

## DIVERSITY OF CR-PGE MINERALIZATION: EXAMPLES FROM CENTRAL AND SOUTH AMERICA

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Chromitites are important from an economic point of view because they are the only primary source for Cr and for their potential in the recovery of platinum group elements (PGE). In this abstract we have summarized the results of an investigation on Cr-PGE mineralizations from different countries from Central and South America. In particular, podiform chromitites from Mexico and Dominican Republic and stratiform chromitites from Brazil have been studied. The investigated chromitites are characterized by different ages, geodynamic setting, genesis and post-magmatic evolution. The chromitites of Mexico occur in metamorphosed Paleozoic ophiolitic mantle at Tehuizingo (Acatlán complex). They are Al-rich, and contain up to 303 ppb platinum group elements (PGE), with an enrichment in Os+Ir+Ru. The Platinum Group Minerals (PGM) assemblage is dominated by Ru-Os-Ir minerals (laurite, osmium, irarsite and Ru-oxide) that form small grains (< 10 µm in size). Most of them formed in the post-magmatic stage. The chromitites from Dominican Republic are hosted in the Loma Peguera peridotite. These podiform chromitites are characterized by an unusual chromite composition (high Cr, Fe<sup>3+</sup> and Ti contents), high PGE concentration (up to 2040 ppb) and presence of abundant secondary Os-Ir-Ru-Pt minerals (< 15 µm in size), comprising ferronickelplatinum, ruthenium, Ru-Fe oxides and unknown Ru-Os-Ir-Pt-Fe-Ni-Cu compounds. Few grains of magmatic laurite and irarsite have also been found. The Loma Peguera chromitites possibly represent an example of chromitite formed in a suboceanic upper mantle affected by a mantle plume. The investigated stratiform chromitites are hosted in the pre-Cambrian mafic-ultramafic layered intrusions of Campo Formoso, Niquelandia and Jacurici (Brazil). Their total PGE content is generally less than 400 ppb with an enrichment in Os+ Ir+Ru. In these chromitites the most abundant PGM are Ru, Os, Ir sulfides and alloys accompanied by minor irarsite. Nevertheless, the uppermost chromitite layers at Niquelandia and Campo Formoso display a Pt enrichment up to 290 ppb and they contain small Pt minerals (< 20 µm in size), mainly Pt-Fe alloys. The present investigation shows that some Cr-PGE mineralizations of Central and South America represent a future potential target for PGE recovery, especially for the chromitites characterized by the presence of high Pt concentration and Pt specific minerals, such as Niquelandia, Campo Formoso and Loma Peguera. The most relevant problems arise from poor recovery of precious metals due to the minute grain size of their host minerals.