

Russian Diamond Deposits Capability

Viktor Garanin^{1*} and Konstantin Garanin²

¹A.E. Fersman Mineralogical Museum of Russian Academy of Sciences, Russia

²ALROSA PJSC, Russia

Russia has the world's largest mineral resource base of diamonds and remains a world leader in the of diamonds production. Total reserves of diamonds are over exceed 1.2 billion carats and resources more than 3.5 bln carats.

There are two of the largest diamondiferous provinces in Russia: Yakutian (Sakha-Yakutian Republic, Eastern Russia) and Karelian-Kolsky (Arkhangelsk Region, NW Russia). 11 primary (kimberlite pipes) deposits are located in Sakha Yakutia Republic and 2 in the Arkhangelsk region. The diamonds size and weight of these deposits is varying – from microns to large crystals over 25 carats, and even more. The largest diamond in Russia was recovered from Yubileynaya pipe and has weight 888 carat. The morphology of diamond is also different – octahedrons, dodecahedrons, cubes, polycrystalline aggregates, boards.

Diamonds from kimberlite pipes and bodies of the provinces have both similarities and differ rather significantly on a number of specific features. There are new aggregate data on morphological, structural characteristics and physical properties of diamonds from the Karelian-Kolsky and Yakutian diamond provinces, obtained by the authors on the basis of the results of original research, complemented with information from other sources.

Complex section of the diamondiferous mantle, the volume of mantle material sampled by kimberlite melts, the duration of kimberlite column passage to the surface lead to the formation of kimberlite pipes with different diamond potential, and it is necessary to take this into account when planning exploration and mining.

Biography:

Viktor Garanin graduated from Geological Faculty of M.V. Lomonosov State University. Ph. D., Dr., Prof. in Geology. Academician of Russian Academy of Natural Sciences. Since 1975 Chief of Diamond Deposit Laboratory in M.V. Lomonosov State University. Scientific Director of A.E. Fersman Mineralogical Museum of Russian Academy of Sciences. Scientific and research interests are geology, mineralogy and geochemistry mineral deposits (diamonds, gold, base metals), historical geology, analytical works, education, consulting and arts. Author of more than 400 publications including 15 monographs. One of the leaders of World diamond geology.