CLAIMS:

1. A method for producing a lube basestock, comprising: providing a process train including a first catalyst that is a hydroprocessing catalyst, and a second catalyst that is a dewaxing catalyst, wherein the dewaxing catalyst includes at least one non-dealuminated, unidimensional 10-member ring pore zeolite and at least one Group VIII metal; processing a first feedstock in the process train at first hydroprocessing conditions and first catalytic dewaxing conditions to produce a lube basestock having a pour point less than -15°C and a total liquid product 700°+F (371°C) yield of at least 75 wt%, the first catalytic dewaxing conditions including a temperature of 400°C or less, the first feedstock having a first sulfur content when exposed to the dewaxing catalyst of 1000 wppm or less on a total sulfur basis; processing a second feedstock in the same process train at second hydroprocessing conditions and second catalytic dewaxing conditions, the second feedstock having a sulfur content when exposed to the dewaxing catalyst of greater than 1000 wppm on a total sulfur basis, to produce a second lube basestock having a pour point less than -15°C and a total liquid product yield of at least 75 wt%, wherein the second catalytic dewaxing conditions include a temperature of 400°C or less with the second catalytic dewaxing temperature being from 20 to 50°C greater than first catalytic dewaxing temperature, and wherein the processing of the first feedstock and the processing of the second feedstock are alternated in any sequence as a function of time.

2. The method of clause 1, wherein the dewaxing catalyst includes at least one low surface area metal oxide refractory binder having a surface area of 100 m^2/g or less.

3. The method of any one of the preceding clauses, further including providing a high pressure separator and/or stripper between the first hydroprocessing step and the first dewaxing step, and passing a first hydroprocessed effluent including at least a liquid effluent and H_2S from the first

hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the first dewaxing step.

4. The method of any one of the preceding clauses, further including providing a high pressure separator and/or stripper between the second hydroprocessing step and the second dewaxing step, and passing a second hydroprocessed effluent including at least a liquid effluent and H_2S from the second hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the second dewaxing step.

5. The method of any one of the preceding clauses, wherein the first and second feedstocks are chosen from a hydrocracker bottoms, a raffinate, a wax, a previously hydroprocessed feed, and combinations thereof.

6. The method of any one of the preceding clauses, wherein the first and second hydroprocessing conditions are under effective hydroprocessing conditions chosen from hydroconversion, hydrocracking, hydrotreatment, hydrofinishing, aromatic saturation and dealkylation.

7. The method of any one of the preceding clauses further comprising hydrofinishing the first and second lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

8. The method of any one of the preceding clauses further comprising fractionating the first and second lube basestock under effective fractionating conditions.

9. The method of any one of the preceding clauses, wherein the hydroprocessing and catalytic dewaxing steps occur in a single reactor.

10. The method of any one of the preceding clauses, wherein the dewaxing catalyst comprises a molecular sieve having a SiO_2:Al_2O_3 ratio of 200:1 to 30:1 and comprises from 0.1 wt% to 2.7 wt% framework Al_2O_3 content.

11. The method of any one of the preceding clauses, 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.

12. The method of any one of the preceding clauses, wherein the dewaxing catalyst comprises a micropore surface area to total surface area of greater than or equal to 25%, wherein the total surface area equals the surface area of any binder.

13. The method of any one of the preceding clauses, wherein the binder is chosen from silica, alumina, titania, zirconia, silica-alumina, and combinations thereof.

14. The method of any one of the preceding clauses, wherein the dewaxing catalyst comprises from 0.1 wt% to 5 wt% of the at least one Group VIII metal.

15. The method of any one of the preceding clauses, wherein the at least one Group VIII metal is platinum.

16. A method for producing a lube basestock, comprising: providing a feedstock including sulfur in the range from 0.005 wt% to 5 wt%, a process train including a first catalyst that is a hydroprocessing catalyst, and a second catalyst that is a dewaxing catalyst, a real-time hydroprocessed effluent sulfur monitor, and a process controller for controlling the temperature of the second catalyst as a function of the sulfur level in the hydroprocessed effluent, wherein the dewaxing catalyst includes at least one non-dealuminated, unidimensional 10-member ring pore zeolite and at least one Group VIII metal; monitoring the sulfur level of the hydroprocessed effluent using the sulfur monitor followed by controlling the

dewaxing catalyst temperature as a function of the sulfur level of the hydroprocessed effluent using the process controller; processing the feedstock in the process train at effective hydroprocessing conditions and effective catalytic dewaxing conditions sufficient to produce a lube basestock having a pour point less than -15°C and a total liquid product 700°+F (371°C) yield of at least 75 wt%; and wherein the process controller increases the temperature of the dewaxing catalyst with increasing sulfur level in the hydroprocessed effluent up to a maximum of 400°C.

17. The method of clause 16, wherein the dewaxing catalyst includes at least one low surface area metal oxide refractory binder having a surface area of 100 m^2/g or less.

