6. The composition according to any one of claims 1 to 5, not containing SiO_2.

7. A method for manufacturing the solid polymethylaluminoxane composition according to any one of claims 1 to 6, comprising a step (a) of heating an aromatic hydrocarbon solution containing trimethylaluminum and the polymethylaluminoxane containing the unit denoted by general formula (II) below (referred to hereinafter as the solution of polymethylaluminoxane composition) to cause solid polymethylaluminoxane composition containing trimethylaluminum and polymethylaluminoxane to precipitate;

wherein prior to step (a), a dry, inert gas is bubbled through the solution of polymethylaluminoxane composition, and/or during at least a portion of the period of step (a), a dry, inert gas is bubbled through the solution of polymethylaluminoxane composition:

$$-[(Me)AlO]_n- \qquad (II)$$

(wherein n denotes an integer of 1 to 50).

8. The manufacturing method according to claim 7, wherein in the solution of polymethylaluminoxane composition prior to heating, the mole fraction of methyl groups derived from trimethylaluminum moieties relative to the total number of mols of methyl groups is 15 mol% or less.

9. The manufacturing method according to claim 7~~8~~ or 9~~8~~, wherein in step (a), a suitable heating temperature and heating period are selected from:
(i) heating temperatures falling within a range of 80 to 200°C and
(ii) heating periods of from 5 minutes or more to less than 24 hours,
to cause the solid polymethylaluminoxane composition to precipitate.

10. The manufacturing method according to any one of claims 7 to 9, wherein the solution of polymethylaluminoxane composition employed as a starting material in step (a) is obtained by thermally decomposing an alkyl aluminum compound having an aluminum-oxygen-carbon bond.