

What is claimed is:

1. A method for preventing or reducing low speed pre-ignition in a direct injected, boosted, spark ignited internal combustion engine, said method comprising the step of lubricating the crankcase of the engine with a lubricating oil composition comprising from about 200 to about 3000 ppm of zinc metal from at least one non-sulfur-phosphorus containing zinc compound, based on the total weight of the lubricating oil composition.
2. The method of claim 1, wherein the engine is operated under a load with a break mean effective pressure (BMEP) of from about 12 to about 30 bars.
3. The method of claim 1, wherein the engine is operated at speeds between 500 and 3,000 rpm.
4. The method of claim 1, wherein the non-sulfur-phosphorus containing zinc compound is a zinc alkoxide or thiolate compound, zinc aryloxide or arylthiolate compound, colloidal dispersion of zinc oxide, stable colloidal zinc suspension, zinc amido compound, zinc acetylacetonate compound, zinc carboxylate, zinc alkylhydroxybenzoate, zinc arylsulfonate, zinc sulfurized phenate, zinc dithiocarbamate complex, zinc salen complex, bimetallic zinc complex, zinc phosphate ester, zinc phosphinate, zinc phosphinite complex, zinc pyridyl complex, zinc polypyridyl complex, zinc quinolinolato complex, zinc succinimide.
5. The method of claim 1, wherein the lubricating oil composition further comprises a detergent selected from calcium detergent, magnesium detergent, sodium detergent, lithium detergent, and potassium detergent.
6. The method of claim 5, wherein the detergent is a carboxylate, salicylate, phenate, or sulfonate detergent.
7. The method of claim 1, wherein the lubricating oil further comprises a molybdenum containing compound.

8. The method of claim 1, wherein the lubricating oil composition further comprises at least one other additive selected from an ashless dispersant, an ashless antioxidant, a phosphorus-containing anti-wear additive, a friction modifier, and a polymeric viscosity modifier.
9. A lubricating engine oil composition for a direct injected, boosted, spark ignited internal combustion engine comprising from about 200 to about 3000 ppm of zinc metal from at least one non-sulfur-phosphorus containing zinc compound, based on the total weight of the lubricating oil.
10. The lubricating engine oil composition of claim 9, wherein the non-sulfur-phosphorus containing zinc compound is a zinc alkoxide or thiolate compound, zinc aryloxide or arylthiolate compound, colloidal dispersion of zinc oxide, stable colloidal zinc suspension, zinc amido compound, zinc acetylacetonate compound, zinc carboxylate, zinc alkylhydroxybenzoate, zinc arylsulfonate, zinc sulfurized phenate, zinc dithiocarbamate complex, zinc salen complex, bimetallic zinc complex, zinc phosphate ester, zinc phosphinate, zinc phosphinite complex, zinc pyridyl complex, zinc polypyridyl complex, zinc quinolinolato complex, zinc succinimide.
11. The lubricating engine oil composition of claim 9, wherein the lubricating oil composition further comprises a detergent selected from calcium detergents, magnesium detergents, sodium detergents, lithium detergents, and potassium detergents.
12. The lubricating engine oil composition of claim 11, wherein the detergent is a carboxylate, salicylate, phenate, or sulfonate detergent.
13. The lubricating engine oil composition of claim 9, wherein the lubricating oil composition further comprises a molybdenum containing compound.
14. The lubricating engine oil composition of claim 9, wherein the lubricating oil composition further comprises at least one other additive selected from an ashless dispersant, an ashless

antioxidant, a phosphorus- containing anti-wear additive, a friction modifier, and a polymeric viscosity modifier.

15. Use of at least one non-sulfur-phosphorus containing zinc compound in a lubricating engine oil composition for preventing or reducing low speed pre-ignition in a direct injected, boosted, spark ignited internal combustion engine.
16. Use of claim 15, wherein the at least one non-sulfur-phosphorus containing zinc compound is present in from about 200 to about 3000 ppm of metal from the at least one non-sulfur-phosphorus containing zinc compound, based on the total weight of the lubricating oil composition.
17. A method for improving deposit control performance while at the same time preventing or reducing low speed pre-ignition in a direct injected, boosted, spark ignited internal combustion engine, said method comprising the step of lubricating the crankcase of the engine with a lubricating oil composition comprising at least one non-sulfur-phosphorus containing zinc compound.
18. The method of claim 17, wherein the zinc compound does not contain sulfur or phosphorus.
19. The method of claim 18, wherein zinc compound is a zinc carboxylate.
20. Use of a lubricating engine oil composition in a down-sized boosted engine, wherein the lubricating engine oil composition comprises a lubricating oil base stock as a major component; and at least one non-sulfur-phosphorus containing zinc compound, as a minor component; wherein the downsized engine ranges from 0.5 liters to 3.6 liters.