~~9. The method of claim 1, comprising adding the second catalyst as a trim catalyst to a slurry having the first catalyst fed the reactor.~~

9~~10~~. The method of claim 1, comprising impregnating the first catalyst and the second catalyst on a single support, wherein the catalyst system comprises a common-supported catalyst system.

10~~1~~. The method of claim 1, wherein first catalyst promotes polymerization of the ethylene into a high molecular-weight portion of the polyethylene, and wherein the second catalyst promotes polymerization of the ethylene into a low molecular-weight portion of the polyethylene.

~~12. The method of claim 1, wherein the polyethylene comprises a MFR greater than 30.~~

~~13. The method of claim 1, wherein the polyethylene comprises a MFR greater than 40.~~

~~14. The method of claim 1, wherein the polyethylene comprises:~~
~~a value for Mwl/Mw2 of at least about 2.0, wherein Mwl/Mw2 is a ratio of a weight average molecular weight (Mw) for a first half of a temperature rising elution (TREF) curve to a Mw for a second half of the TREF curve; and~~
~~a value for Twl - Tw2 of less than about -15°C, wherein Twl - Tw2 is a difference of a weight average elution temperature (Tw) for the first half of the TREF curve to a Tw for the second half of the TREF curve.~~

~~15. The method of claim 1, wherein the MI of the polyethylene is in a range from 0.5 to 1.0 dg/min.~~

~~16. The method of claim 1, wherein the density of the polyethylene is in a range from 0.916 to 0.926 g/cm3.~~

17. A polymer comprising:

polyethylene formed:

in a polymerization reactor via a polymerization catalyst system comprising a first catalyst and a second catalyst; and

by adjusting operating conditions of the polymerization reactor and an amount of the second catalyst fed to the polymerization reactor to control melt index (MI) and density of the polyethylene based on a target melt flow ratio (MFR) and a desired MWD and CD combination.

18. The polymer of claim 17, wherein the polyethylene comprises a copolymer of ethylene and an alpha olefin comonomer having from 4 to 20 carbon atoms.

19. The polymer of claim 18, wherein the alpha olefin comonomer comprises 1-hexene.

20. The polymer of claim 17, wherein the polyethylene comprises a bimodal polyethylene with respect to molecular weight (Mw).

21. The polymer of claim 17, wherein the MI of the polyethylene is in a range from 0.1 to 5.0 dg/min.

22. The polymer of claim 17, wherein the density of the polyethylene is in a range from 0.912 to 0.940 g/cm3.

23. The polymer of claim 17, wherein adjusting operating conditions comprises adjusting an operating temperature of the polymerization reactor, adjusting a comonomer concentration in a polymerization mixture in the polymerization reactor, or adjusting hydrogen concentration in the polymerization mixture in the polymerization reactor, or any combination thereof.

24. The polymer of claim 17, wherein adjusting operating conditions comprises adjusting a reactant concentration in a mixture in the polymerization reactor to meet a MI target or a density target of the polyethylene at a given MFR range of the polyethylene.

~~25. The polymer of claim 17, wherein the first catalyst comprises bis(n-propylcyclopentadienyl) Hafnium dimethyl.~~

~~26. The polymer of claim 1, wherein the second catalyst comprises di(1-ethylindenyl) zirconium dimethyl.~~

~~27. The polymer of claim 1, wherein the catalyst system comprises a common-supported catalyst system.~~

~~28. The polymer of claim 1, wherein at least some of the second catalyst is a trim catalyst.~~

~~29. The method of claim 1, wherein the second catalyst promotes polymerization of the ethylene into a high molecular-weight portion of the polyethylene.~~

~~30. The polymer of claim 1, wherein the first catalyst promotes polymerization of the ethylene into a low molecular-weight portion of the polyethylene.~~

