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## ON THE RHOMBOHEDRAL MODIFICATION IN NATURAL GRAPHITES AND SEMI - GRAPHITES

The rhombohedral modification existing in natural-graphites obtained from different environments has been measured by using X-ray methods. To avoid the preferred orientation effects in such materials the Debye-Scherrer photographs technique was chosen. The intensities were measured using a Dobson - type microdensitometer and Lirepho photometer. The single crystals have been investigated in precession and Weissenberg cameras. There are satisfactory relationship between the amount of rhombohedral phase and grain size of specimens and their metamorphic grades. The amount rhombohedral phase increases from 3 up to 28% with decreasing crystallite size and as the grade of regional metamorphism changes from high to low. It is supposed that the great amount of rhombohedral form in semi-graphites (about 35%) is due to stacking disorder and some influence of turbostatic structure. In monocrystals of pure graphites the amount of rhombohedral phase is negligible. The present observations are not inconsistent with the view that the metastable rhombohedral structure is produced by mechanical deformation during or subsequent to the growth of hexagonal graphite.

TADEUSZ WIESER

**GLAUCOPHANE SCHISTS AND ASSOCIATED ROCKS OF KOPINA MT.  
LASOCKI RANGE, SUDETEN)**

The specimens of glaucophane-rich schists, including anchimonomineralic rocks, were found on the south-eastern slope of Kopina Mt, Lasocki Range, Sudeten. Glaucophane appears there as a polymorph II (high pressure-low temperature), associated with garnet, epidote, quartz, albite, sphene, and barroisitic actinolite-hornblende. Caledonian ocean-floor metamorphism of the initial-stage volcanites and subvolcanites during the ocean-floor spreading and the Late Caledonian or even Early Hercynian burial metamorphism, reaching glaucophane schist facies as the result of subductional thrusting, are postulated

JANUSZ JANEKZEK

**DETERMINATION OF THE DEGREE OF CRYSTALLINITY OF METAMICTIC  
EUXENITE AND FERGUSONITE**

Taking euxenite  $(Y,Ce\dots)(Nb, Ta, Ti)_0(O, OH)_6$  and fergusonite  $Y(Nb, Ta)O_4$  as examples. quantitative changes occurring during recrystallization of metamictic minerals were investigated using X-ray quantitative analysis. An interpretation was given of the inhibition or even a regression of the process of ordering of the structure observed in certain temperature ranges. Also, the fact that polymorphic transformation of euxenites was attended by an exothermic peak was attended for. It has been found that the heating time does not affect essentially the rate of ordering of the structure. Changes in the crystallite size occurring during recrystallization of metamictic minerals were determined.

JÓZEF NEDOMA, ANNA BOLEK

**COEXISTENCE OF SYMMETRY ELEMENTS IN TERMS OF ABBREVIATED  
MATRIX SYMBOLS  
PART II**

Three different tables of allowed E-values ( $E = M_1M_2 + N_1N_2 + P_1P_2$ ) for coexisting point symmetry operations  $n_1(M_1N_1P_1)$  and  $n_2(M_2N_2P_2)$  can be reduced to one table valid for all rotation, inversion and mirror axes.

GUNTER H. MOH

**PHASE EQUILIBRIA STUDIES IN MULTICOMPONENT SULPHIDE AND OXIDE  
SYSTEMS AND THEIR APPLICATIONS**

In this paper many aspects of the application of sulphide phase diagrams have been presented. These diagrams can be used to the reconstruction of conditions which occurred at the formation of natural ore minerals assemblages. They are also useful for the purposes of modern technology.

