

Electron probe X-ray microanalysis investigations of powder rock reference materials

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The quality of results obtained by any method of the analysis depends on availability of reference materials for comparison. It is desirable to use the certified reference materials as reference samples. The electron probe X-ray microanalysis (EPMA) was applied for studying some powder rock reference materials. All the constituent minerals have been identified. Element distributions, grain size and forms of powder rock reference materials were examined. The certified reference materials contains grains size from dust-like few microns and smaller. Small grains stick to larger ones. Most grains show irregular angular-like shape. Spherical grains are not bigger than 10 μm . Some metals were found as separate particles. The trace elements constituting accessory minerals, which are basically concentrated in the fine fraction, are inhomogeneous in small amounts of the certified reference materials. Data of these investigations are involved in certificate of the certified reference materials of sviatonossite SSv-1, subalkaline granite SG-4 and synnyrite SSn-1 (production of Vinogradov Institute of Geochemistry, Siberian Branch of the Russian Academy of Sciences, Russian Federation). These certified reference materials are used for the traditional methods of volume and bulk analyses (ICP-MS, XRF, chemical, optical spectral et al) in a wide range of environmental, geological, biological, geochemical, industrial and archaeological applications.

Keywords: electron probe X-ray microanalysis, homogeneity testing, particle size, rock reference materials
