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Cover image

Thermolysis of alkyl aryl ethers catalysed by HZSM-5, P-HZSM-5, H-Theta-1, H-Y and H-Mordenite zeolites

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Abstract

The thermolysis of anisole and phenetole under flow and batch conditions was examined over zeolites (HZSM-5, P-HZSM-5, H-Theta-1, H-Y and H-mordenite). The major components of the product mixture were phenol, the rearranged products (cresols and ethylphenols) and alkylated substrates (methylanisoles and ethylphenetoles). All the zeolites showed ortho selectivity in cresols and ethylphenols while the medium-pore zeolites (HZSM-5, P-HZSM-5 and H-Theta-1) showed para selectivity in methylanisoles and ethylphenetoles in contrast to the large-pore zeolites (HY and HM) which showed ortho selectivity. The observed selectivities are thought to be due to both kinetic effects (diffusion) and transition state selectivity over these zeolites.

Keywords

Alkyl aryl ethers; Anisole; Phenetole; Thermolyses; Zeolites

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