



Distribution of PGE and PGM in Chromitite Rocks of the Mawat Ophiolite Complex, Kurdistan Region, NE Iraq

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The Mawat Ophiolite Complex (MOC) represents part of the Iraqi Zagros thrust zone which is a member of the Alpine Himalayan orogenic belt of Cretaceous age. The Ophiolite is one of the well exposed fragments of ocean lithosphere in northeastern of Iraq. Small lensoidal bodies of massive and disseminated chromitites have been examined in association with ultramafic rocks of the Mawat ophiolite complex (MOC), northeastern Iraq. The chromitite pods have lens-shape in a dunite envelope and both rock types are hosted by mantle harzburgite. The primary chromite composition exhibits high Cr varieties; the average Cr# of chromite is 0.73, and have <0.2% TiO₂ content, which may reflect the crystallization of chromite from boninitic magma. Partial melting in the upper mantle and assimilation of wall rocks by primitive melt might have played an essential role in the Chromitite formation in the studied area. The PGE concentrations are highly variable in the chromitite of MOC; the PGE – poor chromitites have less than 500 ppb of total PGE and the PGE- rich one has unusually high PGE concentrations =1094 ppb. Chondrite normalized patterns of platinum-group elements are typical for Ophiolite chromitite, with enrichment of the IPGE, and depletion in PPGE indicating a high degree of partial melting of the mantle source. Mineralogy of Platinum group metal in chromitite rocks occurs mainly as laurite and irarsite and has occasionally yield small grade and particularly rich in Ru, Ir and Os compared with Pt and Pd.

Keywords: Chromitite, PGE, PGM, Mawat Ophiolite.