Sb SULPHOSALT FORMATION IN THE BEREGOVO ORE FIELD (TRANS-CARPATHIANS, UKRAINE)

EMETZ, A. V. & SKAKUN, L. Z. (Lviv State University, Lviv, Ukraine)

In the Beregovo ore field there are the Muzhievo gold-silver-base metal and Beregovo gold-base metal deposits, where mainly sulphide (pyrite+sphalerite+galena), quartz-sulphide and quartz ore bodies occur. In the Muzhievo deposit Ag-Sb-sulphosalts form rich Ag ores. Formation of Cu-Sb sulphosalts accompanied both of these ores and was completed before the formation of Au-Cu ores. All Sb sulphosalts are connected to galena bearing sulphide and quartz-sulphide aggregates. Only boulangerite was simultaneously formed with galena. In galena it forms thin grains. Their microaggregates, which often are observed as parallel "chains" (EMETZ & SKAKUN, 1999), formed as a result of fluctuation of Sb concentration in the solution forming Sb rich galena. Contact borders between galena and boulangerite bear the signs of concurrent growth. Along cavities and contacts of galena there are thin bands of Ag or Cu sulphosalts, which often form perfect pseudomorphs of boulangerite grains. The formation of all sulphosalts occurred through the way of Ag and Cu saturation of galena matrix during boulangerite dilution and galena recrystallisation. At the beginning they developed along the external boulangerite planes in galena crystals, then often recrystallised along zones of diffusion cleaning. Pyrargyrite and bournonite are contained only in galena. In sulphide aggregates around galena enriched by them the acanthite-polybasite veinlets and (or) tetrahedrite emulsion are observed. Sb removal from the silicified mineral forming system led to the destruction of sulphosalts and a shift to polybasite and tetrahedrite formation in galena. In silicified perfect massive blocks galena aggregates have no sulphosalts. The system was divided under oxidation process; in separated locations chalcopyrite, covellite or acanthite were formed.

The general succession of Sb sulphosalt formation in recrystallized galena is bournonite-pyrargyrite-polybasite-tetrahedrite. However, distribution of sulphosalt grains in the places of boulangerite occurrences is often similar for different sulphosalts. It reflects the independent replacement of boulangerite. Usually the grains of each following sulphosalt of this series have bigger grains then the previous, replaced sulphosalts. An exception is bournonite, which almost covered the field of pyrargyrite development. The amount of the sulphosalts depended on the velocity of the diffusion through galena matrix and Pb activity.

As a result of such forming conditions, all rich sulphosalts mineralizations occur only in the sulphide ores, the quartz-sulphide ores contain only rare polybasite and tetrahedrite grains. Sometimes relicts of primary galena with boulangerite are observed here.

References

EMETZ, A.V. & SKAKUN, L.Z. (1998). CBGA XVIth Congress, Vienna, Abstracts: 155.