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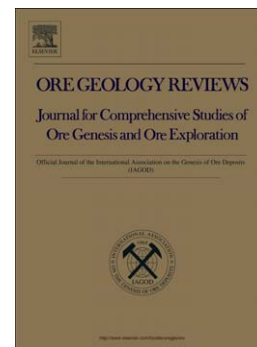
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Gold and Platinum Group Minerals in Placers of the South Urals: Composition, Microinclusions of Ore Minerals and Primary Sources

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Abstract

Gold and platinum group minerals from the gold placers of the South Urals are studied in order to identify the metal sources. In placers from the Main Uralian fault zone (MUF), the primary gold contains Ag (up to 29 wt.%), Cu (up to 2 wt.%) and Hg (up to 4 wt.%) and its fineness ranges from 538 to 997‰. Tetra-auricupride and cupriferous gold (up to 20 wt.% Cu) are common for the Nizhny Karabash placer of the MUF zone. In the eastern part of the South Urals, the placer gold is mainly characterized by high fineness of 900–1000‰ and low Cu contents (max 1.38 wt.%). Most of the placer gold grains consist of the primary domains, which are rimmed by secondary high-fineness gold with diffuse and clear boundaries. The secondary gold also develops along the shear dislocations of primary gold. Gold contains microinclusions of geerite, balkanite, chalcopyrite, Se-bearing galena, sphalerite, pyrite, pyrrotite, arsenopyrite and hematite.

Twenty four (including five unnamed) platinum group minerals (PGMs) were found in 28 placers; those from the Kialim and Maly Iremel placers of the Miass placer zone were studied in

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