



# New Substrate to Enhance Catalytic Activity

Tech ID: 30446 / UC Case 2019-110-0

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## BACKGROUND

The development of catalysts for applications like olefin metathesis have been revolutionary in promoting green chemistry for industrial and commercial applications. Specifically olefin metathesis are cost-effective and easily scalable. Methods and substrates to enhance the activity of metathesis catalysts are desirable.

## BRIEF DESCRIPTION

Researchers at UCR have developed a sulfated zirconium oxide substrate containing strong Lewis acid sites to enhance the activity and selectivity of heterogeneous catalysts. As seen in Fig 1, this new heterogeneous catalyst significantly increases catalyst activity compared to a known olefin metathesis catalyst in homogeneous solution.

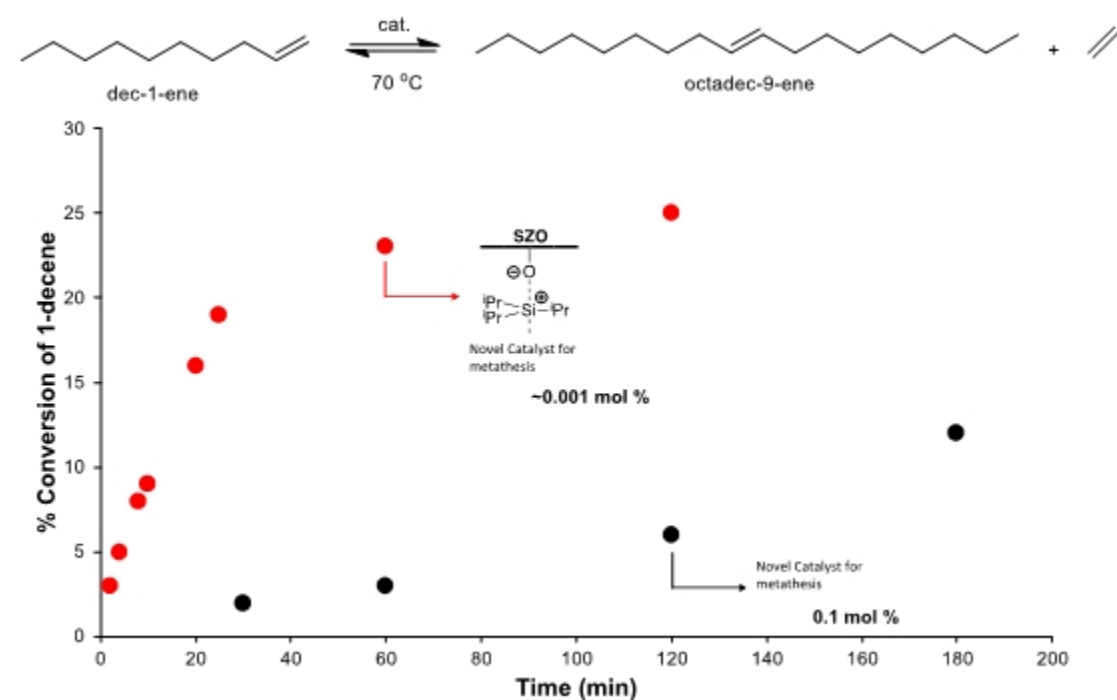


Fig. 1 shows the catalytic activity for the UCR supported catalyst (red dots) at ~0.001 mol % loading in the metathesis of 1-decene. The black dots are metathesis activity of the same catalyst unsupported catalyst in solution at 0.1 mol%.

## APPLICATIONS

- This substrate may be used to enhance the activity of known catalysts.

## RELATED MATERIALS

- Culver, D. et al. Activation of C-F Bonds by Electrophilic Organosilicon Sites Supported on Sulfated Zirconia. *Angew. Chem. Int. Ed.*, 2018 57, 14902-14905 - 09/28/2018

## PATENT STATUS

| Country                  | Type          | Number     | Dated      | Case     |
|--------------------------|---------------|------------|------------|----------|
| United States Of America | Issued Patent | 11,512,102 | 11/29/2022 | 2019-110 |

## OTHER INFORMATION

### KEYWORDS

heterogeneous, catalyst, Lewis acid, metathesis, sulfated zirconium, olefin

### CATEGORIZED AS

- [Materials & Chemicals](#)
- [Other](#)

### RELATED CASES

2019-110-0

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