

COAL DESULFURIZATION: COSTS/PROCESSES AND RECOMMENDATIONS,

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This paper contains a review of the costs and technology for removal of sulfur by physical and chemical means. In particular, experimental results and economic analyses are presented for the use of $\text{Fe}_2(\text{SO}_4)_3$ to remove pyritic sulfur. Also, included is a description of Kennecott Copper's new low temperature process for the removal of pyrite and some organic sulfur from coal. The major conclusions briefly stated are:

- (1) The best physical desulfurization process can only remove about 70% of the pyrite and has costs in the neighborhood of stack gas cleaning.
- (2) While $\text{Fe}_2(\text{SO}_4)_3$ does remove more than 95% of the pyrite, the reaction time is in the order of hours which leads to high capital and operating costs. In addition, the regeneration of ferric ion remains a major process uncertainty.
- (3) Kennecott's process has removed 100% of the pyritic sulfur and 20% of the organic sulfur in Illinois No. 6 coal at costs comparable to stack gas cleaning.