

Ing. Ivo Proks, DrSc. Sixty Years Old



One of our foremost scientists in the field of silicate chemistry, Ing. *Ivo Proks*, DrSc., will be sixty on June 16, 1986.

He was born in Brno where he also graduated from the Faculty of Chemical Engineering of the Technical University. Since 1949 he has been active as a scientific assistant in the State Research Institute of Silicates which was part of the university. In 1953 he joined the newly established Laboratory of Inorganic Chemistry of the Slovak Academy of Sciences in Bratislava. This laboratory grew up later into the Institute of Inorganic Chemistry where he is working till now. He held position of the head of laboratory and since 1970 he has been head of the Department of Silicates.

In 1962 he obtained his CSc. degree (equivalent of PhD.) and in 1984 he presented his DrSc. Thesis.

Scientific activity of Doctor Proks is devoted to the theoretical and experimental investigation of thermodynamics and kinetics of processes in the systems important in ceramic, cement, and glass technology. Among his theoretical works, the generalization of the van Laar equation for description of the equilibrium of the reactions obeying the scheme $A_{(s)} = B_{(s)} + C_{(g)}$ as well as the investigation of the influence of the presence of solid solution and crystal geometry or grains coexisting in condensed phase on this equilibrium is of importance. He also derived a general method of calculation of excess thermodynamic quantities for binary systems on the basis of the determination of phase equilibria and calorimetric measurement of enthalpic changes of the processes in these systems. The team led by I. Proks has been engaged for 20 years in systematic high-temperature enthalpic analysis of the technologically important oxide system $\text{CaO—MgO—Al}_2\text{O}_3\text{—SiO}_2$. This research included determination of the enthalpies of melting, of incongruent decomposition and of crystallization of eutectica in different phases, the heats of mixing in the liquid phase and temperature dependence of molar heat capacities. Analysis of the data resulted in knowledge that some silicate melts exhibit in the temperature interval 1450—1700 °C similar properties as solutions of organic polymers.

The theoretical studies of I. Proks dealing with kinetic problems comprise the determination of mechanisms of chemical reactions, growth of grains or pores as well as the investigation of the corresponding kinds of diffusion taking place in thermal decomposition of the industrially processed carbonates. An integral component of the research activity of I. Proks is development of new calorimetric and thermal procedures. The method of "double calorimetry" (drop calorimetry and solution calorimetry of the same sample) developed under his supervising enables to obtain enthalpic balance of the high temperature processes

(1200—1700 °C) in the glass-forming systems. For instance, this method made it possible to determine the temperature dependence of specific heat capacity and of specific heat of fusion of some kinds of glass and, in cooperation with the Institute of Silicate Chemistry of the Academy of Sciences of USSR, to measure thermodynamic quantities of some technically important materials based on rare earths.

He gained international recognition for his theoretical studies of the influence of the rate of heating on characteristic parameters of DTA and the development of a new thermal method, *e.g.* periodic thermal analysis with approximately microgram amounts of samples. The results of his scientific research activity have been presented in 60 scientific papers and 5 patents.

I. Proks has been an inspiring teacher for many coworkers and post-graduate students. In the years 1958—1983 he joined in the pedagogic process at the Department of Technology of Silicates of the Slovak Technical University where he lectured physical chemistry of silicates. He is chairman of the committee for conferring DrSc. degree in the Technology of Silicates.

Besides his research and teaching activities, I. Proks must be highly credited for organization of Czechoslovak research in the field of Chemistry of Silicates and his enthusiastic work in the field of history of sciences. He is also a long-time member of the Editorial Board of journal *Vesmír* which is devoted to popularization of sciences.

The silver medal of D. Štúr for the development of sciences in the Slovak Academy of Sciences, memorial plaque of the Slovak Technical University in Bratislava, and bronze medal of the Slovak Chemical Society were awarded to I. Proks for his scientific and pedagogic activity.

In congratulation to Dr. Proks, who is member of the Editorial Board and in the last years also coeditor of this Journal, we wish him good health and further success in his activities for further years.

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