CLAIMS:

1. A Group III base stock comprising:

at least about 30 wt. % of naphthenes;

about 30 wt. % to about 70 wt. % paraffins;

wherein the Group III base stock has a viscosity index of ~~from~~ about 120 ~~up~~ to about 133;

wherein the Group III base stock has a kinematic viscosity at 40° C. (KV40) of about 18.07 cSt to about 19.89 cSt; and

wherein the Group III base stock has a ratio of molecules with multi-ring naphthenes to single ring naphthenes, 2R+N/1RN, of less than about 0.46.

2. The base stock of claim 1, wherein the base stock has an amount of saturated hydrocarbons ~~is~~ of at least 95 wt. % ~~or higher~~.

~~3. The base stock of claims 1 or 2, wherein the Group III base stock comprises a KV100 of from 2 cSt to 14 cSt.~~

~~4.~~3. The base stock of ~~any of claims 1-3~~ claim 1, wherein the base stock has a kinematic viscosity at 100° C. (KV100) ~~is from~~ of about 4.0 cSt to about 5.0 cSt.

~~5.~~4. The base stock of ~~claims 1 or 2~~ claim 1, wherein the base stock has a kinematic viscosity at 100° C. (KV100) ~~is from~~ of about 5.0 cSt to about 12.0 cSt.

~~6. The base stock of claims 1, 2 or 5, wherein the KV100 is from 5.5 cSt to 11.0 cSt.~~

~~7. The base stock of any of claims 1-4, wherein the viscosity index is from 120-140 and is less than or equal to 142*(1 - 0.0025 exp(8*(2R+N/1RN))).~~

~~8.~~5. The base stock of ~~any of claims 1, 2, 5, or 6~~ claim 4, wherein the base stock has a viscosity index ~~is from 120-145 and is less than or equal to 150.07*(1-0.0106*exp(4.5*(2R+N/1RN)))~~ of about 120 to about 133.

~~9.~~6. A lubricating composition comprising the base stock of ~~any of claims 1-8~~ claim 1 and an additive.

~~10.~~7. The lubricating composition of claim ~~9~~ 6, wherein the base stock has a viscosity index ~~that is from 120 140 and is less than or equal to 142*(1 0.0025 exp(8*(2R+N/1RN)))~~ of about 120 to about 133.

~~11. The lubricating composition of claim 10, wherein the base stock has a viscosity index that is from 120 145 and is less than or equal to 150.07*(1 0.0106*exp(4.5*(2R+N/1RN))).~~

~~12.~~8. A method for producing a diesel fuel and a base stock, comprising:

providing a feed stock comprising a vacuum gas oil;

hydrotreating the feed stock under first effective hydrotreating conditions to produce a first hydrotreated effluent;

hydrotreating the first hydrotreated effluent under second effective hydrotreating conditions to produce a second hydrotreated effluent;

fractionating the second hydrotreated effluent to produce at least a first diesel product fraction and a bottoms fraction;

hydrocracking the bottoms fraction under effective hydrocracking conditions to produce a hydrocracked effluent;

dewaxing the hydrocracked effluent under effective catalytic dewaxing conditions to produce a dewaxed effluent, the dewaxing catalyst including at least one non-dealuminated, unidimensional, 10-member ring pore zeolite, and at least one Group VI metal, Group VIII metal or combination thereof;

hydrotreating the dewaxed effluent under third effective hydrotreating conditions to produce a third hydrotreated effluent; and

fractionating the third hydrotreated effluent to form at least a second diesel product fraction and ~~a~~ the base stock of claim 1. ~~product fraction, wherein the Group III lubricant base stock product fraction includes greater than or equal to 90 wt. % saturates, less than 10 wt. % aromatics, a kinematic viscosity at 100°C between about 4 and about 6 cSt and has a ratio of molecules with multi-ring naphthenes to single ring naphthenes (2R+N/1RN) of less than about 0.46.~~

~~13.~~9. The method of claim ~~12~~ 8, wherein the feedstock has a solvent dewaxed oil feed viscosity index of ~~from~~ about ~~60~~ 45 to about 150.

~~14.~~10. The method of claim ~~12~~ 8, wherein the effective hydrotreating conditions include a temperature of ~~from~~ about 300° C. to about 450° C., hydrogen partial pressure of ~~from~~ about 1500 psi to about 5000 psi (~10.3 MPa to ~34.6 MPa), a liquid hourly space velocity of ~~from~~ about 0.2 to about 10 hr^{-1}, and a hydrogen circulation rate of ~~from~~ about 35.6 to about 1781 m^3/m^3 (about 200 ~~scf/B~~ scf/bbl to about 10,000 ~~scf/B~~ scf/bbl).

~~15.~~11. The method of claim ~~12~~ 8, wherein the effective hydrocracking conditions include a temperature of about 288° C. to about 450° C., a hydrogen partial pressure of about 1000 psig to about 5000 psig (~ about 6.9 MPa to about 34.6 MPa), a liquid hourly space velocity of about 0.05 h^{-1} to about 10 h^{-1}, and a hydrogen treat gas rate of ~~from~~ about 35.6 m^3/m^3 to about 1781 m^3/m^3 (about 200 scf/bbl to about 10,000 scf/bbl).

