

## Melt/fluid inclusions in diamonds from the Lomonosov deposit (Arkhangelsk kimberlite province)

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Melt/fluid inclusions in diamonds provide important evidence for mantle diamond-forming fluids or melts. By now, the major characteristics of the composition of microinclusions have been analyzed in diamonds from several kimberlite provinces and pipes worldwide [1–4]. Here we report the first data on the composition of parent diamond-forming melts for diamonds from the Arkhangelsk kimberlite province. After the study of morphology, specialty of the internal structure, and distribution of microinclusions in diamonds, 10 single crystals were selected from the 31 diamonds of the representative collection. The studied crystals may be divided into two groups: cuboids and coated diamonds. The crystals have grayish yellow or dark gray colors and are almost nontransparent due to the high content of microinclusions. Polished slices of these diamonds were studied by IR-spectroscopy, which allowed us to calculate the content of nitrogen defects, as well as the content of water and carbonates in microinclusions. X-ray spectral analyses allowed to study the composition of fluid/melt microinclusions and showed that they were essentially carbonate-silicate with significant variations between these two end-members. All inclusions contain water, with the highest H<sub>2</sub>O/CO<sub>2</sub> in highly siliceous inclusions. Unlike diamonds from Canada and South Africa [1, 2], the studied inclusions in diamonds from the Arkhangelsk province are almost free of chlorides. Comparison of the data obtained with the database on fluid/melt inclusions in diamonds worldwide shows similar of Arkhangelsk diamonds to some diamonds from Yakutia [3, 4], and the data obtained are the most similar to the composition of microinclusions in diamonds from the Internatsionalnaya pipe (Yakutia).

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