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fibrolite formation in the Chahghand gabbrodiorite contact aureole, NE Neyriz, Southern Iran

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Abstract: Intrusion of the Chahghand gabbrodiorite in regionally metamorphosed rocks of the Sanandaj-Sirjan zone in NE of Neyriz has caused contact metamorphism. A variety of pelitic hornfelses are formed as a result of thermal metamorphism. Spatial distribution of minerals in the Chahghand aureole defines three mineralogical zones namely cordierite, andalusite and sillimanite zones. Study of metamorphic reactions and phase relations indicate a pressure of 2.5 to 3.5 kbar and temperature of 500-600 °C and ~700 °C for the andalusite and the sillimanite zones respectively. Apart from crystallization of prismatic sillimanite in the sillimanite zone, fibrolite is formed in the other zones. It seems that cation leaching and deformation were the major processes in the formation of fibrolite in the Chahghand aureole. Regarding appearance of fibrolite in altered rocks far from the igneous contact, fibrolite is not crystallized within the sillimanite stability field, but it may have crystallized at lower temperatures. Therefore considering fibrolite in the rocks equivalent to sillimanite existence and estimated pressure and temperature on this basis, at least the altered rocks within the thermal aureoles is fraught with some problems.

Keywords: *Contact metamorphism, Chahghand, Neyriz, pelitic hornfels, fibrolite.*