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Synthesis of Cationic Bleach Activator for Textile Industry

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Abstract : Exceedingly high temperatures are used (around 95 °C) to perform hydrogen peroxide bleaching of cotton fabrics in textile industry, which results in high energy consumption and also gives rise to significant fiber damage. Activated bleach systems have the potential to produce more efficient bleaching through increased oxidation rates with reducing energy cost, saving time and causing less fiber damage as compared to conventional hot peroxide bleaching. In this study, a cationic bleach activator was synthesized using caprolactam as a leaving group and triethylamine as a cationic group to establish an activated peroxide system for low temperature bleaching. Cationic bleach activator was characterized by FTIR, 1H NMR and mass spectrometry. The bleaching performance of the prototype cationic bleach activator was evaluated and optimizing the bleach recipe was performed.

Keywords : bleach activator, cotton bleaching, hydrogen peroxide bleaching, low temperature bleaching
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