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A non-sodium synthesis of highly ordered V-MCM-41 and its catalytic application in isomerization

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URECA

Undergraduate Research Experience on CAmpus

Category: 2 Project ID: SCBE08013

Student: Li Lusi

School of Chemical and Bimolecular Engineering

A non-sodium synthesis of highly ordered V-MCM-41 and its catalytic application in isomerization

Objective

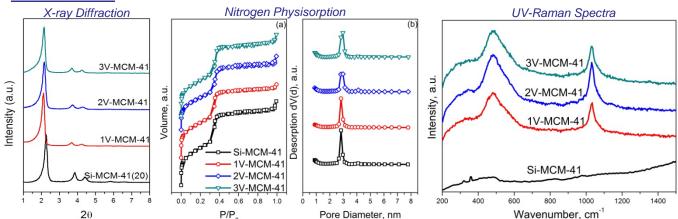
To synthesize highly ordered V-MCM-41 using direct hydrothermal approach and investigate its catalytic application in alkene isomerization.

V-MCM-41

MCM-41 is one of the most popular mesoporous molecular sieves. The incorporation of vanadium manipulates the acidity on the MCM-41 pore wall surface to some extent.



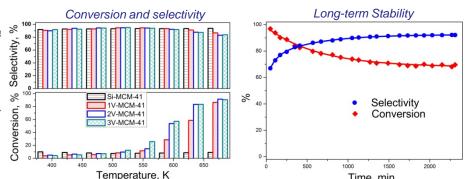
Characterization



Heptene Isomerization

The experiments study the heptene Isomerization under hydrogen flow over V-MCM-41 mesoporous molecular sieves.

The long-term stability of 2V-MCM-41 catalyst was test under 593K for 40 hours.



Conclusion

A series of highly ordered V-MCM-41 samples were successfully synthesized.

The heptene isomerization result shows that V-MCM-41 catalysts presented high conversion and isomer selectivity.

Project Title: Heptane hydroisomerization over Pt/V-MCM-41

Supervisor: Asst Prof Yang Yanhui