

GASEOUS AND SOLID INCLUSIONS IN CARBONADOS

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RESUMO: The object of our researches is carbonados from recent and quaternary alluvial placers from Macaúbas basin river (MG). Gas-fluid phase of carbonado and associated minerals were studied with pyrochromatograph technique using chromatograph, equipped by pyrolytic add-on device. Gas composition was determined in the mode of two-stage (20-500 and 500-1000°C) and multi-step (20-300 and further at 100 °C) heating. In pyrolyzate carbonados obtained as a result of multistage heating, are found out (in sequence of reduction of the contents) H₂O, CO, CO₂, N₂, H₂, CH₄, C₄, C₃, C₂. During heating the structure allocated from carbonados of gases changes from CO₂-water up to NO₂-H₂O-wastegaseous. In carbonados we established more than 100 kinds of mineral inclusions. We attributed the most part of xenomineral impurities attributed to epigenetic inclusion type, among those we distinguish products of condensation of mantle-magmatic fluids (epigenetic inclusions of the first type) and exogenic mineralization, which developed during diagenesis of the diamond object on the terrestrial surface (epigenetic inclusions of the second type). We attributed syngenetic inclusions of phase-homogeneous solid solutions to those based on zircon, which prototype is possible to consider inclusion Ti-Fe-Si-Zr-Al oxides solid solutions we established earlier in the Uralian monocrystalline diamonds. Besides in carbonados us have been revealed micro-nanoscale mineral and fluid inclusions in individuals of actually diamond phase: cerianite, rutile, zircon, α -Fe (Cr), quartz, apatite, mica, Pb-Zn, communities of liquid and gas phases of not established structure, KCl, Al₂O₃, S, Ca-K-Fe-Ti-aluminosilicate. The data received allow refusing from rough genetic opposition between polycrystalline and monocrystalline diamonds. It is possible, that these minerals represent only variations of products of uniform process mantle diamond formation. Researches were carried out with use SEM, TEM, spectral semiquantative and instrumental neutron-activated analyses, photoroentgenostructure, Raman spectroscopy and photo-FIB-methods (Focus ion Beam, GeoForschungsZentrum, Potsdam, Germany), gas mass-spectrometry, ESP, photo-, roentgenoluminescence and gas pirochromotography.

This work was supported by the Program's Presidium RAS N°27 (09-P-5-1028) and Department of Science Earth SB (09-S-5-1022).

PALAVRAS-CHAVE: INCLUSIONS; CARBONADO; GENESIS.