Claims:

1. A method comprising:

providing an olefin feedstock composition comprising an alpha-mono-olefin and at least one of a diolefin having the same number of carbon atoms as the alpha-mono-olefin and/or a triolefin having the same number of carbon atoms as the alpha-mono-olefin;

providing a catalyst composition comprising an olefin metathesis catalyst; and

reacting the olefin feedstock composition and ethylene at metathesis reaction conditions in the presence of the catalyst composition to produce an alpha-olefin product comprising the alpha-mono-olefin and one or more alpha-olefins having fewer carbon atoms than the alpha-mono-olefin.

2. The method of claim 1, further comprising separating the alpha-mono-olefin in the alpha-olefin product from the alpha-olefin product using a distillation process.

3. The method of claim 1, wherein the one or more alpha-olefins having fewer carbon atoms than the alpha-mono-olefin comprise C_4-C_7 alpha-olefins.

4. The method of claim 1, wherein the one or more alpha-olefins having fewer carbon atoms than the alpha-mono-olefin include at least one of alpha-mono-olefins and diolefins.

5. The method of claim 1, wherein the olefin feedstock composition comprises 93.5-96% by weight of the alpha-mono-olefin, 1-6% by weight of the diolefin, and 0.5-4% by weight of the triolefin.

6. The method of claim 1, wherein the olefin metathesis catalyst is a transition metal complex comprising a metal selected from the group consisting of Ni, W, Ru, Mo, Re, and combinations thereof.

7. The method of claim 6, wherein the olefin metathesis catalyst is a transition metal complex comprising Ru.

8. The method of claim 1, wherein the olefin metathesis catalyst is a Grubb's catalyst, a Schrock catalyst, or a Hoveyda catalyst.

9. The method of claim 1, wherein the olefin metathesis catalyst is selected from a ruthenium carbene metathesis catalyst and a molybdenum carbene metathesis catalyst.

10. The method of claim 1, wherein the olefin metathesis catalyst is dichloro(phenylmethylene) bis(tricyclohexylphosphine) ruthenium or 1,3-bis-(2,4,6-trimethylphenyl)-2-(imidazolidinylidene)(phenylmethylene)-dichloro(tricyclohexylphosphine)ruthenium.

11. The method of claim 1, wherein the metathesis reaction conditions comprise a metathesis reaction temperature ranging from a melting point of the olefin feedstock composition to 120 degrees Celsius.

12. The method of claim 1, further comprising polymerizing the alpha-olefin product in the presence of a catalyst to form a drag reducing agent.

13. The method of claim 1, wherein the alpha-mono-olefin has from 4 to 20 carbon atoms.

14. The method of claim 13, wherein the alpha-mono-olefin has from 6 to 16 carbon atoms.

15. The method of claim 14, wherein the alpha-mono-olefin has from 8 to 14 carbon atoms.

16. The method of claim 15, wherein the alpha-mono-olefin has from 10 to 12 carbon atoms.

17. The method of claim 16, wherein the alpha-mono-olefin has 10 carbon atoms.

18. The method of claim 17, wherein the olefin feedstock composition further comprises at least one of a diolefin having a different number of carbon atoms compared to the alpha-mono-olefin and/or a triolefin having a different number of carbon atoms compared to the alpha-mono-olefin.

19. The method of claim 18, wherein the olefin feedstock composition further comprises a second alpha-mono-olefin having a different number of carbon atoms compared to the first alpha-mono-olefin.

20. A method comprising:

providing an olefin feedstock composition comprising an alpha-mono-olefin and vinylidene olefins;

reacting the olefin feedstock composition in the presence of an isomerization catalyst to form an isomerized olefin feedstock composition comprising the alpha-mono-olefin and branched internal olefins formed from the vinylidene olefins; and

reacting the isomerized olefin feedstock composition and ethylene at metathesis reaction conditions in the presence of a catalyst composition comprising an olefin metathesis catalyst to produce an alpha-olefin product comprising the alpha-mono-olefin, linear olefins and branched olefins having fewer carbon atoms than the olefins in the olefin feedstock composition.

21. The method of claim 20, wherein the olefin feedstock composition further comprises linear internal olefins.

22. The method of claim 20, further comprising separating the alpha-mono-olefin in the alpha-olefin product from the linear and branched olefins having fewer carbon atoms using a distillation process.

23. The method of claim 20, wherein the linear olefins comprise C_4-C_9 linear olefins.

24. The method of claim 23, wherein the branched olefins comprise C_5-C_9 branched olefins.

25. The method of claim 20, wherein the olefin feedstock composition comprises 90-97% by weight of the alpha-mono-olefin and 1-8% of the vinylidene olefins.

26. The method of claim 20, wherein the olefin metathesis catalyst is a transition metal complex comprising a metal selected from the group consisting of Ni, W, Ru, Mo, Re, and combinations thereof.

27. The method of claim 20, wherein the olefin metathesis catalyst is a transition metal complex comprising Ru.

28. The method of claim 20, wherein the olefin metathesis catalyst is a Grubb's catalyst, a Schrock catalyst, or a Hoveyda catalyst.

29. The method of claim 20, wherein the olefin metathesis catalyst is selected from a ruthenium carbene metathesis catalyst and a molybdenum carbene metathesis catalyst.

30. The method of claim 20, wherein the olefin metathesis catalyst is dichloro(phenylmethylene) bis(tricyclohexylphosphine) ruthenium or 1,3-bis-(2,4,6-trimethylphenyl)-2-(imidazolidinylidene)(phenylmethylene)-dicloro(tricyclohexylphosphine)ruthenium.

31. The method of claim 20, wherein the metathesis reaction conditions comprise a metathesis reaction temperature ranging from a melting point of the olefin feedstock composition to 120 degrees Celsius.

32. The method of claim 20, wherein the isomerization catalyst is a zeolite catalyst.

33. The method of claim 32, wherein the zeolite catalyst is a synthetic crystalline aluminosilicate of a cubic arrangement having a density of 1.3 g/cc and having the following formula: $Na_{56}[(AlO_2)_{56}(SiO_2)_{136}]_{264}H_2O$.

34. The method of claim 20, further comprising polymerizing the alpha-olefin product in the presence of a catalyst to form a drag reducing agent.

35. The method of claim 20, wherein the alpha-mono-olefin has from 4 to 20 carbon atoms.

36. The method of claim 35, wherein the alpha-mono-olefin has from 6 to 16 carbon atoms.

37. The method of claim 36, wherein the alpha-mono-olefin has from 8 to 14 carbon atoms.

38. The method of claim 37, wherein the alpha-mono-olefin has from 10 to 12 carbon atoms.

39. The method of claim 38, wherein the alpha-mono-olefin has 10 carbon atoms.

40. The method of claim 20, wherein the olefin feedstock composition further comprises at least one of diolefins and triolefins.