Metalation of Toluene and Cumene with Alkali Metal–Crown Ether Complexes

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Abstract—Metalation of toluene and isopropylbenzene with alkali metal–crown ether complexes led to the corresponding α-metalated alkylbenzenes. Treatment of the latter in succession with solid carbon dioxide, water, and hydrochloric acid gave carboxylic or dicarboxylic acids in 65–78% yield. Metalation of isopropylbenzene with sodium or potassium crown ether complexes above 90°C was accompanied by cleavage of the polyether ring with formation of organometallic compounds which then reacted with isopropylbenzene to produce 2-sodio(potassio)-2-phenylpropane and open-chain oligoether.

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