

Halophenol Rearrangement in Lewis Acid-Catalyzed Friedel–Crafts Conditions: Evidence of Competitive Initial Protonation and Acylation

ABSTRACT

Halogen rearrangement was observed during the Lewis acid-catalyzed Friedel–Crafts reaction of phthalic anhydride with bromophenols or bromoanisole. Further investigation revealed that 2-, 3-, and 4-bromophenols undergo rearrangement into other isomers under these reaction conditions. Product distribution from these reactions suggested that halogen rearrangement takes place during the σ -complex intermediate of the condensation step. Furthermore, iodophenol undergoes hydrodeiodination rapidly rather than rearrangement, whereas chlorophenol does not undergo rearrangement at all.