

ABSTRACT

The present application discloses a naphtha-to-aromatics fluidized bed device, the device at least comprises: a light hydrocarbon aromatization reactor; and a naphtha-to-aromatics reactor; the high-temperature regenerated catalyst is first directed into the light hydrocarbon aromatization reactor, and after cooling, subsequently introduced into the naphtha-to-aromatics reactor. The method of the present application comprises using the above-mentioned device and a metal molecular sieve bifunctional catalyst. Under the action of the catalyst in the naphtha to aromatics reactor, naphtha is converted into a product gas containing aromatics, light alkanes, and other components. Light alkanes and the like separated from the product gas are further converted into aromatics and other components in the light hydrocarbon aromatization reactor. The method of the present application enables efficient and highly selective conversion of linear and branched aliphatic hydrocarbons into aromatics, with para-xylene content in the xylene mixture exceeding >50 wt%.

Fig. 1 for publication