

E. A. VASILEV, I. V. KLEPIKOV,** L. I. LUKIANOVA.*** COMPARISON OF DIAMONDS FROM THE RASSOLNINSKAYA DEPRESSION AND MODERN ALLUVIAL PLACERS OF THE KRASNOVSHERSKY DISTRICT (URAL REGION)

** Saint Petersburg Mining University, Saint Petersburg, Russia*

*** Karpinsky Russian Geological Research Institute, Saint Petersburg, Russia*

336 diamonds from deposits of the Rassol'ninskaya depression and 144 crystals from recent alluvium placers of the Krasnovishersky district were studied by IR absorption and photoluminescence (PL) spectroscopy. It is shown that crystals from the Rassol'ninskaya depression have a close to normal distribution of the nitrogen concentration. The average content of nitrogen is 725 ppm and there were not detected any nitrogen-free crystals. The selection from recent alluvium placers contains 25 % crystals with the nitrogen concentration lesser than 150 ppm and 3 % among them are nitrogen-free crystals. Among crystals from the Rassol'ninskaya depression, there are 12 % of octahedral-shaped, 80 % rhombododecahedral and only one crystal has relicts of cubic faces. The collection from recent placers contains 3 % of cubic crystals, 10 % of individuals with relicts of cubic faces, 16 % of octahedroids and 66 % of dodecahedrons. Alluvium diamonds are often encountered with crescent-shaped fissures, which have been remarked only on a single crystal from the Rassol'ninskaya depression. It has been revealed that among diamonds of alluvium placers up to 95 % crystals contain

nitrogen in form of B1 defects. Thus, by morphological and structural-mineralogical features, diamonds from the Rassol'ninskaya depression differ from crystals of the nearest recent alluvium placers, and, secondly, by complex of their characteristics, they may belong to a primary deposits.

Key words: diamonds, the Urals, placer, Rassol'ninskaya depression, FTIR, photoluminescence, morphology.