Gheochemistry and genesis of Golab chromites in ophiolite rocks East of Sarbisheh, South Khorasan Province

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Abstract: The most important geological units in East of Sarbisheh are Upper Cretaceous ophiolites assemblages that are predominantly serpentinized ultramafic in composition (dunite, harzburgite and pyroxenite). Chromite deposits in these rocks have generally various forms such as lenticular, layered and disseminated with varying dimensions. Textural studies on Golab Chromites show that they have primary textures such as massive and disseminated as well as secondary textures including cataclastic, mylonites, bereccia and extensional. Geochemistry of Golab Chromites points to average amounts of Cr₂O₃ (42.26%), MgO (17.23%), TiO₂ (0.36%) and Al₂O₃ (10.5%). The ratio Cr/Cr + Al (0.79 to 0.93) indicates that these chromites are enriched in Cr and depleted in Al. The high Cr₂O₃ and MgO contents in the Golab Chromite suggest that they were crystallized from a magma having relatively high degree of partial melting. High MgO content and Cr#, Mg# in Golab Chromites are comparable with typical parental boninitic magma. Podiform Chromitite deposits in East of Sarbisheh were probably formed in the mantle sequence, the latter was generated in the supra-subduction zone (SSZ). Golab Chromite are formed similar to Lubasa Ophiolite South Tabat.

Keywords: Supra-subduction zone, boninitic magma, geochemistry of Golab chromite, East Sarbisheh.

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