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MARIAN BANAŚ, HENRYK KUCHA

NIOBIUM-BEARING RUTILE, ILMENORUTILE AND IRON MOSSITE FROM PEGMATITES OF THE MARGINAL ZONE OF THE ŁUŻYCE GRANITOIDS

A number of titanium minerals that are associated with pegmatites of the marginal zone of the Łużyce granitoids have been analysed for the niobium and tantalum content. Two generations of rutile have been distinguished. Rutile of the first generation originated immediately after albitization and contains, on the average several per cent of niobium, the content of this element being highly variable. Rutile of the second generation is connected with the process of prochloritization. It is ilmenorutile characterized by a high and constant niobium content, amounting to approx 10 wt.%. Besides, a mineral corresponding to the formula $FeNb_2O_6$ with the properties similar to mossite has been recorded. It may owe its origin to the replacement of ilmenorutile by iron compounds.

TADEUSZ WIESER

THE LUCIN- AND MESSBACH-TYPE VARISCITES FROM WIŚNIÓWKA (ŚWIĘTOKRZYSKIE MTS.)

Among the formerly described variscite specimens from Wiśniówka (Świętokrzyskie Mts.) small differences in the chemical and optical properties were detected in the two variously shaped and coloured varieties. Unfortunately, after examinations by X-ray powder methods this statement was not confirmed. At present, X-ray diffraction and infrared absorption spectra obtained from the new specimens permitted identification of two well discernable polymorphs of Lucin- and Messbach-type variscites. Both varieties were found together in spherules having internal parts occupied by Messbach- and external by Lucin-type variscite. This phenomenon judging from the available sources is extremely rare in the nature, though similar physically to frequent co-occurrence of chalcedony and quartz.

BARBARA KWIECIŃSKA , FRANCISZEK KAJZAR

THE RHOMBOHEDRAL STRUCTURE CONTRIBUTION IN NATURAL GRAPHITES DETERMINED BY NEUTRON DIFFRACTION TECHNIQUE

The neutron diffraction technique was used to determine the contribution of the rhombohedral modification within the hexagonal structure in graphite. It was found that the most convenient for estimating the amount of rhombohedral structure are reflexes (10 2/3) and (101). The differences in the rhombohedral modification between the individual samples

of graphites are due to their morphological features. They can also be related to the mode of occurrence and different metamorphic environments of graphites.

VERA LUPTAKOVA , ANNA NEMETHY , MIECZYSŁAW ŻYŁA

SORPTIVE PROPERTIES OF SYNTHETIC MONTMORILLONITE

The paper deals with the results of examination of adsorption of methyl alcohol, argon and benzene vapours of five samples of montmorillonite obtained by hydrothermal synthesis from SiO_2 Al_2O_3 and MgO. The calculated data of specific surfaces and the distribution curves of pore volumes determined by means of desorption isotherms are discussed.

JERZY FLJAŁ, ZENON KŁAPYTA , BARBARA KWIECIŃSKA ,
JANUSZ ZIĘTKIEWICZ, MIECZYSŁAW ŻYŁA

ON THE MECHANISM OF ACID ACTIVATION OF MONTMORILLONITE II. CHANGES IN THE MORPHOLOGY AND POROSITY IN THE LIGHT OF ELECTRON MICROSCOPIC AND ADSORPTION INVESTIGATIONS

In an earlier publication (Fijał et al. 1975) the authors discussed the mechanism of acid activation of Ca-montmoriIlonite derived from the Chmielnik deposit. Changes in the structure and sorption properties as a function of the activation time have been investigated. The object of: the present paper was to determine the effect of activation on: 1) the morpholOgy of montmorilIonite aggregates as shown by electron microscopic examinations, 2) the porous structure of these aggregates (changes in the pore voIume distribution as a function of their effective radii) as shown by sorption investigations.

JERZY FIJAŁ, MAREK TOKARZ

STUDIES ON THE FLUORODERIVATIVES OF SILICATE MINERALS WITH LAYERED STRUCTURE I. SOME ASPECTS OF THE REACTION OF KAOLINITE WITH FLUORIDE SOLUTIONS

The mechanism of the action of ammonium fluoride solutions on the crystal lattice of kaolinite has been investigated. Special attention has been paid to the process of kaolinite degradation in fluoride solutions and to the crystallochemical character of the resultant reaction products. A method of determining the degree of degradation of the surficial zones of the kaolinite crystallite aggregates involving measurements of the intensity ratio of the reflections *001* and *002* has been suggested.

WIESŁAW HEFLIK, ANNA KRZYCZKOWSKA

PALYGORSKITE OF ALWERNIA-REGULICE

Palygorskite from the melaphyre quarry at Alwernia-Regulice near Cracow has been analysed microscopically, chemically as well as by DTA. X-ray and IR methods. Genetically, the palygorskite from Alwernia-Regulice is closely associated with the paragenesis of heulandite, saponite and others. It originated as a result of overlapping of hydrothermal and supergene processes.

HENRYK KUCHA, WITOLD SALAMON

MYRMEKITIC TEXTURES OF GALENA IN BORNITE FROM THE COPPER DEPOSITS IN LOWER SILESIA

Myrmekitic textures of galena in bornite have been ascertained. The investigations performed suggest that they originated at low temperatures, with the two minerals crystallizing simultaneously and intergrowing in the course of that process. The textures in question owe their origin to the evolution of mineralizing solutions from copper- and iron-bearing to lead-bearing. When the content of Cu and Fe decreased and that of Pb simultaneously increased, submicroscopic inclusions of galena in bornite were formed. The formation of myrmekitic intergrowth bornite + galena followed. Coarse grains of galena crystallized when the Pb content was rapidly increasing.

WITOLD ŻABIŃSKI

STILBITE FROM STRZEGOM (LOWER SILESIA)

Stilbite (desmine) occurring in open spaces in the druses of granitic pegmatites in Strzegom has been investigated using microscopic, X-ray, thermal and infrared spectroscopic methods. Its chemical formula is given.

MACIEJ PAWLIKOWSKI, EWA KSIĄŻEK

FLOOR-NUCLEATED HALITE CRYSTALS FROM WIELICZKA

Idiomorphic halite crystals from Wieliczka showing zonal structure have been investigated. The presence of terrigenic and chemical material accumulated in the planes parallel to *001* of these crystals indicates that their nucleation and recrystallization took place on the floor of an evaporational basin. The mineralogical composition of terrigenic and chemical admixtures in halite crystals have been identified and the directions and rate of crystal growth determined.