

Tourmaline chemistry in Malayer-Boroujerd-Shazand, (Sanandaj-Sirjan Zone)

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Abstract: The Malayer-Boroujerd-Shazand district (approximately 70 km long) is located in the Sanandaj-Sirjan zone with NW-SE trending, and consist mainly of hornfels, schist, phyllite, migmatite, granite and granodiorite which contain numerous pegmatite and aplitic dykes. Among these rocks, granodiorite, hornfels and schist are main host rocks for quartz, feldspar, muscovite and tourmaline bearing pegmatites. The tourmaline composition is schorlite-foitite type with tendency to dravite in Shazand tourmaline which show magmatic-hydrothermal origin, and located in alkali and site-vacancies. These tourmalines in the Fe/(Fe + Mg) vs MgO diagram are located above and below 0.8 which proved tourmalines are magmatic and hydrothermal. Magmatic evidences are dominantly schorlite tourmaline composition, increase in octahedral Al content, higher Fe content than Mg and presence of more sample between alkali-deficient and proton-deficient tourmaline vectors. Presence of zoning in tourmaline, vein form pegmatite, increase of Mg in some samples and being away from alkali-deficient and proton-deficient tourmaline vectors are evidences for hydrothermal origin of tourmaline.

Keywords: *Tourmaline; pegmatite; magmatic-hydrothermal; Malayer-Boroujerd-Shazand; Sanandaj-Sirjan zone.*

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