BRIEF DESCRIPTION OF THE INVENTION

[0015a] In an aspect, there is provided a process for alkylating hydrocarbons wherein an alkylatable organic compound is reacted with an alkylation agent to form an alkylate in the presence of a catalyst, wherein said catalyst comprises a hydrogenating function and a solid acid constituent, wherein the feed is processed using process conditions that lead to a higher quantity of a C9+ product fraction formed than process conditions optimized for gasoline production.

[0016] The use of the SAC process of the present disclosure allows the production of a high purity kerosene fraction without the large impact on e.g. RON of the gasoline fraction. Also no waste ASO is formed and the product is free from S, N, halogens, aromatics and olefins. The process uses higher olefin space velocities (e.g. whsv of the olefin from 100% to 150% of the whsv for gasoline production only), lower isoparaffin over olefin ratio I/O of combined olefin feed and isoparaffin recycle (= I/O external e.g. from 50% to 100% of I/O external for gasoline production only), lower I/O in the feed at the inlet to the catalyst beds (=I/O internal e.g. of 50% to 100% of I/O internal for gasoline production only), separately or combinations thereof. Furthermore by using the differing conditions mentioned above it may be required to optimize the reactor temperature within -20% to +20% of the temperature required for the gasoline only mode of operation. After separation the gasoline fraction will still have a very high RON (e.g. higher than 94, preferably 95, more preferably 96), no N, no S, no halogen. Only a light distillate kerosene fraction of high purity is produced and essentially no heavy distillates.

[0017] In other embodiments when using the process with a low temperature regeneration reactor with dissolved hydrogen (see, e.g., US 5,986,158) also no olefins will be present in the alkylation products. In case of ionic liquids (US 8,487,154) the use of a hydrofinishing reactor is required to remove olefins from gasoline and heavier fractions by hydrogenation.

[0018] In summary the new SAC process of the present disclosure allows the co-production of valuable light distillate kerosene/jet fuel next to high quality alkylation gasoline without the co-production of ASO waste and/or low value heavy distillate. The new process allows the use of much more severe process conditions, e.g. much higher olefin whsv, lower

I/O external and internal. This results in much lower operation costs per unit of product of the new SAC process. Surprisingly, the quality of the co-produced alkylation gasoline fraction remains very high.

DETAILED DESCRIPTION OF THE INVENTION

[0019] All weight percentages mentioned related to the catalyst composition are based on dry catalyst (heated at 600°C for 1 hour). The rare earth wt% are calculated as rare earth oxides on a dry basis (600°C, 1 hour). It should further be understood that, when describing