

**DATABASES AND SOFTWARE FOR THERMODYNAMIC
SIMULATION OF COPPER SMELTING AND CONVERTING**

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A thermodynamic database for the slag, matte and liquid copper phases in the Cu-Ca-Fe-Pb-Zn-Si-O-S system has been developed for the ranges of compositions of importance to the production of copper. When used with the Gibbs energy minimization software and other databases of the F*A*C*T thermodynamic computing system, this database will permit the calculation of matte-slag-copper-gas phase equilibria that take place during copper smelting and converting. The calculations reproduce within experimental error limits all available experimental data on phase diagrams, activities of components, enthalpies of mixing, matte - alloy miscibility gap, solubilities of Cu in the slags, sulfide contents (sulfide capacities) of the slags, the distribution of Pb and Zn among matte, slag, copper and gas, etc.