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Acidity of Silica-Alumina Catalysts By Amine Titration Using Hammett Indicators and FT-IR Study of Pyridine Adsorption

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Abstract: In this study, characterization and surface acidity of Siral (SiO_2-Al_2O_3) compounds were investigated with Hammett acidity functions, the n-butylamine titration method and FTIR analysis of the spectra of pyridine adsorption. All the samples had an acid strength of H_0\leq+2.8. The calculated total amount of acid of the samples increased with the increase in SiO_2 content up to Siral 40 and then decreased sharply in the case of Siral 80. Maximum amount of acidity was observed in the case of Siral 40 as 1.37mmole/g. No evidence was found for a band at 1540 cm^{-1} on Pural indicating that there were no Bronsted sites on the surface strong enough to react with pyridine. As a result, we can say that the Lewis sites predominate in all the silica-aluminas.

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