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STUDY OF THE REACTION SERIES KAOLINITE-METAKAOLIN BY INFRARED SPECTROSCOPY AND DISSOLUTION TECHNIQUE

Chemical and infrared spectrophotometric study of products of thermal decomposition of kalinite. In light of the present study products of decomposition alter their composition continuously, only the product obtained at lowest temperature may be regarded as "metakaolin", at 500-600°C the "metakaolin" decomposes into free SiO₂ and better crystalline alumina-bearing phase.

JAN KUBISZ

STUDIES ON SYNTHETIC ALKALI-HYDRONIUM JAROSITES III. INFRARED ABSORPTION STUDY

Infrared absorption spectra in 400-4000 cm⁻¹ region of synthetic alkali-hydronium jarosites in comparison with those of hydronium and alkali alunite were studied. Basing on deuterated compounds frequencies of three isoelectronic hydrogen-oxygen complexes, H₃O⁺, H₂O and OH⁻ were identified. All frequencies and intensities of absorption bands are lower in jarosite series than in alunites indicating stronger sulphur-oxygen, trivalent metal-oxygen and hydrogen-oxygen bonds, and a greater dipole change connected with corresponding vibrations in the latter. There is but little influence of monovalent cation on the frequencies except on those of O-H vibrations. The strong partial splitting of degenerate modes of SO₄ confirms its C_{3v} symmetry which is due to non-equivalence of sulphate oxygens. The Fe-O-H (Al-O-H) bending vibrations occurring at about 1010 (1070) cm⁻¹ are likely to be confused with ν₁ or ν₃ SO₄.

WANDA SIKORA LESZEK STOCH

MINERAL FORMING PROCESSES IN WEATHERING CRUSTS OF ACID MAGMATIC AND METAMORPHIC ROCKS OF LOWER SILESIA

Tertiary weathering crusts developed on acid crystalline rocks of Lower Silesia display zone structure. Following zones can be distinguished: slightly altered primary rock, kaolinite-mica and kaolinite ones. These zones are the product, of mineral forming processes of incongruent dissolution and transformation of structure proceeding according to the scheme: feldspar => kaolinite; feldspar => dioctahedral mica => kaolinite; biotite => kaolinite; biotite dioctahedral mica => kaolinite; muscovite => kaolinite. On the basis of mineral parageneses in individual zones it was possible to reconstruct the course of changes of physico-chemical

conditions with increasing depth of weathering profile. Recent weathering leads to the formation of weathered zones essentially montmorillonite-mica character with subordinate kaolinite content.

MARIA KULIG

HYDROHETAEROLITE FROM THE ORZEŁ BIAŁY MINE (UPPER SILESIA) AND THE PROBLEM OF ZINCDIBRAUNITE

Dark brown and black substance filling fissures and forming horizontal interlayers in the Triassic dolomites and galmeis has been found in the Zn-Pb ore deposit in the Orzeł Biały mine near Bytom (Upper Silesia). X-ray examination has shown that this substance contains hydrohetaerolite with cell parameters $a_0 = 5,75$, $c_0 = 8,99$? , which are close to corresponding parameters of hydrohetaerolite reported from Leadville and Sterling Hill, USA (McAndrew 1956, Wadsley 1955). Heated in air up to 1000° C hydrohetaerolite transforms into hetaerolite, the cell parameters of which are $a_0 = 5,733$, $c_0 = 9,253$? . Microscopic examinations in reflected light and electron microprobe analysis have shown that hydrohetaerolite is accompanied by another phase - amorphous one or with only partly ordered atomic arrangement (Mn-Pb phase). As follows from chemical analyses, the substance in question is very similar to that reported by Nienadkiewicz (1911) from Olkusz (Cracow region) and called by him zincdibraunite.

STANISŁAWA JASIEŃSKA, WITOLD ŻABIŃSKI

ELECTRON MICROPROBE INVESTIGATION OF UNUSUAL ZINCIAN DOLOMITE FROM THE WARYŃSKI MINE (UPPER SILESIA)

Electron microprobe study of zincian dolomite from the Warynski mine confirmed the previous statement of its unusually high Zn content replacing Mg. The Zn : Mg atomic ratio in its crystal lattice is approximately equal to or even exceeds 1. Uneven, zonal distribution of Zn found in some Silesian-Cracovian zincian dolomites suggests their metasomatic origin, probably connected with supergene processes.

PIOTR WYSZOMIRSKI

X-RAY STUDY OF OLIVINES FROM SOME LOWER SILESIAN BASALTS

This paper deals with the results of X-ray examinations of olivines occurring in some Lower Silesian basalts. These have been shown to be forsterites or chrysolites. Moreover, chemical and structural features of olivine xenoliths in basalts have been investigated. On the basis of the obtained data these are supposed to originate in peridotite layer of the mantle. Some olivines have been separated gravitationally from molten basalts. Such a way of

treatment of the sample did not influence minerals by means of X-ray technique used in this paper.

WIESŁAW HEFLIK WŁODZIMIERZ PARACHONIAK

HALIT Z JORDANOWA KOŁO SOBÓTKI (DOLNY ŚLĄSK)

Jest to minerał najczęściej bezbarwny i przezroczysty. Niekiedy spotykany jest w odmianach zielonawych, brunatnożółtawych a nawet czarnych. Tworzy najczęściej charakterystyczne polewy, naskorupienia, nacieki lub skupienia groniaste, na powierzchniach uławicenia serpentynitu, skały kwarcowo-zoizytowej i na powierzchniach soczew nefrytowych. Współwystępuje on z diopsydem, prehnitem, pumpellyitem, desminem, grossularem, hydrogrossularem chromowym, tremolitem, aktynolitem (nefytem), minerałami grupy epidotu (zoisyt, klinozoisyt) wermikulitem, wezuwianem i in. W płytkach cienkich wykazuje budowę radialno-sferyczną. Jest słabo anizotropowy n_{Na} około 1,461. Zdjęcie rentgenowskie czystej próbki hialitu wykazało brak struktury krystalicznej.

ANDRZEJ PAULO, WITOLD SALAMON

A NOTE ON FREIBERGITE, PYRARGYRITE AND BOURNONITE FROM GRUDNO, LOWER SILESIA

The present paper discusses freibergite, pyrargyrite and bournonite from an ore vein in the vicinity of the polymetallic deposit Stara Góra. The identification has been based on the optical features, microhardness tests and electron microprobe analysis. Freibergite has not been so far described in Poland and pyrargyrite only once (at Kowary). The silver content in freibergite from Grudno is classified with the highest in the tetrahedrite group, being inferior only to that in freibergites from the British Columbia.