~~31. A polymerization catalyst system comprising a first catalyst and a second catalyst to facilitate polymerization of ethylene into a polyethylene in a reactor, and the polymerization catalyst system configured with respect to reactor conditions and an amount of the second catalyst fed to the reactor, to control melt index (MI) and density of the polyethylene based on a target melt flow ratio (MFR) of the polyethylene and a desired MWD x CD combmination of the polyethylene.~~

~~32. The polymerization catalyst system of claim 31 , wherein the first catalyst comprises bis(n-propylcyclopentadienyl) Hafnium dimethyl.~~

~~33. The polymerization catalyst system of claim 31, wherein the second catalyst comprises di(1-ethylindenyl) zirconium dimethyl.~~

34. The polymerization catalyst system of claim 31, wherein the catalyst system comprises a common-supported catalyst system.

35. The polymerization catalyst system of claim 31, wherein the second catalyst is a trim catalyst.

36. The polymerization catalyst system of claim 31, wherein the first catalyst promotes polymerization of the ethylene into a high molecular-weight portion of the polyethylene.

37. The polymerization catalyst system of claim 31, wherein the second catalyst promotes polymerization of the ethylene into a low molecular-weight portion of the polyethylene.

38. A method of producing polyethylene, comprising:

polymerizing ethylene in presence of a catalyst system in a reactor to form polyethylene, wherein the catalyst system comprises a first catalyst and a second catalyst; and

adjusting reactor temperature, reactor hydrogen concentration, reactor comonomer concentration, and an amount of the second catalyst fed to the reactor, to give a range of melt flow ratio (MFR) of the polyethylene while maintaining density and melt index (MI) of the polyethylene.

39. The method of claim 38, wherein the amount of the second catalyst fed to the reactor comprises a catalyst trim ratio.

40. The method of claim 38, wherein the first catalyst promotes polymerization of the ethylene into a high molecular-weight portion of the polyethylene, and wherein the second catalyst promotes polymerization of the ethylene into a low molecular-weight portion of the polyethylene.

41. The method of claim 38, wherein control of MI is substantially decoupled from control of MFR.

42. The method of claim 38, wherein the reactor hydrogen concentration comprising a ratio of hydrogen to ethylene in the reactor and that is a primary control variable for MI.

43. The method of claim 38, wherein a ratio of comonomer to ethylene in the reactor is a primary control variable for the density.

44. The method of claim 38, wherein the reactor temperature and the amount of the second catalyst fed to the reactor comprising a catalyst trim ratio are primary control variables of the MFR.

45. The method of claim 38, wherein the MFR is in the range of 20 to 45, and the density is in the range of 0.912 to 0.940 g/cm3.

46. The method of claim 38, wherein the MFR is in the range of 20 to 60, and the density is in the range of 0.912 to 0.940 g/cm3.

47. The method of claim 38, wherein the MI is in the range of 0.1 dg/10 min to 100 dg/10 min.

48. A method of producing polyethylene, comprising:

polymerizing ethylene in presence of a catalyst system in a reactor to form polyethylene, wherein the catalyst system comprises a first catalyst and a second catalyst;

specifying a first temperature of the reactor and a first ratio of second catalyst to first catalyst to give a first MFR of the polyethylene having a first density and a first melt index (MI);

specifying a second temperature of the reactor and a second ratio of second catalyst to first catalyst to give a second MFR different than the first MFR of the polyethylene having the first density and the first MI;

adjusting a ratio of hydrogen to ethylene in the reactor to maintain the first MI of the polyethylene having the second MFR; and

adjusting a ratio of comonomer to ethylene in the reactor to maintain the first density of the polyethylene having the second MFR.

49. The method of claim 48, comprising:

specifying a third temperature of the reactor and a third ratio of second catalyst to first catalyst to give a third MFR different than the first MFR and the second MFR of the polyethylene having the first density and the first MI;

adjusting the ratio of hydrogen to ethylene in the reactor to maintain the first MI of the polyethylene having the third MFR; and

adjusting the ratio of comonomer to ethylene in the reactor to maintain the first density of the polyethylene having the third MFR.