

## **Samarium Ion Exchanged Montmorillonite for High Temperature Cumene Cracking Reaction**

Montmorillonite clay is cation exchanged with samarium and its catalytic influence in cumene cracking reaction is investigated. Effect of exchange with sodium ions on further exchange with samarium ions is also noted. Acidity measurements are done using Temperature Programmed Desorption (TPD) of ammonia. The retention of basic structure is proved from FTIR spectra and XRD patterns. Elemental analysis result shows that samarium exchange has occurred, which is responsible for the higher catalytic activity. Surface area and pore volume remains more or less unaffected upon exchange. Thermogravimetric analysis indicates the enhanced thermal stability on exchanging. Cumene cracking reaction is carried out at atmospheric pressure in a fixed bed glass reactor at 673 K. The predominance of Brønsted acidity is confirmed from high selectivity to benzene.