

Electrochemical amination of N,N-dimethylaniline

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Abstract

The process of indirect cathodic amination of N,N-dimethylaniline using the Ti(IV) – NH₂OH system was studied in aqueous solutions of 7–16 M sulfuric acid at 40 °C. An increase in the acid concentration was accompanied by a raise in the efficiency of amine radical cation substitution. In 16 M H₂SO₄, N,N-dimethyl-p- and N,N-dimethyl-m-phenylenediamines (2:3) were obtained with the total current and dimethylaniline yields of 94% and 100%, respectively. Comparative analysis of the results of amination of N,N-dimethylaniline and aniline in the sulfuric acid media was carried out.

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Keywords

Amine radical cation aromatic substitution, Cathode, Hydroxylamine, N, N-dimethylaniline, Ti(IV)/Ti(III) mediator system

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