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BOOK REVIEW

X-ray Structural Analysis of Mixed-Layer Minerals, by V. A. DRITZ and B. A. SAKHAROV. Transactions, vol. 295 Academy of Sciences of USSR, edited by "Nauka" 1976, Moscow (in Russian).

Forty-four years have passed since the first discovery of mixed-layer silicates. Although an abundance of experimental data have been published during these years, it is appropriate and timely to have available the thorough and thoughtful analysis of the outstanding scientist V. A. Dritz and his younger colleague B. A. Sakharov. They have prepared a synthetic, comprehensive survey of the basic theoretical and practical problems of X-ray structural analysis of mixed-layer minerals of any type of interstratification and composition.

The numerous diffraction patterns of mixed-layer minerals produced by diffractometers and more recently by computer, have confirmed highly complicated structures difficult to be described by classical crystallographic methods or to be visualized in the common structural point models. Dritz and Sakharov have used statistical probability coefficients to present for the first time a complete scheme of classification of mixed layer structures. The classification is illustrated by diagrams in which one may find a position for every structure, characterized by a probability coefficient of concentration of a layer of definite type, a sequential probability coefficient, and a so-called short range order coefficient.

The authors describe methods of computation of the diffraction profiles of all possible mixed-layer structures given in the probability coefficients. These curves can be compared directly with experimental ones.

Systematic analysis of the diffraction effects has been carried out and are presented in this book for many two-component mixtures, such as mica-montmorillonite, chlorite-montmorillonite, kaolinite-montmorillonite, as well as three-component mixtures, such as kaolinite-montmorillonite-illite.

The diffraction criteria have been established which enable identification of the ratios of interstratified layers and their character. Numerous examples illustrate the effectiveness of the developed methods.

One should emphasize the great value of this book for clay mineralogists in any country. Those that cannot read Russian can profit from the figures and illustrations. The book deserves to be translated into at least some of the Congress languages, first of all English.

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