

Methanol to Olefins: from fundamental to commercialization

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Methanol-to-olefin reaction is one of the most important and innovative reaction route connecting coal-based chemicals and petrochemicals production and also provides an alternative way to produce backbone chemicals from some abundant non-oil resources, such as coal or natural gas. The reaction involves the formation of C-C bond from C1 reactant as initial step followed by many possible reaction paths, giving a complicated reaction network, which makes the selectively control of the reaction path for target products generation to be a great challenge. The long term and continuous research effort of the scientists in DICP made many outstanding contributions to this process, from fundamental findings to DMTO technology inventions for coal-to-olefins industry. In August, 2010, the world's first commercial application of MTO process (DMTO), with a production capacity of 600,000 ton of light olefins per annum, was proved to be completely successful in Baotou, China. This presentation gives a summary of the important progresses in reaction mechanism, molecular sieve synthesis, MTO catalyst, technology development and commercialization of methanol to olefin process.