

## THE PLATINUM GROUP METALS IN GOLD AND SILVER DEPOSITS OF UZBEKISTAN

SMIRNOVA S.K., KOZLOV V.V., MANSUROV M.M., KUNBAZAROV A.K. Institute of Geology and Geophysics, Uzbekistan Academy of Sciences

Some data has accumulated on the occurrence and content of the platinum group metals (PGM) in various types of gold deposits of Uzbekistan: (1) gold and gold-silver deposits are hosted by black shales (O-S) in the Central Kyzylkum desert, West Uzbekistan. Gold ores of Muruntau deposit contain palladium recoverable as a by-product. PGM tend to be enriched in ores of other deposits of this region: Kosmanachi, Okjetpes, Daugyz, Kokpatas, etc. (data of I.Kh.Khamrabaev, S.T.Badalov, M.M.Mansurov, G.M.Chebotarev, Kh.R.Rakhmatullaev et al.). In particular silicified, carboniferous and enriched by sulfides black shales in silver deposit Kosmanachi (M.Mansurov et al., 1997) contain economic amounts of PGM (Pt - up to 3.29 g/t, Pd - up to 3.1 g/t). Quartz veins contain Pt - 0.95 - 3.75 g/t, Pd - 2.4 - 2.9 g/t. (NAAA, Institute of Nuclear Physics, Academy of Sciences of Uzbekistan). In primary gold ores in black shales of Mardzanbulak deposit (Nurata ridge) there are insignificant quantities of Pd. But after froth flotation content of Pd in froth concentrate has been increased up to 1.03 - 3.75 g/t and can be extracted as a by-product (ISP-MS analyses, ELAN 6000, Inst. of Geol. & Geoph., Uzbekistan Academy of Sc.). There is no correlation between gold and PGM contents. (2) epithermal gold and gold-silver deposits (Chadak, Kochbulak, Gavasai area) are hosted by volcanic rocks of Upper Paleozoic in Chatkal and Kurama ridges, East Uzbekistan. Ores of these deposits contain PGM, but their distribution is extremely irregular and contents are low (g/t): Pd - up to 0.53, Pt - up to 0.01, Ru - up to 0.36, Rh - up to 0.9. Whereas in bonanza (Kochbulak deposit) contents of PGM considerably increase: Pt - up to 1.98, Pd - up to 6.23 g/t. The content of Au in this sample is 501.9, and Ag - 1141.9 g/t. In sulfide minerals (pyrite, chalcopyrite, sphalerite, bornite, bismuthite, etc.) PGM contents are found as follows (g/t): Pt - 0.25 - 3.9, Pd - 3.9 - 6.6 (ISP-MS analyses). Given data on PGM distribution in gold and gold-silver deposits permit to conclude that in Uzbekistan there is a real basement for extraction PGM as a by-product during gold ore treatment.