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(54) Title: PROCESS FOR PRODUCING MIDDLE DISTILLATE BY ALKYLATING C5+ ISOPARAFFIN AND C5+ OLEFIN

(57) Abstract: An alkylation process, comprising providing an isoparaffin feed that comprises at least 20 wt% C5+, providing a hydrocarbon stream that comprises at least 20 wt% C5+ olefins, and contacting the isoparaffin feed and the hydrocarbon stream with an ionic liquid catalyst under alkylation conditions wherein a middle distillate is produced. The middle distillate has less than 10 ppm sulfur and less than 3 wt% olefin. An alkylation process comprising contacting a naphtha with a low RON and a hydrocarbon stream comprising C5 olefins to an ionic liquid alkylation reactor under alkylation conditions, and recovering a middle distillate comprising less than 3 wt% olefin. A refinery process, comprising a hydrocracker that produces C5+ isoparaffin, a FC cracker that produces a hydrocarbon stream comprising a C5+ olefin, and an ionic liquid alkylation reactor that produces a high yield of middle distillate.



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