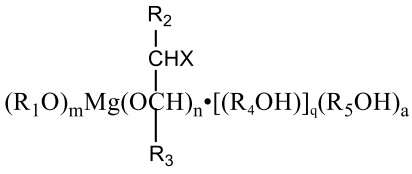
We claim:

1. A spherical carrier of catalysts for olefin polymerization, comprising a magnesium-containing compound having a structure represented by Formula (1):



Formula (1),

wherein,

R_1 is a C_{1-10} alkyl;

R_2 and R_3 are, each independently, selected from the group consisting of H, C_{1-10} alkyl groups, and C_{1-10} alkyl groups substituted by 1 to 10 halogen atoms;

R_4 is selected from the group consisting of C_{1-10} alkyl groups substituted by at least one halogen atom and C_{6-20} aryl groups substituted by at least one halogen atom;

R_5 is a C_{1-5} alkyl;

X is selected from the group consisting of fluorine, chlorine, bromine and iodine;

m is 0.1 to 1.9, n is 0.1 to 1.9, and $m + n = 2$; $0 < q < 0.2$; $0 < a < 0.1$.

2. The spherical carrier according to claim 1, having at least one of the following features:

- R_1 is a C_{1-8} alkyl, preferably a C_{1-6} alkyl;
- R_2 and R_3 are, each independently, selected from the group consisting of H, C_{1-5} alkyl groups, and C_{1-5} alkyl groups substituted by 1 to 10 halogen atoms;
- R_4 is selected from the group consisting of C_{1-10} alkyl groups substituted by at least two halogen atoms and C_{6-20} aryl groups substituted by at least two halogen atoms;
- R_5 is a C_{1-2} alkyl; and
- X is selected from the group consisting of chlorine and bromine.

3. The spherical carrier according to claim 1 or 2, wherein the spherical carrier has an average particle size of from 2 to 100 microns and a particle size distribution less than 2;

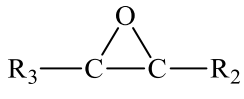
preferably, the spherical carrier has an average particle size of from 2 to 19 microns and a particle size distribution of from 0.6 to 1.6.

4. A method for preparing a spherical carrier of catalysts for olefin polymerization, comprising:

(1) subjecting a component A to a first contact and then applying shear force on the resulting mixture to afford a first product, the component A comprising a magnesium halide of the general formula MgXY and a first alcohol of the general formula R_1OH;

(2) subjecting the first product and a component B to a second contact to afford a second product, the component B comprising an oxirane-type compound having a structure represented

by Formula (2):



Formula (2);

(3) subjecting the second product and a component C to a third contact to afford a third product, the component C comprising a halogenated alcohol of the general formula R_4OH and a second alcohol of the general formula R_5OH; and

(4) spray drying the third product,

wherein,

in the formula R_1OH, R_1 is a C_{1-10} alkyl;

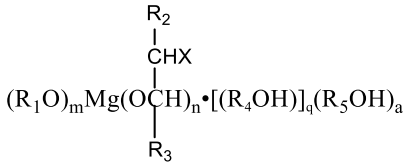
in the formula (2), R_2 and R_3 are, each independently, selected from the group consisting of H, C_{1-10} alkyl groups, and C_{1-10} alkyl groups substituted by 1 to 10 halogen atoms;

in the formula R_4OH, R_4 is selected from the group consisting of C_{1-10} alkyl groups substituted by at least one halogen atom and C_{6-20} aryl groups substituted by at least one halogen atom;

in the formula R_5OH, R_5 is a C_{1-5} alkyl;

in the formula MgXY, X is selected from the group consisting of fluorine, chlorine, bromine and iodine; and Y is selected from the group consisting of fluorine, chlorine, bromine, iodine, C_{1-6} alkyl, C_{1-6} alkoxy, C_{6-14} aryl, and C_{6-14} aryloxy;

the amounts of the component A, the component B and the component C used are such that the resulting spherical carrier comprises a magnesium-containing compound having a structure represented by Formual (1):



Formula (1),

wherein, R_1 - R_5 and X are as defined above, m is 0.1 to 1.9, n is 0.1 to 1.9, and m + n = 2; $0 < q < 0.2$; $0 < a < 0.1$; and

wherein, in step (3), the amount of the halogenated alcohol used is from 0.05 to 6.5 mol, and the amount of the second alcohol used is from 5 to 100 mol, relative to 1 mole of the magnesium halide used.

5. The method according to claim 4, having at least one of the following features:

- in the formula MgXY, X is selected from the group consisting of chlorine and bromine, and Y is selected from the group consisting of chlorine, bromine, C_{1-5} alkyl, C_{1-5} alkoxy, C_{6-10} aryl and C_{6-10} aryloxy;

or the magnesium halide is at least one selected from the group consisting of magnesium chloride, magnesium bromide, phenoxymagnesium chloride, isopropoxymagnesium chloride and n-butoxymagnesium chloride;

- in the formula R_1OH, R_1 is a C_{1-8} alkyl;

or the first alcohol compound is at least one selected from the group consisting of ethanol, n-propanol, isopropanol, n-butanol, isobutanol, n-pentanol, isopentanol, n-hexanol, n-octanol and 2-ethylhexanol;

- in the formula (2), R_2 and R_3 are, each independently, selected from the group consisting of H, C_{1-5} alkyl, and C_{1-5} alkyl substituted by 1 to 10 halogen atoms;

or the oxirane-type compound is at least one selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, epichlorohydrin, epoxy chlorobutane, epoxy bromopropane, and epoxy bromobutane;

- in the formula R_4OH, R_4 is selected from the group consisting of C_{1-10} alkyl groups substituted by at least two halogen atoms and C_{6-20} aryl groups substituted by at least two halogen atoms;

or the halogenated alcohol is at least one selected from the group consisting of 2,2,2-trichloroethanol, 2,2-dichloroethanol, 1,2-dichloroethanol, 1,3-dichloropropanol, and 1,4-dichlorobutanol;

- in the formula R_5OH, R_5 is a C_{1-2} alkyl;

- relative to 1 mole of the magnesium halide used, the amount of the first alcohol compound used is from 6 to 22 moles, the amount of the oxirane-type compound used is from 2 to 6 moles, the amount of the halogenated alcohol used is from 1 to 5 moles, and the amount of the second alcohol compound used is from 8 to 80 moles;

- in step (1), the first contact is performed under stirring, and the conditions for the first contact include a temperature of from 80 to 120 °C and a time of from 0.5 to 5 h;

or in step (1), the conditions for the first contact include a temperature of from 80 to 100 °C and a time of from 0.5 to 3 h;

- in step (2) , the conditions for the second contact include a temperature of from 50 to 120 °C and a time of from 20 to 60 min;

or in step (2), the conditions for the second contact include a temperature of from 80 to 100 °C and a time of from 20 to 50 min;

- in step (3), the conditions for the third contact include, under stirring, a temperature of from 0 to 120 °C and a time of from 0.5 to 6 hours; and

- in step (4), the conditions for the spray drying include a temperature of from 60 to 200 °C, and preferably from 90 to 150 °C.

6. Use of the spherical carrier according to any one of claims 1 to 3 in the preparation of a catalyst for olefin polymerization.

7. A catalyst comprising the spherical CARRIER of any one of claims 1 to 3.

8. Use of the catalyst of claim 7 in catalyzing an olefin polymerization.