

The mineralogy of the manganese mine Morro da Mina, Minas Gerais, Brazil

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Several samples of the manganese mine Morro da Mina, located near Conselheiro Lafaiete, were studied in order to determine the mineralogy of the main ore types. Rock samples of the metamorphic, precambrian, manganese bearing series were collected from various locations of the mine and examined with different methods, including X-ray diffraction, scanning electron microprobe, optical analysis, X-ray fluorescence and neutron activation analysis.

First results prove the presence of rhodochrosite and of other members of the calcite-rhodochrosite series. There are also indications for the presence of kutnahorite. Graphite is always present. The main silicate phases are spessartite garnet, rhodonite, and tephroite. Rhodonite and tephroite contain remarkable amounts of Mg and Fe replacing Mn up to one third. Amphiboles are extremely rich in Mn and probably belong to the cummingtonite series. Minor amounts of iron-bearing pyrophanite were also detected. Ore microscopy shows the presence of alabandite, pyrite, chalcopyrite and cobaltite. Cryptomelane was identified as one of the main manganese oxide phases.