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# Origin of chloride segregations in kimberlites of Udachnaya-East pipe (Siberia) according to inclusion data

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Recent viewpoints envisage the kimberlite magma as a mixture of clastic silicates, which were trapped on the magma ascent through the thick cratonic lithosphere, and basically carbonate melts. These melts are believed to be a product of melting of the carbonated or methasomatised mantle at great depths, probably corresponding to transitional zone in the Earth mantle. The presence of chloride minerals in the secondary melt inclusions in kimberlitic olivine and in the kimberlite matrix rises a problem of the chloride sources and origin. There are two general approaches to the interpretation of the chlorides in kimberlites. The first one is that the high chloride content is an immanent feature of the deep kimberlitic melts, and thus the source of chlorine is the lithospheric mantle. Another viewpoint is that kimberlites owe their high chloride contents to contamination by sedimentary evaporites that are torn by the kimberlite pipes. These two hypotheses built a basis of discussion about the origin and sources of the kimberlite magma. Our study of fluid and mineral inclusions in halite of the carbonate-free and carbonate-rich chloride segregations show that the alkali carbonates in their mineral assemblages can be related to different degree of thermal and chemical influence of kimberlite magma on the on the primarily sedimentary chloride minerals. We show that enrichment in carbonates accompany healing of fractured initially carbonate-free massive halite, rather than belong to crystallization of hypothetic homogeneous carbonate-chloride residual melt in the pockets of cooling kimberlite pipes. Our data indicate that significant part of the chlorides in the kimberlites, especially constituting the chloride nodules, can be acquired by assimilation of the crustal sedimentary rocks, rather than by melting of the metasomatised lithospheric mantle.
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