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ХАННЕШИТ И ПЕТЕРСЕНИТ-(Ce) ИЗ ХИБИН

I. V. PEKOV, N. V. CHUKANOV, Yu. V. BELOVITSKAYA. KHANNESHITE AND PETERSENITE-(Ce) FROM KHIBINY MASSIF

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For the first time in Russia, and the second time in the whole world, two minerals from the burbankite family — khanneshite and petersenite-(Ce) have been found in Khibiny alkaline massif. Khanneshite, with composition $(Na_{2.75}Ca_{0.23})_{2.98}(Ba_{1.08}Sr_{0.63}Ca_{0.46}Ce_{0.46}La_{0.18}Nd_{0.15}Pr_{0.04})_{3.00}(CO_3)_5$ has been picked up in a carbonatite veinlet at the core of drill hole near the Tuliylukht Bay, together with calcite, magnetite and dawsonite. The study included the control analysis of the holotype khanneshite specimen from Khanneshin (Afghanistan) also. It has been revealed that this sample includes, besides khanneshite and barite, Ba-burbankite and mckelveyite also. Petersenite-(Ce) has been founded in Khibiny massif at the mountain Koashva in the core of the large pegmatite body, in the later ultra-agpaite assemblage, where it associates with vitusite, nacaphite, pectolite, thermonatrite, aegirine, lomonosovite a. o. Its composition corresponds to the formula $(Na_{3.70}Ca_{0.30})_{4.00}(Ce_{0.71}La_{0.48}Ca_{0.34}Sr_{0.25}Nd_{0.20}Pr_{0.06}Th_{0.02}Ba_{0.02}Sm_{0.01})_{2.09}(CO_3)_5$; X-ray diagrams confirm that it is exactly petersenite: $a_0 = 20.89$, $b_0 = 6.338$, $c_0 = 10.60$ Å, $\beta = 120.8°$. The burbankite family minerals from Khibiny: burbankite, khanneshite, remondite-(Ce) and petersenite-(Ce), were examined by IR spectroscopy also.