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Mineralogical, geochemical and genetical investigations of the Jajarm karst bauxite deposit, NE Iran

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Abstract: The Jajarm bauxite deposit is a part of the Irano-Hymalayan karst bauxite belt which is located about 175 km southwest of Bojnourd. This deposit has been developed as a stratiform horizon along the contact of Triassic dolomites and the Jurassic shales and sandstones. The basal contact zone of the bauxite horizon is mainly undulatory, and bauxite fills cavities in the footwall dolomite, whereas the upper contact zone is concordant with the hanging-wall shales and sandstones. Textural analysis indicates both allochthonous and autochtonous origins for the bauxites. Diaspore, bohemite, gibbsite, chamosite, hematite, goethite, clay minerals, anatase, cancrinite, crandallite, pyrite, and quartz were identified in the ore paragenesis. These minerals are developed during three stages of weathering, diagenetic and epigenetic processes. Combination of mineralogical and geochemical data show that this deposit formed during two main stages. First, bauxite materials, Fe and Ti oxides and clay minerals were developed as authigenic bauxitization processes of alkaline basaltic parent rock. During the second stage, these materials were transported to karst depressions, where they accumulated as a relatively thick bauxite horizon.

Keyword: *Karst bauxite; diaspore; bauxitization; allochthonous; autochtonous; Jajarm.*

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