18. The method of clauses 16 or 17, further including providing a high pressure separator and/or stripper between the hydroprocessing step and the dewaxing step, and passing the hydroprocessed effluent including at least a liquid effluent and H_2S from the hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the dewaxing step.

19. The method of any one of clause 16-18, wherein the feedstock is chosen from a hydrocracker bottoms, a raffinate, a wax, a previously hydroprocessed feed, and combinations thereof.

20. The method of any one of clauses 16-19, wherein the hydroprocessing conditions are under effective hydroprocessing conditions chosen from hydroconversion, hydrocracking, hydrotreatment, hydrofinishing, aromatic saturation and dealkylation.

21. The method of any one of clauses 16-20 further comprising hydrofinishing the lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

22. The method of any one of clauses 16-21 further comprising fractionating the lube basestock under effective fractionating conditions.

23. The method of any one of clauses 16-22, wherein the hydroprocessing and catalytic dewaxing steps occur in a single reactor.

24. The method of any one of clauses 16-23, wherein the dewaxing catalyst comprises a molecular sieve having a SiO_2:Al_2O_3 ratio of 200:1 to 30:1 and comprises from 0.1 wt% to 2.7 wt% framework Al_2O_3 content.

25. The method of any one of clauses 16-24, 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.

26. The method of any one of clauses 16-25, wherein the dewaxing catalyst comprises a micropore surface area to total surface area of greater than or equal to 25%, where the total surface area equals the surface area of the external zeolite plus the surface area of any binder.

27. The method of any one of clauses 16-26, wherein the binder is chosen from silica, alumina, titania, zirconia, silica-alumina, and combinations thereof.

28. The method of any one of clauses 16-27, wherein the dewaxing catalyst comprises from 0.1 wt% to 5 wt% of the at least one Group VIII metal.

29. The method of any one of clauses 16-28, wherein the at least one Group VIII metal is platinum.

30. The method of any one of clauses 16-29, wherein the process controller controls the temperature of the dewaxing catalyst over a range of 1 to 50°C as a function of sulfur level in the hydroprocessed effluent.

CLAIMS

1. A method for producing a lube basestock, comprising:

providing a process train including a first catalyst that is a hydroprocessing catalyst, and a second catalyst that is a dewaxing catalyst, wherein the dewaxing catalyst includes at least one non-dealuminated, unidimensional 10-member ring pore zeolite and at least one Group VIII metal;

processing a first feedstock in the process train at first hydroprocessing conditions and first catalytic dewaxing conditions to produce a lube basestock having a pour point less than -15°C and a total liquid product 700°+F (371°C) yield of at least 75 wt%, the first catalytic dewaxing conditions including a temperature of 400°C or less, the first feedstock having a first sulfur content when exposed to the dewaxing catalyst of 1000 wppm or less on a total sulfur basis;

processing a second feedstock in the same process train at second hydroprocessing conditions and second catalytic dewaxing conditions, the second feedstock having a sulfur content when exposed to the dewaxing catalyst of greater than 1000 wppm on a total sulfur basis, to produce a second lube basestock having a pour point less than -15°C and a total liquid product yield of at least 75 wt%,

wherein the second catalytic dewaxing conditions include a temperature of 400°C or less with the second catalytic dewaxing temperature being from 20 to 50°C greater than the first catalytic dewaxing temperature,

wherein the dewaxing catalyst comprises includes at least one low surface area metal oxide refractory binder having a surface area of 100 m^2/g or less, the dewaxing catalyst further comprising a micropore surface area to total surface area of greater than or equal to 25%, the micropore surface area being the surface area from the pores of the zeolite, the total surface area being equal to the surface area of the external zeolite plus the surface area of a binder, and

wherein the processing of the first feedstock and the processing of the second feedstock are alternated in any sequence as a function of time.

2. The method of claim 1, further including providing a high pressure separator and/or stripper between the first hydroprocessing step and the first dewaxing step, and

passing a first hydroprocessed effluent including at least a liquid effluent and H_2S from the first hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the first dewaxing step.

3. The method of claim 1, further including providing a high pressure separator and/or stripper between the second hydroprocessing step and the second dewaxing step, and passing a second hydroprocessed effluent including at least a liquid effluent and H_2S from the second hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the second dewaxing step.

4. The method of claim 1, wherein the first and second feedstocks are chosen from a hydrocracker bottoms, a raffinate, a wax, a previously hydroprocessed feed, and combinations thereof.

5. The method of claim 1, wherein the first and second hydroprocessing conditions are under effective hydroprocessing conditions chosen from hydroconversion, hydrocracking, hydrotreatment, hydrofinishing, aromatic saturation and dealkylation.

6. The method of claim 1 further comprising hydrofinishing the first and second lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

7. The method of claims 1 or 6 further comprising fractionating the first and second lube basestock under effective fractionating conditions.

