Claims:

We claim:

1. A method for preparing supported alumoxane having no detectable amount of aromatic solvent comprising the steps of: 1) contacting at least one support material, at least one hydrocarbyl aluminum compound and at least one non-hydrolytic oxygen-containing compound in an aliphatic solvent at a temperature temperature of less than 0 to -60°C to obtain a supported aluxomane, 2) thereafter separating the aliphatic solvent~~, and forming a~~ from the supported alumoxane ~~precursor~~, and 3) heating ~~the combination of the at least one support material and~~ the supported alumoxane ~~precursor~~ to a temperature of 60 to 200°C. ~~and forming the supported alumoxane with no detectable amount of aromatic solvent~~.

2. The method of claim 1, wherein the support material is silica, alumina, alumina-silica or a derivative thereof.

3. The method of claim 1, wherein the support material has an average particle size between 1 and 200 microns, an average pore volume of between 0.05 and 5 mL/g, and a surface area between 50 and 800 m^2/g.

4. The method of claim 1, wherein the support material has been treated with one or more of a Bronsted acid, a Lewis acid, a salt and a Lewis base.

5. The method of claim 1, wherein the support material comprises a silylating agent.

6. The method of claim 1, wherein the support material comprises a hydrocarbyl aluminum compound.

7. The method of claim 1, wherein one or more of the support material, the hydrocarbyl aluminum compound and the alumoxane precursor comprises an electron withdrawing anion.

8. The method of claim 1, wherein the hydrocarbyl aluminum compound is R_3Al wherein each R, which may be the same or different, is independently a hydrocarbon containing between 1 and 30 carbon atoms.

9. The method of claim 1, wherein the hydrocarbyl aluminum compound is selected from a combination of trimethyl aluminum and trioctylaluminum, and a combination of trimethyl aluminum and triisobutyl aluminum.

10. The method of claim 1, wherein the hydrocarbyl aluminum compound comprises trimethyl aluminum.

11. The method of claim 1, wherein the hydrocarbyl aluminum compound includes a mixture comprising an alumoxane.

12. The method of claim 1, wherein the non-hydrolytic oxygen-containing compound is one or more of carbon dioxide, a carboxylic acid, an ester, an anhydride, an alcohol or combination thereof.

13. The method of claim 1, wherein the non-hydrolytic oxygen-containing compound is one or more of carbon dioxide, a carboxylic acid, an ester, an anhydride and an alcohol or combination thereof, optionally containing water.

14. The method of claim 1, wherein the non-hydrolytic oxygen-containing compound is $R^1R^2C=CR^3CO_2H$ wherein each of R^1 and R^2 is independently hydrogen, alkyl, alkenyl, aryl or heteroatom containing group and R^3 is alkyl, alkenyl, aryl or heteroatom containing group.

15. The method of claim 1, wherein the non-hydrolytic oxygen-containing compound is methacrylic acid.

16. The method of claim 1, wherein the hydrocarbyl aluminum compound includes the non-hydrolytic oxygen-containing compound.

17. The method of claim 1, wherein the hydrocarbyl aluminum compound is one or more of trimethylaluminum, triethylaluminum, tripropylalumiuum, tri-n-butylaluminum, tri-isobutyl-aluminum, tri(2-methylpentyl)aluminum, trihexylaluminum, tri-n-octylaluminum, tri-n-decylaluminum, dimethyl aluminum methoxide, dimethyl aluminum ethoxide, dimethyl aluminum isopropoxide, dimethyl aluminum n-butoxide, dimethyl aluminum isobutoxide, diethyl aluminum methoxide, diethyl aluminum ethoxide, diethyl aluminum isopropoxide, diethyl aluminum n-butoxide, diethyl aluminum isobutoxide, diisobutyl aluminum methoxide, diisobutyl aluminum ethoxide, diisobutyl aluminum isopropoxide, diisobutyl aluminum n-butoxide, diisobutyl aluminum isobutoxide, di-n-hexyl aluminum methoxide, di-n-hexyl aluminum ethoxide, di-n-hexyl aluminum isopropoxide, di-n-hexyl aluminum n-butoxide, di-n-hexyl aluminum isobutoxide, methyl aluminum dimethoxide, methyl aluminum diethoxide, methyl aluminum diisopropoxide, methyl aluminum di-n-butoxide, methyl aluminum diisobutoxide, ethyl aluminum dimethoxide, ethyl aluminum diethoxide, ethyl aluminum diisopropoxide, ethyl aluminum di-n-butoxide, ethyl aluminum diisobtutoxide, isobutyl aluminum dimethoxide, isobutyl aluminum diethoxide, isobutyl aluminum diisopropoxide, isobutyl aluminum di-n-butoxide, isobutyl aluminum diisobutoxide, n-hexylaluminum dimethoxide, n-hexyl aluminum diethoxide, n-hexyl aluminum diisopropoxide, n-hexyl aluminum di-n-butoxide, n-hexyl aluminum diisobutoxide, aluminum trimethoxide, aluminum triethoxide, aluminum triisopropoxide, aluminum tri-n-butoxide, tetramethyldialuminumdiiso-propoxide, tetramethyldialuminumdi-tert-butoxide tetramethyldialuminumditert-butoxide, pentamethyldialuminumtert-butoxide and aluminum triisobutoxide.

18. The method of claim 1, wherein the hydrocarbyl aluminum compound is one or more of trimethylaluminum, triethylaluminum and dimethyl aluminum isobutoxide.

19. The method of claim 1, wherein at least one hydrocarbyl aluminum and at least one non-hydrolytic oxygen-containing compound are combined and then added to at least one support material.

20. The method of claim 1, wherein at least one hydrocarbyl aluminum compound and at least one non-hydrolytic oxygen-containing compound are combined under conditions of -10°C to -50°C prior to contact with the support material.

21. The method of claim 1, wherein ~~at least one support material, at least one hydrocarbyl aluminum compound and at least one non-hydrolytic oxygen-containing compound are combined under conditions of~~ the supported alumoxane is heated to a temperature of 80°C to 120°C.