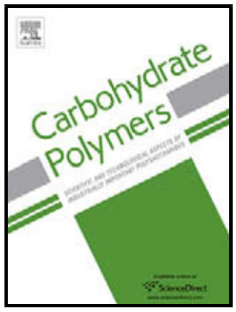

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Cellulosic Cr(salen) complex as an efficient and recyclable catalyst for copolymerization of SO_2 with epoxide

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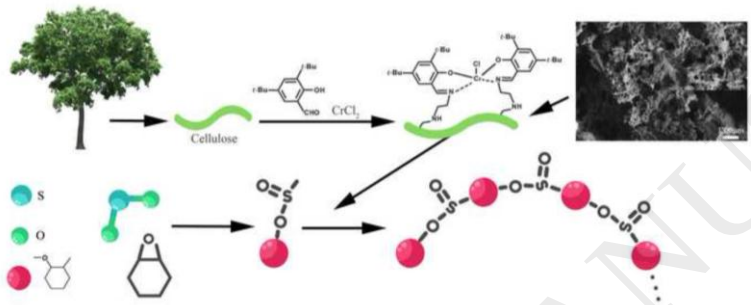
Graphical abstract



Highlights

- Cellulose prepared Salen-type heterogeneous catalyst.
- This catalyst was characterized.
- SO_2 and epoxide were copolymerized by this catalyst.

Abstract:

The search for green catalytic processes for the synthesis of useful polymers and incorporating the waste SO_2 in highly-selective pathways become extremely important in the coming years. Herein, cellulose was modified by ethylenediamine, and then synthesized Schiff base with 3,5-di-tert-butyl-2-hydroxybenzaldehyde to immobilize chromium chloride and formed a novel heterogeneous cellulosic Cr(salen)-type catalyst for the first time. The cellulosic Cr(salen)-type catalyst shows high efficiency and recyclability in copolymerization of cyclohexene oxide with SO_2. The influence factors such as the molar ratio of the catalyst and cyclohexene oxide, reaction temperature, and reaction time were researched in detail to study the optimal