

ABSTRACT

The present application discloses a fluidized bed reactor, a device, and a production method. The fluidized bed reactor includes a main shell and a coke control zone shell; the main shell includes an upper shell and a lower shell; the upper shell encloses a gas-solid separation zone, and the lower shell encloses a reaction zone; the reaction zone axially communicates with the gas-solid separation zone; the coke control zone shell is circumferentially arranged on an outer wall of the main shell; the coke control zone shell and the main shell enclose an annular cavity, and the annular cavity is a coke control zone; n baffles are radially arranged in the coke control zone, and the n baffles divide the coke control zone into n coke control zone subzones, where n is an integer; the coke control zone subzones are provided with a coke control raw material inlet; and a catalyst circulation hole is formed in each of $n-1$ of the baffles, such that a catalyst entering the coke control zone flows in an annular direction. The fluidized bed reactor can control the coke content, coke content distribution, and coke species in a dimethyl ether/methanol to olefins (DMTO) catalyst, thereby controlling the performance of the DMTO catalyst and improving the selectivity for low-carbon olefins.

Figure 1 for publication