

CHRONICLE

REPORT ON THE SECOND ALL-UNION CONFERENCE ON THE VISCOSITY OF GASES AND LIQUIDS

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The scientific Council on Heat and Mass Transfer in Technological Processes, which is subordinate to the State Committee of the Council of Ministers of the USSR on Science and Technology, collaborated with the Scientific Council on Thermophysics of the Academy of Sciences of the USSR to hold this conference from September 9 through 13, 1975, in the Mil-lionshchikov Petroleum Institute at Groznyi.

The first Conference on this topic was held May 12-16, 1941, in Moscow; since that time, many researches have been performed in the USSR on the viscosities of working media in heat-engineering and refrigeration systems, petroleum products, other chemical products, technical-ly important gases and liquids, gaseous and liquid mixtures used in various areas of engineer-ing, and so on. In addition, there have been advances in theoretical and experimental methods of viscosity research.

Several All-Union thermophysical conferences have discussed the viscosities of liquids and gases, but a detailed survey of advances in viscosity proper over the period of more than 30 years now requires coordination and determination of major trends and prospects, which was the basis for this narrowly specialized conference on viscosity.

The Groznyi Petroleum Institute was chosen because major researches have been made there on the viscosity of petroleum products, hydrocarbons, and similar mixtures over wide ranges in temperature and pressure.

In all, 72 papers were read at the conference; a major fraction of the papers repre-sented contributions from the Petroleum Institute itself, Moscow Power Institute, the State Institute for the Nitrogen Industry, and Odessa Food-Industry Technology Institute.

Abstracts of the papers were published by the Petroleum Institute.

The 127 participants included 11 Doctors of Science and 54 Candidates, representing 16 scientific centers and 39 colleges, academic organizations, and industrial research institu-tes.

Papers of survey character were presented on the current state and developments in ex-perimental, theoretical, and applied researches in the viscosities of gases and liquids, in-cluding one by Professor I. F. Golubev (State Nitrogen Industry Institute) and V. E. Lyus-ternik (Institute of High Temperatures, Academy of Sciences of the USSR). B. A. Grigor'ev presented a survey of the work of the Groznyi Institute on the viscosity of petroleum and petroleum products, particularly as obtained in the Thermophysical Laboratory of the Insti-tute.

Particular interest attached to papers dealing with new techniques in viscometry and in calculation of properties, papers on this topic being presented by Professor D. L. Timrot, Candidate A. S. Keramidi (State Nitrogen Institute), Candidate B. Z. Geller (Odessa Techno-logical Institute), Candidate N. A. Agaev (Azerbaijani Power Research Institute), Candidate V. A. Altunin and Candidate S. A. Ulybin (Moscow Power Institute), Professor V. A. Rabinovich (All-Union Technical Physics and Electronics Research Institute), Candidate V. R. Kamenetskii (Odessa Technological Institute for the Chemical Industry), and others.

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The papers and the resulting discussions showed that work in this area has reached a high level, especially as regards the solution of technical problems, generalization from existing experimental evidence, creation of suitable computation methods, and derivation of equations for gas and liquid viscosity.

There were numerous papers on the viscosities of various individual hydrocarbons, as well as petroleum and petroleum products, gases and gas mixtures, Freons, alcohols, water and aqueous solutions, organic acids, aldehydes, ethers, and ketones. These measurements have been made over wide ranges in temperature and pressure for the gaseous and liquid states, including the critical region.

Of the available experimental methods, most attention was given to the capillary and oscillating-disk techniques, since these give the most reliable and generally usable results.

The conference involved the active participation of A. G. Shashkov, Associate Member of the Academy of Sciences of the Belorussian SSR (Minsk), and Director of the Institute of Heat and Mass Transfer of that academy, as well as the Director of the Groznyi Petroleum Institute, Professor Yu. L. Rastorguev, the Director of Tambov Chemical Plant Institute, Professor V. V. Vlasov, and the Scientific Secretaries of various councils and sections: V. P. Trofimov, Candidate V. E. Lyusternik, Candidate V. V. Rashchupkin (Moscow), Professor O. A. Sergeev from the Mendeleev All-Union Metrology Research Institute in Leningrad, Dr. V. A. Rabinovich from the All-Union Technical Physics and Electronics Research Institute in Moscow, Professor A. N. Solov'ev, Head of Department of the Kiev Institute of Industrial Gases, and representatives of the State Service for Standard Reference Data, the Soviet Commission on Thermodynamic Tables, the Soviet National Committee on the Properties of Steam, and so on.

The decisions of the Conference were taken at the closing plenary session and pointed out the main trends in research on the viscosity of gases and liquids. The need to extend studies of theoretical type was emphasized, in conjunction with the need for improved techniques for measuring viscosity, examining viscosity in the critical region and in the plasma state, and creating standard means of measurement and standard specimens. In addition, there was a need for more work along the lines of the State Service for Standard Reference Data, the coordination of researches throughout the country, and also with foreign scientific centers. It was accepted as desirable to hold conferences on the viscosity of gases and liquids systematically every three or four years.

It was recommended that the papers at the Conference should be published as a specialized collection.