

Claims

[Claim 1]

A method for producing an olefin polymerization catalyst component, the method comprising:
contacting a magnesium compound, tetravalent titanium halide compound, an organic compound represented the following general formula (1)



an organic compound represented the following general formula (2)



wherein R^1 is a halogen atom or an alkyl group having 1 to 8 carbon atoms, R^2 and R^3 are a linear alkyl group having 1 to 6 carbon atoms, provided that R^2 and R^3 are either identical or different, and k is an integer from 0 to 4, provided that a plurality of R^1 are either identical or different when k is an integer from 2 to 4, and

wherein R^4 and R^5 are independently an atom or group selected from a hydrogen atom, halogen, a linear alkyl group having 1 to 20 carbon atoms, a branched alkyl group having 3 to 20 carbon atoms, a vinyl group, a linear or branched alkenyl group having 3 to 20 atoms, a cycloalkenyl group having 3 to 20 carbon atoms, an aromatic hydrocarbon group having 6 to 20 carbon atoms, provided that R^4 and R^5 optionally bond to each other to form a ring, and the number of carbon atoms of R^5 is 2 or more when R^4 is a hydrogen atom or a methyl group; and

wherein R^6 and R^7 are independently a linear alkyl group having 1 to 20 carbon atoms, a branched alkyl group having 3 to 20 carbon atoms, a vinyl group, a linear or branched alkenyl group having 3 to 20 carbon atoms, a cycloalkyl group having 3 to 20 carbon atoms, a cycloalkenyl group having 3 to 20 carbon atoms, or an aromatic hydrocarbon group having 6 to 20 atoms,
into contact with each other at the same step.

[Claim 2]

A method for producing an olefin polymerization catalyst component according to the claim1, the method comprising:

a first step that brings a magnesium compound and a tetravalent titanium halide compound into contact with each other to make a reaction, followed by removing the reaction medium and optionally washing;

a second step that brings a tetravalent titanium halide compound into

contact with a product obtained by the first step to make a reaction, followed by removing the reaction medium and optionally washing;

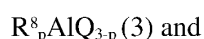
wherein compounds selected respectively from an organic compound represented by the following general formula (1) and an organic compound represented by the following general formula (2) are further added in at least either the first step and the second step.

[Claim 3]

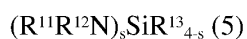
A method for producing an olefin polymerization catalyst component according to the claim 2, the method further comprising: a third step that brings an organic compound represented by the following general formula (1) and an organic compound represented by the following general formula (2) into contact with a product obtained by the second step to make a reaction, followed by removing the reaction medium and optionally washing.

[Claim 4]

An olefin polymerization catalyst includes (I) the solid catalyst component for olefin polymerization obtained by the method according to claim 1, (II) an organo aluminum compound represented by the following general formula (3),



(III) an external donor compound represented by the following general formula (4) or an external donor compound represented by the following general formula (5)



wherein R^8 is an alkyl group having 1 to 6 carbon atoms; Q is a hydrogen atom or halogen atom; and p is an integer from 0 to 3; and

wherein R^9 is an alkyl group having 1 to 12 carbon atoms, a cycloalkyl group having 3 to 12 carbon atoms, a phenyl group, a vinyl group, an allyl group, or an aralkyl group, provided that a plurality of R^9 are either identical or different when a plurality of R^9 are present;

R^{10} is an alkyl group having 1 to 4 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms, a phenyl group, a vinyl group, an allyl group, or an aralkyl group, provided that a plurality of R^{10} are either identical or different when a plurality of R^{10} are present; and q is an integer from 0 to 3;

R^{11} and R^{12} are a hydrogen atom, a linear alkyl group having 1 to 20 carbon atoms, a branched alkyl group having 3 to 20 carbon atoms, a vinyl group, an allyl group, or an aralkyl group, a cycloalkyl group having 3 to 20 carbon atoms, or aryl group, provided that R^{11} and R^{12}

are either identical or different, and optionally bond to each other to form a ring;

R^{13} is a linear alkyl group having 1 to 20 carbon atoms, a branched alkyl group having 3 to 20 carbon atoms, a vinyl group, an allyl group, or an aralkyl group, a linear or branched alkoxy group having 1 to 20 carbon atoms, a vinyloxy group, an allyloxy group, a cycloalkyl group having 3 to 20 carbon atoms, an aryl group, or an aryloxy group, provided that a plurality of R^{13} are either identical or different when a plurality of R^{13} are present; and s is an integer from 0 to 3.

[Claim 5]

A process for propylene polymerization wherein the catalyst component according to claim 1 is used in combination with an organoaluminum compound and an external electron donor compound.