

## **Zeolites filling cavities and amigdales of basic volcanic rocks in NW of Davazdah-Emam mountain, north Central Iran**

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**Abstract:** The north western part of volcano-sedimentary complex of Davazdah-Emam mountain in north of Central Iran is located about 135 km SE Tehran. The Eocene to Oligocene volcanic rocks and dikes of intermediate to mainly basic of complex under the influence of hydrothermal fluids, probably associated with the involvement of meteoric water, experienced different degrees of alteration. The alteration occurred in two steps forming mafic phyllosilicates (celadonite, mixed layers of celadonite-nontronite, smectite), calcite and sodic zeolites (analcime, tetranatrolite, natrolite and chabazite-Ca) at the first step and in the second step, hydrothermal associated possibly with the involvement of the meteoric water facilitated the disposition of calcic-sodic zeolites such as stilbite-Ca, mesolite and thomsonite. Variations in temperatures, pH, CO<sub>2</sub> and H<sub>2</sub>O values, Si/Al ratio and host rocks types are the parameters that causes the diversities of mineralization through out the two steps. Maximum and minimum temperatures of zeolite formation for the first stage can be estimated around 145°C for analcime and 90°C for chabazite-Ca and for second stage, around 75°C for stilbite-Ca and 65°C for thomsonite.

**Keywords:** *Zeolite; hydrothermal alteration; secondary minerals; Davazdah-Emam mountain*

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