WHAT IS CLAIMED IS:

1. A method for producing a lubricant base oil, comprising:

fractionating a feedstock to form at least a first feed fraction and a second feed fraction;

hydroprocessing the first feed fraction to increase the viscosity index to at least about 85 and reduce the pour point to about -10ºC or less;

hydroprocessing the second feed fraction to increase the viscosity index to at least about 80 and reduce the pour point to about -5ºC or less;

fractionating the hydroprocessed first feed fraction to form a first product fraction having a viscosity at 100ºC of at least about 1.5 cSt and a Noack volatility of less than about 20.0;

fractionating the hydroprocessed second feed fraction to form a second product fraction having a viscosity at 100ºC of about 5.0 cSt to about 12.0 cSt and a Noack volatility of about 5.0 to about 10.0; and

blending a portion of the second hydroprocessed feed fraction with the first hydroprocessed feed fraction to form a blended product fraction, the blended product fraction comprising about 30 wt % or less of the second hydroprocessed feed fraction, the blended product fraction having a viscosity at 100ºC of about 2.0 cSt to about 5.0 cSt and a Noack volatility of about 10.0 to about 18.0, the viscosity of the blended product fraction at 100ºC being greater than the viscosity of the first hydroprocessed feed fraction by at least about 0.1 cSt, the Noack volatility of the blended product fraction being less than the Noack volatility of the first feedstock fraction by at least about 0.5; and

wherein the overall yield of the lubricating base oil is increased by about 1.6% compared to hydroprocessing the feedstock without the initial fractionation step.

2. The method of claim 1, wherein the pour point of the blended product fraction is about -15ºC or less.

3. The method of any of the above claims, wherein the pour point of the second hydroprocessed feed fraction is about -10ºC or less.

4. The method of any of the above claims, wherein the viscosity index of the first hydroprocessed feed fraction is at least about 95.

5. The method of any of the above claims, wherein the viscosity index of the second hydroprocessed feed fraction is at least about 95.

6. The method of any of the above claims, wherein the viscosity index of the second hydroprocessed feed fraction is less than the viscosity index of the first hydroprocessed feed fraction.

7. The method of any of the above claims, wherein the viscosity at 100ºC of the blended product fraction is at least about 0.3 cSt greater than the viscosity of the first hydroprocessed feed fraction.

8. The method of any of the above claims, wherein the blended product fraction comprises from about 3 wt% to about 30 wt% of the second hydroprocessed feed fraction.

9. The method of any of the above claims, wherein the Noack volatility of the blended product fraction is at least about 1.0 less than the Noack volatility of the first hydroprocessed fraction.

10. The method of any of the above claims, wherein hydroprocessing the first feed fraction comprises:

hydrocracking the first feed fraction under first effective hydrocracking conditions;

dewaxing the hydrocracked first feed fraction under first effective catalytic dewaxing conditions; and

optionally hydrofinishing the hydrocracked, dewaxed first feed fraction under first effective hydrofinishing conditions.

11. The method of any of the above claims, wherein hydroprocessing the second feed fraction comprises:

hydrocracking the second feed fraction under second effective hydrocracking conditions;

dewaxing the hydrocracked second feed fraction under second effective catalytic dewaxing conditions; and

optionally hydrofinishing the hydrocracked, dewaxed second feed fraction under second effective hydrofinishing conditions.

12. The method of claim 10 or 11, wherein at least one of the first effective hydrocracking conditions or the second effective hydrocracking conditions include a temperature of about 550ºF (288ºC) to about 840ºF (449ºC), a hydrogen partial pressure of about 250 psig (1.8 MPag) to about 5000 psig (34.6 MPag), a liquid hourly space velocity of from about 0.05 h^{-1} to about 10 h^{-1}, and a hydrogen treat gas rate of about 35.6 m^3/m^3 (200 SCF/B) to 1781 m^3/m^3 (10,000 SCF/B).

13. The method of any of claims 10-12, wherein at least one of the first effective dewaxing conditions or the second effective dewaxing conditions include a temperature of about 200ºC to about 450ºC, a hydrogen partial pressure of from 1.8 MPag (250 psig) to 34.6 MPag (5000 psig), a liquid hourly space velocity of from 0.2 hr^{-1} to 10 hr^{-1}, and a hydrogen circulation rate of from 35.6 m^3/m^3 (200 SCF/B) to 1781 m^3/m^3 (10,000 SCF/B).

14. The method of any of claims 10-13, wherein at least one of the first effective hydrofinishing conditions or the second effective hydrofinishing conditions include a temperature of about 125ºC to about 425ºC, a hydrogen partial pressure from about 500 psig (3.4 MPa) to about 3000 psig (20.7 MPa), and a liquid hourly space velocity from about 0.1 h^{-1} to about 5 hr^{-1} LHSV, and a hydrogen treat gas rate of about 35.6 m^3/m^3 (200 SCF/B) to 1781 m^3/m^3 (10,000 SCF/B).

15. The method of any of claims 10-14, further comprising hydrotreating at least one of the first feed fraction or the second feed fraction under effective hydrotreating conditions including a temperature of about 200ºC to 450ºC, a hydrogen partial pressure of about 250 psig (1.8 MPag) to about 5000 psig (34.6 MPag), a liquid

hourly space velocity of about 0.2 hr^{-1} to about 10 hr^{-1}; and a hydrogen treat rate of about 200 SCF/B (35.6 m^3/m^3) to about 10,000 SCF/B (1781 m^3/m^3).