Investigation of melt distribution reactions, thermobarometry and minerals chemistry of amphibols and plagioclase leucosome, melanosome and mesosome in Takab Hornblend bearing migmatites, northwestern Iran

H. Ghorbani*, R. Hajialioghli, M. Moazzen

Department of Geology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran

(Received: 4/11/2019, in revised form: 1/2/2020)

Abstract: The process of migmatitization in the Ghareh Naz has resulted in the formation of various rate of partial melting and eventually the formation of a large spectrum of metatexitic and diatexitic migmatites. Mineral chemistry studies by EPMA method shows that amphibole composition is magnesio-hastingsite and has a metamorphic origin and feldspar composition is andesine to oligoclase. Effective reactions in the formation of the melt and Leucosome part of migmatites are include fluid-present reactions and fluid-absent reactions. High grade mineral assemblages are probably formed by the decomposition of lower-grade minerals by fluid absent reactions. The mineralogical composition of the leucosome is similar to that of tonalite to granodiorite resulting from partial melting and corresponds to the crystallization origin of the melt. Based on the thermobarometry of these rocks, the temperature is about 767 to 868 °C and the pressure is about 5.7 to 7.7 Kbar.

Keywords: Ghareh Naz; melting reactions; migmatite; mineral chemistry; temperature-barometry.

Corresponding author, Tel: 09384053164, Fax: 04133356027, E-mail: haleh_ghorbani@tabrizu.ac.ir