CLAIMS

1. A method for producing a high viscosity base oil having a VI of at least 140, comprising:

hydrotreating a feedstock containing at least 15 wt% oil in wax under effective conditions for conversion of 6 – 12 wt% of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140 and a pour point of -18°C or less.

2. A method for producing a high viscosity base oil having a VI of at least 140 and a viscosity of at least 5 cSt, comprising:

hydrotreating a feedstock containing at least 20 wt% oil in wax under effective conditions for conversion of 6 – 12 wt% of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140 and a pour point of -18°C or less.

3. A method for producing a high viscosity base oil having a VI of at least 140 and a viscosity of at least 6 cSt, comprising:

hydrotreating a feedstock containing at least 25 wt% oil in wax under effective conditions for conversion of 6 – 12 wt% of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140 and a pour point of -18°C or less.

4. The method of any of claims 1 – 3, wherein the conversion in the hydrotreating step is at least 6 wt%.

5. The method of any of claims 1 – 3, wherein the conversion in the hydrotreating step is at least 8 wt%.

6. The method of any of claims 1 – 3, wherein the conversion in the hydrotreating step is 10 wt% or less.

7. The method of any of the above claims, wherein the process further comprises a hydrofinishing step.

8. The method of claim 1, wherein the base oil has a viscosity of 5 cSt or less.

9. The method of claim 1, wherein the base oil has a viscosity of 4 cSt or less.

10. A method for producing a high viscosity base oil having a VI of at least 140, comprising:

hydrotreating a feedstock containing at least 10 wt% oil in wax under effective conditions for conversion of 6 – 15 wt% of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140 and a pour point of -18°C or less.

11. The method of claim 10, wherein the base oil has a viscosity of 4 cSt or less.

12. The method of claim 10, wherein the base oil has a viscosity of 5 cSt or less.

13. The method of claim 10, wherein the base oil has a viscosity of 6 cSt or less.

14. The method of claim 10, wherein the base oil has a viscosity of at least 5 cSt.

15. The method of claim 10, wherein the base oil has a viscosity of at least 6 cSt.

16. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of 6 – 12% of the feed to products.

17. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of at least 6% of the feed to products.

18. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of at least 8% of the feed to products.

19. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of at least 10% of the feed to products.

20. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of 12% or less of the feed to products.

21. The method of any of claims 10 – 15, wherein the hydrotreating conditions are effective for conversion of 10% or less of the feed to products.

22. The method of claim 10, wherein the hydrotreating conditions are effective for conversion of 6 – 12% of the feed to products.

23. The method of claim 10, wherein the hydrotreating conditions are effective for conversion of 8 – 12% of the feed to products.

24. The method of any of claims 10 – 23, wherein the feedstock contains at least 15% oil in wax.

25. The method of any of claims 10 – 23, wherein the feedstock contains at least 20% oil in wax.

26. The method of any of claims 10 – 23, wherein the feedstock contains at least 25% oil in wax.

27. The method of any of claims 10 – 23, wherein the feedstock contains at least 30% oil in wax.

28. The method of any of claims 10 - 23, wherein the process further comprises a hydrofinishing step.

CLAIMS

1. A method for producing a high viscosity base oil having a VI of at least 140 and a viscosity of 4 cSt to 5 cSt at 100°C, comprising:

hydrotreating a feedstock containing at least 15 wt % oil in wax under effective conditions for conversion of 4-15 wt % of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140, a pour point of -18°C or less, and a viscosity at 100°C that is greater than the viscosity at 100°C of the feedstock,

wherein the yield of base oil across the combination of the hydrotreating and the catalytic dewaxing is at least about 35 wt% relative to the feedstock.

2. A method for producing a high viscosity base oil having a VI of at least 140 and a viscosity of 5 cSt to 6cSt at 100°C, comprising:

hydrotreating a feedstock containing at least 20 wt % oil in wax under effective conditions for conversion of 4-15 wt % of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140, a pour point of -18°C or less, and a viscosity at 100°C that is greater than the viscosity at 100°C of the feedstock,

wherein the yield of base oil across the combination of the hydrotreating and the catalytic dewaxing is at least about 35 wt% relative to the feedstock.

3. A method for producing a high viscosity base oil having a VI of at least 140 and a viscosity of at least 6 cSt at 100°C, comprising:

hydrotreating a feedstock containing at least 25 wt % oil in wax under effective conditions for conversion of 4-15 wt % of the feed to products boiling below 370°C; and

catalytically dewaxing the hydrotreated feed under effective conditions to produce a base oil with a VI of at least 140 and a pour point of -18°C or less.

4. The method of any of claims 1-3, wherein the conversion in the hydrotreating step is 4-12 wt %.

5. The method of any of claims 1-3, wherein the conversion in the hydrotreating step is 6-12 wt %.

6. The method of any of claims 1-3, wherein the conversion in the hydrotreating step is 8-12 wt %.

7. The method of claim 1, wherein the process further comprises a hydrofinishing step.

8. The method of claim 3, wherein the feedstock contains at least 30% wt % oil in wax.