What is claimed is:

1. A process for the production of a polyalphaolefin fluid having predetermined properties comprising:

    a. reacting an alpha olefin component comprising at least one alpha olefin containing from 30 to 100% 1-tetradecene (C_{14}) in the presence of a catalyst system consisting of BF_3 combined with an alcohol alkoxylate promoter to produce a reacted bottom product and unreacted residual monomers;
    b. removing the unreacted residual monomers by distillation as an overhead fraction; and
    c. hydrogenating at least a portion of said bottom product to obtain a hydrogenated fluid having a 100° C kinematic viscosity, determined according to ASTM D-445 of 2.5 to 4.6 centistokes, and

    wherein the polyalphaolefin fluid has a dimer C_{28} content of greater than 70%.

2. The process of claim 1 wherein the alpha olefin component comprises greater than 90% C_{14} alpha olefin.

3. The process of claim 1 wherein the hydrogenated polyalphaolefin fluid has a biodegradability, as determined by the OECD 30 IB test of at least about 50 percent.

4. The process of claim 1 wherein the alpha olefin component comprises a first alpha olefin and a second alpha olefin, and wherein the first alpha olefin is C_{14} alpha olefin and the second olefin is C_{12} alpha olefin.

5. The process of claim 4 where the C_{14}/C_{12} co-dimer content of the polyalphaolefin fluid is greater than 80%.

6. The process of claim 1 wherein the alpha olefin component comprises a first alpha olefin and a second alpha olefin, and wherein the first alpha olefin is C_{14} alpha olefin and the second olefin is a dimer of C_8 alpha olefin.

7. The process of claim 6 where the C_{14}/C_{16} co-dimer content of the polyalphaolefin fluid is greater than 80%.

8. The process of claim 1 wherein the alcohol alkoxylate promoter in step (a) is 2-methoxyethanol.

9. The process of claim 1 wherein the alcohol alkoxylate promoter in step (a) is 1-methoxy-2-propanol.

10. A lubricant composition comprising a hydrogenated polyalphaolefin fluid obtained by the process of any one of claims 1 to 9 and either

    a. having a 100°C kinematic viscosity of 4 cSt, a 250°C Noack volatility weight loss of less than 19% and a 200°C Noack volatility weight loss of less than 4%, a Viscosity Index of greater than 125, a Pour Point lower than -35°C, and Cold Crank Simulator viscosity @-35°C of less than 1,500 cP, or
    b. having a kinematic viscosity at 100°C of 3.4 cSt, a 200°C Noack volatility weight loss of 4%, a Pour Point of -50°C, and a Brookfield viscosity @-40° of less than 1,750 cP or

c. having a kinematic viscosity at 100°C of 4 cSt, a 250°C Noack volatility weight loss of 13.9%, a Pour Point of -59°C, and Cold Crank Simulator viscosity @-35°C of less than 1,700 cP.

11. A formulated full or part synthetic lubricating oil comprising a hydrogenated fluid having a 100° C kinematic viscosity of 2.5 to 4.6 centistokes which hydrogenated fluid is a polyalphaolefin fluid obtained by the process of any one of claims 1 to 9.

12. The formulated lubricating oil of claim 11 comprising a mixture of:

a. from 1 to 97 percent of said hydrogenated fluid having a 100° C kinematic viscosity of 2.5 to 4.6 centistokes; and
b. from 0 to 60 percent of fluids selected from the group consisting of synthetic esters, synthetic hydrocarbon fluids, mineral oils, natural esters, or hydrocarbon oils derived from natural and petroleum sourced raw materials and combinations thereof; and
c. from 0.1 to 30 percent of additives selected from the group consisting of dispersants, anti-oxidants, anti-wear agents, anti-foam agents, corrosion inhibitors, detergents, seal-swell agents, viscosity improvers and combinations thereof.

13. The formulated lubricating oil of claim 11 comprising a mixture of:

a. from 1 to 97 percent of said hydrogenated fluid having a 100° C kinematic viscosity of 2.5 to 4.6 centistokes; and
b. from 0 to 60 percent of a component selected from the group consisting of natural or synthetic esters, natural or synthetic

hydrocarbon fluids, or hydrocarbon oils derived from natural and petroleum sourced raw materials and combinations thereof; and

c. from 0.1 to 70 percent of additives selected from the group consisting of dispersants, anti-oxidants, anti-wear agents, anti-foam agents, corrosion inhibitors, detergents, seal-swell agents, viscosity improvers and combinations thereof.

14. The formulated lubricating oil of claim 11 comprising a mixture of:

a. from 1 to 98 percent of said hydrogenated fluid having a 100° C kinematic viscosity of 2.5 to 4.6 centistokes; and
b. from 0 to 60 percent of a component selected from the group consisting of natural or synthetic esters, natural or synthetic hydrocarbon fluids, or hydrocarbon oils derived from natural and petroleum sourced raw materials and combinations thereof; and
c. from 0.1 to 70 percent of additives selected from the group consisting of dispersants, anti-oxidants, anti-wear agents, anti-foam agents, corrosion inhibitors, detergents, seal-swell agents, viscosity improvers and combinations thereof.