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Geothermometry of skarns in the Nain ophiolitic mélange (Isfahan Province)

Gh. Torabi, I. Noorbehesht, N. Shirdashtzadeh, T. Pirnia

Department of Geology, Isfahan University

E-mail: Torabighodrat@yahoo.com

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Abstract: One of the metamorphic rocks in the Nain ophiolitic mélange is skarn which is formed during the contact metamorphism of intrusive tonalites with their neighboring limestones and carbonate parts of banded cherts. Minerals of these skarns consist of carbonate (calcite), clinopyroxene (diopside), garnet (grossular-andradite), wollastonite, sphene and epidote. Also tonalites contain quartz, plagioclase (albite), alkali feldspar (orthoclase), garnet (almandine-spessartine) and prehnite. Based on mineral assemblages of Nain skarns as well as geothermometry of feldspars existing in relevant granites and also applications of different calibrations of garnet-clinopyroxene geothermometer, the Nain skarns form at temperatures of about 440 to 650 °C at low pressure during a contact metamorphism which has occurred at hornblende hornfels to pyroxene hornfels facies.

Keywords: *geothermometry, Nain, ophiolite, skarn, tonalite.*