Claims

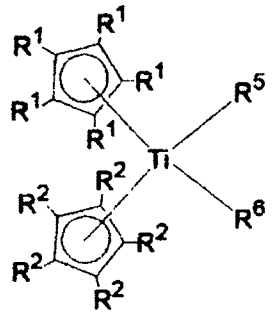
[Claim 1]

A catalyst composition for hydrogenation~~,~~ comprising (A), (B), (C), and (D) shown below,

wherein a mass ratio of the (C) to the (A) (=(C)/(A)) is in a range of 0.1 to 4.0, and

wherein a mass ratio of the (D) to the (A) (=(D)/(A)) is in a range of 0.01 to 1.00,

(A): a titanocene compound represented by following general formula (1),



... (1)

~~(~~wherein R^5 and R^6 represent a group selected from the group consisting of hydrogen, a hydrocarbon group having 1 to 12 carbon atoms, an aryloxy group, an alkoxy group, a halogen group, and a carbonyl group, R^5 and R^6 may be the same or different; and R^1 and R^2 represent a group selected from the group consisting of hydrogen and a hydrocarbon group having 1 to 12 carbon atoms, and R^1 and R^2 may be the same or different; provided that R^1 and R^2 are not all hydrogen atoms or ~~all a~~ hydrocarbon group<u>s</u> having 1 to 12 carbon atoms~~)~~,

(B): a compound containing one or more elements selected from the group consisting of elements Li, Na, K, Mg, Zn, Al, and Ca,

(C): an unsaturated compound having a molecular weight of 400 or less, and

(D): a polar compound.

[Claim 2]

The catalyst composition for hydrogenation of an olefinic compound~~,~~ according to claim 1, wherein the (C) has an unsaturated group content of 2 mol or more based on 1 mol of the (C).

[Claim 3]

The catalyst composition for hydrogenation~~,~~ according to claim 1 or 2, wherein the (B) is an organic lithium compound.

[Claim 4]

A method for hydrogenation, comprising bringing an olefinic unsaturated double bond-containing compound into contact with hydrogen in an inert organic solvent, in the presence of the catalyst composition for hydrogenation according to ~~any one of~~ claim~~s~~ 1 ~~to 3~~or 2.

[Claim 5]

The method for hydrogenation~~,~~ according to claim 4, wherein the olefinic unsaturated double bond-containing compound is a conjugated diene polymer or a copolymer formed of a conjugated diene and a vinyl aromatic hydrocarbon.