PROCESS FOR THE PREPARATION OF ALKYLATE AND MIDDLE DISTILLATE

Abstract

A process for the preparation of alkylate and middle distillate, the process comprising: (a) catalytically cracking a first hydrocarbon feedstock by contacting the feedstock with a cracking catalyst comprising a shape-selective additive at a temperature in the range of from 450 to 650°C within a riser or downcomer reaction zone to yield a first cracked product comprising middle distillate and a spent cracking catalyst; (b) regenerating the spent cracking catalyst to yield a regenerated cracking catalyst; (c) contacting, within a second reaction zone, at least part of the regenerated cracking catalyst obtained in step (b) with a second hydrocarbon feedstock at a temperature in the range of from 500 to 800°C to yield a second cracked product and a used regenerated catalyst, the second feedstock comprising at least 70 wt% C_{5+} hydrocarbons obtained in a Fischer-Tropsch hydrocarbon synthesis process; (d) using the used regenerated catalyst as at least part of the cracking catalyst in step (a); and (e) alkylating at least a portion of the second cracked product in an alkylation unit to obtain alkylate.

Figure 1