

Fluid Catalytic Cracking: Zeolite Catalyzed Chemical Industry Processes

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Abstract : One of the major conversion technologies in the oil refinery industry is Fluid catalytic cracking (FCC) which produces the majority of the world's gasoline. Some useful products are generated from the vacuum gas oil, heavy gas oil and residue feedstocks by the FCC unit in an oil refinery. Moreover, Zeolite catalysts (zeo-catalysts) have found widespread applications and have proved to be substantial and paradigmatic in oil refining and petrochemical processes, such as FCC because of their porous features. Several famous zeo-catalysts have been fabricated and applied in industrial processes as milestones in history, and have brought on huge changes in petrochemicals. So far, more than twenty types of zeolites have been industrially applied, and their versatile porous architectures with their essential features have contributed to affect the catalytic efficiency. This poster depicts the evolution of pore models in zeolite catalysts which are accompanied by an increase in environmental and demands. The crucial roles of modulating pore models are outlined for zeo-catalysts for the enhancement of their catalytic performances in various industrial processes. The development of industrial processes for the FCC process, aromatic conversions and olefin production, makes it obvious that the pore architecture plays a very important role in zeo-catalysis processes. By looking at the different necessities of industrial processes, rational construction of the pore model is critically essential. Besides, the pore structure of the zeolite would have a substantial and direct effect on the utilization efficiency of the zeo-catalyst.

Keywords : catalysts, fluid catalytic cracking, industrial processes, zeolite

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