8. The method of claim 7 further comprising hydrofinishing the fractionated first and second lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

9. The method of claim 1, wherein the hydroprocessing and catalytic dewaxing steps occur in a single reactor.

10. The method of claim 1, wherein the dewaxing catalyst comprises a molecular sieve with a SiO_2 : Al_2O_3 ratio of from about 200:1 to 30:1 and comprises from 0.1 wt% to 2.7 wt% framework Al_2O_3 content.

11. The method of claim 10, 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.

12. The method of claim 10, wherein the molecular sieve is EU-2, EU-11, ZBM-30, ZSM-48, ZSM-23, or a combination thereof.

13. The method of claim 10, wherein the molecular sieve is ZSM-48.

14. The method of claim 1, wherein the dewaxing catalyst includes at least one low surface area metal oxide refractory binder having a surface area of 50 m^2/g or less.

15. The method of claim 1, wherein the binder is chosen from silica, alumina, titania, zirconia, silica-alumina, and combinations thereof.

16. The method of claim 1, wherein the dewaxing catalyst comprises from 0.1 wt% to 5 wt% of the at least one Group VIII metal.

17. The method of claim 1, wherein the at least one Group VIII metal is platinum.

18. A method for producing a lube basestock, comprising:

providing a feedstock including sulfur in the range from 0.005 wt% to 5 wt%, a process train including a first catalyst that is a hydroprocessing catalyst, and a second catalyst that is a dewaxing catalyst, a real-time hydroprocessed effluent sulfur monitor, and a process controller for controlling the temperature of the second catalyst as a function of the sulfur level in the hydroprocessed effluent, wherein the dewaxing catalyst includes at least one non-dealuminated, unidimensional 10-member

ring pore zeolite and at least one Group VIII metal;

monitoring the sulfur level of the hydroprocessed effluent using the sulfur monitor followed by controlling the dewaxing catalyst temperature as a function of the sulfur level of the hydroprocessed effluent using the process controller;

processing the feedstock in the process train at effective hydroprocessing conditions and effective catalytic dewaxing conditions sufficient to produce a lube basestock having a pour point less than -15°C and a total liquid product 700°+F (371°C) yield of at least 75 wt%,

wherein the dewaxing catalyst comprises includes at least one low surface area metal oxide refractory binder having a surface area of 100 m^2/g or less, the dewaxing catalyst further comprising a micropore surface area to total surface area of greater than or equal to 25%, the micropore surface area being the surface area from the pores of the zeolite, the total surface area being equal to the surface area of the external zeolite plus the surface area of a binder, and

wherein the process controller increases the temperature of the dewaxing catalyst with increasing sulfur level in the hydroprocessed effluent up to a maximum of 400°C, the increase in temperature being at least about 20°C during the processing of the feedstock in the process train.

19. The method of claim 18, further including providing a high pressure separator and/or stripper between the hydroprocessing step and the dewaxing step, and passing the hydroprocessed effluent including at least a liquid effluent and H_2S from the hydroprocessing step to the high pressure separator and/or stripper to remove at least a portion of the H_2S prior to the dewaxing step.

20. The method of claim 18, wherein the feedstock is chosen from a hydrocracker bottoms, a raffinate, a wax, a previously hydroprocessed feed, and combinations thereof.

21. The method of claim 18, wherein the hydroprocessing conditions are under effective hydroprocessing conditions chosen from hydroconversion, hydrocracking, hydrotreatment, hydrofinishing, aromatic saturation and dealkylation.

22. The method of claim 18 further comprising hydrofinishing the lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

23. The method of claims 18 or 22 further comprising fractionating the lube basestock under effective fractionating conditions.

24. The method of claim 23 further comprising hydrofinishing the fractionated lube basestock under effective hydrofinishing conditions for hydrofinishing or aromatic saturation.

25. The method of claim 18, wherein the hydroprocessing and catalytic dewaxing steps occur in a single reactor.

26. The method of claim 18, wherein the dewaxing catalyst comprises a molecular sieve with a SiO_2 : Al_2O_3 ratio of from about 200:1 to 30:1 and comprises from 0.1 wt% to 2.7 wt% framework Al_2O_3 content.

27. The method of claim 26, 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.

28. The method of claim 26, wherein the molecular sieve is EU-2, EU-11, ZBM-30, ZSM-48, ZSM-23, or a combination thereof.

29. The method of claim 26, wherein the molecular sieve is ZSM-48.

30. The method of claim 18, wherein the dewaxing catalyst includes at least one low surface area metal oxide refractory binder having a surface area of 50 m^2/g or less.

31. The method of claim 18, wherein the binder is chosen from silica, alumina, titania, zirconia, silica-alumina, and combinations thereof.

32. The method of claim 18, wherein the dewaxing catalyst comprises from 0.1 wt% to 5 wt% of the at least one Group VIII metal.

33. The method of claim 18, wherein the at least one Group VIII metal is platinum.

34. The method of claim 18, wherein the process controller controls the temperature of the dewaxing catalyst over a range of 1 to 50°C as a function of sulfur level in the hydroprocessed effluent.