What is Claimed is:

1. A lubricating oil composition having a HTHS viscosity at 150°C determined in accordance with ASTM D4683 in a range of 1.3 to 2.5 cP, comprising:

(a) a major amount of an oil of lubricating viscosity having a kinematic viscosity at 100°C determined in accordance with ASTM D445 in a range of 1.5 to 6.0 mm^2/s wherein "major amount" means in excess of 50 weight % of a composition; and

(b) an overbased metal salt of an alkyl-substituted phenolic-based detergent, wherein the alkyl group is derived from an isomerized normal alpha olefin having from 10 to 40 carbon atoms per molecule having an isomerization level (I) of the normal alpha olefin of from 0.1 to 0.4; wherein

the isomerization level (I) of the olefin is determined by hydrogen-1 (1H) NMR obtained on a Bruker Ultrashield Plus 400 in chloroform-d1 at 400 MHz 20 using TopSpin 3.2 spectral processing software, and the isomerization level (I) is:

$$I = m/(m+n),$$

where m is NMR integral for methyl groups with chemical shifts between 0.30 ± 0.03 to 1.01 ± 0.03 ppm, and

n is NMR integral for methylene groups with 25 chemical shifts between 1.01 ± 0.03 to 1.38 ± 0.10 ppm; and

the alkyl-substituted phenolic-based detergent is a Ca alkylhydroxybenzoate compound; and

the lubricating oil composition comprises 0.01 to 2.0 wt.% in terms of Ca content of the alkylhydroxybenzoate compound.

2. The lubricating oil composition of claim 1 wherein the alkyl-substituted phenolic-based detergent is a carboxylate or a salicylate detergent, wherein the alkyl group is derived from an isomerized alpha olefin having from 10 to 40 carbon atoms per molecule having an isomerization level (I) of the normal alpha olefin of from 0.1 to 0.4.
3. The lubricating oil composition of claim 1, wherein the lubricating oil composition is a 0W-8, 0W-12 or 0W-16 SAE viscosity grade.
4. The lubricating oil composition of claim 1, wherein the oil of lubricating viscosity is a base oil selected from one or more of API Group II, Group III, Group IV, and Group V.

5. The lubricating oil composition of claim 1, wherein the isomerized normal alpha olefin has an isomerization level (I) of the normal alpha olefin of from 0.12 to 0.3 or wherein the isomerized normal alpha olefin has an isomerization level (I) of the normal alpha olefin of 0.16 or of 0.26.
6. The lubricating oil composition of claim 1, wherein the normal alpha olefin mixture has from 14 to 28 carbon atoms per molecule.
7. The overbased phenolic-based detergent of claim 1 wherein the normal alpha olefin mixture has from 18 to 24 carbon atoms per molecule.
8. The overbased phenolic-based detergent of claim 1 wherein the normal alpha olefin mixture has from 20 to 24 carbon atoms per molecule.
9. The lubricating oil composition of claim 1, wherein the TBN of the detergent determined in accordance with ASTM D2896 is from 100 to 600 mg KOH/gram on an oil free basis.
10. The lubricating oil composition of claim 1, further comprising an additional detergent selected from the group consisting of sulfonate, phenate, and salicylate.
11. The lubricating oil composition of claim 10, wherein the detergent is a magnesium sulfonate.
12. The lubricating oil composition of claim 1, further comprising a polymethacrylate dispersant VII.
13. The lubricating oil composition of claim 1, further comprising a primary or secondary zinc dithiophosphate compound or a mixture thereof.
14. The lubricating oil composition of claim 1, further comprising a friction modifier.
15. A method of lubricating an engine comprising lubricating said engine with a lubricating oil composition according to any one of the preceding claims.