

Study on the structure of Fe/MgO catalysts for H₂S wet oxidation

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Wet catalytic oxidation was performed at room temperature with 1 wt% Fe/MgO, 4 wt% Fe/MgO, 6 wt% Fe/MgO, 15 wt%/MgO and 30 wt% Fe/MgO catalysts. The 6 wt% Fe/MgO catalyst has a maximum capacity of 2.6 g H₂S/g_{cat} for H₂S removal. The amounts of paramagnetic Fe³⁺ cations are correlated with the H₂S removal capacity of the Fe/MgO catalysts from Mössbauer experiments. It is observed that the deactivation of the 6 wt% Fe/MgO catalyst can be due to the loss of the paramagnetic Fe³⁺ cations during the reaction.

KEY WORDS: wet oxidation; H₂S removal; Fe/MgO catalyst; Mössbauer.