[Document Name] Claims

[Claim 1]

A method for producing a catalyst for polymerization of an olefin, comprising contacting a solid catalyst component (A) containing magnesium, titanium, halogen and a compound having a carbonate group, and

an organoaluminum compound (B) represented by the following general formula (I):

$R^1_pAlQ_{3-p}$ (I)

, wherein R^1 represents an alkyl group having 1 to 6 carbon atoms, Q represents a hydrogen atom or a halogen atom, and p represents a real number satisfying $0 < p \leq 3$,

with each other, wherein

at least one selected from the solid catalyst component (A) and the organoaluminum compound (B) is previously subjected to contact treatment with a hydrocarbon compound having one or more vinyl groups.

[Claim 2]

The method for producing a catalyst for polymerization of an olefin according to claim 1, wherein the solid catalyst component (A) is previously subjected to the contact treatment with a hydrocarbon compound having one or more vinyl groups.

[Claim 3]

The method for producing a catalyst for polymerization of an olefin according to claim 1, wherein the organoaluminum compound (B) is previously subjected to the contact treatment with a hydrocarbon compound having one or more vinyl groups.

[Claim 4]

The method for producing a catalyst for polymerization of an olefin according to claim 1, wherein

the amount of at least one selected from the solid catalyst component (A) and the organoaluminum compound (B) to be previously subjected to the contact treatment with the hydrocarbon compound having one or more vinyl groups is 1 mol or more per 1 mol of titanium constituting the solid catalyst component (A) that is subjected to production of the catalyst for polymerization of an olefin.

[Claim 5]

The method for producing a catalyst for polymerization of an olefin according to claim 1, wherein the hydrocarbon compound having one or more vinyl groups is one or more compounds selected from ethylene, propylene, 1-butene, 1-pentene, 3-methyl-1-butene, 1-hexene, 4-methyl-1-pentene, 3-methyl-1-pentene, 1,4-hexadiene, 1,5-hexadiene, 1,6-octadiene, 1,7-octadiene, 1-heptene, 1-octene, vinylcyclohexane, and vinylcyclohexene.