Experimental Project Results from the Design Institute for Physical Property Data (DIPPR) of the American Institute of Chemical Engineers

DIPPR was organized in 1978 to meet the need for critically evaluated thermophysical property data of pure chemicals and mixtures for process design. Funded project work began in 1980. Now in the 17th year, as the longest continually active of six current sponsored research groups in AIChE, there are 36 corporate sponsors.

Over the 17 years there have been 17 funded projects. These included six experimental projects and 11 projects to develop numeric data bases and property estimation methods. Some of the results of the four currently active experimental projects are reported in this special section.

Previously, DIPPR experimental project results have been published by AIChE in their *Symposium Series* [*81* (244), 1985; 8*3* (256), 1987; *85* (271), 1989; *86* (275), 1990; *86* (279), 1990] and *DIPPR Data Series* [No. 1, 1991; No. 2, 1994]. An agreement was reached in summer 1995 between the Director of Sponsored Research at AIChE and the editor of this journal to transfer DIPPR publication rights to this ACS journal. DIPPR bylaws require publication of all sponsored work in the public domain within a reasonable time after approval by the respective steering committees. Each paper in this special section has been through the normal review process prior to publication.

Project 805, under the Chairmanship of John Cunningham of Simulation Sciences, has multiple contractors at international sites to measure phase equilibria (VLE, LLE, VLLE) on binary systems to meet sponsors' interests and develop group contribution constants. Through 1995 there have been 282 systems studied. Results on 196 have been published. This issue contributes results on an additional 29 systems in four papers by contractor groups at Wiltec Research Co. in Provo, UT, and the Thermodynamics Research Center at Texas A&M University.

Project 821, with George Thomson of Precise Properties as Steering Committee Chairman, has contracted with Bill Steele of the National Institute for Petroleum and Energy Research (NIPER) in Bartlesville, OK, to measure vapor pressures of liquids and other ancillary data. The project has studied 111 chemicals through 1995, results have been published on 79, and 8 more are published in this issue.

Under Dave Chase of Hoechst AG as Steering Chairman, Project 851 is conducted by Loren Wilson at Wiltec. The objective is the measurement of critical properties by static and dynamic methods on unstable compounds and those in question in the literature. Through 1995 there have been 105 compounds studied, results for 84 have been published, and this issue covers 14 more.

Under Dennis Jones of Eastman Chemical, and now Al Coignet of Dow Chemical, Project 871 is conducted by Bill Steele at NIPER. The goal is measurement of the enthalpy of combustion and ancillary data to obtain condensed phase and ideal gas enthalpies of formation from which Benson second-order group contributions can be derived. Through 1995 there have been 72 compounds studied, results from 32 have been published, and 17 more are published here in two papers.

The results published here have been incorporated in the computerized numeric data files of two other DIPPR projects to make them more readily accessible to sponsors and the public. These are the DIPPR Data Compilation Project 801 which now covers over 1625 pure chemicals and Project 911 covering over 600 chemicals in the Environmental, Safety, and Health Data Compilation.

One more special issue in this series is planned for publication in early 1997 and additional special issues are under consideration as results from the above projects become available for public release. The publication of the results of these experimental projects in this journal should give them a greater exposure to the scientific community. As a result we would hope that corporations might become interested in joining DIPPR to help pool resources to fund measurement of data at a much reduced cost to individual sponsors.

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