



## **Geochemistry and mineralogy of the chromitites and their platinum group minerals in the Karaburhan (Sivrihisar-Eskişehir-Turkey) region**

**H. Sendir and K. Sarı iz**

Eskişehir Osmangazi University, Engineering-Architecture Faculty, Geological Engineering Department, Eskişehir, Turkey (hsendir@ogu.edu.tr / Phone: + 90 0 222 2393750/3507)

The aim of this study is to determine the mineralization, distribution and origin of Platinum Group Elements (PGE) in chromite outcrops and in ultramafic host rocks around Karaburhan (Sivrihisar-Eskişehir) region located, 80 km NE of Eskişehir. A total of 24 samples collected from chromites and ultramafic rocks are analysed for whole rock, trace and Platinum Group Elements (PGE) contents. The chromite is accompanied by magnetite, pentlandite, millerite and heaslewoodite. Chromites show pull apart texture and hardly fractured and pyroxenes show kink bands which are typical features of podiform chromites. The relations between chromite, serpentine and nickel sulphure are studied by Scanning Electron Microscopy (SEM). Since PGE and their alloys could not be observed with SEM and microscopic studies, the microprobe studies were conducted and during this study laurite was determined in only one sample. Compositions of Platinum Group Metal (PGM) in laurite crystal are Ru 45.017%, Os 14.175%, Ir 3.376% and S 35.011%. In podiform type, Karaburhan chromites, concentration of PGE changes between 63.75-126.59 ppb and averages as 100 ppb. Most of the samples show negative correlation in chondrite normalized diagram. This correlation is typical for podiform chromites. In the samples, the ratio of Pt/Ir is 0.06-2.7 and the ratio of Pd/Ir is 0.1-2.9. These data show that source of PGM might have been derived from a depleted mantle material which was undersaturated with respect to sulphur. In only one sample, ratios of Pt/Ir and Pd/Ir are high, indicating a fractionated magma source. For this reason, in chondrite normalized diagram this sample shows a positive correlation. It is thought that Ir, Os, Ru are associated with chromite while Pt, Pd Rh are crystallized in the relict magma, accordance with the literature review.