

ABSTRACT

10 A process, comprising: providing an olefin feed comprising pentenes, butenes, and
isopentane; and alkylating the olefin feed with isobutane using acidic ionic liquid catalyst;
wherein a yield of the isopentane in an alkylate gasoline product corresponds to less than 15
mol% of C₅ olefins in the feed, and the alkylate gasoline has defined final boiling point and
high RON. A process comprising: alkylating an olefin feed comprising pentenes and
15 isopentane, with isobutane using acidic ionic liquid catalyst; wherein a yield of the isopentane
in the alkylate gasoline corresponds to less than 15 mol% of C₅ olefins in the feed; and
wherein an *n*-pentane product yield is low. An alkylate gasoline, comprising less than 0.1
wt% olefins and aromatics, less than 1.8 wt% C₁₂₊ hydrocarbons, and greater than 60 wt%
combined C₈ and C₉ hydrocarbons, wherein the trimethylpentane in the C₈ hydrocarbons and
20 the trimethylhexane in the C₉ hydrocarbons are defined.

No figure