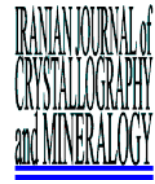




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Mineralogy and characterization of agate in the Torbate-Heidariya Bayag mine, NE Iran

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Abstract: Opal, known as Aghigh in Persian, is one of the main semi-precious rock in Iran that is present in Bayag active mine in NW of Torbat Heidarieh. Mineralogy of agate is crucial for its treatment and cutting. In this research, mineralogy of agate in Bayeg mine investigated using SEM, Raman analyses and ICP methods. Chalcedony introduced as the main constituent of agate in literature. However, this research reveals opal, chalcedony and moganite are main minerals of Bayeg mine respectively. In hand specimen, chalcedony show white and milky color, and opals are gray to dark. ICP-MS analysis showed that amounts of AL and Na, Ba and Sr present as trace of meteoric and hydrothermal fluids and igneous activities during the formation of opals.

Keywords: *Agate; chalcedony; opal; moganite; Bayag mine; Torbat Heydarieh.*

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