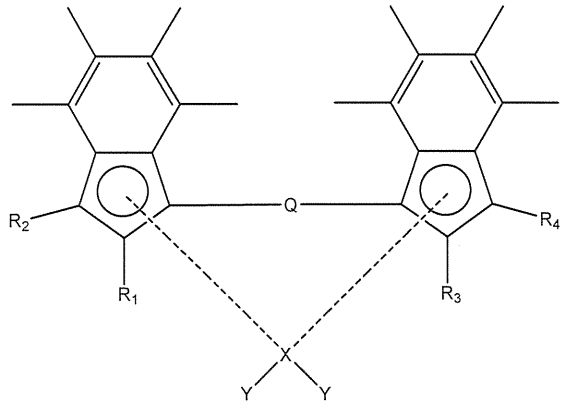
CLAIMS

1. A composition comprising a solid methyl aluminoxane support material and compound of the formula (I) shown below:



(I)

wherein

R_1, R_2, R_3 and R_4 are each independently (1-3C)alkyl;

Q is absent, or is a bridging group comprising 1, 2 or 3 bridging carbon atoms, and is optionally substituted with one or more groups selected from hydroxyl, (1-6C)alkyl, (2-6C)alkenyl, (2-6C)alkynyl, (1-6C)alkoxy, Si[(1-4C)alkyl]$_3$, aryl, and -C(O)NR_xR_y;

X is selected from zirconium, titanium or hafnium; and

each Y group is independently selected from halo, hydride, a phosphonated, sulfonated or borate anion, or a (1-6C)alkyl, (2-6C)alkenyl, (2-6C)alkynyl, (1-6C)alkoxy, aryl or aryloxy group which is optionally substituted with one or more groups selected from (1-6C)alkyl, halo, nitro, amino, phenyl, (1-6C)alkoxy, Si[(1-4C)alkyl]$_3$ or -C(O)NR_xR_y;

wherein R_x and R_y are independently (1-4C)alkyl;

and wherein the solid methyl aluminoxane support material is insoluble in toluene and hexane.

2. A composition according to claim 1, wherein R_1, R_2, R_3 and R_4 are each independently (1-2C)alkyl.

3. A composition according to claim 1 or 2, wherein R_1, R_2, R_3 and R_4 are all methyl.

4. A composition according to any of claims 1, 2 or 3, wherein Q is absent, or is a bridging group having the formula -[C(R_a)(R_b)-C(R_c)(R_d)]-, wherein R_a, R_b, R_c and R_d are independently selected from hydrogen, hydroxyl, (1-4C)alkyl, (2-4C)alkenyl, (2-4C)alkynyl and phenyl.

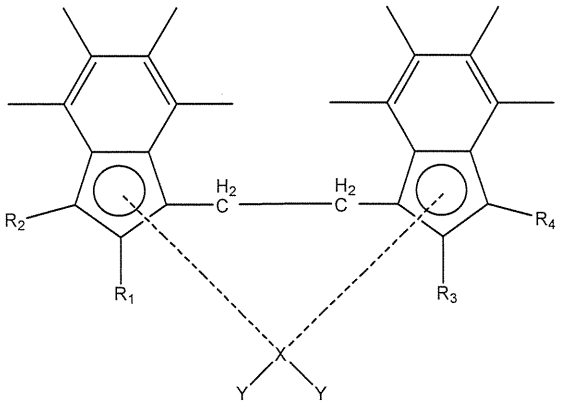
5. A composition according to any preceding claim, wherein Q is absent, or is a bridging group having the formula -CH_2CH_2-.

6. A composition according to any preceding claim, wherein each Y is independently selected from halo, $CH_2C(CH_3)_3$ or a (1-2C)alkyl group which is optionally substituted with halo or phenyl.

7. A composition according to any preceding claim, wherein each Y is independently selected from Cl, $CH_2C(CH_3)_3$ or -$CH_2C_6H_5$.

8. A composition according to any preceding claim, wherein X is zirconium or hafnium.

9. A composition according to any preceding claim, wherein the compound of formula (I) has the formula (III) shown below:

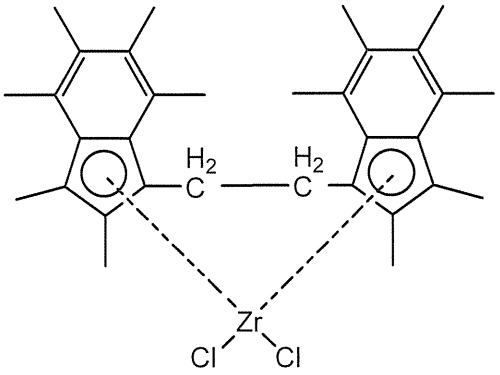


(III)

wherein:

R_1, R_2, R_3, R_4, X and Y are each independently as defined in any preceding claim.

10. A composition according to any preceding claim, wherein the compound of formula (I) has the structure:



11. A composition according to any preceding claim, wherein the composition further comprises at least one suitable activator.

12. A composition according to claim 11, wherein the activator is an alkyl aluminium compound.

13. A composition according to claim 11 or 12, wherein the activator is methylaluminoxane (MAO), triisobutylaluminium (TIBA), diethylaluminium (DEAC) or triethylaluminium (TEA).

14. A use of a composition as defined in any preceding claim as a polymerisation catalyst for the polymerisation of a polyethylene homopolymer or a copolymer comprising polyethylene.

15. The use according to claim 14, wherein the copolymer comprises 1-10 wt% of a (4-8C) α-olefin.

16. A process for forming a polyethylene homopolymer or a polyethylene copolymer which comprises reacting olefin monomers in the presence of a composition as defined in any of claims 1 to 13.

17. The process according to claim 16, wherein the process is performed at a temperature of 25 - 100°C.

18. The process according to claim 16 or 17, wherein the process is performed at a temperature of 70 - 80°C.