

Significance of baddeleyite for plume multimetal deposits originated on continental and oceanic crust from AR to PZ time (Fennoscandian Shield in the Arctic region)

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Neoproterozoic baddeleyite was found in gabbro-diorite dykes cutted BIF Olenegorsk formation with U-Pb age 2738 ± 6 Ga. Deposits of Ti-Mgt ores and apatite are connected with Tsaga and Siilinjärvi (Finland) massifs with 2660 ± 10 Ma and 2613 ± 18 Ma correspondingly. The Paleoproterozoic PGE deposits with Pt-Pd reefs from layered intrusions Monchegorsk, Fedorovo-Pansky and Imandra ore regions contain baddeleyite in gabbro-diorites, anorthosites and dykes complexes and have U-Pb data from 2.53 to 2.4 Ga. Sm-Nd (T_{DM} 3.5-3.2 Ga with ϵ_{Nd} -2.5), Rb-Sr (I_{Sr} 0.702-0.704) and high He^3/He^4 values of the rocks, minerals and ores from of the PGE deposits suggested about EM-1 plume mantle origin with Os systematic (Yang et al., 2016) and still continental crust for country rocks as basement of supercontinent Kenorland (Ernst, 2014). Ti-Mgt Kolvitsa, Pechenga Cu-Ni and Cr Pados deposits are origin (T_{DM} from 2.5 to 2.1 Ga with ϵ_{Nd} +2.5) with U-Pb baddeleyite ages 1881 ± 9 , 1982 ± 8 Ma and 2087 ± 5 Ma correspond. Baddeleyite in carbonatites from Paleozoic REE deposits Kovdor, Sebljavr and Vuorijärvi and dated on U-Pb with 382 ± 3 Ma, 378 ± 4 Ma and 377 ± 4 Ma ages. So baddeleyite are very important as mineral-geochronometer for multimetal deposits on an oceanic and continental crust, in U-Pb precise dating and for aims to do reconstructions from 2.7 Ga to 380 Ma. All investigations are supported by the RFBR 18-05-70082, 18-35-00246, Presidium RAS Program №48 and are in frame of the theme of scientific researches 0226-2019-0053.