

Meso TiO<sub>2</sub> treated different calcination  
temperature as catalyst for epoxidation of  
1-octene with hydrogen peroxide

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Epoxides are well known as one of the most valuable building blocks, which can be used as intermediates for chemicals production. From an industrial point of view, The epoxidation of alkene has received the great attention. Until now, epoxides are produced by a large peracid as oxidant. However, peracid has many disadvantages such as expensive, hazardous, and acid waste. So hydrogen peroxide is an ideal oxidant for epoxidation of 1-octene because of its ease of handling and high activity as oxidant, as well as the fact that byproduct is natural product, namely water.

In this study, to develop catalysts for the epoxidation, the epoxidation reaction of the 1-octene and H<sub>2</sub>O<sub>2</sub> as oxidant were carried out. A series of meso-TiO<sub>2</sub> that treated different calcination temperature from 200 °C to 700 °C were successfully synthesized. The properties of as-prepared catalysts were characterized by X-ray diffraction, N<sub>2</sub> - sorption, scanning electron microscope. These catalysts show different epoxidation activities for 2 hours. In particular, meso-TiO<sub>2</sub> 300 °C exhibits best catalytic activity than other catalysts.