CLAIMS:

1. A method for preventing or reducing engine knock or pre-ignition in a high compression spark ignition engine lubricated with a lubricating oil by using as the lubricating oil a formulated oil, said formulated oil having a composition comprising from 98 to 99 mass % of at least one branched hydrocarbon having greater than 20 carbon atoms and having at least 50% of the carbons in the form of methyl groups and from 1 to 2 mass % of bismuth naphthenate, based on the total weight of the lubricating oil, and

wherein the lubricating oil, when 5% of which is added to isooctane, maintains at least 101.55% of the isooctane combustion delay, using the equipment and test conditions as determined by ASTM D7668.

2. The method of claim 1 wherein the bismuth naphthenate is present in an amount sufficient to provide from 1730 to 3460 parts per million (ppm) of bismuth in the lubricating oil.

3. The method of claim 1 wherein the at least one branched hydrocarbon comprises hydrogenated polyisobutene.

4. The method of claim 1 wherein the lubricating oil further comprises a Group I, Group II, Group III, Group IV, Group V base oil, or mixtures thereof.

5. The method of claim 1 wherein the lubricating oil further comprises one or more of a detergent, dispersant, antiwear agent, viscosity index improver, antioxidant, pour point depressant, corrosion inhibitor, metal deactivator, seal compatibility additive, anti-foam agent, inhibitor, anti-rust additive, and friction modifier.

6. The method of claim 1 wherein the high compression spark ignition engine has a compression ratio of at least 13.

7. The method of claim 1 wherein the high compression spark ignition engine has a compression ratio of at least 15.

8. The method of claim 1 wherein the high compression spark ignition engine is a super-charged engine or a turbo-charged engine.

9. The method of claim 1 wherein the lubricating oil is used with a gasoline fuel with Research Octane Number (RON) or Motor Octane Number (MON) higher than 95.

10. The method of claim 1 wherein the lubricating oil is used with a gasoline fuel comprising essentially isooctane.

11. The method of claim 1 wherein the pre-ignition is low speed pre-ignition (LSPI).

12. A lubricating engine oil for high compression spark ignition engine having a composition comprising, based on the total weight of the lubricating oil, from 1 to 2 mass % of bismuth naphthenate, and from 98 to 99 mass % of at least one branched hydrocarbon having greater than 20 carbon atoms and having at least 50% of the carbons in the form of methyl groups, and

wherein the lubricating oil, when 5% of which is added to isooctane, maintains at least 101.55% of the isooctane combustion delay, using the equipment and test conditions as determined by ASTM D7668.

13. The lubricating engine oil of claim 12 wherein the bismuth naphthenate is present in an amount sufficient to provide from 1730 to 3460 parts per million (ppm) of bismuth in the lubricating oil.

14. The lubricating engine oil of claim 12 wherein the lubricating oil is used with a gasoline fuel with Research Octane Number (RON) or Motor Octane Number (MON) higher than 95.

15. The lubricating engine oil of claim 12 wherein the lubricating oil is used with a gasoline fuel comprising essentially isooctane.