

NOBLE METALS IN MASSIVE SULFIDES OF MID-ATLANTIC RIDGE

1 CHERKASHEV G.A., 2 MOZGOVA N.N., 3 BORODAEV YU.S., 1 STEPANOVA T.V. 1 VNIIOkeangeologia, St.Petersburg, Russia, 2 IGEM RAS, Moscow, Russia, 3 MGU, Moscow, Russia.

A distribution of noble metals (NM) in sulfide ores of the MAR has been studied: in basalt hosted sulfides of the TAG hydrothermal field (MIR mound and core samples from boreholes of Active mound) and in the Logachev Field (14°45'N) with CU-specialization of ores associated with ultrabasites. Revealed were lateral and vertical mineralogical-geochemical zoning of mineralization and restriction of high NM concentrations to the zones discerned. The contents of NM in core samples are highly irregular with average values for Au and Ag: 10,71 and 48,38 g/t in the Logachev Field, 4,14 and 112,6 g/t in the MIR and 0,3 and 10 g/t in deep-seated parts of the TAG structure. A distribution of "invisible" NM in grains of primary and secondary ore minerals (1000 microsoundings determinations) is also highly irregular that is indicative of disbalanced conditions of their formation. The evidence of NM mobility in course of formation of the structures was established: a selective re-distribution of Au in structures of decomposition of primary solid solutions, a dominant restriction of rare ultra-fine grains of native Au and Ag to areas of autometamorphism and hypergenesis (segregation in transforming primary sulfides), etc. Variability in geochemical bonds of Au is characteristic: minerals holding its maximum contents change with the content of ores of different occurrences and zones (correlations of Au-Zn in MIR mound, Au-Cu in Logachev Field and Au-Fe in Active mound stockwork zone). Maximum concentrations of Pt are constantly restricted to ZnS (Active mound).