Problems of Kimberlite Diaphthoresis

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According to the results of carried out complex investigations characteristics of typomorphic features of all identified secondary minerals in kimberlite rocks of Yakutia and other diamondiferous platforms has been given. With the purpose of reliable diagnostics of minerals – neogeneses and altered kimberlite rocks the “Atlas of secondary kimberlite minerals” and the “Atlas of hard to diagnose types of kimberlites” have been compiled. A number of minerals – neogeneses of kimberlites, which can be used during perfection of forecast-explorational works on diamonds, has been revealed. The greatest significance among them belongs to phlogopite and the products of its alteration (chlorite, vermiculite and hydromica), amethyst-like quartz and other minerals). Multiplicity of morphological forms of calcite and other secondary minerals underlines the complex nature of processes of postmagmatic mineral formations in kimberlite diatremes. Application of modern exact physical methods of investigation (high resolution X-ray diffractometry together with other methods) made it possible to reveal a number of new mineral phases in kimberlites, which emphasises productivity of such investigations. Actual questions of formation during weathering of kimberlites, as well as features of hypergene mineral formation, erosion and redeposition of eluvial material in various facies sedimentary basins have been considered in detail. Recommendations on practical application of materials, received in the process of investigations on the theme, have been formulated.