thought an improvement was needed in the level of awareness about the proper use of reference materials in analytical laboratories. I asked the basic questions I'd asked RM users two years ago:

- Do you offer specialist user assistance with your materials?
- Do publish additional information about your products and their use?
- Do you think that instrument suppliers should work with RM and PT users?
- Do you know of any instrument supplier that provides advice on the use of RMs and PT?
- Do you provide training sessions in the use of your materials?
- Where do you find out about new materials on the market?
- Do you read any of the main laboratory journals and magazines?
- Do you publish technical articles or issue press releases to any of the main laboratory journals?
- What is your opinion about RM and PT information available in print?
- Would it help if abstracts were in a standardised format to make electronic searches easier?

A first look at the replies from the RM producers fits quite well with the

comments and replies from RM users: communication between producers and users is not really working properly. Although I was not surprised by this result, I began to think about why this is so and what could be done to improve communication. I went back to a couple of my contacts with my ideas and we discussed the subject again. Our conclusions, although not based on data from a representative sample from either the RM producer or user communities, all point towards one issue: a lack of education.

Consider how the analytical chemist is educated: most courses first focus on the fundamentals of organic, inorganic and physical chemistry. For those students who show an interest in analytical chemistry the basics are then applied to analytical techniques and the student gains a thorough understanding of how techniques such as titration, pH measurement, elemental analysis and the many spectroscopic techniques work, from a chemical perspective. But rarely are these techniques examined from a perspective of quality control and quality management.

For most commercial laboratories, maintaining their accreditation through rigorous application of their quality systems is a high priority, yet these aspects of analytical chemistry are not taught in the same way as the analytical techniques to which the quality systems are applied. None of the scientists I talked to, either in the routine laboratories or in the RM producer organisations, were aware of any undergraduate course that teaches analytical chemistry from a quality management perspective. The job is left to the laboratory as part of their in-house training programme—where

there is one. In most areas of analytical chemistry there is no common quality management syllabus which means that the way quality management is taught is variable and the role RMs and proficiency testing plays in quality management is not taught in any consistent manner.

How can this lack of education be changed? The answer is simple: money has to be spent on both training and the coordination of training. Within the reference materials and quality management sector of analytical chemistry there seem to be a number of particular difficulties that together make sure that nothing changes.

In most countries there are four stakeholders who could be the catalysts for such change:

- The national accreditation authorities—in the UK the United Kingdom Accreditation Service.
- The national chemical societies—in the UK the Royal Society of Chemistry.
- The national metrology bodies—in the UK the National Physical Laboratory and LGC Ltd.
- The RM and PT producer community.

In discussion it became clear that the many difficulties all stem from one single issue: a lack of Leadership. There is no organisation that has enough interest in RMs and quality management to take the lead to develop a training syllabus acceptable to the analytical community, the training syllabus would need have a clear structure and ideally result in a recognised practical qualification.

The need for better education in the proper use of RMs and QM is clear: will anyone ever take the lead and bring the stakeholders together, or will we just continue in the same chaotic way?