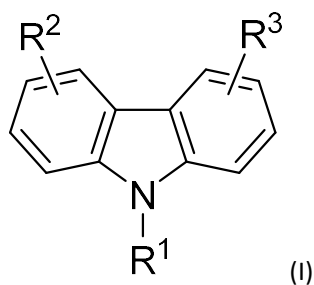


WHAT IS CLAIMED IS:

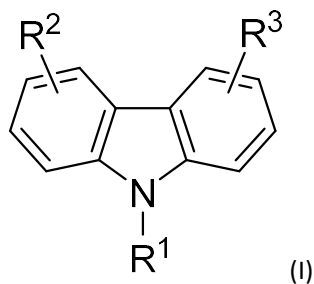
1. A process for hydroisomerising a hydrocarbon feed, the process comprising:
combining a hydrocarbon feed and a hydroisomerisation additive to provide a combined feed; and
contacting the combined feed with a hydroisomerisation catalyst,

wherein the hydroisomerisation additive is a substituted or unsubstituted nitrogen heterocycle according to formula I,



wherein,

- R^1 is selected from hydrogen, C_{1-10} alkyl, hydroxyl, C_{1-10} alkoxy, C_{1-10} carboxyl; and
 R^2 and R^3 are independently selected from hydrogen, C_{1-10} alkyl, hydroxyl, C_{1-10} alkoxy, C_{1-10} carboxyl and $-NR'R''$, where R' and R'' are independently H or C_{1-10} alkyl, and the hydroisomerisation catalyst comprises zeolite SSZ-91.
2. A process for increasing the yield of a base oil produced by hydroisomerising a hydrocarbon feed, the process comprising:
combining a hydrocarbon feed and a hydroisomerisation additive to provide a combined feed; and
contacting the combined feed with a hydroisomerisation catalyst comprising zeolite SSZ-91 to form a base oil product,
wherein the hydroisomerisation additive is a substituted or unsubstituted nitrogen heterocycle according to formula I,



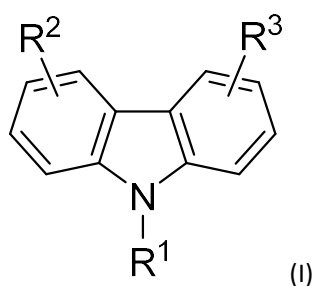
wherein,

R^1 is selected from hydrogen, C_{1-10} alkyl, hydroxyl, C_{1-10} alkoxy, C_{1-10} carboxyl; and

R² and R³ are independently selected from hydrogen, C₁₋₁₀ alkyl, hydroxyl, C₁₋₁₀ alkoxy, C₁₋₁₀ carboxyl and -NR'R'', where R' and R'' are independently H or C₁₋₁₀ alkyl, and wherein the yield of the base oil product is improved by at least 1.0 wt.% compared to the process conducted in the absence of the hydroisomerisation additive.

3. A process according to claim 1, wherein the hydroisomerisation additive has a DBE (double bond equivalent) number in the range of from 3 to 10.
4. A process according to claim 1, wherein the hydroisomerisation additive has a molecular weight of less than 600.
5. A process according to claim 1, wherein R¹ is selected from C₁₋₄ alkyl, and R² and R³ are hydrogen.
6. A process according to claim 1, wherein combining the hydrocarbon feed and the hydroisomerisation additive comprises adding from 10 to 500 ppm of the hydroisomerisation additive to the hydrocarbon feed based on the weight of the hydrocarbon feed.
7. A process according to claim 1, wherein combining the hydrocarbon feed and the hydroisomerisation additive comprises adding the hydroisomerisation additive in an amount to provide nitrogen to the hydrocarbon feed in an amount in the range of 0.1 to 50 ppm based on the weight of the hydrocarbon feed.
8. A process according to claim 1, wherein the hydrocarbon feed and hydroisomerisation additive are combined to form the combined feed before being fed into a hydroisomerisation reactor.
9. A process according to claim 1, wherein the hydrocarbon feed has a 30% distillation temperature of at least 900 °F (482 °C).
10. A process according to claim 1, wherein the hydrocarbon feed has a pour point of 0 °C or above.
11. A process according to claim 1, wherein the hydroisomerisation catalyst further comprises a Group 8-10 metal.
12. A process according to claim 1, wherein the combined feed is contacted with the hydroisomerisation catalyst and hydrogen under hydroisomerising conditions, the hydroisomerising conditions including a temperature in the range of 550°F to 750°F (288°C to 399°C).
13. A process according to claim 12, wherein the hydroisomerising conditions further comprise:
 - pressure in the range of 15 to 3000 psig (0.10 to 20.68 MPa gauge);
 - feed rate of combined feed to the reactor at a rate in the range from 0.1 to 20 h⁻¹ LHSV;
 - and
 - hydrogen and combined feed fed to the reactor in a ratio from 2000 to 10,000 standard cubic feet H₂ per barrel combined feed (from 360 to 1800 m³ H₂/m³ feed).

14. A process according to claim 1, wherein the contacting of the combined feed with the hydroisomerisation catalyst produces a hydroisomerized stream, which is further contacted with a hydrofinishing catalyst to provide a base oil having a pour point of -5 °C or lower.
 15. A process according to claim 1, wherein the yield of a base oil produced by contacting the combined feed and the hydroisomerisation catalyst is improved by at least 1.0 wt.% compared to the process conducted in the absence of the hydroisomerisation additive.
 16. A process for improving the yield of a base oil produced by contacting a hydrocarbon feed and a hydroisomerisation catalyst, the process comprising combining the hydrocarbon feed with a hydroisomerisation additive to form a combined feed and contacting the combined feed and the hydroisomerisation catalyst,
- wherein the hydroisomerisation additive is a substituted or unsubstituted nitrogen heterocycle according to formula I,



wherein,

- R^1 is selected from hydrogen, C_{1-10} alkyl, hydroxyl, C_{1-10} alkoxy, C_{1-10} carboxyl; and R^2 and R^3 are independently selected from hydrogen, C_{1-10} alkyl, hydroxyl, C_{1-10} alkoxy, C_{1-10} carboxyl and $-NR'R''$, where R' and R'' are independently H or C_{1-10} alkyl, and the hydroisomerisation catalyst comprises zeolite SSZ-91.
17. The process according to claim 16, wherein the base oil produced has a pour point of -5 °C or lower.
 18. The process according to claim 16, wherein the yield is improved by at least 1.0 wt.% compared to the process conducted in the absence of the hydroisomerisation additive.
 19. The process according to claim 16, wherein the hydroisomerisation additive is a carbazole.
 20. The process according to claim 16, wherein the hydroisomerisation additive is added to the hydrocarbon feed in an amount of at least 10 ppm.