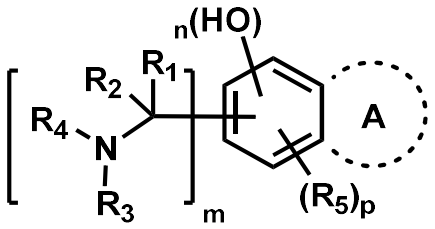
CLAIMS

1. A fuel composition for a spark-ignited internal combustion engine, comprising:

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

a primary LSPI (low speed pre-ignition)-reducing additive having a structure given by



or a salt thereof;

wherein A isa 6-membered aromatic ring or a heterocyclic ring;

wherein R_1 and R_2 are H;

wherein R_3 and R_4 are independently H or a C_1- C_4 hydrocarbyl group, or wherein R_3 and R_4 are part of a cyclic group; R_5 is a C_1- C_4 hydrocarbyl 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 A is a benzene ring.

3. The composition of claim 1, wherein A is a pyridine ring.

4. The composition of claim 1, wherein R_3 and R_4 are part of a cyclic group, wherein the cyclic group includes one or more additional 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, a phenol, a 1, 3 dicarbonyl, hydroxyamide, an antioxidant, a salicylate, an amidine or a 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.

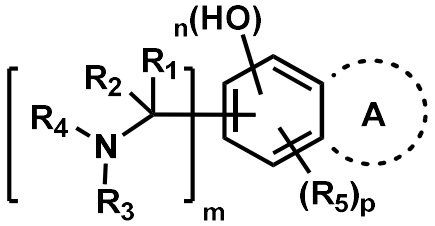
8. The composition of claim 1, wherein at least one of R_3 and R_4 is an ethyl or butyl group.

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 spark-ignited internal combustion engine a fuel composition comprising:

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

a primary LSPI-reducing additive having a structure given by



or a salt thereof;

wherein A is a 6-membered aromatic ring or a heterocyclic ring ;

wherein R_1 and R_2 are H;

wherein R_3 and R_4 are independently H or a C_1 C_4 hydrocarbyl group, or wherein R_3 and R_4 are part of a cyclic group; R_5 is C_1- C_4 hydrocarbyl 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, a phenol, a 1, 3 dicarbonyl, a hydroxyamide, an antioxidant, a salicylate, an amidine or a guanidine.

11. The method of claim 9, wherein A is a benzene ring.

12. The method of claim 9, wherein A is a pyridine ring.

13. The method of claim 9, wherein R_3 and R_4 are part of a cyclic group, wherein the cyclic group includes one or more additional 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 at least one of R_3 and R_4 is an ethyl or butyl group.