~~16.~~12. The method of claim ~~12~~ 8, wherein the dewaxing catalyst comprises a molecular sieve having a SiO_2:Al_2O_3 ratio of about 200:1 to about 30:1 and comprises ~~from~~ about 0.1 wt. % to about 3.33 wt. % framework Al_2O_3 content, the dewaxing catalyst including ~~from~~ about 0.1 wt. % to about 5 wt. % platinum.

~~17.~~13. The method of claim ~~16~~ 12, wherein the molecular sieve is EU-1, ZSM-35, ZSM-11, ZSM-57, NU-87, ZSM-22, EU-2, EU-11, ZBM-30, ZSM-48, ZSM-23, or a combination thereof.

~~18.~~14. The method of claim ~~17~~ 13, wherein the molecular sieve is ZSM-48, ZSM-23, or a combination thereof.

~~19.~~15. The method of claim ~~13~~ 9, wherein the dewaxing catalyst comprises at least one ~~low surface area~~ metal oxide, refractory binder, the binder being silica, alumina, titania, zirconia, or silica-alumina.

~~20.~~16. The method of claim ~~19~~ 15, wherein the metal oxide, refractory binder further comprises a second metal oxide, refractory binder different from the first metal oxide, refractory binder.

~~21.~~17. The method of claim ~~20~~ 16, wherein the dewaxing catalyst comprises a micropore surface area to total surface area ratio of greater than or equal to about 25%, wherein the total surface area equals the surface area of the external zeolite plus the surface area of the binder, the surface area of the binder being about 100 m^2/g or less.

~~22.~~18. The method of claim ~~21~~ 17, wherein the hydrocracking catalyst is a zeolite Y based catalyst.

~~23.~~19. The method of claim ~~22~~ 18, wherein the effective dewaxing conditions include a temperature of ~~from~~ about 200° C. to about 450° C., a hydrogen partial pressure of ~~from~~ about 250 to about 5000 psi (about 1.8 MPa to about 34.6 MPa), a liquid hourly space velocity of ~~from~~ about 0.2 to about 10 hr^{-1}, and a hydrogen circulation rate of ~~from~~ about 35.6 m^3/m^3 to about 1781 m^3/m^3 (about 200 scf/bbl to about 10,000 scf/bbl).

~~24.~~20. The method of claim ~~13~~ 8, wherein the total conversion of the hydrocracked, dewaxed bottoms relative to the feedstock is about 30% to about 90%.

~~25.~~21. The method of claim ~~13~~ 8, wherein the feed stock is a solvent dewaxed oil.

~~26.~~22. A Group III base stock comprising:

at least about 30 wt. % of naphthenes;

about 30 wt. % to about 70 wt. % paraffins;

wherein the Group III base stock has:

a viscosity index of ~~from~~ 120 ~~up~~ to 145; ~~that is less than or equal to 142*(1 – 0.0025 exp(8*(2R+N/1RN))).~~

a kinematic viscosity at 40° C. (KV40) of about 18.07 cSt to about 19.89 cSt; and,

a ratio of molecules with multi-ring naphthenes to single ring naphthenes, 2R+N/1RN, of less than about 0.46.

~~27.~~23. The base stock of claim ~~26~~ 22, wherein the base stock has a pour point ~~is from~~ of about -10° C. to about -30° C., ~~the~~ a Noack volatility ~~is from~~ of about 0.5 wt. % to about 20 wt. %, and ~~has~~ a cold crank simulator (CCS) value at -35° C. of ~~from~~ about 100 cP up to about 70,000 cP.

~~28.~~24. A Group III base stock comprising:

at least about 30 wt. % of naphthenes; and

about 30 wt. % to about 70 wt. % paraffins;

wherein the Group III base stock has:

a viscosity index of ~~from~~ about 120 ~~up~~ to about 145~~; that is less than or equal to 150.07*(1-0.0106*exp(4.5*(2R+N/1RN)))~~.

a ratio of molecules with multi-ring naphthenes to single ring naphthenes, 2R+N/1RN, of less than about 0.46.

a kinematic viscosity at 100° C. (KV100) of about 8 cSt to about 12 cSt;

a kinematic viscosity at 40° C. (KV40) of about 53.35 cSt to about 59.7 cSt; and

a cold crank simulator (CCS) value at -35° C. of about 10,000 cP up to about 70,000 cP.

~~29.~~25. The base stock of claim ~~28~~ 24, wherein the base stock has a pour point ~~is from~~ of about -10° C. to about -30° C.~~, the~~ and a Noack volatility is ~~from~~ about 0.5 wt. % to about 20 wt. %~~ and has a CCS value at -35°C of from 100 cP up to 70,000 cP~~.

26. The base stock of claim 1, wherein the base stock has a KV40 of about 18.07 cSt to about 19 cSt.

27. The base stock of claim 1, wherein the base stock has a KV40 of about 19 cSt to about 19.89 cSt.

28. The base stock of claim 24, wherein the base stock has a weight ratio of molecules with multi-ring naphthenes to single ring naphthenes, 2R+N/1RN, of about 0.36 to about 0.4.