



Excess Nd and Eu Concentrations Discovered in Chromite Deposits from the Beyağaç District, Denizli region, SW Turkey

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Chromite ore and associated ultramafic rocks from the Beyağaç district (Denizli, SW Turkey), have been analysed for major and trace element concentrations. The study area covers around 30 km² in Aşağı Günlüce village, which is located three and a half kilometers west of the Beyağaç town of Denizli region. Lithological units in research area comprise, from oldest to youngest, Cratoseous aged ophiolites, intrusive gabbros in ophiolites, mostly Mesozoic aged limestone units and Quaternary aged alluvials. Chromite mineralization in research site occurs mainly as massive, nodular and disseminated type ores. Chromite mineralizations present as bedded podiform types, and compositionally Cr₂O₃ values range between 18 and 50 wt.%. The obtained compositions of the ore chromite include Cr₂O₃ 23.74-50.8 wt.%, MgO 0.15-1.1 wt.%, SiO₂ 11.39 wt.%, Fe₂O₃ 12.50 - 36.61 wt.%, TiO₂ 0.16-0.77 wt.%, Al₂O₃ 6.74-16.00 wt.%, CaO 9.69 wt.%, P₂O₅ 0.01 wt.%, MnO 0.10-0.57 wt.%, LOI 10 wt.% as major oxides, and Ag 37-76 ppm, Cl 121-386 ppm, S 36-118 ppm, Ni 1271-2279 ppm, Cu 21-32 ppm, W 6-68 ppm, Sr 14-195 ppm, V 44-794 ppm, Zn 86-316 ppm, Sm 236 ppm, Ga 32 ppm as trace elements. High rates of Al₂O₃ (9.58 wt.%) , Fe₂O₃ (10.50 wt.%), K₂O (0.19 wt.%), TiO₂ (0.77 wt.%), P₂O₅ (0.10 wt.%), Ag (46 ppm), Cl (227 ppm), V (269 ppm), Zr (46 ppm) and Sr (173 ppm) are observed in ultramafic rock samples. The rate of Cr₂O₃ in a mixture sample of both chromite vein and dunite, range between 0.16 and 0.69 wt.%. The most striking results are obtained from one sample, in which the Nd and Eu element values range between 236-1235 ppm for Nd and between 2100-2800 ppm for Eu.