Kachestvennyi Rentgenofazovyi Analiz (Qualitative X-Ray Diffraction Phase Analysis) in Russian

By Evgenii K. Vasiliev and Mikhail S. Nakhmanson, *Pp. 196. Figs. 23. Nauka. Novosibirsk. 1986. Price 2 rubls.*

The book deals with the qualitative powder diffraction phase analysis. The text is divided into six chapters: Principles of the qualitative powder diffraction phase analysis, methods of analysis carried out by hand (without computers), experimental technique and data reduction procedures, computerized powder diffraction identification systems, theoretical analysis of the problems connected with the identification of phase composition using X-ray diffraction, methods of testing search procedures and mapping powder diffraction databases. The largest chapter of the book is devoted to the detailed description of ten computerized powder diffraction identification systems which are used throughout the world; this chapter forms about a third of the contents of the book.

The first part of the monograph may serve as a manual covering the practices of data acquisition, reduction and interpretation used in powder diffraction laboratory work. In this section, powder diffraction files of the Joint Committee on Powder Diffraction Standards and its research associateship at the National Bureau of Standards as well as powder diffraction data bases built up in the USSR are described and the search/match strategies using different indices are elucidated. In the second part of the book, automation of the powder diffraction phase analysis using computers is reviewed. The final part of the book examines the problems of the powder diffraction identification of substances from a theoretical point of view. An algebraic model is introduced which allows one to estimate the efficiency of identification procedures quantitatively and to optimize them, taking into account the actual structure of the applied diffraction data base. Numerous original ideas are presented in this section which are published here for the first time.

Vasiliev & Nakhmanson's book is the first monograph in the world's scientific literature which is dedicated exclusively to the powder diffraction identification. The usefulness of such a publication follows from the fact that powder diffraction identification of substances represents 80% of application of X-ray diffraction analyses.

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General Announcements

New — Mineral Powder Diffraction File

The JCPDS-International Centre for Diffraction Data is continuing to improve the highly successful Mineral Powder Diffraction File. Now available is a new 2 volume set containing approximately 3,475 diffraction patterns covering 2,800 mineral species and also over 770 minerals newly described since 1980. All data have undergone a comprehensive computer review utilizing the NBS*EXAIDS83 system and have also been reedited with special reference to cell, space group, Z, calculated density, indices of refraction, mineral group, chemical formula, mineral nomenclature, polytype, symbols and indexing.

The Data Book contains copies of the Powder Diffraction File data card in Sets 1-35 of the Powder Diffraction File arranged in alphabetical order. Also included is both an index in PDF number sequence and a mineral group index. The all inclusive Search Manual contains a Hanawalt numerical section, a Fink numerical section, a chemical name section and an alphabetical section by mineral name. The new Mineral Powder Diffraction File in book form will prove to be a valuable asset, not only to libraries and laboratories engaged in mineralogy, but to all individuals and organizations involved in powder diffraction analysis.

Contact the International Centre for additional details. Place your order today to ensure early delivery. Price $550.

Sales Department
JCPDS — International Centre for Diffraction Data
1601 Park Lane
Swarthmore, PA 19081, U.S.A.
(215) 328-9400

Back issues of Standard X-ray Diffraction Powder Patterns

The National Bureau of Standards has on hand a limited supply of back issues of NBS Circular 539, Sections 1-10, as well as NBS Monograph *25,* Sections 1-19. Individual copies may be obtained at no charge as long as supplies last.

Please contact: National Bureau of Standards
Building 223, Room A209
Washington D.C. 20899, U.S.A.

Grants-In-Aid from the JCPDS-International Centre for Diffraction Data

Each year the JCPDS-International Centre for Diffraction Data extends financial support in the form of Grants-in-Aid to a limited number of scientists for the provision of X-ray powder data. These grants are intended to supplement existing funded projects involving the preparation and recording of data from new materials. First time grants are usually of the order of $2,000 to $5,000 for projects resulting in 10–25 new patterns. Proposals addressing the immediate needs of the powder diffraction community will be given highest priority, especially projects involving organic compounds and materials used in forensic investigations. Materials involved with any new and evolving technologies are also of specific interest.

Grants-in-Aid proposals will be considered from any qualified investigator who can demonstrate expertise in the preparation of high quality powder diffraction patterns, or in the synthesis of high purity materials, provided that such materials are of interest to the Grants-in-Aid Committee. All Grant-in-Aid recipients are required to prepare bi-annual reports on progress and extension of a Grant beyond a given year is contingent on satisfactory performance. Proposals should be submitted in accordance with specified guidelines and new proposals are reviewed in January of each year. A final decision is generally reached in March. All Grants become effective the beginning of the JCPDS fiscal year, currently 1st April.

Guidelines for the preparation of Grant proposals can be obtained from the JCPDS and proposals for grants should be addressed to:

Secretary, JCPDS-International Centre for
Diffraction Data
1601 Park Lane
Swarthmore, PA 19081, U.S.A.

Request for Proposals for Centre for Experimental Powder Diffraction

The JCPDS — International Centre for Diffraction Data is requesting proposals for establishing a Centre for Experimental Powder Diffraction Data outside North America. This Centre will be expected to produce and characterize crystalline materials of technological importance to industry and science with a goal of providing new, high-quality diffraction data for inclusion in the Powder Diffraction File. The Laboratory submitting the proposal should be experienced in materials characterization by powder diffraction methods and have an established reputation in the powder diffraction field. Funding is available to establish one Centre. There will be support for a part-time director and two full-time staff along with expenses to carry out the proposed work. The initial grant will be in the range $100,000/200,000 per year for three years with the potential for continuing support.

Proposals should include a description of the available facilities for synthesizing and characterizing materials. The proposal should also indicate the types of materials which will be evaluated and the personnel who will be involved. Preference will be given to the Laboratory which can work with a wide range of compounds including organic materials rather than compounds of interest to only a few industries. The production of 75–100 data sets per year would be expected.

Proposals must be submitted by 1 June 1987 to Mr. Julian Messick, General Manager, JCPDS — International Centre for Diffraction Data, 1601 Parklane Road, Swarthmore, Pennsylvania, USA.