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STILPNOMELANE FROM GRANITE PEGMATITES OF THE STRZEGOM-SOBÓTKA MASSIF

Stilpnomelane in paragenesis with chlorite, tourmaline, cleavelandite and zeolites has been found in granite pegmatites near Strzegom. It is presumably the first recorded occurrence of that mineral in granite pegmatites. This paper presents the results of field investigations, optical examinations, SEM studies, as well as X-ray, DTA, IR spectroscopic and electron microprobe analyses. The origin of stilpnomelane from Żółkiewka has been discussed, emphasizing the role of silica-rich boron-bearing hydrothermal solutions which were responsible for the transformation of Fe chlorite into stilpnomelane.

BARBARA KWIECIŃSKA, LESZEK BARAŃSKI

STABLE CARBON ISOTOPE COMPOSITIONS OF MARBLE AND GRAPHITE FROM PRZEWORNO (LOWER SILESIA)

The samples of marble from Przeworno quarry have been analyzed using the mass spectrometer MICROMASS-602C for isotopic composition of carbon and oxygen. $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values for carbonate and graphite dispersed matter were determined. $\delta^{13}\text{C}$ values in marble range from + 2.4 to -1.7‰ whereas in graphitic dispersed substance extracted from the rock vary from +9.0 to +16.4 vs PDB. The results confirm previously published data that carbonates in marble are isotopically heavier than coexisting graphite. The graphite from Przeworno shows an increased content of heavy ^{13}C isotope, in comparison with other graphites from metamorphic rocks. This could be due to: 1) biogenic origin of graphitic matter disseminated in dark varieties of marble and 2) interaction between heavy carbonates and lighter micro-organisms during geochemical processes occurring in the complex metamorphic history of these rocks.

LESZEK STOCH, KRZYSZTOF BAHRAŃSKI, LEOKADIA BUDEK, JERZY FIJAŁ

BLEACHING PROPERTIES OF NON-BENTONITIC CLAY MATERIALS AND THEIR MODIFICATION

I. ACID ACTIVATION OF THE MIOCENE CLAYS FROM MACHÓW

The mechanism and kinetics of activation of Miocene clays containing montmorillonite, chlorite, illite, kaolinite, quartz and carbonates was studied. It has been found that the montmorillonite contains more Fe in the octahedral sheet and more Al in the tetrahedral sheet than typical montmorillonites from bentonites. Sulphuric acid extracts most

readily Mg, less so Fe and Al. The rate of cation extraction is the slower, the stronger the cation-oxygen or OH group bond in the octahedral sheet.

LESZEK STOCH, WITOLD ŻABIŃSKI

SAPONITE FROM RUDNO NEAR CRACOW

Saponite occurring in vesicles and larger voids in melaphyre in Rudno near Cracow is described. The results of optical, electron microscopic, X-ray, thermal, IR spectroscopic and chemical investigations of this mineral are presented. Its structural formula is as follows: $(Ca_{0,17}K_{0,02}Na_{0,01})(Mg_{2,96}Fe_{0,04})[Si_{3,52}Al_{0,47}O_{10}](OH)_{1,95}$. It is worthy to note a high Mg content in octahedral sheet, close to the theoretical value. Al is coordinated tetrahedrally.

GRAŻYNA CICHON

PRELIMINARY DATA ON Fe-CELADONITE FROM RUDNO NEAR CRACOW

The paper deals with the results of mineralogical examination of celadonite from melaphyre quarry in Rudno near Cracow. This mineral has been identified by means of IR spectroscopic and X-ray diffractometric methods and the results confirmed by microscope observations and differential thermal analysis. Celadonite in question occurs in association with saponite, heulandite and quartz.

JERZY FIJAŁ, MAREK NIEĆ

SVANBERGITE FROM THE RADJOU IRON ORE DEPOSIT (SYRIA)

X-ray, IR spectroscopic and microscopic analyses were made on svanbergite from the Radjou deposit. This mineral has been found in haematite ore in which it forms oval concentrations of snow-white colour (1-3 mm in diameter) or discontinuous veinlets. Svanbergite presumably owes its origin to hydrothermal processes. Basaltic magma, which forms extensive covers over vast areas of northern Syria, is assumed to be the source of strontium and, maybe, of phosphorus as well.

PIOTR WYSZOMIRSKI

PHASE RELATIONS IN THE Fe-Co-S SYSTEM AT 800° C

CoS₂ the only stable disulphide at 800° C in Fe-Co-S system, takes in solid solution about 33 wt. % FeS₂. Such a phase is in equilibrium with liquid sulphur and (Fe, Co)_{1-x}S containing 10 wt. % Co_{1-x}S. In the central part of Fe-Co-S system exists a homogeneous field of Fe- and Co-monosulphide. Along the join FeS-Co₉S₈ the Fe-monosulphide takes up to

about 20 wt. % FeS to its structure. At $752 \pm 3^\circ \text{C}$ the metal-rich part of this system a ternary phase $(\text{Co,Fe})_4\text{S}_3$ occurs. The composition of this phase lies on the FeS- Co_4S_3 "join" a point of approximately 16 wt. % FeS and 84 wt. % Co_4S_3 .

MACIEJ PAWLIKOWSKI

CONTINUOUS X-RAY ANALYSIS OF MUD-SANDY ROCKS

Mud-sandy sediments assigned to the Bogucice sands (Miocene) occurring near Wieliczka were taken as an illustrative case to demonstrate the usefulness of continuous X-ray analysis for determining the distribution of minerals in sedimentary rocks. It has been found that the rocks studied are made up of quartz and feldspars which are accompanied by subordinate illite, kaolinite and montmorillonite, as well as carbonate minerals.

ANDRZEJ SZYMAŃSKI, WŁADYSŁAW WŁOSIŃSKI

THE TRANSFORMATION OF THE PHASE COMPOSITION OF POLYCRYSTALLINE CERAMIC MATERIALS DURING METASOMATIC RE- SINTERING

Taking as an illustrative case a ceramic material made up of polycrystalline $\alpha\text{-Al}_2\text{O}_3$ which was subjected to metasomatic sintering at 2000K in the presence of sodium aluminate NaAlO_2 the authors demonstrate the possibility of complete transformation by diffusion of compact polycrystalline ceramic $\alpha\text{-Al}_2\text{O}_3$ into $\beta\text{-Al}_2\text{O}_3$ ($\text{Na}_2\text{O} * 11\text{Al}_2\text{O}_3$). The resultant material has an ionic conductivity of $2.7 \cdot 10^{-1} \text{ W}^{-1} \text{ cm}^{-1}$ at 570 K. The preservation of compact, non-porous structure of the material despite a 20% increase in volume was possible due to the fact that $\beta\text{-Al}_2\text{O}_3$ retains the tabular habit of corundum crystals. Sodium aluminate ($\text{Na}_2\text{O} * 11\text{Al}_2\text{O}_3$) is pseudomorphous after corundum. The material obtained meets all the requirements as a solid electrolyte used in Na-S cells.