NOTICES

Expanded Ceramic Phase Diagram Services

The American Ceramic Society (ACerS) and the Commerce Department’s National Bureau of Standards (NBS) agreed on December 21, 1982 to expand a cooperative effort to provide improved evaluated phase diagrams for use by ceramic scientists and engineers. To be funded primarily by industry, the program is one of several cooperative undertakings at the bureau.

ACerS President Robert J. Beals and Executive Director Arthur L. Friedberg met with NBS Director Ernest Ambler and signed a three-year agreement that institutes the joint program, which will serve the $50 billion-a-year ceramic industry.

Ceramic materials are found in almost every industrial product line and in the home and office. Product applications include refractories for the metallurgical and petrochemical industries, structural ceramics for advanced heat engines, abrasive parts for machine tools, glass for electronic and optical devices, and special magnetic components and ceramic-coated substrates for printed circuits in computers.

Ceramic phase diagrams eliminate the need for individual producers to conduct research on the combination of two or more ceramic materials in various relationships and conditions. Often described as “recipes” or “road maps,” phase diagrams provide basic information for determining the requisite chemical, physical, mechanical, optical, and other unique properties of ceramics.

The information from phase diagrams assists designers in understanding what material transformations take place during manufacture and under actual use conditions. For example, a refractory engineer may need to know the design limits for a particular furnace lining during firing in the temperature region of application, and what additional transformations may take place during quenching or slow cooling. The desirable properties of one phase may not exist in others.

The joint effort is viewed by Dr. Thomas D. Coyle, chief of the NBS Inorganic Materials Division, “as a program that brings together the most knowledgeable people in the country from industry and other sectors to evaluate the critical data points that will result in more usable and improved phase diagrams.”

Under the agreement, NBS will be responsible for overall guidance on the technical aspects and reliability of the data evaluations. The bureau also will provide coordination with other phase diagram compilation centers, compile evaluated phase equilibria data, and maintain a bibliographic data bank.

The agreement calls for ACerS to develop program and funding support from industry, government, and foundation sources, and to publish and market the “Phase Diagrams for Ceramists” and associated publications. The evaluated data will be published and disseminated through the National Standard Reference Data System and ACerS channels.

ACerS also has agreed to sponsor several research associates at NBS to help compile evaluated ceramic equilibria data and other associated data in both hard copy and computer retrievable form. This will include compilations of evaluated binary and higher order diagrams, development of a computerized bibliogra-