

### Selective Oxidation of Hydrogen Sulfide to Elemental Sulfur with Cu/MgO Catalyst in a Slurry Reactor

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The Cu/MgO catalysts with different Cu loadings (1,4,6,15 and 30 wt%Cu) were prepared by a wet impregnation with copper nitrate as precursor. All of the catalysts were characterized by BET surface analyzer, X-ray diffraction (XRD), temperature programmed reduction (TPR). The maximum removal capacity of H<sub>2</sub>S was obtained with 4 wt% Cu/MgO catalyst, which corresponding to the highest BET surface area among the measured catalysts. The XRD of Cu/MgO catalysts showed that well dispersed Cu particles could be present on Cu/MgO with Cu loadings below 4 wt%. The crystallites of bulk CuO appeared above 6 wt% Cu/MgO, which confirmed by XRD. TPR profiles showed that the reducibility of Cu/MgO was strongly related to the loading amounts of Cu on MgO support. Therefore, the highest removal efficiency of H<sub>2</sub>S in wet oxidation could be ascribed to a good dispersion and high reducibility of Cu/MgO catalyst.