KRZYSZTOF GORLICH, EDWARD A. GORLICH, LESZEK STOCH

## **IRON IN THE BALTIC SEA CLAY SEDIMENTS**

This paper presents the results of investigations of two samples derived from the recent Baltic sediments. The methods used were: Mossbauer spectroscopy, IR absorption spectroscopy, EPR spectroscopy, X-ray diffractometry, chemical analysis and sedimentation analysis of grain-size distribution. Conclusions were drawn regarding iron minerals occurring in the sediments of the brackish basin as related to the assemblage of clay minerals. The processes of sedimentation and early diagenesis in the sediments were discussed.

LESZEK STOCH, WANDA S. SIKORA, LEOKADIA BUDEK

**MINERALOGY AND TECHNOLOGICAL PROPERTIES OF KAOLINITE  
SANDSTONES (SEDIMENTARY KAOLINS) FROM THE MARIA III DEPOSIT AT  
OŁDRZYCHÓW (LOWER SILESIA)**

In the North-Sudetic Depression (Lower Silesia) there occur Santonian sandstones with the cement consisting of kaolinite and small amounts of micas and illite. The kaolinite shows a very high degree of crystallinity. By washing of sandstones, kaolin is obtained. It finds application in whiteware production, paper-making and other branches of industry. The paper presents detailed investigations of clay minerals occurring in these sandstones, as well as of the shape and size of their grains. The genesis of clay minerals is also discussed.

ELŻBIETA BODEK, MIECZYŚLAW ŻYŁA

**PRELIMINARY STUDIES OF HYDROPHOBIZATION OF MONTMORILLONITE  
BY REACTION WITH ACETIC ACID ANHYDRIDE**

This paper presents the preliminary results of studies of hydrophobization of H<sup>+</sup> and Na-montmorillonite effected by reaction with acetic acid anhydride. Changes in hydrophilic properties of the resulting products were estimated from water vapour sorption isotherms.



HENRYK KUCHA, JÓZEF LIS, HUBERT SYLWESTRZAK

**THORIUM-BEARING URANINITE (BROGGERITE) FROM THE KARKONOSZE  
GRANITE**

Automorphic thorium-bearing uraninite (broggerite) has been found to occur commonly in association with biotite in the Karkonosze granites. It is coated with a metasomatic rim containing up to some wt. % U. The age of broggerite, defined from the Pb content determined on electron microprobe, is identical with the K-Ar age of the co-occurring biotite.

MAREK MUSZYŃSKI, JACEK RAJCHEL, WITOLD SALAMON

**CONCRETIONARY IRON AND MANGANESE CARBONATES IN EOCENE  
SHALES OF THE ENVIRONS OF DYNÓW NEAR PRZEMYŚL (FLYSCH  
CARPATHIANS)**

Carbonate concretions occurring in Eocene shaly deposits of the Skole unit (Flysch Carpathians) have been examined using microscope, X-ray, infrared spectroscopic and chemical methods. The obtained results indicate that the concretions in Variegated shales and in Hieroglyphic Beds show different mineral composition. The former are represented by calcareous rhodochrosite or ponite. In the latter deposits the concretions consist of Ca-pistomesite and Ca-Mg-rhodochrosite, being sometimes accompanied by Mg-Fe-calcite. All the carbonates in question form disordered intergrowths within the concretions studied. Electron microprobe analysis has shown that even individual crystals and their aggregates display different proportions of Fe, Mg and Mn, whilst Ca distribution is rather constant. Iron and magnesium are usually concentrated in central parts of aggregates, whilst manganese in their outer parts.

BOGUSŁAW BĄK, MAREK NIEĆ

**THE OCCURRENCE OF MONHEIMITE IN THE BOLESŁAW Zn-Pb ORE  
DEPOSIT NEAR OLKUSZ**

In the Bolesław Zn-Pb ore deposit near Olkusz monheimite (Zn, Fe)CO<sub>3</sub> was found in mineralized breccia of Lower Triassic (Roethian) dolomites. The mineral was subjected to chemical, X-ray and IR spectroscopic analysis. Its occurrence in the part of the deposit not affected by weathering suggests that it owes its origin to the endogenic process of ore mineralization.