WHAT IS CLAIMED IS:

1. A base extrudate for a hydroisomerization catalyst consisting of an SSZ-91 molecular sieve and an alumina, wherein the alumina has a pore volume in the 11-20 nm pore diameter range of 0.05 to 1.0 cc/g and the base extrudate has a total pore volume in the 2-50 nm pore diameter range of 0.12 to 1.80 cc/g.

2. A hydroisomerization catalyst comprising the base extrudate of claim 1 and a modifier selected from Groups 6 to 10 and Group 14 of the Periodic Table.

3. The catalyst of claim 2, wherein the modifier comprises a Group 8 to 10 metal of the Periodic Table or wherein the modifier is a Group 10 metal comprising Pt.

4. The base extrudate of claim 1, wherein the alumina has a pore volume in the 6-11 nm pore diameter range of 0.05 to 1.0 cc/g, or a pore volume in the 6-11 nm pore diameter range of 0.06 to 0.8 cc/g , or a pore volume in the 6-11 nm pore diameter range of 0.07 to 0.6 cc/g.

5. The base extrudate of claim 1, wherein the alumina has a pore volume in the 11-20 nm pore diameter range of 0.07 to 0.85 cc/g, or a pore volume in the 11-20 nm pore diameter range of 0.09 to 0.7 cc/g.

6. The base extrudate of claim 1, wherein the alumina has a pore volume in the 20-50 nm pore diameter range of 0.05 to 1.0 cc/g, or a pore volume in the 20-50 nm pore diameter range of 0.07 to 0.8 cc/g or a pore volume in the 20-50 nm pore diameter range of 0.09 to 0.6 cc/g.

7. The base extrudate of claim 1, wherein the alumina has a total pore volume in the 2-50 nm pore diameter range of 0.3 to 2.0 cc/g, or a total pore volume in the 2-50 nm pore diameter range of 0.5 to 1.75 cc/g, or a total pore volume in the 2-50 nm pore diameter range of 0.7 to 1.5 cc/g.

8. The base extrudate of claim 1, wherein the base extrudate has a pore volume in the 6-11 nm pore diameter range of 0.05 to 0.80 cc/g, or a pore volume in the 6-11 nm pore diameter range of 0.08 to 0.60 cc/g, or a pore volume in the 6-11 nm pore diameter range of 0.10 to 0.50 cc/g.

9. The base extrudate of claim 1, wherein the base extrudate has a pore volume in the 11-20 nm pore diameter range of 0.05 to 0.80 cc/g, or a pore volume in the 11-20nm pore diameter range of 0.08 to 0.60 cc/g, or a pore volume in the 11-20 nm pore diameter range of 0.10 to 0.50 cc/g.

10. The base extrudate of claim 1, wherein the base extrudate has a pore volume in the 20-50 nm pore diameter range of 0.02 to 0.35 cc/g, or a pore volume in the 20- 50 nm pore diameter range of 0.03 to 0.30 cc/g, or a pore volume in the 20-50 nm pore diameter range of 0.05 to 0.25 cc/g.

11. The base extrudate of claim 1, wherein the base extrudate has a total pore volume in the 2-50 nm pore diameter range of 0.20 to 1.65 cc/g, or a total pore volume in the 2-50 nm pore diameter range of 0.25 to 1.50 cc/g.

12. The catalyst of claim 2, wherein the modifier content is 0.01-5.0 wt.% or 0.01-2.0 wt.%, or 0.1-2.0 wt.% based on the total catalyst weight.

13. The catalyst of claim 2, wherein the catalyst comprises Pt as a modifier in an amount of 0.01-1.0 wt.%, or 0.3-0.8 wt.% Pt.

14. The base extrudate of claim 1, wherein the silicon oxide to aluminum oxide mole ratio of the molecular sieve is in the range of 40 to 220 or 50 to 220 or 40 to 200, or 50 to 140.

15. The catalyst of claim 2, wherein the catalyst further comprises a separate matrix material selected from alumina, silica, ceria, titania, tungsten oxide, zirconia, or a combination thereof.

16. The catalyst of claim 15, wherein the modifier content is 0.01 to 5.0 wt.%, the matrix material content is greater than 0 to 99 wt.%, and the SSZ-91 molecular sieve content is 0.1 to 99 wt.%, or wherein the modifier content is 0.01 to 5.0 wt.%, the matrix material is 15 to 85 wt.%, and the SSZ-91 molecular sieve is 15 to 85 wt.%.

17. The catalyst of claim 16, wherein the matrix material comprises 15 to 65 wt.% of a first matrix material and 15 to 65 wt.% of a second matrix material that differs from the first matrix material.

18. A process for producing a base oil product having an increased base oil product yield, the process comprising contacting a hydrocarbon feed with a hydroisomerization catalyst under hydroisomerization conditions to produce a base oil product;

wherein the hydroisomerization catalyst comprises a base extrudate consisting of an SSZ-91 molecular sieve and an alumina, wherein the alumina has a pore volume in the 11-20 nm pore diameter range of 0.05 to 1.0 cc/g and the base extrudate has a total pore volume in the 2-50 nm pore diameter range of 0.12 to 1.80 cc/g ; and a modifier selected from Groups 6 to 10 and Group 14 of the Periodic Table; and,

wherein, the base oil yield is increased using the hydroisomerization catalyst as compared with the same process using a comparative hydroisomerization catalyst that differs only in that the alumina component does not have a pore volume in the 11-20 nm pore diameter range of 0.05 to 1.0 cc/g..

19. The process of claim 18, wherein the hydrocarbon feed comprises gas oil; vacuum gas oil; long residue; vacuum residue; atmospheric distillate; heavy fuel; oil; wax and paraffin; used oil; deasphalted residue or crude; charges resulting from thermal or catalytic conversion processes; shale oil; cycle oil; animal and vegetable derived fats, oils and waxes; petroleum and slack wax; or a combination thereof.

20. The process of claim 18, wherein the base oil yield is increased using the catalyst of claim 1 as compared with the same process using a comparative hydroisomerization catalyst that differs only in that the alumina component does not have a pore volume in the 11-20 nm pore diameter range of 0.05 to 1.0 cc/g, or 0.07 to 0.85 cc/g, or 0.09 to 0.70 cc/g.