## CLAIMS

WHAT IS CLAIMED IS

1. A process for preparing a sulfurized compound for lubricating compositions to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds, the process comprising:

sulfurizing an alkyl phenol with a sulfur chloride blend to provide a sulfurized alkyl phenol, wherein a mol ratio of the sulfur chloride blend to the alkyl phenol is about 0.6:1 to about 0.75:1; and

wherein the sulfur chloride blend includes sulfur monochloride and sulfur dichloride and wherein the sulfur chloride blend is about 40 to about 75 weight percent of sulfur dichloride.

2. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 1, further comprising neutralizing and optionally overbasing the sulfurized alkyl phenol in the presence of a solvent to provide a sulfurized alkyl phenate composition; and/or wherein a sulfurization ratio of sulfurized alkyl phenol to unsulfurized alkyl phenol is about 500:1 or greater.

3. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 2, wherein copper corrosion of a lubricant including the sulfurized alkyl phenate composition, as measured pursuant to ASTM D6594, is at least about 50 percent less than the copper corrosion of a lubricant including a sulfurized alkyl phenate composition prepared by sulfurizing the same alkyl phenol but with a sulfur chloride blend including 100 percent sulfur monochloride; and/or wherein the amount of residual chloride in the sulfurized compound is about 1,500 ppm or less; and/or wherein the neutralization and optional overbasing is at a temperature not exceeding about 140°C; and/or wherein the solvent is one more solvents having a boiling point of about 100°C or less at about 1000 to about 40 mbars.

4. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 3, wherein the

solvent is xylene, toluene, octane, butanol, heptane, methanol, acetone, benzene, cyclohexane, cyclopentane, ethanol, hexane, pentane, propanol, water, or combinations thereof.

5. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 2, wherein the neutralizing and the optional overbasing includes contacting the sulfurized alkyl phenol with an alkali or alkaline earth metal salt at a temperature not to exceed about 140°C, wherein the alkali or alkaline earth metal salt is preferably lithium hydroxide, potassium hydroxide, sodium hydroxide, magnesium hydroxide, calcium hydroxide, barium hydroxide, aluminum hydroxide, lithium oxide, magnesium oxide, calcium oxide, barium oxide, or combinations thereof; and/or wherein the neutralizing and/or the optional overbasing occurs in the presence of a carbonation agent at a temperature not to exceed about 140°C.

6. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 2, wherein the sulfurized alkyl phenate composition is subjected to one or more post processing steps including one or more of vacuum stripping, sparging, distillation, filtering, degassing, evaporation, wiped-film evaporating, centrifuging, diluting, liquid-liquid extraction, membrane separation, chromatography, adsorption, supercritical extractions, or combinations thereof and wherein each post processing step is at a temperature not to exceed about 140°C; and/or wherein the process does not remove residual unsulfurized compounds between the sulfurizing, the neutralizing, and/or the optional overbasing; and/or wherein the temperature of the neutralizing and the optional overbasing and the temperature of any post processing step does not exceed about 100°C; and/or wherein the sulfurization ratio of the sulfurized alkyl phenate composition is about 5000:1 to about 500:1; and/or wherein the sulfurization ratio of the sulfurized alkyl phenate composition is about 3500:1 to about 1200:1.

7. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 6, wherein the sulfurized alkyl phenate composition has a total base number of about 100 to about 400 mgKOH/g.

8. The process for preparing a sulfurized compound to achieve a high sulfurization ratio of the sulfurized compound to residual unsulfurized compounds of claim 1, wherein the sulfurized compound has less than about 0.1 weight percent of unsulfurized alkyl phenol and/or unsulfurized alkyl phenate; and/or wherein the sulfurizing occurs at a temperature of about 0 to about 250 °C; and/or wherein the sulfurizing occurs at a temperature of about 20 to about 120 °C; and/or wherein the sulfurizing occurs in the absence of a base.

9. A sulfurized alkyl phenate composition prepared by the process comprising:

sulfurizing an alkyl phenol with a sulfur chloride blend to provide a sulfurized alkyl phenol, wherein a mol ratio of the sulfur chloride to the alkyl phenol is about 0.6:1 to about 0.75:1;

wherein the sulfur chloride blend includes sulfur monochloride and sulfur dichloride and wherein the sulfur chloride blend is about 40 to about 75 weight percent of sulfur dichloride; and

neutralizing and optionally overbasing the sulfurized alkyl phenol in the presence of a solvent to provide the sulfurized alkyl phenate composition.

10. A detergent including a hydroxyaromatic compound or salt thereof having a high sulfurization ratio of sulfurized to unsulfurized compounds, the detergent comprising

an alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt thereof, wherein the sulfur bridge is derived from a sulfur chloride blend including sulfur dichloride and sulfur monochloride and wherein the blend includes about 40 to about 75 weight percent of sulfur dichloride; and

a sulfurization ratio of 500:1 to 5500:1 with no more than about 900 ppm of unsulfurized hydroxyaromatic compounds or salts thereof.

11. The detergent of claim 24, wherein the alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt thereof has a mol ratio of the sulfur chloride blend to alkyl-substituted hydroxyaromatic compounds of about 0.6:1 to about 0.75:1.

12. The detergent of claim 24, wherein the alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt thereof has a total base number of about 50 to about 400 mgKOH/g and preferably about 90 to about 250 mgKOH/g; and/or wherein the alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt has about 40,000 ppm of sulfur to 65,000 ppm of sulfur.

13. The detergent of claim 12, wherein the sulfurization ratio is about 1200:1 to about 3500:1.

14. The detergent of claim 10, wherein the alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt is derived from an alkylation of a phenol with one or more oligomers obtained from olefins; and/or wherein the olefins preferably include ethylene, propylene, butylene, pentene, or combinations thereof.

15. A lubricating oil composition comprising the alkyl substituted, sulfur-bridged hydroxyaromatic compound or salt thereof of claim 24 and one or more base oils of lubricating viscosity; and/or wherein the lubricating oil composition is suitable for use as a crankcase lubricating oil composition; and/or wherein the crankcase is fueled by gasoline, diesel, or an alternative fuel.