

Optimization of Batch to Up-Scaling of Soy-Based Prepolymer Polyurethane

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Abstract : The chemical structure of soybean oils have to be chemically modified through its tryglyceride to attain resemblance properties with petrochemicals. Sulfur acid catalyst in peracetic acid co-reagent has good performance on modified soybean oil structures through its unsaturated fatty acid moiety to the desired hydroxyl functional groups. A series of screening reactions have indicated that the ratio of acetic/peroxide acid 1:7.25 (mol/mol) with temperature of 600°C for soy-epoxide synthesis are prevailed for up-scaling of bodied soybean into 10 and 20 folds from initials. A two-step process was conducted for the preparation of soy-polyol in designated temperatures.

Keywords : soybean, polyol, up-scaling, polyurethane

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