CLAIMS

1. A method of treating a hydrocarbon-containing reservoir, comprising:

introducing into the reservoir a surfactant composition comprising:

an alpha olefin sulfonate or an internal olefin sulfonate, wherein the alpha olefin sulfonate or the internal olefin sulfonate is synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form an oligomerization product and ii) sulfonating the oligomerization product, and

wherein the i) oligomerizing step generates oligomers having at least 50 wt % C_{12} to C_{70} oligomers.

2. The method of claim 1, wherein the i) oligomerizing step generates oligomers at least 50 wt % C_{16} to C_{40} oligomers.

3. The method of claim 1, wherein the monomer comprises one or more of propylene and isobutylene.

4. The method of claim 1, wherein the surfactant further comprises:

a co-surfactant, a co-solvent, a base, an enhanced oil recovery flooding fluid, or a wellbore remediation fluid.

5. The method of claim 4, wherein the co-surfactant comprises of a secondary alkane sulfonate, internal olefin sulfonate, an alkoxylated alcohol sulfate, an alkoxylated alcohol carboxylate and glycerol sulfonate, a linear alkyl benzene sulfonate, heavy alkyl benzene sulfonate, sulfosuccinate, alkyl aromatic sulfonate, a nonionic alkoxylated alcohol, or alkyl aryl disulfonate, and mixtures thereof.

6. The method of claim 4, wherein the co-solvent is water, alcohol, or glycol.

7. The method of claim 4, wherein the base is a carbonate, a hydroxide, a bicarbonate, an ammonium, or an amine.

8. A surfactant for enhanced oil recovery, the surfactant comprising:

an alpha olefin sulfonate or an internal olefin sulfonate, wherein the alpha olefin sulfonate or the isomerized olefin sulfonate is synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form an oligomerization product and ii) sulfonating the oligomerization product, and

wherein the i) oligomerizing step generates oligomers having at least 50 wt % C_{12} to C_{70} oligomers.

9. The surfactant of claim 8, wherein the i) oligomerizing step generates oligomers having at least 50 wt % C_{16} to C_{40} oligomers.

10. The surfactant of claim 8, wherein the monomer comprises one or more of propylene and isobutylene.

11. The surfactant of claim 8, further comprising:

co-surfactant, a co-solvent, a base, an enhanced oil recovery flooding fluid, or a wellbore remediation fluid

12. The surfactant of claim 11, wherein the co-surfactant comprises of a secondary alkane sulfonate, internal olefin sulfonate, an alkoxylated alcohol sulfate, an alkoxylated alcohol carboxylate and glycerol sulfonate, a linear alkyl benzene sulfonate, heavy alkyl benzene sulfonate, sulfosuccinate, alkyl aromatic sulfonate, a nonionic alkoxylated alcohol, or alkyl aryl disulfonate, and mixtures thereof.

13. The surfactant of claim 11, wherein the co-solvent is water, alcohol, or glycol.

14. The surfactant of claim 11, wherein the base is a carbonate, a hydroxide, a bicarbonate, an ammonium, or an amine.

15. A lubricating oil composition comprising:

a base oil; and

a succinimide dispersant synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form a oligomerization product and ii) functionalizing the oligomerization product with an ethylenically saturated carboxylic acid group.

16. The lubricating oil composition of claim 15, wherein the ethylenically saturate carboxylic acid group is (meth)acrylic acid, methyl acrylate, maleic acid or anhydride, fumaric acid, or itaconic acid.

17. The lubricating oil composition of claim 15, wherein the ii) functionalizing step forms an alkyl-substituted succinic anhydride.

18. The lubricating oil composition of claim 15, wherein the monomer comprises one or more of propylene and isobutylene.

19. A dispersant composition comprising:

a succinimide dispersant synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form an oligomerization product and ii) functionalizing the oligomerization product with an ethylenically saturated carboxylic acid group.

20. The dispersant of claim 19, wherein the ethylenically saturate carboxylic acid group is (meth)acrylic acid, methyl acrylate, maleic acid or anhydride, fumaric acid, or itaconic acid.

21. The dispersant of claim 19, wherein the ii) functionalizing forms an alkyl-substituted succinic anhydride.

22. The dispersant of claim 19, wherein the monomer comprises one or more of propylene and isobutylene.

23. A lubricating oil composition comprising:

a base oil; and

a detergent additive synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form a oligomerization product and ii) alkylating a hydroxyaromatic compound with the oligomerization product.

24. The lubricating oil composition of claim 23, wherein the hydroxyaromatic compound is phenol, catechol, resorcinol, hydroquinone, pyrogallol, or cresol.

25. The lubricating oil composition of claim 23, wherein the detergent additive forms a salt with a metal.

26. The lubricating oil composition of claim 25, wherein the metal is Li, Na, K, Mg, Ca, Zn, Co, Mn, Zr, Ba, or B.

27. The lubricating oil composition of claim 23, wherein the monomer comprises one or more of propylene and isobutylene.

28. A detergent composition comprising:

a detergent additive synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form a oligomerization product and ii) alkylating a hydroxyaromatic compound with the oligomerization product.

29. The detergent composition of claim 28, wherein the hydroxyaromatic compound is phenol, catechol, resorcinol, hydroquinone, pyrogallol, or cresol.

30. The detergent composition of claim 28, wherein the detergent additive forms a salt with a metal.

31. The detergent composition of claim 28, wherein the metal is Li, Na, K, Mg, Ca, Zn, Co, Mn, Zr, Ba, or B.

32. The detergent composition of claim 28, wherein the monomer comprises one or more of propylene and isobutylene.

33. A surfactant composition comprising:

an alcohol ether sulfate or an alcohol ether carboxylate synthesized by i) oligomerizing a monomer comprising a C_3 to C_6 mono-olefin to form a oligomerization product and ii) converting the oligomerization product to an alcohol.

34. The surfactant composition of claim 33, wherein the monomer comprises one or more of propylene and isobutylene.