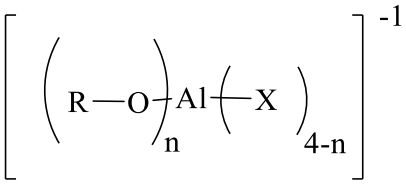
## CLAIMS

1. A process for polymerizing olefins, the process comprising contacting ethylene and a ($C_3$–$C_{40}$)alpha-olefin comonomer in the presence of a catalyst system in a solution polymerization reactor in an alkane solvent, the catalyst system comprising a procatalyst and a metallic activator ionic complex, the metallic activator comprising an anion and a countercation, the anion having a structure according to formula (I):

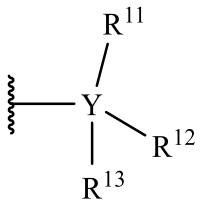



(I)

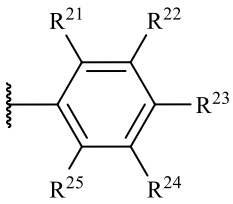
where:

n is 0 or 1;

each R is independently selected from the group consisting of radicals having formula (II) and radicals having formula (III):




(II)




(III)

each Y is independently carbon or silicon;

each $R^{11}$, $R^{12}$, $R^{13}$, $R^{21}$, $R^{22}$, $R^{23}$, $R^{24}$, and $R^{25}$ is independently chosen from ($C_1$–$C_{40}$)alkyl, halogen-substituted ($C_1$–$C_{40}$)alkyl, ($C_6$–$C_{40}$)aryl, halogen-substituted ($C_6$–$C_{40}$)aryl, $-OR^C$,$-SR^C$, –H, –F or Cl, wherein at least one of $R^{11\text{-}13}$ and one of $R^{21\text{-}25}$ is a halogen-substituted ($C_1$–$C_{40}$)alkyl, a halogen-substituted ($C_6$–$C_{40}$)aryl, or –F; and

each X is a monodentate ligand independently chosen from halogen-substituted ($C_1$–$C_{20}$)alkyl or halogen-substituted ($C_6$–$C_{40}$)aryl;

optionally, two X groups in formula (I) are covalently connected;

each $R^C$ is independently halogen-substituted ($C_1$–$C_{30}$)hydrocarbyl;

provided that

when the countercation is $Me_2PhN(H)^+$, and the anion is $Al(C_6F_5)_4$, the procatalyst is not $Ph_2C(Cp)(Flu)ZrCl_2$ or $Et(1\text{-}Ind)_2ZrCl_2$; and

when the countercation is $(Ph)_3C^+$, and the anion is $Al(C_6F_5)_4$, the procatalyst is not $Et(1\text{-}Ind)_2ZrCl_2$.

2. The process for polymerizing olefins according to claim 1, wherein the procatalyst is a bis-biphenylphenoxy Group IV metal−ligand complex.

3. The process for polymerizing olefins according to claim 1 or claim 2, wherein n is 0 and each X group is independently $-C(H)(CF_3)_2$, $-C_6F_5$, or $-C(CF_3)_3$.

4. The process for polymerizing olefins according to claim 1 or claim 2, wherein n is 1, and R is $-C(CF_3)_3$ and each X is $-C_6F_5$.

5. The process for polymerizing olefins according to claim 1 or claim 2, wherein n is 0, and three of the four X groups are $-C_6F_5$.

6. The process for polymerizing olefins according to claim 1 or claim 2, wherein n is 0, and all four X groups are $-C_6F_5$.

7. The process for polymerizing olefins according to any one of claims 1−6, wherein the countercation is chosen from substituted ammonium, substituted and unsubstituted triarylcarbonium or substituted and unsubstituted ferrocenium.

8. The process for polymerizing olefins according to any one of claims 1−6, wherein the countercation is $^+N(H)R^N{}_3$, where each $R^N$ is independently chosen from $(C_1-C_{30})$alkyl or $(C_6-C_{20})$aryl.

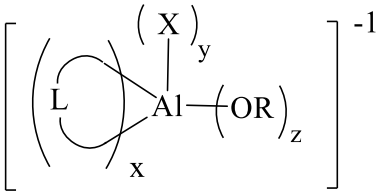
9. The process for polymerizing olefins according to claim 6, wherein the countercation is $^+N(H)R^N{}_3$, where at least two $R^N$ are independently chosen from $(C_{10}-C_{30})$alkyl.

10. The process for polymerizing olefins according to any one of claims 1−6, wherein the countercation is $^+C(C_6H_5)_3$.

11. The process for polymerizing olefins according to any one of claims 1−6, wherein the countercation is $^{+}C(C_6H_4R^S)_3$, wherein $R^S$ is $(C_1-C_{20})$alkyl.

12. The process for polymerizing olefins according to any one of claims 1−11, wherein n is 0.

13. The process for polymerizing olefins according to claim 1, wherein two X groups are covalently connected and the anion has a structure according to formula (IV):




(IV)

where:

R and each X are as defined in formula (I);

z is 0 or 1; y is 0, 1, or 2; x is 1 or 2; and 2x + y + z = 4;

L represents the two X groups that are covalently connected;

L is independently chosen from halogen-substituted $(C_2-C_{40})$alkylene, halogen substituted $(C_2-C_{40})$heteroalkylene, or halogen substituted $(C_6-C_{40})$arylene;

when z is 1, X is chosen from halogen, halogen-substituted $(C_1-C_{20})$alkyl, halogen-substituted $(C_6-C_{40})$aryl.

14. The process for polymerizing olefins according to claim 13, wherein L is a halogenated diradical biphenyl or halogenated diradical naphthalene-diyl.

15. The polymerization process according to any one of the preceding claims, wherein the metallic activator ionic complex in a high boiling point fully saturated hydrocarbon solution having a concentration of 200 micromoles of metallic activator ionic complex and 20 millimoles of water per liter of the high boiling point fully saturated hydrocarbon solution has a percent dissipation factor of less than or equal to 0.1 as measured by the Hydrocarbon Conductivity Test.