

Reference materials: the new growth market for whom?

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Popular wisdom, at least in the laboratory supplies industry, is that the supply of reference materials and certified reference materials (RMs and CRMs) is a growth area and that proficiency testing might be worth looking at as a future opportunity.

Can this be true? Will we soon see a big increase in the range of RMs, CRMs and Proficiency Testing (PT) programmes offered by an increasing number of suppliers? Perhaps.

There is no doubt that those laboratories that are accredited to ISO 17025, rather than the well-established ISO 9000 series, are using more RMs and CRMs more often and are signing up for PT. It is also clear that for the majority of major analytical laboratories in Europe the step to ISO 17025 accreditation will be taken sooner rather than later.

Furthermore there are plenty of companies producing all sorts of standards and RMs. At the recent Pittcon 2002 "exposition" in New Orleans there were more than 80 exhibitors that included RMs in their catalogue listing. The terminology used by manufacturers can be confusing and certainly does not conform to the ISO Remco Guidelines. The list of descriptions shown in the box was extracted from the Pittcon 2002 exhibitor listings:

Analytical reference materials, Calibration standards, Chromatography standards, Elemental standards, Insecticide / pesticide standards, Metal analysis, Molecular weight standards, Particle size standards, Petroleum standards, QC Standards, Soil analysis standards, Spectroscopy standards, Turbidity, Viscosity and Water analysis

A full report of the RM exhibitors at Pittcon 2002 and the products that they featured will appear in *RM report 1(2)* (2002) to be published in mid-May. A synopsis of the Pittcon RM show report will also be available to all visitors on the *RM report* web site from the end of April: www.rmreport.com.

Examination of the products offered by the companies at Pittcon shows that there are many companies offering RMs and CRMs, but many are offering the same product range. Discussion with suppliers suggests that there is much cooperation between producers, with

one producer producing either raw materials or finished products for others. From what was on offer at Pittcon 2002, with one or two exceptions, there is little originality and little evidence of serious R&D commitment to RM development. In addition a review of the RM producers not exhibiting suggests that Pittcon is not the most cost-efficient forum to promote RMs, CRMs and PT. So what is going on?

The reality is that little has changed since the last Pittcon, or Pittcon five years ago. Certainly more and more companies are offering a comprehensive range of elemental RMs and CRMs. Some new suppliers are multinational instrument suppliers who have taken this step to support their product range. This activity is paralleled by the wide range of organic analyte RMs and CRMs that are on offer from the same suppliers.

Manufacturing single- and multi-analyte RMs and CRMs is not easy: likewise establishing credible traceability requires competent science and some investment. But, and it is an important but, it is possible to produce single- and multi-component RMs and CRMs on a scale that makes complete commercial sense. Managing a PT scheme is a step further than producing RMs and CRMs as it requires a com-

petent statistician and faultless administration. But it does make good commercial sense.

It is interesting to note that in this growth area a number of commercial producers have obtained Accreditation to ISO 17025 as calibration laboratories able to produce CRMs for use as primary calibration standards. This has moved them a step ahead of the majority of institutional producers of CRMs who have yet to achieve accreditation at this level.

The production of matrix RMs and CRMs, in particular naturally accrued

"real world" CRMs, is a challenge that few companies seem to want to take on. Since the first NBS, now NIST, SRMs were issued at the turn of the century, the production of matrix reference materials has been firmly in the hands of the institutional producers. This is because the certification of an analyte in a matrix requires that the matrix be converted to a form compatible with analysis of the analytes of interest followed by replicate analysis of the samples by as many and varied independent methods as are possible. This process cannot be done by careful gravimetric measurement, followed by mixing and then analytical validation.

The first commercial company to take on this challenge was established, with the support of NBS in 1912 near Middlesbrough, UK. At that time, Middlesbrough was in the heart of the UK ferrous metal producing region. Since then the Bureau of Analysed Samples Limited has established a firm position in the production, certification and supply of ferrous metal CRMs. In partnership with a number of European National Agencies they have ensured that the "EURONORM" brand of CRMs are considered to be the CRMs of choice in the analysis of metals, worldwide.

Not much more was done by commercial producers to challenge the supremacy of the institutional producers over the next 76 years. In the latter half of the century a number of specialist companies appeared on the scene to compete with BAS. But not until 1988, when Resource Technology Corporation in Laramie, USA was established and took on the commercial production of natural matrix CRMs for environmental analysis was there any commercial involvement in the production of matrix CRMs. Since then RTC has become the largest commercial producer of natural matrix real world CRMs.

Where are the others? The answer to this, and the other conundrums of matrix CRM production, will be considered in part 2 of this article, to be published in the next edition of *Spectroscopy Europe*.