bis(cyclopentadienyl)titanium dichloride and trimethylaluminum to react with each other in the presence of a solvent such that a solubility of the Tebbe complex in 1 g of the solvent at 25°C is 0.5 mmol/g or less.

[2] The method for producing a Tebbe complex of the item [1], wherein the solvent is an aliphatic hydrocarbon having 3 to 20 carbon atoms.

[3] The method for producing a Tebbe complex of the item [1] or [2], wherein the aliphatic hydrocarbon having 3 to 20 carbon atoms is at least one selected from a straight-chain aliphatic hydrocarbon having 3 to 20 carbon atoms and a branched aliphatic hydrocarbon having 3 to 20 carbon atoms.

[4] The method for producing a Tebbe complex of any of the items [1] to [3], wherein a charged amount of the trimethylaluminum is one to twenty molecules relative to one molecule of the bis(cyclopentadienyl)titanium dichloride.

[5] The method for producing a Tebbe complex of any of the items [1] to [4], wherein a charged amount of the bis(cyclopentadienyl)titanium dichloride is from 0.1 to 2.5 mmol/g in terms of a titanium atom concentration relative to the solvent.

[6] The method for producing a Tebbe complex of any of the items [1] to [5], wherein a temperature of the reaction between bis(cyclopentadienyl)titanium dichloride and trimethylaluminum is from 0 to 125°C.

[7] The method for producing a Tebbe complex of any of the items [1] to [6], wherein a time of the reaction between bis(cyclopentadienyl)titanium dichloride and trimethylaluminum is from 1 to 200 hours.

[8] The method for producing a Tebbe complex of any of the items [1] to [7], including a step of recovering the Tebbe complex in a solid state as deposited from a reaction liquid obtained through the reaction by filtration or decantation.

ADVANTAGEOUS EFFECTS OF INVENTION

[0014]

In accordance with the present invention, it is possible to provide a method for producing a Tebbe complex having high purity and high activity and having excellent storage stability in a high yield. That is, it is possible to provide a method for producing a Tebbe complex, in which the Tebbe complex having a purity of 90% or more can be produced in a yield of 70% or more. In view of the fact that the Tebbe complex that can be produced according to the present invention has high catalytic activity per one titanium atom as compared with the

CLAIMS

[Claim 1]

A method for producing a Tebbe complex, comprising allowing bis(cyclopentadienyl)titanium dichloride and trimethylaluminum to react with each other in the presence of a solvent such that a solubility of the Tebbe complex in 1 g of the solvent at 25°C is 0.5 mmol/g or less,

in which a charged amount of the bis(cyclopentadienyl)titanium dichloride is from 0.1 to 2.5 mmol/g in terms of a titanium atom concentration relative to the solvent.

[Claim 2]

The method for producing a Tebbe complex according to claim 1, wherein the solvent is an aliphatic hydrocarbon having 3 to 20 carbon atoms.

[Claim 3]

The method for producing a Tebbe complex according to claim 2, wherein the aliphatic hydrocarbon having 3 to 20 carbon atoms is at least one selected from the group consisting of a straight-chain aliphatic hydrocarbon having 3 to 20 carbon atoms and a branched aliphatic hydrocarbon having 3 to 20 carbon atoms.

[Claim 4]

The method for producing a Tebbe complex according to any of claims 1 to 3, wherein a charged amount of the trimethylaluminum is one to twenty molecules relative to one molecule of the bis(cyclopentadienyl)titanium dichloride.

[Claim 5]

The method for producing a Tebbe complex according to any of claims 1 to 4, wherein a temperature of the reaction between bis(cyclopentadienyl)titanium dichloride and trimethylaluminum is from 0 to 125°C.

[Claim 6]

The method for producing a Tebbe complex according to any of claims 1 to 5, wherein a time of the reaction between bis(cyclopentadienyl)titanium dichloride and trimethylaluminum is from 1 to 200 hours.

[Claim 7]

The method for producing a Tebbe complex according to any of claims 1 to 6, comprising a step of recovering the Tebbe complex in a solid state as deposited from a reaction liquid obtained through the reaction by filtration or decantation.