CLAIMS

What is claimed is:

1. A method for producing a supported catalyst composition for olefin polymerization comprising the steps of:

a) forming a suspension comprising one or more porous particulate supports, one or more activator compounds and one or more catalyst compounds in one or more liquid diluents, wherein step a) is performed in a time of 5 hours or less; and

b) spray drying the suspension to form a supported catalyst composition;

wherein step b) is performed at a rate sufficient to produce at least 200 kg of supported catalyst composition in a time of 10 hours or less.

2. A method according to claim 1 wherein step b) is performed at a rate sufficient to produce at least 200 kg of supported catalyst composition in a time of 9 hours or less, or 9 hours or less, or 8 hours or less, or 7 hours or less, or 6 hours or less, or 5 hours or less, or 4 hours or less, or 3 hours or less.

3. A method according to any one of claim 1 or 2 wherein supported catalyst composition has a residual liquid content after spray drying of 10% by weight or less, or 7% by weight or less, or 5% by weight or less, or 4% by weight or less, or 3% by weight or less, or 2% by weight or less.

4. A method according to any one of claims 1 to 3 wherein the suspension has a weight percent of solids in the liquid diluent between about 5% by weight and about 60 % by weight, or between about 10 % by weight and about 50 % by weight, or between about 20 % by weight and about 40 % by weight, wherein the porous particulate support comprises (i) a particulate Group 2, 3, 4, 5, 13 and 14 oxide or chloride or (ii) a particulate silica, and wherein the suspension is spray dried at a rate between about 100 kg/hr and 1000 kg/hr, or between about 200 kg/hr and about 800 kg/hr.

5. A method according to any one of claims 1 to 4 wherein the porous particulate support is dehydrated at an elevated temperature, and wherein the porous particulate support has an average particle size in the range of from about 0.1 to about 500 μm, or from about 1 to about 200 μm, or from about 1 to about 50 μm, or from about 5 to about 50 μm.

6. A method according to any one of claims 1 to 5 wherein the one or more activator compounds comprises an organometallic compound, an alumoxane or a neutral or ionic stoichiometric activator, or a methylalumoxane or a modified methylalumoxane.

7. A method according to any one of claims 1 to 4 wherein the liquid diluent comprises (i) an aliphatic or aromatic hydrocarbon or (ii) toluene, and wherein the one or more catalyst compounds comprises a titanium, a zirconium or a hafnium atom.

8. A method according to any one of claims 1 to 7 wherein a suspension in toluene liquid diluent of particulate silica, methylalumoxane, and one or more catalyst compounds is spray dried at a rate sufficient to produce at least 200 kg of supported catalyst composition in a time of 10 hours or less and having a toluene content of 7% by weight or less, where spray drying the suspension to form the supported catalyst composition includes proving the suspension a residence time of 5 seconds to 60 seconds in a drying chamber.

9. A supported catalyst composition formed by a method according to any one of claims 1 to 8.

10. A process for polymerizing olefins, the process comprising:
contacting olefins with one or more supported catalyst compositions prepared by a method according to any one of claims 1 to 8 in a reactor under polymerization conditions to produce an olefin polymer or copolymer