

**CALCULATION OF SMELTING REACTIONS FOR TWO COPPER CONCENTRATES
OF THE PALABORA MINING COMPANY**

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Palabora Mining Company operates a 120000 tonnes/year copper smelter, with one large coal-fired reverberatory furnace. To supplement newly-mined material, it is desired to process a quantity of stockpiled material of unusual origin. The MgO-content of this material is significantly higher than normal copper concentrate, leading to concern about the ability of the reverb to handle the slag produced. In this study we have used METSIM mass balance software together with MTDATA phase equilibrium software, to predict the liquidus temperature of the slags, allaying this concern. The results also shed interesting light on the smelting characteristics of different concentrates.