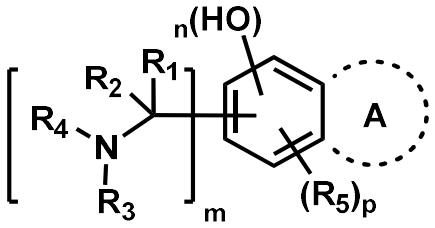
CLAIMS

1. A fuel composition comprising:

a hydrocarbon fuel boiling in the gasoline or diesel range; and

a primary additive having a structure given by



or a salt thereof;

wherein A is a ring moiety;

wherein R_1 and R_2 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, or hydroxyl group;

wherein R_3 and R_4 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, amino, or hydroxyl group or wherein R_3 and R_4 are part of a cyclic group; R_5 is C_1-C_{100} hydrocarbyl group, carboxyl group, ether, or hydroxyl group; and

wherein p is 0 to 2, n is 1 to 3, m is 1 to 3, and p+n+m is less than 5.

2. The composition of claim 1, wherein the carboxyl group is carboxylic acid, ester, amide or ketone.

3. The composition of claim 1, wherein A is an aromatic ring or a heterocyclic ring.

4. The composition of claim 1, wherein the cyclic group includes one or more nitrogens or one or more oxygens.

5. The composition of claim 1, further comprising:

a secondary additive or a salt thereof.

6. The composition of claim 5, wherein the secondary additive is an acid, phenol, 1, 3 dicarbonyl, hydroxyamide, antioxidant, salicylate, amidine or guanidine.

7. The composition of claim 5, wherein the secondary additive is 2-ethylhexanoic acid, or 1,8-diazabicyclo[5.4.0]-undeca-7-ene.

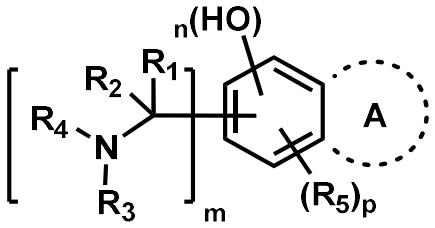
8. The composition of claim 1, wherein (i) R_1 and R_2 are both hydrogen, or (ii) at least one of R_3 and R_4 is an ethyl or butyl group.

9. A method for preventing or reducing low speed pre-ignition events in a spark-ignited internal combustion engine, the method comprising:

supplying to the engine a fuel composition comprising:

a hydrocarbon fuel boiling in the gasoline or diesel range; and

a primary additive having a structure given by



or a salt thereof;

wherein A is a ring moiety;

wherein R_1 and R_2 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, or hydroxyl group;

wherein R_3 and R_4 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, amino, or hydroxyl group or wherein R_3 and R_4 are part of a cyclic group; R_5 is C_1-C_{100} hydrocarbyl group, carboxyl group, ether, or hydroxyl group; and

wherein p is 0 to 2, n is 1 to 3, m is 1 to 3, and p+n+m is less than 5.

10. The method of claim 9, wherein the composition further comprising a second additive or a salt thereof, wherein the second additive is an acid, phenol, 1, 3 dicarbonyl, hydroxyamide, antioxidant, salicylate, amidine or guanidine.

11. The method of claim 9, wherein the carboxyl group is carboxylic acid ester, amide, or ketone.

12. The method of claim 9, wherein A is an aromatic ring or a heterocyclic ring.

13. The method of claim 9, wherein the cyclic group includes one or more nitrogens or one or more oxygens.

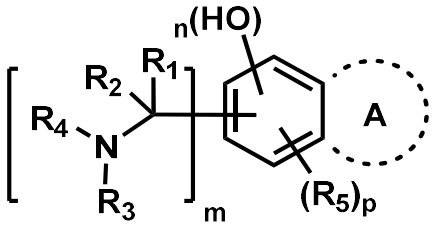
14. The method of claim 10, wherein the secondary additive is 2-ethylhexanoic acid, or 1,8-diazabicyclo[5.4.0]-undeca-7-ene.

15. The method of claim 9, wherein: (i) R_1 and R_2 are both hydrogen, or (ii) at least one of R_3 and R_4 is an ethyl or butyl group.

16. A lubricating oil composition comprising:

a base oil of lubricating viscosity; and

a primary additive having a structure given by



or a salt thereof;

wherein A is a ring moiety;

wherein R_1 and R_2 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, or hydroxyl group;

wherein R_3 and R_4 are independently H, C_1-C_{20} hydrocarbyl group, carboxyl group, ether, amino, or hydroxyl group or wherein R_3 and R_4 are part of a cyclic group; R_5 is C_1-C_{100} hydrocarbyl group, carboxyl group, ether, or hydroxyl group; and

wherein p is 0 to 2, n is 1 to 3, m is 1 to 3, and p+n+m is less than 5.

17. The composition of claim 16, further comprising a second additive or a salt thereof, wherein the second additive is an acid, phenol, 1, 3 dicarbonyl, hydroxyamide, antioxidant, salicylate, amidine or guanidine.

18. The composition of claim 16, wherein the carboxyl group is carboxylic acid ester, amide, or ketone.