

Mineral chemistry and thermobarometry of mantle peridotite in the ophiolitic mélange of northwest of Birjand, East of Iran

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Abstract: The study area is located in northwest of Birjand, northern part of the Sistan suture zone in eastern Iran. There is well preserved outcrops of an ophiolite mélange in this area. This complex is composed of harzburgite, layered gabbro and spilitic basalt with flysch type rocks. Microprobe analyses of olivine, clinopyroxene, orthopyroxene and spinel in harzburgites show that olivine is forsterite ($\text{Fo}_{90.15}\text{-Fo}_{90.75}$), clinopyroxene is diopsidic augite ($\text{Mg}^{\#} = 95.8$), orthopyroxene is enstatite ($\text{Mg}^{\#} = 91.58$), and spinel ($\text{Cr}^{\#} = 41$) is Al-Cr bearing type. Based on thermobarometry of clinopyroxene and orthopyroxene minerals, crystallization temperature of peridotites is 1016 ± 100 °C at 25 Kbar pressure.

Keywords: *Ophiolitic mélange; harzburgite; thermobarometry; Birjand; Sistan suture Zone.*

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