

CLAIMS*What Is Claimed Is:*

1. A process for trim dewaxing a distillate boiling range feed, comprising the step of contacting at least a portion of a distillate boiling range feed with a dewaxing catalyst under
5 effective dewaxing conditions to form an a diesel boiling range product, the dewaxing catalyst comprises:
 - (a) a co-extrusion of two different 10-membered ring zeolites; or
 - (b) a co-extrusion of a 10-membered ring zeolite and a 12 membered ring zeolite; and
 - (c) a non-noble metal component which comprises a first metal and a second metal, the
10 first metal selected from the group consisting of nickel, cobalt and mixtures thereof; and the second metal selected from the group consisting of chromium, molybdenum, tungsten and mixtures thereof.
2. The process of claim 1, wherein the 10-membered ring zeolite has a framework type
15 selected from the group consisting of EUO, MEL, MFI, MFS, MRE, MTT, MWW, MWW, NES, TON and mixtures thereof.
3. The process of any preceding claim, wherein the 10-membered ring zeolite is selected from the group consisting ZSM-50, EU-1, ZSM-11, ZSM-5, ZSM-57, ZSM-48, ZSM-23,
20 EMM-10, EMM-12, EMM-13, MCM-22, MCM-36, MCM-49, MCM-56, NU-87, ZSM-22, Theta-1, and mixtures thereof.
4. The process of any preceding claim, wherein the 12-membered ring zeolite has a framework type selected from the group consisting of *BEA, BEC, EMT, FAU, LTL, MEI,
25 MOR, MOZ, MTW, MSE, OFF and mixtures thereof.
5. The process of any preceding claim, wherein the 12-membered ring zeolite is selected from the group consisting of beta, ZSM-2, ZSM-3, ZSM-20, Y, US-Y, L, ZSM-18, mordenite, ZSM-10, ZSM-12, MCM-68, offretite, and mixtures thereof.
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6. The process of any preceding claim, wherein the co-extrusion of two different 10 membered ring zeolites is ZSM-11 and ZSM-48 or ZSM-11 and ZSM-23.

7. The process of any one of claims 1 to 6, wherein the co-extrusion of the 10-membered ring zeolite and the 12-membered zeolite is ZSM-48 and ZSM-12.
8. A process for trim dewaxing a distillate boiling range feed, comprising the step of
5 contacting at least a portion of a distillate boiling range feed with a dewaxing catalyst under effective dewaxing conditions to form an a diesel boiling range product, the dewaxing catalyst comprising:
- (a) a co-extrusion of two different zeolites, wherein the zeolites are independently selected from the group consisting ZSM-50, EU-1, ZSM-11, ZSM-5, ZSM-57, ZSM-48, EMM-10,
10 EMM-12, EMM-13, MCM-22, MCM-36, MCM-49, MCM-56, NU-87, ZSM-22, Theta-1, and mixtures thereof; or
- (b) a co-extrusion of a 10-membered ring zeolite and a 12 membered ring zeolite, wherein the 10-membered ring zeolite is selected from the group consisting ZSM-50, EU-1, ZSM-11, ZSM-5, ZSM-57, ZSM-48, ZSM-23, EMM-10, EMM-12, EMM-13, MCM-22, MCM-36,
15 MCM-49, MCM-56, NU-87, ZSM-22, Theta-1, and mixtures thereof, and wherein the 12-membered ring zeolite is selected from the group consisting of beta, ZSM-2, ZSM-3, ZSM-20, Y, US-Y, L, ZSM-18, mordenite, ZSM-10, ZSM-12, MCM-68, offretite, and mixtures thereof; and
- (c) a noble metal component selected from the group consisting of palladium, platinum and
20 mixtures thereof.
9. The process of any preceding claim, wherein the dewaxing catalyst further comprises a binder, the binder optionally comprising alumina, silica, silica-alumina, zirconia or titania and mixtures thereof.
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10. The process of any preceding claim, further comprising the step of contacting the portion of the distillate boiling range feed to a hydrotreating catalyst under hydrotreating conditions.
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11. The process of claim 10, wherein the hydrotreating catalyst comprises at least one of cobalt, nickel, molybdenum, platinum, tungsten, alumina, silica, silica-alumina, a zeolite, and a molecular sieve.

