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Evaluating the genesis of Boznein Mn deposit, Ardestan (Isfahan), based on microscopic studies and electron microbrobe data

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Abstract: Boznein vein-type has penetrated in the porphyric rhyolite-hosted and along a single northeast-trending reverse fault. Microscopic studies and electron microprobe data, show the presence of a variety of Mn minerals such as spessartine, rhodochrosite, bixbyite, hausmannite, braunite, pyrolusite, psilomelane, cryptomelane, manganite and mangano-calcite in the Mn deposit as well as braunite, pyrolusite, psilomelane, calcite, mangano-calcite and rhodochrosite in volcanoclastic sub-unit of Fe-Mn-carbonate-bearing tuff (E_6^{vct}). The mineralogical characteristics of workshop No. 1 along with its higher topography indicate that it has experienced more intense supergene activity. Field evidence, mineralogical studies and electron microprobe analyses on carbonate volcanoclastic unit (E_6^{py} & E_6^{t}) confirm genetic relationships between Mn deposit and sedimentary-volcanic sequences. It is thus concluded that hydrothermal fluids leached manganese and carbonates from the volcanoclastic rocks and then upon reaching favorable conditions, deposited these minerals along major and main faults in the region.

Keywords: *vein deposit; Boznein manganese; Ardestan; rhyolitic host; electron microprobe.*

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