

V-Ni-Co-Zr-Au-Pt IN THE TITANIFEROUS MAGNETITE ORE OF THE SALTORA-MEJIA SECTOR, CHHOTANAGPUR GNEISSIC COMPLEX, EASTERN INDIA

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Abstract

Titaniferous magnetite ore occur as bands, lenses and veins in the metamorphosed gabbro-norite-anorthosite suite of rocks in the Saltora – Mejia sector, Bankura district, West Bengal. The area represents a part of the Precambrian Chhotanagpur Gneissic Complex of the East Indian Shield and comprises of different types of granites, gneisses, migmatites, pegmatites, hydrothermal veins, sillimanite-garnet (\pm graphite) – bearing khondalites, calc-granulites, amphibolites and metamorphosed gabbro-norite-anorthosite suite of rocks. Magnetite, besides the aforesaid occurrences, is present in various concentrations as dissemination, lenticular patches and stringers in all the metabasic rocks. The ore is principally composed of magnetite, ilmenite and hercynite with minor amounts of martite/ haematite, cobaltite – gersdorffite, chalcopyrite, millerite, aluminous pseudo-brookite and silicates. Magnetite contains 0.4 – 1.1% V, 0.2 – 0.6% Ni, 0.2 – 0.79% Co and 1.10 – 3.33% Zr. Ilmenite contains 0.02 – 0.75% V, 0.03 – 0.6% Ni, 0.06 – 0.38% Co and 0.38 – 1.87% Zr. Hercynite / Magnesio-hercynite contains 0.09 – 0.84% V, 0.2 – 0.49% Ni, 0.04 – 0.39% Co and 0.15 – 2.61% Zr. Significant concentrations of V, Ni, Co, Zr, Au and Pt in magnetite, ilmenite and hercynite are being reported for the first time from this nearly 25 km long mineralized belt.

Keywords: Magnetite Ore, V-Ni-Co-Zr-Au-Pt, Gabbro-Anorthosite, Chhotanagpur Complex, Eastern India.