

### SO<sub>x</sub> removal performance of MgO based sorbent promoted with Cerium and Iron oxide

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MgO-based SO<sub>2</sub> sorbent promoted with Ce, Co, Fe and Cu were developed for the use in the regeneration unit of RFCC and FCC. Their abilities of SO<sub>2</sub> absorption as well as regeneration were investigated in Fixed-bed under RFCC and FCC conditions (sulfation of MgO to MgSO<sub>4</sub> in the atmosphere of SO<sub>2</sub> : 700°C, regeneration of MgSO<sub>4</sub> to MgO and H<sub>2</sub>S in the presence of H<sub>2</sub> : 530°C). The promoters such as Cerium, Cobalt and Iron played an important role in transforming SO<sub>2</sub> into SO<sub>3</sub> could can easily absorb to the MgO and their abilities of oxidation increased in the following order: Fe < Co < Ce. The regeneration properties of the MgO based sorbent (hydrogenation of metal sulfate to the metal oxide and H<sub>2</sub>S) depended on these promoters in regeneration condition. In regeneration performance, regeneration rate of Mg-based sorbent promoted with Fe was faster than those promoted with Co and Ce. So far, MgO sorbent promoted simultaneously with Ce and Fe was prepared and it showed SO<sub>2</sub> removal and regeneration abilities in RFCC and FCC unit in that this material could satisfy with requirement of SO<sub>2</sub> absorption and regeneration performance.