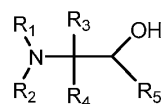


CLAIMS

1. A fuel composition comprising (1) greater than 50 wt % of a hydrocarbon fuel boiling in the gasoline or diesel range and (2) a minor amount of:

a low-speed pre-ignition (LSPI)-reducing additive comprising one or more of an amidine, or a beta-amino alkanol having the structure



wherein R₁, R₂, R₃, and R₄ are each independently selected from hydrogen, aromatic ring, and a C₁-C₂₀ alkyl group and R₅ is hydrogen or an alcohol having the structure -(CH)R₆-OH wherein R₆ is hydrogen, a C₁-C₁₀ alkyl group, or a C₁-C₁₀ alkenyl group, or a salt thereof.

2. The fuel composition of claim 1, wherein two or more of R₁, R₂, R₃, and R₄ form a ring structure.

3. The fuel composition of claim 1, wherein at least one of R₁, R₂, R₃, and R₄ is an aromatic rings.

4. The fuel composition of claim 1, wherein the LSPI-reducing additive is an amino alcohol.

5. The fuel composition of claim 4, wherein the amino alcohol is an aminoheptyl propanediol, an aminooctyl propanediol, or an aminododecyl ethanol,

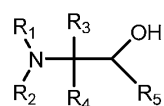
6. The fuel composition of claim 1, wherein the LSPI-reducing additive is 3-(heptan-2-ylamino)propane-1,2-diol, 3-(methyl(octyl)amino)propane-1,2-diol, or 2-(methyl(dodecyl)amino)ethan-1-ol.

7. The fuel composition of claim 1, wherein the LSPI-reducing additive is DBU 2-methylquinolin-8-olate, or DBU C24-salicylate.

8. The fuel composition of claim 1, wherein the salt thereof comprises a secondary additive comprising one or more of: acid additive, phenol additive, 1,3 dicarbonyl additive, hydroxamide additive, antioxidant additive or a salicylate additive.

9. A fuel concentrate comprising (1) from 90 to 30 wt % of an organic solvent boiling in a range of from 65°C to 205°C and (2) from 10 to 70 wt % of an additive component selected from one or more of

an amidine, or a beta-amino alkanol having the structure



wherein R₁, R₂, R₃, and R₄ are each independently selected from hydrogen, aromatic ring, and a C₁-C₂₀ alkyl group and R₅ is hydrogen or an alcohol having the structure -(CH)_{R6}-OH wherein R₆ is hydrogen, a C₁-C₁₀ alkyl group, or a C₁-C₁₀ alkenyl group, or a salt thereof.

10. The fuel concentrate of claim 9, wherein two or more of R₁, R₂, R₃, and R₄ form a ring structure.

11. The fuel concentrate of claim 9, wherein at least one of R₁, R₂, R₃, and R₄ is an aromatic rings.

12. The fuel concentrate of claim 9, wherein the LSPI-reducing additive is an amino alcohol.

13. The fuel concentrate of claim 12, wherein the amino alcohol is an aminoheptyl propanediol, an aminooctyl propanediol, or an aminododecyl ethanol,
14. The fuel concentrate of claim 9, wherein the LSPI-reducing additive is 3-(heptan-2-ylamino)propane-1,2-diol, 3-(methyl(octyl)amino)propane-1,2-diol, or 2-(methyl(dodecyl)amino)ethan-1-ol.
15. The fuel concentrate of claim 9, wherein the LSPI-reducing additive is DBU 2-methylquinolin-8-olate, or DBU C24-salicylate.
16. A method of reducing low-speed pre-ignition events in an engine comprising
 (1) greater than 50 wt % of a hydrocarbon fuel boiling in the gasoline or diesel range and (2) a minor amount of a low-speed pre-ignition (LSPI)-reducing additive comprising one or more of:
 a triazole, an amidine, a beta-amino alkanol having the structure
- $$\begin{array}{c}
 \text{R}_1 \quad \text{R}_3 \\
 \diagdown \quad | \\
 \text{N} - \text{C} - \text{C} - \text{OH} \\
 \diagup \quad | \quad \diagdown \\
 \text{R}_2 \quad \text{R}_4 \quad \text{R}_5
 \end{array}$$
- wherein R₁, R₂, R₃, and R₄ are each independently selected from hydrogen and a C₁-C₂₀ alkyl group and R₅ is hydrogen or an alcohol having the structure -(CH)₆-OH wherein R₆ is hydrogen, a C₁-C₁₀ alkyl group, or a C₁-C₁₀ alkenyl group, or a salt thereof.
17. The method of claim 16, wherein the triazole is a benzotriazole.
18. The method of claim 16, wherein LSPI-reducing additive is an amino alcohol.
19. The method of claim 16, wherein the amino alcohol is an aminoheptyl propanediol, an aminooctyl propanediol, or an aminododecyl ethanol,

20. The method of claim 16, wherein the LSPI-reducing additive is 3-(heptan-2-ylamino)propane-1,2-diol, 3-(methyl(octyl)amino)propane-1,2-diol, or 2-(methyl(dodecyl)amino)ethan-1-ol.