12. The process of claim 10, wherein the hydrotreating catalyst and the dewaxing catalyst are arranged in fluid communication in a stacked bed of catalyst or are comingled in a mixed bed of catalyst, or a combination thereof.
- 5 13. The process of any preceding claim, wherein the effective dewaxing conditions comprise a temperature of at least about 300°C, such as at least about 325°C, such as at least about 350°C or at least about 400°C.
14. A method of forming a dewaxing catalyst, the method comprising:
- 10 (a) forming a mixture which comprises a first zeolite, a second zeolite and a binder;
- (b) mulling the mixture to form an extrudable paste;
- (c) extruding the extrudable paste to form an extrudate; and
- (c) drying the extrudate at a temperature of about 80°C to about 200°C to form a dried extrudate;
- 15 (d) impregnating the dried extrudate with a solution comprising a source of a Group 6 metal ion of the Periodic Table, a source of a Group 10 metal ion of the Periodic Table, and optionally a dispersion agent to form a metal-containing extrudate; and
- (e) drying the metal-containing extrudate at a temperature of about 80°C to about 200°C to form a dewaxing catalyst.
- 20 15. The method of claim 14, wherein the mixture further comprises water, wherein the solids content of the extrudable paste is from about 45% to 55% by weight.
16. The method of claim 14 or 15, wherein the mixture further comprises an extrusion aid, the extrusion aid selected from the group consisting of tetraethylammonium hydroxide, citric acid, sodium hydroxide, nitric acid, methocel™, and mixtures thereof.
- 25 17. The method of any one of claims 14 to 16, wherein the dewaxing catalyst is sulfided.
18. The method of claim 14 to 16, wherein the dewaxing catalyst is exchanged with a source of ammonium ions, washed with water, dried and calcined.
- 30 19. A catalyst system for trim dewaxing a distillate boiling range feed, comprising:

- (a) a co-extrusion of two different 10-membered ring zeolites; or
- (b) a co-extrusion of a 10-membered ring zeolite and a 12 membered ring zeolite; and
- (c) a non-noble metal component which comprises a first metal and a second metal, the first metal selected from the group consisting of nickel, cobalt and mixtures thereof; and the
5 second metal selected from the group consisting of chromium, molybdenum, tungsten and mixtures thereof.

20. A catalyst system for trim dewaxing a distillate boiling range feed, comprising

- (a) a co-extrusion of two different zeolites, wherein the zeolites are independently selected
10 from the group consisting ZSM-50, EU-1, ZSM-11, ZSM-5, ZSM-57, ZSM-48, EMM-10, EMM-12, EMM-13, MCM-22, MCM-36, MCM-49, MCM-56, NU-87, ZSM-22, Theta-1, and mixtures thereof; or
- (b) a co-extrusion of a 10-membered ring zeolite and a 12 membered ring zeolite, wherein the 10-membered ring zeolite is selected from the group consisting ZSM-50, EU-1, ZSM-11,
15 ZSM-5, ZSM-57, ZSM-48, ZSM-23, EMM-10, EMM-12, EMM-13, MCM-22, MCM-36, MCM-49, MCM-56, NU-87, ZSM-22, Theta-1, and mixtures thereof, and wherein the 12-membered ring zeolite is selected from the group consisting of beta, ZSM-2, ZSM-3, ZSM-20, Y, US-Y, L, ZSM-18, mordenite, ZSM-10, ZSM-12, MCM-68, offretite, and mixtures thereof; and
- (c) a noble metal component selected from the group consisting of palladium, platinum and mixtures thereof.

21. The catalyst of claim 19 or claim 20, wherein the co-extrusion of two different 10-membered rings zeolites is a co-extrusion of ZSM-11 and ZSM-48 or a co-extrusion of ZSM-
25 23 and ZSM-48.

22. The catalyst of claim 19 or claim 20, wherein the co-extrusion of a 10-membered ring zeolite and a 12 membered ring zeolite is ZSM-48 and ZSM-12.