

What is claimed is:

1. A composition for use with a catalyst for polymerization of mixtures comprising an olefin, said composition comprising:
 - a selectivity control agent comprising at least one silicon-containing compound containing at least one C1-C10 alkoxy group bonded to a silicon atom; and
 - an amount of one or more agent compounds, said agent compound comprising C2-C13 mono- or polycarboxylic esters of aliphatic C2-C7 carboxylic acids and inertly substituted derivatives thereof.
2. The composition of claim 1, wherein:
 - the amount of said agent compounds provides a normalized polymerization activity at a first temperature of 100 °C that is less than one of:
 - a normalized polymerization activity at a second temperature, said second temperature being 72 °C; or
 - a normalized polymerization activity at the first temperature in the presence of the selectivity control agent, but not the activity limiting agent, at a same total molar quantity of the selectivity control agent; or
 - a normalized polymerization activity at the first temperature in the presence of the selectivity control agent, but not the activity limiting agent, at a molar quantity of the selectivity control agent required to produce similar xylene solubles at the second temperature as said composition at the second temperature.
3. The composition of claim 1, wherein the agent compound increases a lifetime of the catalyst during the polymerization of mixtures comprising an olefin.
4. The composition of claim 1, wherein the agent compound comprises an acetate or valerate ester.
5. The composition of claim 1, wherein the agent compound comprises a hexanoate ester.
6. The composition of claim 1, wherein the selectivity control agent comprises *n*-propyltrimethoxysilane.

7. The composition of claim 1, wherein the agent compound comprises a compound selected from the group consisting of butyl valerate, isobutyl butyrate, propyl butyrate, pentyl valerate, isopropyl butyrate, octyl acetate, pentyl acetate, propyl acetate, and combinations thereof.
8. The composition of claim 1, wherein the total quantity of the selectivity control agent is limited to provide a molar ratio, based on the moles of a transition metal in a polymerization catalyst, from 0.1 to 500.
9. The composition of claim 1, wherein the molar ratio of the selectivity control agent to the agent compound is from 99:1 to 0.1 to 99.9.
10. A catalyst composition for polymerization of mixtures comprising an olefin, said catalyst composition comprising:
one or more polymerization catalysts;
a selectivity control agent comprising at least one silicon-containing compound containing at least one C1-C10 alkoxy group bonded to a silicon atom;
an amount of one or more agent compounds, said agent compound comprising C2-C13 mono- or polycarboxylic esters of aliphatic C2-C7 monocarboxylic acids and inertly substituted derivatives thereof.
11. The catalyst composition of claim 10, wherein:
the amount of said agent compounds provides a normalized polymerization activity at a first temperature of 100 °C that is less than one of:
a normalized polymerization activity at a second temperature, said second temperature being 72 °C; or
a normalized polymerization activity at the first temperature in the presence of the selectivity control agent, but not the activity limiting agent, at a same total molar quantity of the selectivity control agent; or
a normalized polymerization activity at the first temperature in the presence of the selectivity control agent, but not the activity limiting agent, at a molar quantity of the selectivity control agent required to produce similar xylene solubles at the second temperature as said catalyst composition at the second temperature.
12. The composition of claim 10, wherein the agent compound increases a lifetime of the catalyst during the polymerization of mixtures comprising an olefin.

13. The composition of claim 10, wherein the agent compound comprises an acetate or valerate ester.
14. The composition of claim 10, wherein the agent comprises a hexanoate ester.
15. The composition of claim 10, wherein the selectivity control agent comprises *n*-propyltrimethoxysilane.
16. The composition of claim 10, wherein the agent compound comprises a compound selected from the group consisting of butyl valerate, isobutyl butyrate, propyl butyrate, pentyl valerate, isopropyl butyrate, octyl acetate, pentyl acetate, propyl acetate, and combinations thereof.
17. The composition of claim 10, wherein the polymerization catalyst comprises an aluminum-containing compound.
18. The composition of claim 10, wherein the total quantity of the selectivity control agent is limited to provide a molar ratio, based on the moles of a transition metal in the polymerization catalyst, from 0.1 to 500.
19. The composition of claim 10, wherein the molar ratio of the selectivity control agent to the agent compound is from 99:1 to 0.1 to 99.9.
20. A polymerization process comprising:
contacting an olefin or a mixture of the olefin and one or more copolymerizable comonomers under polymerization conditions with the catalyst composition of claim 10.
21. A composition comprising a propylene homopolymer and a C2-C13 mono- or polycarboxylic ester of aliphatic C2-C7 carboxylic acids and inertly substituted derivatives thereof.
22. The composition of claim 21, wherein the composition has a melt flow greater than 100 g/10 min, as measured in accordance with ASTM D-1238-01 at 230 °C with a 2.16 kg weight of propylene based polymers.

23. The composition of claim 21, wherein the composition has a VOC content less than 80 ppm, as measured in accordance with VW standard PV 3341.
24. The composition of claim 21, wherein the composition has a VOC content less than 25 ppm, as measured in accordance with VW standard PV 3341, and a melt flow less than 10 g/10 min, as measured in accordance with ASTM D-1238-01 at 230 °C with a 2.16 kg weight of propylene based polymers.
25. A process for producing the composition of claim 21.
26. A polymerization process for producing a propylene-based polymer comprising:
contacting, under polymerization conditions and in the presence of hydrogen, propylene and optionally one or more comonomers with a catalyst composition described herein,
maintaining a H₂/propylene mole ratio from 0.0005 to about 0.17 during the contacting; and
forming a propylene-based polymer having a melt flow rate from 0.2 g/10 min to 400 g/10 min, as measured in accordance with ASTM D-1238-01 at 230 °C with a 2.16 kg weight of propylene based polymers.
27. A propylene impact copolymer composition comprising:
a propylene based polymer;
a propylene/ethylene copolymer dispersed within the propylene-based polymer; and
a C₂-C₁₃ mono- or polycarboxylic ester of aliphatic C₂-C₇ carboxylic acids and inertly substituted derivatives thereof.
28. The composition of claim 27, wherein the composition has a melt flow greater than 50 g/10 min, as measured in accordance with ASTM D-1238-01 at 230 °C with a 2.16 kg weight of propylene based polymers.
29. The composition of claim 27, wherein the composition has a VOC content less than 30 ppm, as measured in accordance with VW standard PV 3341.
30. A polymerization process comprising:

contacting, under polymerization conditions, propylene with a catalyst composition comprising a C2-C13 mono- or polycarboxylic ester of aliphatic C2-C7 carboxylic acids and inertly substituted derivatives thereof in a first polymerization reactor;

forming an active propylene-based polymer;

contacting, under polymerization conditions, the active propylene-based polymer with at least one olefin in a second polymerization reactor; and

forming the composition of claim 27.

31. An article comprising a polypropylene homopolymer comprising a C2-C13 mono- or polycarboxylic esters of aliphatic C2-C7 carboxylic acids and inertly substituted derivatives thereof.

32. An article comprising a polypropylene impact copolymer comprising one or more C2-C13 mono- or polycarboxylic esters of aliphatic C2-C7 carboxylic acids and inertly substituted derivatives thereof.

33. A catalyst composition as described herein.

34. A composition for use with a catalyst for polymerization as described herein.

35. A polymerization process as described herein.