WHAT IS CLAIMED IS:

1. A crankcase lubricating oil composition comprising or made by admixing:

(A) an oil of lubricating viscosity, in a major amount;

(B) an oil-soluble or oil-dispersible molybdenum-containing additive, providing from 600-1200 ppm of molybdenum atoms to the lubricating oil composition;

(C) a detergent composition comprising one or more magnesium sulfonate detergents in an amount providing from 200 to 4000 ppm magnesium atoms to the lubricating oil composition, measured according to ASTM D5185; and

(D) an oil-soluble or oil-dispersible boron-containing compound present in the lubricating oil composition in an amount sufficient to provide from 200-600 ppm boron atoms to the lubricating oil composition, measured according to ASTM D5185,

wherein a ratio of atomic detergent metal to atomic molybdenum in the lubricating oil composition is less than 3.

2. The lubricating oil composition according to claim 1, wherein the detergent composition comprises one or more additional detergent additive chosen from magnesium salicylate, calcium salicylate, calcium sulfonate, magnesium phenate, calcium phenate, hybrid detergents comprising two or more of these additional detergent additives and/or combinations thereof.

3. The lubricating oil composition according to claim 2, wherein the detergent composition further comprises a calcium salicylate and/or a calcium sulfonate detergent.

4. The lubricating oil composition according to claim 3, wherein the detergent composition consists of a one or more magnesium sulfonate detergents and one or more calcium salicylate detergents.

5. The lubricating oil composition according to claim 3 or 4, wherein the calcium-containing detergent is present in an amount sufficient to provide from 500-4000 ppm,

preferably from 750-3000ppm more preferably from 900-2000 ppm atomic calcium to the lubricating oil composition, measured according to ASTM D5185.

6. A method of lubricating a spark-ignited or compression-ignited internal combustion engine comprising lubricating the engine with the lubricating oil composition as defined in accordance with any one of the preceding claims.

7. Use of a detergent composition in a crankcase lubricating oil composition in an amount sufficient to provide from 200-4000 ppm magnesium to the lubricating oil composition, measured according to ASTM D5185, to reduce boundary friction measurement compared to an equivalent lubricant that does not contain the detergent composition in an amount sufficient to provide from 200-4000ppm magnesium to the lubricating oil composition, measured according to ASTM D5185, wherein the lubricating oil composition further comprises:

an oil of lubricating viscosity, in a major amount;

an oil-soluble or oil-dispersible molybdenum-containing additive, providing from 600-1200 ppm of molybdenum atoms to the lubricating oil composition (ASTM D5185); and

an oil-soluble or oil-dispersible boron-containing additive, providing from 200-600 ppm of boron atoms to the lubricating oil composition (ASTM D5185),

wherein the detergent composition comprises one or more magnesium sulfonate detergents, and

wherein a ratio of atomic detergent metal to atomic molybdenum in the lubricating oil composition is less than 3.

8. The use according to claim 7, wherein the oil-soluble or oil-dispersible molybdenum-containing additive, provides from 700-1200 ppm of molybdenum atoms to the lubricating oil composition (ASTM D5185).

9. The use according to claim 7 or 8, wherein the oil-soluble or oil-dispersible boron-containing additive, provides from 250-500 ppm of boron atoms to the lubricating oil composition (ASTM D5185).

10. The use according to any one of claims 7-9, wherein detergent composition further comprises one or more additional detergent additives chosen from magnesium salicylate, magnesium phenate, calcium salicylate, calcium phenate and/or calcium sulfonate.

11. The use according to any one of claims 7-10, wherein the detergent composition consists of a one or more magnesium sulfonate detergents and one or more calcium-containing detergents.

12. The use according to claim 11, wherein the detergent composition consists of a one or more magnesium sulfonate detergents and one or more calcium salicylate detergents.

13. The use according to claim 11 or 12, wherein the calcium-containing detergent is present in an amount sufficient to provide from 500-4000 ppm, preferably from 750-3000ppm more preferably from 900-2000 ppm atomic calcium to the lubricating oil composition, measured according to ASTM D5185.

14. Use, in crankcase lubrication of a spark-ignited or compression-ignited internal combustion engine, of the lubricating oil composition in accordance with any one of claims 1 to 5 to reduce coefficient of friction between contacting metal surfaces in the engine during operation of the engine compared to use of a lubricant that does not contain the detergent composition in an amount sufficient to provide from 200-4000ppm magnesium to the lubricating oil composition (ASTM D5185).

15. The lubricating oil composition of claim 1, wherein the lubricating oil composition has a reduced boundary friction measurement at start-up temperatures of 40°C or below and full operating temperatures as compared to an equivalent lubricant that does not contain the detergent composition in an amount sufficient to provide from 200-4000 ppm magnesium to the lubricating oil composition.

16. The lubricating oil composition according to claim 1, wherein the oil of lubricating viscosity comprises polyalpha-olefins, or is selected from the group consisting of Group I, II, III, and V base stocks.

17. The lubricating oil composition according to claim 1, wherein the detergent composition comprises one or more additional detergent additive chosen from magnesium salicylate, calcium salicylate, magnesium phenate, hybrid detergents comprising two or more of these additional detergent additives and/or combinations thereof.

18. The lubricating oil composition according to claim 1, wherein the oil-soluble or oil-dispersible boron-containing compound comprises borated polyalkenyl succinimide.

19. The lubricating oil composition according to claim 1, further comprising:

(E) from 0.1 to 8 mass % of non-borated ashless dispersant.

20. The lubricating oil composition according to claim 1, wherein:

1) the oil-soluble or oil-dispersible molybdenum-containing additive comprises an oil-soluble or oil-dispersible molybdenum dithiocarbamate additive that provides from 700-1000 ppm of molybdenum atoms to the lubricating oil composition;

2) the detergent composition comprising one or more magnesium sulfonate detergents comprises one or more overbased magnesium sulfonate detergents having or having on average a TBN of 150 to 500 mg KOH/g in an amount providing from 450-1200 ppm of magnesium atoms to the lubricating oil composition, measured according to ASTM D5185; and

3) the oil-soluble or oil-dispersible boron-containing compound comprises an oil-soluble or oil-dispersible borated polyisobutylene succinimide dispersant compound present in the lubricating oil composition in an amount sufficient to provide from 200-400 ppm boron atoms to the lubricating oil composition, measured according to ASTM D5185.