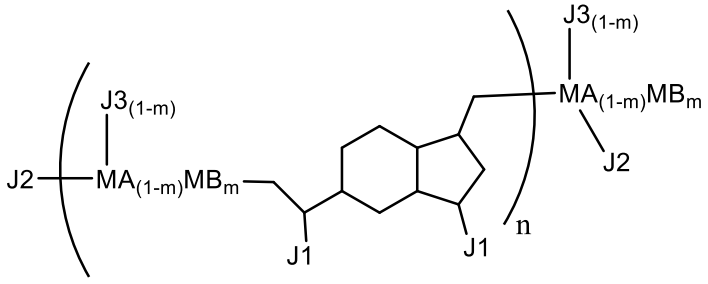
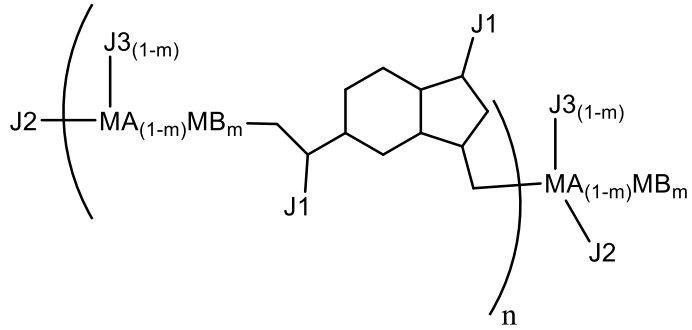
What is claimed is:

1. A composition having the formula (I) or (II):



(I)



(II)

wherein:

each MA is Al, B, or Ga;

each MB is Zn or Mg;

m is a number from 0 to 1;

n is a number from 1 to 100; and

each J1, J2, and J3 is hydrogen or a $C_{1\text{-}20}$ alkyl group, and

wherein J1, J2, and J3 may be the same or different~~, or mixtures thereof~~.

2. The composition of claim 1, wherein each J1, J2, and J3 is selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, isobutyl, n-hexyl, isohexyl, n-octyl, isooctyl, and isomers thereof.

3. A catalyst composition comprising a reaction product of at least one catalyst precursor, at least one co-catalyst, and the composition of claim 1 or 2.

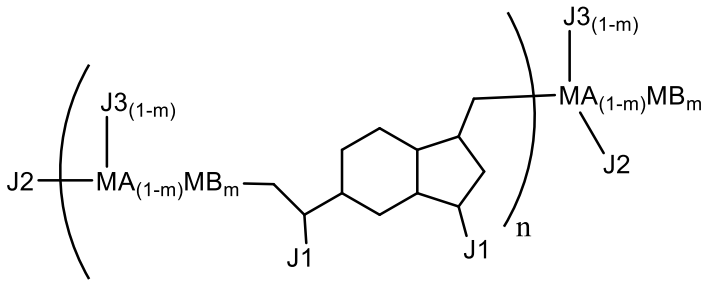
4. A polymerization process for preparing a polymer composition comprising:

contacting at least one olefin monomer with a catalyst composition; wherein the catalyst composition comprises a reaction product of a catalyst precursor, a co-catalyst, and the composition of claim 1 or 2.

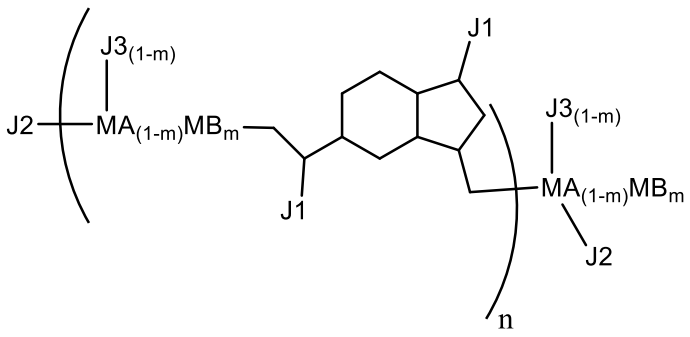
5. A polymer composition obtained by the polymerization process of claim 4.

6. A process for preparing a telechelic functional polymer comprising performing functional group conversion reactions at carbon-metal bonds of the composition of claim 1 or 2.

~~3.~~7.A process for preparing the composition having the formula (I) or (II):



(I)



(II)

wherein:

each MA is Al, B, or Ga;

each MB is Zn or Mg;

m is a number from 0 to 1;

n is a number from 1 to 100; and

each J1, J2, and J3 is hydrogen or a $C_{1\text{-}20}$ alkyl group, and

wherein J1, J2, and J3 may be the same or different~~, or mixtures thereof~~, the process comprising: (a) combining 1,2,4-trivinylcyclochexane, an organometallic compound, a co-catalyst, a solvent, and a first catalyst precursor, and (b) obtaining a ~~final~~ solution comprising the composition ~~having~~ represented by~~the~~ formula (I) or (II).

~~4. The process of claim 3, wherein the organometallic compound comprises a trivalent metal, a divalent metal, or a mixture of a trivalent metal and a divalent metal.~~

~~5.~~8. The process of claim ~~3~~7, wherein each J1, J2, and J3 is selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, isobutyl, n-hexyl, isohexyl, n-octyl, isooctyl, and isomers thereof.

~~6. A polymerization process for preparing a polymer composition comprising:~~

~~contacting at least one olefin monomer with a catalyst composition; wherein~~

~~the catalyst composition comprises the reaction product of a catalyst precursor, a co-catalyst, and the composition of claim 1 or 2.~~

~~7.~~9. A polymerization process for preparing a polymer composition, the process comprising:

contacting at least one olefin monomer with a catalyst composition;

wherein the catalyst composition comprises ~~the~~ a reaction product of a second catalyst precursor, a co-catalyst, and the composition prepared according to the process of claim ~~3~~7, and

wherein the second catalyst precursor is the same compound as the first catalyst precursor.

~~8. A polymer composition obtained by the polymerization process of claim 6 or 7.~~

~~9. A catalyst composition comprising the reaction product of at least one catalyst precursor, at least one co-catalyst, and the composition of claim 1 or 2.~~

~~10. A process for preparing a telechelic functional polymer comprising performing functional group conversion reactions at carbon-metal bonds of the composition of claim 1 or 2.~~