

Platinum group minerals (PGM) in laterite from Loma Peguera ultramafic massif (Dominican Republic)

T. Aiglsperger (1), J. A. Proenza (1), F. Zaccarini (2), G. Garuti (2), and J.F. Lewis (3)

(1) University of Barcelona, Barcelona, Spain, (2) University of Leoben, Leoben, Austria (federica.zaccarini@unileoben.ac.at), (3) G. Washington University, Washington DC, USA

The mechanism of crystallization of platinum group minerals (PGM) in the lateritic environment is still unclear. According to literature data they can represent residual minerals or they can precipitate directly from hydrothermal and low temperature solution. In this work we present the data on platinum group elements (PGE) geochemistry and mineralogy of two different horizons formed over ultramafic rocks from Loma Peguera Ni-laterite deposit of Dominican Republic. The investigated rocks consist of chromitite hosted by serpentinized peridotite, and horizons of saprolite and limonite. High total PGE amounts have been found in the chromitite (up to 3 ppm). The PGE concentrations in the other investigated samples varies from 37 up to 600 ppb. A predominance of IPGE (Os+Ir+Ru) over PPGE (Rh+Pt+Pd) is present in all the analyzed samples. A good correlation was observed between PGE and Cr whole rock content. The PGM investigated from heavy concentrate obtained using hydro-separation technique, form small grains, less than 40 microns in size and irregular in shape. They consist of Ru-Os-Ir and Pt-Fe-Ni phases and occur as free grains or in association with awaruite, chromite and Fe oxide or hydroxide. The presented data suggest that the PGE enrichment in Loma Peguera samples, at magmatic stage, was mainly controlled by precipitation of chromitite or disseminated spinels. Most of the PGM have a residual character, suggesting that they were only altered and reworked in situ. However, the few grains found in contact with Fe oxide or hydroxide may have precipitate from circulating low temperature fluids.