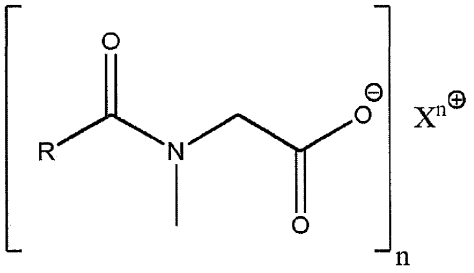
wherein R is a linear or branched, saturated, unsaturated, or partially saturated hydrocarbyl having 8 to 22 carbon atoms and R_2 and R_3 are independently selected from hydrogen, C_1-C_{18} hydrocarbyl groups, and C_1-C_{18} hydrocarbyl groups containing one or more heteroatoms;



(III)

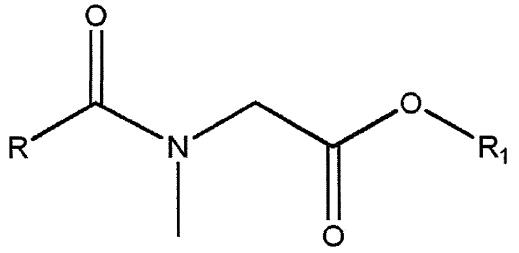
wherein R is a linear or branched, saturated, unsaturated, or partially saturated hydrocarbyl having 8 to 22 carbon atoms; and X is an alkali metal, alkaline earth metal or ammonium cation and n is the valence of cation X; and

(B) at least one detergent; and

wherein the engine oil composition is adapted for use as a crankcase engine oil lubricant suitable for lubrication of at least pistons, rings, cylinders, bearings and crankshafts of an engine crankcase, and wherein the engine oil composition has a phosphorus content of 50-1000 ppm and the engine oil composition contains 0.1-2.0 wt% of the friction modifier component (A), based on a total weight of the engine oil composition.

2. The engine oil composition of claim 1, wherein the additive package comprises at least one ester reaction product of an alcohol with a compound of the formula IV.

3. The engine oil composition of claim 2, wherein the additive package comprises one or more compounds of the formula I:



(I)

wherein R is a linear or branched, saturated, unsaturated, or partially saturated hydrocarbyl having 8 to 22 carbon atoms and R_1 is hydrogen, a hydrocarbyl having from 1 to 8 carbon atoms, or a C_1-C_8 hydrocarbyl group containing one or more heteroatoms.

4. The engine oil composition of claim 1, wherein the additive package comprises one or more compounds of the formula II.

22. The engine oil composition of any one of claims 1-19, further comprising 0.01 wt. % to 10 wt. % of zinc dialkyldithiophosphate based on the total weight of the engine oil composition.

23. The engine oil composition of any one of claims 1-22, wherein a total base number of the at least one detergent is up to 450.

24. The engine oil composition of any one of claims 1-22, wherein a total base number of the at least one detergent is from 80 to 350.

25. The engine oil composition of any one of claims 1-24, wherein the at least one detergent comprises from 0.1 wt.% to 10 wt.% of a total weight of the lubricating oil.

26. A method for reducing thin film and boundary layer friction in an engine comprising the step of lubricating the engine with the engine oil composition as claimed in claim 1.

27. The method as claimed in claim 26, wherein the reduced thin film and boundary layer friction is determined relative to a same composition in the absence of the one or more friction modifier components.

28. A method for reducing boundary layer friction in an engine, comprising the step of lubricating the engine with the engine oil composition as claimed in claim 1.

29. The method as claimed in claim 28, wherein the reduced boundary layer friction is determined relative to a same composition in the absence of the one or more friction modifier components.

30. A method for reducing thin film friction in an engine, comprising the step of lubricating