

Norma L. Bottone¹

Introduction to Symposium on the Use of Reference Materials in the Metals Analysis Laboratory

The six papers that follow were presented at the Symposium on the Use of Reference Materials in the Metals Analysis Laboratory, held in Savannah, Georgia, on 23 September 1987. The symposium was sponsored by ASTM Committee E-2 on Analytical Atomic Spectroscopy and Committee E-3 on Chemical Analysis of Metals.

The objective of this symposium was to provide a forum for the exchange of information concerning the development of reference materials and how they are employed in the laboratory for the analysis of metals. Historically, these two committees have worked closely with the National Institute of Standards and Technology (NIST, formerly the National Bureau of Standards) to produce the various standard reference materials (SRMs) required in the metals industry.

With more emphasis being placed on all aspects of quality control, the use of well-documented reference materials in the analytical laboratory is of increasing concern. The scientists who presented papers at this symposium comprised an excellent cross section of the various organizations worldwide, both in government and industry, that are involved in the production and/or use of reference materials.

In the keynote paper, *Rasberry* discusses the highly successful cooperative program for developing metal standard reference materials that has existed between ASTM and NIST since 1975.

¹Manager, Testing Services, Parma Technical Center, UCAR Carbon Company, Parma, OH 44130. Second Vice-Chairman of ASTM Committee E-2 and Symposium Co-Chairman.

He summarizes the different types of SRMs available from NIST and reviews the status of various SRM programs. He concludes by presenting the problem of the vanishing classical chemist whose skills are needed to produce the reference materials required for instrumental analysis. *Kennedy* discusses certification of reference materials and how the associated uncertainties in the composition of the material or the measurement of it relate to inhomogeneity. Next, *Hurwitz* describes a computer-aided procedure for homogeneity testing of proposed metal and metal alloy reference materials.

Meeres and Ridsdale describe the procedure for certifying a reference material, the procedures for evaluating the technical and statistical results that are obtained, and how to assess a reference material by studying the accompanying certification document. *Nagourney and Madan* report on the use of a variety of reference materials, both commercial and "in-house," for the analysis of metals in plastic additives. Finally, *Santoliquido* discusses the preparation and certification of uranium oxide reference materials for use in optical emission spectroscopic analysis.

The symposium where these papers were presented was held during a joint meeting of ASTM Committees E-2 and E-3. The papers are indicative of the active role these two committees have traditionally played in promoting the use of reliable reference materials in the numerous industrial and government applications in which analytical chemistry and atomic spectroscopy are employed.