WHAT IS CLAIMED IS:

1. A process for preparing a sulfurized non-overbased calcium phenate detergent having a reduced content of un-sulfurized alkyl-substituted phenol and the salt thereof, the process comprising the steps of:

(a) adding an organic solvent to the detergent, wherein the organic solvent has a boiling point of equal or above the boiling point of the un-sulfurized alkyl-substituted phenol; and

(b) distilling the organic solvent from the detergent thereby reducing the content of the un-sulfurized alkyl-substituted phenol.

2. The process of claim 1, wherein the sulfurized non-overbased calcium phenate detergent is an alkyl-substituted phenate.

3. The process of claim 2, wherein the alkyl-substituted phenate has an alkyl group ranging from 9 and 18 carbons in length.

4. The process of claim 2, wherein the alkyl-substituted phenate has been alkylated by a propylene or a butylene oligomer.

5. The process of claim 4, wherein the propylene or butylene oligomer is a tetramer.

6. The process of claim 1, wherein the organic solvent is neutral oil 600.

7. The process of claim 1, wherein the distilling occurs at 1 mbar or greater.

8. The process of claim 1, wherein the detergent has been neutralized in presence of a promoter.

9. The process of claim 8, wherein the promoter is an alcohol, a diol, or a carboxylic acid.

10. A concentrate composition obtained from distillation of sulfurized alkyl-substituted phenols, the concentrate composition comprising:

a sulfurized non-overbased calcium phenate that includes an alkyl-substituted group, wherein the alkyl-substituted group is derived from propylene oligomer, wherein the sulfurized non-overbased calcium phenate is substantially free of un-sulfurized phenol or un-sulfurized phenate, wherein the un-sulfurized phenol or a calcium salt thereof is present in less than 0.3 wt % of the concentrate composition at 4.25 wt % or greater of calcium.

11. The concentrate composition of claim 10, wherein the un-sulfurized phenol or un-sulfurized phenate are present in less than 0.2 wt.% of the concentrate composition.

12. The concentrate composition of claim 10, wherein the un-sulfurized phenol or un-sulfurized phenate are present in less than 0.1 wt.% of the concentrate composition.

13. The concentrate composition of claim 10, wherein the propylene oligomer is propylene tetramer.

14. The concentrate composition of claim 10, wherein the sulfurized non-overbased calcium phenate include one or more sulfur linkages.

15. The concentrate composition of claim 14, wherein the one or more sulfur linkages is between an average of 1 to 7 sulfur atoms.

16. The concentrate composition of claim 10, wherein the non-overbased calcium phenate has a TBN ranging from 10 to 250 in oil-free basis.

17. A lubricating oil composition comprising:

a base oil; and

a calcium salt of a sulfurized alkyl-substituted compound containing reduced amount of combined mass of an un-sulfurized alkyl-substituted compound and its un-sulfurized calcium salt, the calcium salt of a sulfurized alkyl-substituted compound being produced by the process comprising:

(a) sulfurizing and neutralizing an alkyl-substituted phenol compound derived from alkylation of a phenol-based compound with one or more olefins comprising a propylene oligomers to provide a calcium salt of the sulfurized alkyl-substituted phenol;

(b) adding an organic solvent to the calcium salt of the sulfurized alkyl-substituted phenol from (a), wherein the organic solvent has a boiling point of equal or above the boiling point of the un-sulfurized alkyl-substituted phenol; and

(c) distilling the organic solvent away to provide a sulfurized alkyl-substituted phenol compound that is substantially free of the un-sulfurized alkyl-substituted phenol compound, wherein the calcium salt of the sulfurized alkyl-substituted phenol compound contains less than 0.3 % by combined mass of the un-sulfurized alkyl-substituted phenol compound and its un-sulfurized metal salt at 4.25 wt % or greater of calcium.

18. The lubricating oil composition of claim 17, further comprising:

an antioxidant, a dispersant, an anti-wear agent, a detergent, a rust inhibitor, a dehazing agent, a demulsifying agent, a friction modifier, a metal deactivating agent, a pour point depressant, a viscosity modifier, an antifoaming agent, a co-solvent, a package compatibilizer, a corrosion-inhibitor, a dye, or an extreme pressure agent.

19. A calcium salt of a sulfurized alkyl-substituted compound containing reduced amount of combined mass of an un-sulfurized alkyl-substituted compound and its un-sulfurized metal salt, the salt of a sulfurized alkyl-substituted compound being produced by the process comprising:

(a) sulfurizing and neutralizing an alkyl-substituted phenol compound derived from alkylation of a phenol-based compound with one or more olefins derived from a propylene oligomers to provide a calcium salt of the sulfurized alkyl-substituted phenol;

(b) adding an organic solvent to the calcium salt of the sulfurized alkyl-substituted phenol from (a), wherein the organic solvent has a boiling point of equal or above the boiling point of the un-sulfurized alkyl-substituted phenol; and

(c) distilling the organic solvent away to provide a sulfurized alkyl-substituted phenol compound that is substantially free of the un-sulfurized alkyl-substituted phenol compound, wherein the calcium salt of the sulfurized alkyl-substituted phenol compound contains less than 0.3 % by combined mass of the un-sulfurized alkyl-substituted phenol compound and its un-sulfurized metal salt at 4.25 wt % or greater of calcium.

20. The salt of a sulfurized alkyl-substituted phenol compound of claim 19, wherein the propylene oligomer is a propylene tetramer.

21. The salt of a sulfurized alkyl-substituted phenol compound of claim 19, wherein the salt of the sulfurized alkyl-substituted phenol compound contains less than 0.2 % by combined mass of the un-sulfurized alkyl-substituted phenol compound and its un-sulfurized metal salt.

22. The salt of a sulfurized alkyl-substituted phenol compound of claim 19, wherein the salt of the sulfurized alkyl-substituted phenol compound contains less than 0.1 % by combined mass of the un-sulfurized alkyl-substituted phenol compound and its un-sulfurized metal salt.