Global sensitivity analysis to identify influential model input on thermal risk parameters to cottonseed oil epoxidation

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Abstract

The influence of the inputs on thermal risk parameters in a chemical reactor is important to know. This knowledge can establish adequate safety barriers. The following thermal risk parameters were studied: the maximum reaction temperature, the temperature rise and the time to reach this reaction maximum temperature. Global sensitivity analysis was proposed as a new perspective to evaluate the influence and the interaction of the inputs on thermal risk parameters. This method was applied to the exothermic system: epoxidation of cottonseed oil by performic acid in semibatch mode under isoperibolic conditions.

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