[Document Name] Claims

[Claim 1]

A solid catalyst component for polymerization of an olefin, comprising: magnesium, titanium, halogen, an ether carbonate compound (A), and a succinic acid diester compound (B), wherein

a molar ratio represented by the following expression is 0.01 to 1.00:

content of the ether carbonate compound (A) / content of the succinic acid diester compound (B).

[Claim 2]

The solid catalyst component for polymerization of an olefin according to claim 1, wherein the ether carbonate compound (A) is one or more selected from compounds represented by the following general formula (1):

R^1-O-C(=O)-O-Z-O-R^2 (1)

wherein R^1 and R^2 are the same as or different from each other and each represent 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 alkenyl group or branched alkenyl group having 3 to 20 carbon atoms, a linear halogen-substituted alkyl group having 1 to 20 carbon atoms, a branched halogen-substituted alkyl group having 3 to 20 carbon atoms, a linear halogen-substituted alkenyl group having 2 to 20 carbon atoms, a branched

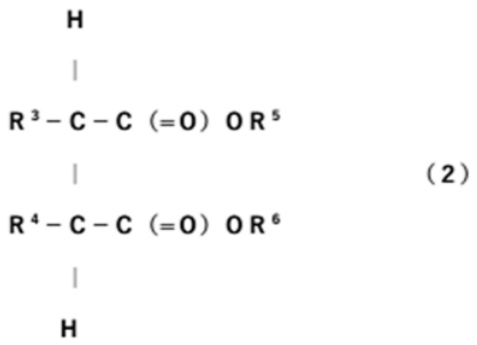
halogen-substituted alkenyl group having 3 to 20 carbon atoms, a cycloalkyl group having 3 to 20 carbon atoms, a cycloalkenyl group having 3 to 20 carbon atoms, a halogen-substituted cycloalkyl group having 3 to 20 carbon atoms, a halogen-substituted cycloalkenyl group having 3 to 20 carbon atoms, an aromatic hydrocarbon group having 6 to 24 carbon atoms, a halogen-substituted aromatic hydrocarbon group having 6 to 24 carbon atoms, a nitrogen atom-containing hydrocarbon group having 2 to 24 carbon atoms and having a carbon atom at a bonding end, an oxygen atom-containing hydrocarbon group having 2 to 24 carbon atoms and having a carbon atom at a bonding end, or a phosphorus-containing hydrocarbon group having 2 to 24 carbon atoms and having a carbon atom at a bonding end, except for the nitrogen atom-containing hydrocarbon group having 2 to 24 carbon atoms with a C=N group at a bonding end, the oxygen atom-containing hydrocarbon group having 2 to 24 carbon atoms with a carbonyl group at a bonding end, and the phosphorus-containing hydrocarbon group having 2 to 24 carbon atoms with a C=P group at a bonding end; and Z represents a linking group forming a linkage via a carbon atom or a carbon chain.

[Claim 3]

The solid catalyst component for polymerization of an olefin according to claim 1, wherein the succinic acid diester compound (B) is one or more selected from

compounds represented by the following general formula (2):

[Formula 1]



(2)

wherein R^3 and R^4 are the same as or different from each other and are each a hydrogen atom or an alkyl group having 1 to 4 carbon atoms; and R^5 and R^6 are the same as or different from each other and are each a linear alkyl group or branched alkyl group having 2 to 4 carbon atoms.

[Claim 4]

A catalyst for polymerization of an olefin, comprising:

(I) the solid catalyst component for polymerization of an olefin according to claim 1; and

(II) an organoaluminum compound represented by the following general formula (3):

$$R^7_pAlQ_{3-p} \quad (3)$$

wherein R^7 is an alkyl group having 1 to 6 carbon atoms; Q is a hydrogen atom or halogen; p is a real number of $0 < p \leq 3$; when a plurality of R^7 are present, each R^7 is the same as or different from each other; and when a

plurality of Q are present, each Q is the same as or different from each other.

[Claim 5]

The catalyst for polymerization of an olefin according to claim 4, comprising:

(I) the solid catalyst component for polymerization of an olefin according to claim 1;

(II) an organoaluminum compound represented by the following general formula (3):

$R^7_pAlQ_{3-p}$ (3)

wherein R^7 is an alkyl group having 1 to 6 carbon atoms; Q is a hydrogen atom or halogen; p is a real number of $0 < p \leq 3$; when a plurality of R^7 are present, each R^7 is the same as or different from each other; and when a plurality of Q are present, each Q is the same as or different from each other; and

(III) an external electron-donating compound.

[Claim 6]

A method for producing a polymer of an olefin, comprising polymerizing an olefin in the presence of the catalyst for polymerization of an olefin according to claim 4.

[Claim 7]

A method for producing a polymer of an olefin, comprising polymerizing an olefin in the presence of the catalyst for polymerization of an olefin according to claim 5.