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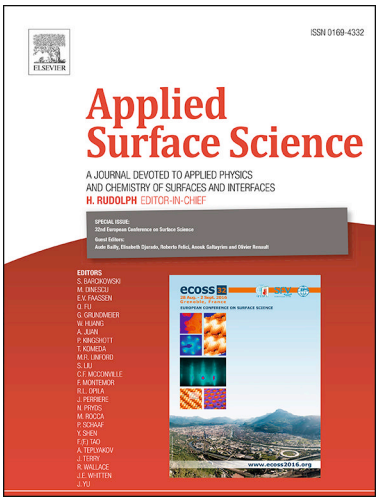

Full Length Article

In-situ DRIFTS investigation on the selective catalytic reduction of NO with NH_3 over the sintered ore catalyst

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In-situ DRIFTS investigation on the selective catalytic reduction of NO with NH_3 over the sintered ore catalyst

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Abstract: In this study, the sintered ore used as catalysts for the selective catalytic reduction (SCR) of NO_X with NH_3 from the sintering flue gas was investigated. The experimental results demonstrated that the maximum denitration efficiency, about 61.64%, occurred at 300°C, 1.0 NH_3/NO ratio, and 1000 h^{-1} gas hourly space velocity (GHSV). In order to understand the SCR denitration mechanism, the catalyst was characterized by DRIFTS, XPS, H_2-TPR, BET and ICP-MS. It was found that there were Lewis and Brønsted acid sites at the surface of the sintered ore, which lead to the appearance of amide species ($-NH_2$), NH_4^+ intermediates, gaseous or weakly adsorbed NO_2 and nitrite species. Hence, it was concluded that the reaction of the amide species

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