

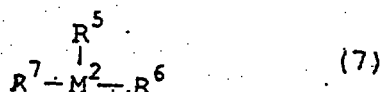
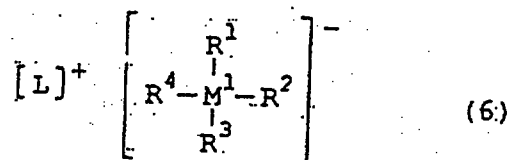
CLAIMS

1. A process for preparing an α -olefin oligomer which comprises oligomerizing an α -olefin in a solvent in the presence of a chromium-based catalyst system comprising a combination of at least a chromium compound, an amine or metal amide, and an alkylaluminium compound, in a contacting mode that the chromium compound and the alkylaluminium compound are not previously contacted with each other.
2. A process according to claim 1 wherein the α -olefin and the chromium compound are introduced into a solution comprising the amine or metal amide and the alkylaluminium compound.
3. A process according to claim 1 wherein the α -olefin and the alkylaluminium are introduced into a solution comprising the chromium compound and the amine or metal amide.
4. A process according to claim 1 wherein the α -olefin, the amine or metal amide, and the alkylaluminium compound are introduced into a solution comprising the chromium compound.
5. A process according to claim 1 wherein the α -olefin, the chromium compound and the amine or metal amide are introduced into a solution comprising the alkylaluminium compound.
6. A process according to claim 1 wherein the chromium compound, the amine or metal amide, the alkylaluminium compound and the α -olefin are introduced into a reactor simultaneously and separately.
7. A process according to any one of the preceding claims wherein the molar ratio of (a) the chromium compound, (b) the amine or metal amide, and (c) the alkylaluminium compound is (a) : (b) : (c) = 1: 2 to 4: 4 to 8; and the reaction is carried out at a temperature of 0 to 70°C.
8. A process according to any one of the preceding claims wherein the reaction is carried out in the presence of a non-coordinating Lewis acid-containing compound.
9. A process according to any one of the preceding

claims wherein the reaction is carried out in the presence of a non-conjugated diene compound.

10. A process according to any one of the preceding claims wherein the reaction is carried out in the presence of an aromatic hydrocarbon compound.

11. A process for preparing an α -olefin oligomer which comprises oligomerizing an α -olefin in a solvent in the presence of a chromium-based catalyst system comprising a combination of at least a chromium compound, an amine or metal amide, an alkylaluminium compound, and a non-coordinating Lewis acid-containing compound of formula (6) or (7).



wherein M^1 and M^2 are each an element selected from groups IIIB, IVB, VB and VIB of the periodic table; R^1 to R^7 are each independently an organic group, an inorganic group or an anionic atom; and $[L]^+$ is a cation containing an element selected from groups IA, VIIA, VIII, IB and IIIB-VIB of the periodic table.

12. A process according to claim 8 or 11 wherein the α -olefin and the chromium compound are introduced into a solution comprising the amine or metal amide, the alkylaluminium compound and the non-coordinating Lewis acid-containing compound.

13. A process according to claim 8 or 11 wherein the α -olefin, the chromium compound and the amine or metal amide are introduced into a solution comprising the alkylaluminium compound and the non-coordinating Lewis acid-containing compound.

14. A process according to claim 8 or 11, wherein the α -olefin and the alkylaluminium compound are introduced into a solution comprising the chromium compound, the amine or metal amide and the non-coordinating Lewis acid-containing compound.

15. A process according to any one of the preceding claims wherein the oligomerization is carried out in a saturated hydrocarbon solvent having not more than 7 carbon atoms at a temperature of 0 to 70°C, and then by-product polymers in the reaction mixture are separated and removed to recover the α -olefin oligomer without melting the by-product polymers.

16. A process according to any one of the preceding claims wherein the reaction mixture comprising the catalyst components is contacted with an acidic or alkaline aqueous solution to remove the catalyst components.

17. A process according to any one of the preceding claims for producing 1-hexene which comprises carrying out oligomerization of ethylene in a reaction solvent having a higher-boiling point than that of 1-hexene under a pressure of not less than 10 kg/cm²(G) to obtain an α -olefin oligomer composition comprising 1-hexene, then reducing the pressure of the reaction system to not more than 3 kg/cm²(G) by degassing, and separating the by-products therefrom.

18. A process according to any one of the preceding claims for producing 1-hexene wherein an oligomerization reaction of ethylene is carried out to obtain an α -olefin oligomer composition with a 1-hexene content of not less than 50 wt%, then 1-hexene and the reaction solvent are distilled off from the reaction mixture and the recovered reaction solvent is recycled to the reaction system.

~~19. An α -olefin oligomer composition obtainable from an oligomerization reaction of an α -olefin, comprising not less than 85% by weight of 1-hexene and not more than 15% by weight of oligomers having not less than 10 carbon atoms and/or polymers.~~