

QUARTZ FROM THE BEREGOVE ORE FIELD OF TRANSCARPATIA, UKRAINE

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Quartz, as a predominant vein mineral of the ore bodies and near-ore metasomatites of auriferous polymetallic mineralization, is the main rock forming mineral of the enclosed volcanic rocks and metasomatites of the secondary quartzite facies. Three genetic types of quartz can be distinguished: magmatic, metasomatic and hydrothermal.

Magmatic quartz in the form of phenocryst relics and fragments is characteristic for liparite tuffs. It is mainly transparent, pale pink to grey, strongly fissured. Metasomatic quartz is the main component of the secondary quartzites. It is present as cryptocrystalline and fine grained grey aggregates. Veined and streaky quartz segregations belong to the hydrothermal type, have thicknesses from 1–5 cm to 10–20 cm and more and are connected with auriferous polymetallic mineralization. This type of quartz is characterized with striped and porous texture. In leached cavities one can see fine-faced quartz crystals up to 5 cm in dimension and its drusy aggregates. These crystals are mainly colourless, transparent, sometimes amethyst-like milk white or grey in their basis.

Two morphological types can be distinguished amongst quartz crystals: early oblong prismatic and late short prismatic (the last is presented by amethyst in near-surface zones). The most characteristic first type crystals have zoned structure caused by the presence of zones with gaseous–liquid and solid inclusions. Quartz belonging to different genetic types has differences in thermoluminescence, X-ray luminescence, IR spectroscopic and EPR nature as well as oxygen and carbon isotope composition and cryometric data.

Hydrothermal quartz formed in two stages. The earlier one is the final component of the polymetallic stage, crystallized from heterogenetic carbon dioxide–water solutions under 260–230 °C. The late quartz (amethyst) is connected with the barite–alunite mineralization stage under 180–210 °C. In accordance with L. Z. Skakun's data, four quartz generations can be distinguished in the Muzhyievo gold–polymetallic deposit connected with four mineralization stages: sulphide, quartz–barite, carbonate–quartz and carbonate–goethite.