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Rearrangement of N-methylaniline over H-ZSM-5, H-Theta-1, and H-Y zeolites

Abstract

It was reported recently that aniline in the presence of ammonia was converted to picolines over zeolite catalysts. The picolines are important intermediates in the dye and resins industries. However, no report has appeared on the reactions of arylamines over zeolites despite the fact that nitrogen heterocycles make up part of the structure of oil shale kerogens. The thermal arrangement of N-alkylaniline hydrochlorides in a sealed tube to give ring-alkylated anilines has long been known as the Hoffmann-Martius rearrangement. In this note, the authors describe the rearrangement of N-methylaniline involving a methyl-N bond cleavage to ring-alkylated anilines and N-methylation to N, N-dimethylaniline over H-ZSM-5, H-Theta-1 and H-Y zeolites.

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