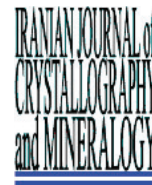




Vol. 20, No. 2, Summer 1391/2012



Application of garnet chemistry in thermodynamic studies of Dehnow Tonalite (Northwest of Mashhad)

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(Received: 21/8/2010, in revised form: 30/1/2011)

Abstract: Hornblende biotite bearing tonalite from the west of Dehnow comprises of quartz, calcic plagioclase (andesine-labradorite), garnet (mostly almandine), biotite (annite to siderophyllite), calcic amphibole (mainly ferrohornblende) and accessory minerals of chlorite, epidote, calcite and ilmenite. According to thermobarometry of amphiboles, plagioclases and garnets chemistry that have CaO content of about 4.91-5.48 wt% and MnO content of about 1.89-2.40 wt%, these garnets have crystallized in temperature and pressure ranges of 696 to 950°C and 6.4 to 12 kbar, and in a greater depth in contrast to the amphiboles and plagioclases.

Keywords: *Tonalite; Temperature; Pressure; Garnet; Dehnow; Mashhad.*