Claims:

1. A process for preparing propylene homopolymer with high melt strength, comprising carrying out a propylene homopolymerization reaction of two or more stages in two or more reactors connected in series, wherein

the first stage comprises carrying out a propylene homopolymerization reaction in the presence of a Ziegler-Natta catalyst comprising a first external electron donor component, under a polymerization temperature of 50-100℃, and controlling the MFR of the polymer obtained within a range of 0.01-0.3 g per 10min, and

the second stage comprises adding, based on the resulting material from the first stage, a second external electron donor component to further carry out the propylene homopolymerization in the presence of hydrogen,

and controlling the MFR of the polymer finally obtained within a range of 0.2-10 g per 10min, and

wherein the hydrogen response of the first external electron donor is lower than that of the second external electronic donor.

2. The process according to claim 1, wherein

in the first stage, the Ziegler-Natta catalyst is composed of the following components: (1) a solid catalyst component with magnesium, titanium, halogen and internal electron donor as the main components; (2) an organic aluminum component; and (3) the first external electron donor component, wherein the weight ratio of component (1) to component (2), based on the ratio of titanium to aluminum, is 1: 10-500, and the weight ratio of component (2) to component (3) is 10-150:1; and

in the second stage, the weight ratio of the organic aluminium component to the second external electron donor component added is 1-50:1.

3. The process according to claim 2, wherein

in the first stage, the amount of the first external electron donor component is adjusted such that the weight ratio of the first external electron donor component to the organic aluminum is 1:15-100; and

in the second stage, the second external donor component is added according to the amount of the organic aluminum component added in the first stage, such that the weight ratio of the second external donor component to the organic aluminum is 1:2-20.

4. The process according to claim 1, wherein in the first stage, the hydrogen content is less than or equal to 300 ppmV.

5. The process according to claim 1, wherein the first external electron donor component is shown as the general formula $R^1_nSi(OR^2)_{4-n}$, wherein R^1, which may be identical to or different from each other, is (C_3-C_6) branched or cyclized aliphatic groups, R^2 is a (C_1-C_3) straight chain aliphatic group, and n is 1 or 2.

6. The process according to claim 1, wherein

the second external electron donor is shown as the general formula $R^3_nSi(OR^4)_{4-n}$, wherein n is 0 or 1 or 2, R^3 and R^4, which may be identical to or different from each other, are (C_1-C_3) straight chain aliphatic groups; or

the second external electron donor is shown as the general formula $R^5R^6Si(OR^7)_2$, wherein R^5 is a (C_1-C_3) straight chain aliphatic group, R^6 is a (C_3-C_6) branched or cyclized aliphatic group, and R^7 is a (C_1-C_3) straight chain aliphatic group.

7. The process according to claim 1, wherein the productivity ratio of the first stage to the second stage is 30:70 to 70:30.

8. The process according to claim 1, wherein said propylene homopolymerization reaction is carried out in two tubular loop reactors connected in series.

9. The process according to claim 1, wherein the first external electron donor is dicyclopentyl dimethoxy silane and/or diisopropyl dimethoxy silane, and the second external electron donor is tetraethoxy silane and/or methyl cyclohexyl dimethoxy silane.

10. A process for preparing propylene homopolymer with high melt strength,

comprising carrying out a propylene homopolymerization reaction of two stages in two tubular loop reactors connected in series, wherein

the first stage comprises carrying out the propylene homopolymerization reaction in the presence of Ziegler-Natta catalyst, under a polymerization temperature of 50-100℃ with a hydrogen content less than or equal to 300 ppmV, and controlling the MFR of the polymer obtained within a range of 0.01-0.3 g/10min, and said Ziegler-Natta catalyst being composed of the following components: (1) a solid catalyst component with magnesium, titanium, halogen and internal electron donor as the main components; (2) an organic aluminum component; and (3) dicyclopentyl dimethoxy silane, wherein the weight ratio of component (1) to component (2), based on the ratio of titanium to aluminum, is 1: 10-500, and the weight ratio of component (2) to component (3) is 10-150:1; and

the second stage comprises adding, based on the resulting material from the first stage, tetraethoxy silane in the presence of hydrogen to further carry out the propylene homopolymerization, and the amount of tetraethoxy silane is determined according to the amount of the organic aluminum component added in the first stage, so that the weight ratio of the tetraethoxy silane to the organic aluminum is 1:1-50; and

controlling the MFR of the polymer finally obtained within a range of 0.2-10 g/10min.