

ABSTRACT

The present application discloses a fluidised bed regenerator, an apparatus for preparing low carbon olefin, and an application thereof. The fluidised bed regenerator includes a second activation zone, a first activation zone, and a gas-solid separation zone from bottom to top; the second activation zone axially communicates with the gas-solid separation zone; the first activation zone is arranged on a periphery of a junction between the second activation zone and the gas-solid separation zone; the first activation zone is an annular cavity; n baffles are radially arranged in the first activation zone, and the n baffles divide the first activation zone into n first activation zone subzones; and a catalyst circulation hole is formed in each of n-1 of the baffles such that a catalyst entering the first activation zone flows in an annular direction. The regenerator can adjust the coke content, coke content distribution, and coke species in a dimethyl ether/methanol to olefins (DMTO) catalyst to control an operation window of the DMTO catalyst, which improves the selectivity for low carbon olefins and the atomic economy of a methanol-to-olefins (MTO) technology.

Figure 1 for publication