

# ROBUST AND SELECTIVE SOLID CATALYST FOR TAIL END OF OLEFIN-EPOXIDATION FLOW REACTOR

Tech ID: 26013 / UC Case 2017-011-0

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,898,887	01/26/2021	2017-011

## BRIEF DESCRIPTION

Flow reactors are a useful method for Olefin epoxidation reactions, which are highly exothermic reactions. Organic hydroperoxide and olefin conversion levels to epoxide are low at the entrance of the reactors and improve at the tail end of the reactor. At the tail end of the reactor, there is excess alcohol coproduct and hydroperoxide in addition to epoxide. Both Solid and liquid catalysts are used to improve conversion levels at all stages in the reactors. The catalysts to date are efficient at the entrance of the reactor, but lose efficiency at the tail end of the reactor where epoxide is to be produced and separated.

Researchers at UC Berkeley have developed a crystalline solid catalyst for olefin epoxidation which is highly selective for epoxide production at the extreme conditions of high temperature and organic-hydroperoxide conversion at the tail end of the olefin-epoxidation reactor. The catalyst is white crystalline solid of titanium and is based on a layered zeolite precursor. The researchers have further developed methods of using multiple catalysts in a single reactor, where the developed catalyst is used as the catalyst at the tail end of the reactor, in the form of a packed bed, while one or more other catalyst(s) are used at the entrance of the reactor.

## SUGGESTED USES

Olefin oxide manufacturing

## ADVANTAGES

Significant increase in epoxide production over current catalysts.

## RELATED MATERIALS

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Ligand-Modified Metal Clusters For Gas Separation And Purification](#)
- ▶ [Delamination Of Layered Zeolite Precursors Under Mild Condition](#)
- ▶ [Process For Aromatic Alkylation That Uses Properties Of Delaminated Zeolites](#)

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## INVENTORS

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## OTHER INFORMATION

### KEYWORDS

Olefin Epoxidation

### CATEGORIZED AS

» [Materials & Chemicals](#)

» [Chemicals](#)

### RELATED CASES

2017-011-0

