WHAT IS CLAIMED IS:

1. A process for producing a low aromatic base oil comprising:

contacting an SSZ-91 isomerized stream with a noble metal hydrofinishing catalyst under 1st hydrofinishing conditions to provide a 1st hydrofinished stream; and

contacting the 1st hydrofinished stream with a second noble metal hydrofinishing catalyst under 2nd hydrofinishing conditions to provide a 2nd hydrofinished stream;

wherein the 2nd hydrofinishing conditions comprise a lower temperature than the 1st hydrofinishing conditions,

wherein the SSZ-91 isomerized stream is produced by contacting a hydrocarbon feedstock with hydrogen and a noble metal SSZ-91 hydroisomerization catalyst under hydroisomerization dewaxing conditions to provide the isomerized stream.

2. The process of claim 1, wherein a base oil produced by the process comprises less than 0.9% by weight aromatics.

3. The process of claim 1, wherein a base oil produced by the process comprises a pour point of from -5°C to -20°C.

4. The process of claim 1, wherein the total aromatics in a base oil produced by the process are at least 30% less than a comparable process employing a single hydrofinishing step.

5. The process of claim 1, wherein the noble metal SSZ-91 hydroisomerization catalyst comprises a crystalline molecular sieve SSZ-91 and platinum.

6. The process of claim 1, wherein the noble metal hydrofinishing catalyst and second noble metal hydrofinishing catalyst:

(i) each comprise a silica alumina support and a noble metal selected from palladium, platinum, or a combination thereof,

(ii) are the same, or

(iii) each comprise a noble metal content from 0.1 to 1.0 wt. %.

7. The process of claim 1, wherein the 1st hydrofinishing conditions comprise a temperature of from 475°F (245°C)to 700°F (371°C).

8. The process of claim 1, wherein the 2nd hydrofinishing conditions comprise a temperature of from 370°F (188°C) to 475°F (246°C).

9. The process of claim 1, wherein the hydroisomerization dewaxing conditions comprise:

(i) a temperature of from 550°F (288°C) to 700°F (371°C),

(ii) a pressure in the range from 15 (0.20 MPa) to 3000 psig (20.79MPa), or

(iii) a hydrocarbon feedstock feed rate in the range of from 0.1 to 20 hr^{-1} LHSV in the presence of hydrogen wherein the hydrogen to hydrocarbon ratio is in a range from 2000 (356.2 m^3/m^3) to 10,000 standard cubic feet per barrel hydrocarbon (1781.1m^3/m^3).

10. The process of claim 1, wherein the 1st hydrofinishing conditions and 2nd hydrofinishing conditions comprise:

(i) a pressure in the range from 15 (0.20 MPa) to 3000 psig (20.79 MPa),

(ii) a 1st hydrofinished stream feed rate and 2nd hydrofinished stream feed rate of from 0.1 to 20 hr^{-1} LHSV.

11. The process of claim 1, wherein:

(i) the noble metal SSZ-91 hydroisomerization catalyst comprises a crystalline molecular sieve SSZ-91 and platinum;

(ii) the noble metal hydrofinishing catalyst comprises a silica alumina support and a noble metal selected from palladium, platinum, or a combination thereof wherein the catalyst comprises a noble metal content from 0.1 to 0.6 wt. %; and

(iii) with the second noble metal hydrofinishing catalyst comprises a silica alumina support and a noble metal selected from palladium, platinum, or a combination thereof wherein the catalyst comprises a noble metal content from 0.1 to 0.6 wt. %; and

(iv) wherein a base oil produced from the process comprises at least 40% less aromatics by weight than a comparable process employing a single hydrofinishing step.

12. The process of claim 11, wherein a base oil produced by the process comprises less than 0.8% by weight aromatics.

13. The process of claim 11, wherein a base oil produced by the process comprises a pour point of not more than -12°C.

14. The process of claim 11, wherein the base oil product is obtained at a yield of at least 85%.

15. The process of claim 11wherein the 2nd hydrofinishing conditions comprise a temperature which is from 50 (27.8 °C) to 450°F (250 °C) lower than the 1st hydrofinishing conditions.