

## ARCHEAN Zn-BEARING CHROMITES OF BRAZIL

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Zn-bearing archaean chromites (ZnCr: ZnO 1 to 10 wt.-%) of the greenstone belts (GB) Rio das Velhas, Piumhi, Sêrro (Minas Gerais) and Mundo Novo (Bahia) and of the palaeoproterozoic gold-bearing Jacobina (Bahia) metaconglomerates (JMC) were studied. ZnCr occur in the GB as primary magmatic accessories of little or nondifferentiated peridotitic komatiites forming skeletal or idiomorphic microcrysts (up to ~50 µm). In the JMC they are hypidiomorphic-subrounded fine-grained detrital heavy matrix-minerals associated with sulphides, rutile, zircon and gold. The ZnCr are opaque in transmitted light showing homogeneous reflectivity (higher than common chromite) and anisotropy in ore-microscopy; optical crystal-zoning is absent yet ferrite-chromite alterations and magnetite overgrowths do occur. Primary mineral inclusions are rare and diminute Fe and Fe-Ni sulphides, PGE-minerals and, more frequent, replaced olivines. ZnCr show a very characteristic crystallo-chemical signature due to special contents and relationships of Mg-Fe<sup>2+</sup>, Cr-Al-Fe<sup>3+</sup>, Zn, Mn and Ti. They are chemically very homogeneous on a crystal and sample scale. Variations between different magmatic occurrences and flow portions are due to primary magma compositions and minor differentiation, but do not extinguish the crystallo-chemical signature. This signature is extinguished by the ferrite-chromite alteration. Detrital ZnCr in the JCM are eroded from GB successions and are useful as metallogenetic indicators; they occur preferentially in the gold-bearing conglomerates.