Innovative Fluidized Bed Technologies in Methanol to Olefins (MTO) Processes

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The increasing demand of light olefins has triggered significant interests in developing coal via syngas and/or methanol to olefins processes. A methanol to olefins process (DMTO) developed by the Dalian Institute of Chemical Physics (DICP), Chinese Academy of Sciences, which was successfully commercialized in 2010 in Shenhua Baotou's coal-to-olefins (CTO) plant (with an ethylene and propylene production capacity of 600 kt/a). In this DMTO process, fluidized bed reactor-regenerator configuration, akin to that in the fluid catalytic cracking (FCC) process, has been used. The DMTO reactor is a shallow fluidized bed with an aspect ratio of 0.3, representing a novel practice in industrial fluidized bed design. In this talk, we will discuss the progress of fluidized bed technologies in DICP, focusing on the applications in methanol to olefins processes developed in recent years.