Meetings

Calorimetry

Annual calorimetry conferences emphasize progress reports rather than reports on final and completed work. This year's conference, the 21st, was held in Boulder, Colorado, 22–24 June 1966; approximately 175 from the United States and abroad attended.

This conference honored Leo Brewer (University of California, Berkeley) who had been chosen to present the Huffman Memorial Lecture. (This is the "key-note" address of the conference, given by a leader in the field of high-temperature chemistry.) Brewer spoke on new relations between spectroscopy and thermodynamics. He touched on a variety of topics that ranged from the excited states of simple molecules to the problem of cohesion in metals and metallic bonding.

The general problem of physics of high-temperature calorimetry was discussed by F. E. Wittig (University of Munich, Germany). He outlined some of the basic considerations that are involved in design and operation of calorimeters at high temperature, such as thermal gradients, breakdown of electrical insulators, temperature control and measurement, and so forth. F. Grønvold (University of Oslo) a specialist in the application of the adiabatic method in measuring heat capacity at high temperatures, discussed the heat capacities of a number of chalcogenides and pnictides with significant magnetic contributions to the heat capacity between 300° and 1000°K.

A. Cesairliyan (National Bureau of Standards, Washington, D.C.) has applied high-speed, pulse methods to the measurement of specific heats of conductors. These dynamic methods are particularly promising in the very high-temperature range where steady-state methods become difficult and inadequate. J. F. Elliott, (Massachusetts Institute of Technology) reported on the use of a calorimeter for solution work in liquid iron at temperatures up to 1600°C. Other new high-temperature solution and mixing calorimeters were described by groups at the University of Denver, Argonne National Laboratory, and the University of Toronto, Ontario, Canada.

New drop-type, high-temperature calorimeters were reported from Dynatech Corporation and from the Argonne National Laboratory. The latter group also described a calorimetric system, heated by electron beams, for use at temperatures up to 2500°C.

Among foreign countries Holland was particularly well represented. Th. Holleman (Royal Shell Laboratory, Amsterdam) reported on his extensive investigation of the heats of mixing of normal alkanes. He found that his results could be reasonably well described on the basis of a principle of corresponding states, simply related to the chain length of the hydrocarbon molecules. Another Dutch speaker, G. Somsen (Free University, Amsterdam), discussed the enthalpies of solvation in nonaqueous solvents, such as formamide and related compounds. From his data he calculated enthalpies of solvation of individual ions, which in turn are interpreted in terms of interaction with the coordinated solvent molecule, the energy of mutual interaction between solvent molecules in the solvated layer, and the polarization energy of the solvent beyond the first coordination shell.

The magnetic, specific heats of some of the rare earth metals at low temperatures have been measured by O. V. Lounasmaa (Otaniemi, Finland). In terbium and dysprosium there is an exponential dependence of the magnetic specific heat on temperature, while for holmium and thulium a power law seems to apply. The observed magnetic specific heats can be correlated with existing data on magnetization and electrical conductivity.

Throughout its history the calorimetry conference has been very active in promoting work on the temperature scale and on standard substances for various types of calorimetric work. Since 1965 the conference has sponsored the adoption of copper as a reference material for low-temperature heat-capacity work. Standard samples of pure copper are available through D. W. Osborne of the Argonne National Laboratory. At Boulder, S. R. Gunn, on behalf of the committee on standard samples, reported that a uniform, purified batch of THAM (Tris-hydroxymethyl-aminomethane), which has been proposed as a standard for aqueous solution calorimetry, will be prepared by the National Bureau of Standards. In due course samples from this batch will be available to competent users.

For 20 years the calorimetry conference has operated on the basis of tradition only, without the aid of written laws. During the Boulder meeting this was rectified through the unanimous adoption of a new constitution and by-laws.

During the business meeting at Boulder, D. L. Hildenbrand was elected chairman-elect and program chairman for the 22nd conference; R. H. Busey (Oak Ridge National Laboratory) was reelected secretary-treasurer. F. Grønvold, G. C. Sinke (Dow Chemical Company) and E. D. West (National Bureau of Standards) were elected to the board of directors.

The proceedings of the conferences are not published; abstracts are distributed at the meeting. Most of the individual papers are later published in the standard journals.

The 22nd Calorimetery Conference will be held at the North American Aviation Science Center, Thousand Oaks, California, 20–22 June 1967. For information about program and attendance, contact D. L. Hildenbrand, Douglas Advanced Research Laboratory, Huntington Beach, California.

O. J. KLEPPA
University of Chicago, Chicago, Illinois

Forthcoming Events

November

1–3. **Chemistry**, mtg., European Federation of Chemical Engineering and Central Chemical Assoc. of Finland, Helsinki, Finland. (E. Lehtinen, Kemian Keksuliitto, Bulevardi 2, Helsinki)