CLAIMS

What is claimed is:

1. A method of forming a catalyst composition, comprising:

dissolving 1-ethylindenyllithium in dimethoxyethane to form a precursor solution;

cooling the precursor solution to about -20 ºC;

adding solid $ZrCl_4$ over about five minutes to start a reaction;

continuing the reaction overnight;

removing volatiles to form a raw product;

extracting the raw product with CH_2Cl_2; and

removing the CH_2Cl_2 under vacuum to form a mixture comprising about 19 parts meso-$(1\text{-EtInd})_2ZrCl_2$ and about 1 part rac-$(1\text{-EtInd})_2ZrCl_2$.

2. The method of claim 1, comprising:

slurrying the mixture in Et_2O;

adding at least about 2.3 equivalents of RMgBr dissolved in ether to the slurry, wherein R is a benzyl group, a methyl group, or a mixture thereof;

drying the slurry;

extracting with warm hexanes; and

filtering to form a catalyst component comprising about 19 parts meso-$(1\text{-EtInd})_2ZrR_2$ and about 1 part rac-$(1\text{-EtInd})_2ZrR_2$.

3. The method of claim 2, comprising:

fluidizing a catalyst support with an inert gas;

heating the support to remove any adsorbed water to form a dried support; and

storing the dried support under an inert gas.

4. The method of claim 3, comprising:

forming a slurry of the dried support in a mixture of toluene and methylaluminoxane; and

drying the mixture to form methyl amluminoxane supported on silica (SMAO).

5. The method of claim 4, comprising:

adding pentane to the SMAO to form a slurry;

dissolving the catalyst component in toluene to form a toluene solution;

adding the toluene solution to the slurry to form a catalyst;

filtering the catalyst from the slurry; and

drying the catalyst.