

DISTRIBUTIONS OF TRACE ELEMENTS OF HOST VOLCANOSEDIMENTARY ROCKS OF THE CERRO DOS MARTINS COPPER DEPOSIT, SOUTHERN BRAZIL: SOURCE CONSTRAINTS.

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The Cerro dos Martins copper deposit is the second most important base-metal deposit hosted in the volcanosedimentary clastic sequences of the Bom Jardim Group of Neoproterozoic-age in the Camaquã Basin, southern Brazil. It consists of a set of Cu-sulphide massive NW-trending veins that fill voids and fractures within volcanosedimentary sequences of the Bom Jardim Group and stratabound disseminations enclosed in siltstone, sandstone, conglomerate and andesite. Chalcocite and bornite are the dominant ore minerals of the deposit, with chalcopyrite, pyrite, galena, and sphalerite subordinate. Geochemical trace element studies of Zr, Cu, Ni, V, Co, Pb, Y, Cr, Nb, Sr, Ba, B, Zn performed on 71 samples from five drill cores of the Cerro dos Martins deposit show an enrichment of Cu in the basal section part of the host volcanosedimentary sequence and Pb and Zn enrichment in the middle and upper section (compositional zoning connected to basalts and andesites fragments components of sedimentary rocks, respectively); statistical behavior of copper in the sedimentary beds is independent of the other trace elements due to its epigenetic nature and high Cu, Pb, Zn, Co, Ni, Sr and Ba anomalies are concentrated in the brecciated and fractured horizons in subhorizontal volcanosedimentary sequence. The high level of concentration of trace element metals in the sedimentary beds of the Bom Jardim Group indicates that its mineralization was mostly derived from volcanosedimentary wall rocks, whereas previous Pb isotope results for the sulphides of ores indicated that they were derived from a largely crustal source.