United States Patent [19]

Touro

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[54] **OXIDATION-LEACHING OF CHALCOPYRITE**

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[52] **U.S. Cl.** **423/35;** 423/41

[51] **Int. Cl.²** **C01G 3/10**

[58] **Field of Search** ..... 423/27, 34, 35, 36, 423/41, 141; 75/108, 101 R, 117

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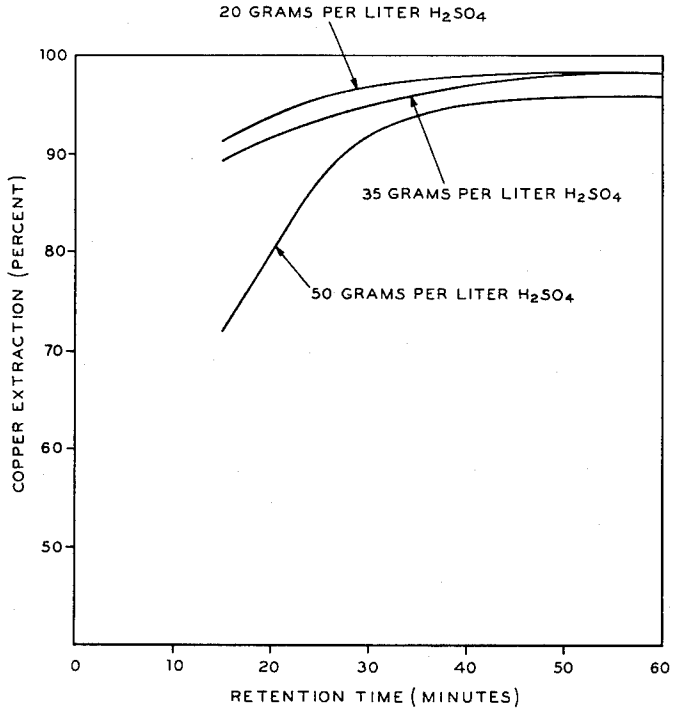
[57] **ABSTRACT**

A method is described for the oxidation-leaching of chalcopyrite concentrates at high temperatures and pressures for the extraction of copper values as copper sulfate in which temperatures are maintained between about 425° and 450°F, oxygen partial pressures of between about 50 and 200 psi are provided, and levels of acidity are permitted to increase above about 50 grams of H_2SO_4 per liter in order to obtain maximum rates of extraction of virtually all of the copper. Thereafter, while maintaining the temperature and pressure at elevated levels, the acidity of the slurry is reduced to between about 10 and 40 grams of H_2SO_4 per liter in order to obtain reduction of dissolved iron to optimal levels. The resulting slurry is then cooled and further processed for the production of a very pure copper sulfate solution.

4 Claims, 3 Drawing Figures



PERCENT COPPER EXTRACTION VERSUS OXIDATION-LEACHING RETENTION TIME FOR A COPPER SULFIDE CONCENTRATE AT 400°F., 200 psi OXYGEN PARTIAL PRESSURE, AND VARIOUS INITIAL ACID LEVELS