Claims:

1. Use of a composition comprising an imide containing quaternary ammonium salt ("imide quat") for improving the water shedding performance of a fuel composition, wherein the imide quat comprises the reaction product of:

a) a quaternizable compound that is the reaction product of:

(i) a hydrocarbyl-substituted acylating agent, wherein the hydrocarbyl-substituent has a number average molecular weight ranging from 350 to 650, and comprises at least one polyisobutenyl succinic anhydride or polyisobutenyl succinic acid;

(ii) a nitrogen containing compound having a nitrogen atom capable of reacting with said hydrocarbyl-substituted acylating agent to form an imide, and further having at least one quaternizable amino group; and

b) a quaternizing agent suitable for converting the quaternizable amino group of the nitrogen containing compound to a quaternary nitrogen.

2. The use of claim 1, wherein the hydrocarbyl-substituted acylating agent has a number average molecular weight ranging from 400 to 650.

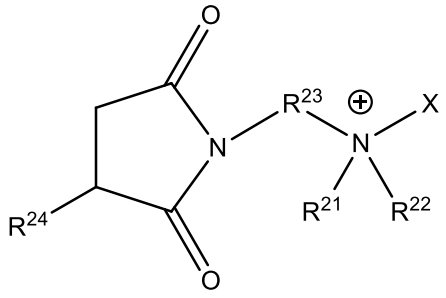
3. The use of claim 2, wherein the hydrocarbyl-substituted acylating agent has a number average molecular weight ranging from 400 to 600.

4. The use of any previous claim, wherein the quaternizing agent comprises at least one dialkyl sulfate, alkyl halide, hydrocarbyl substituted carbonate, hydrocarbyl epoxide, carboxylate, alkyl ester or mixtures thereof.

5. The use of claim 4, wherein the quaternizing agent is a hydrocarbyl epoxide , or wherein the quaternizing agent is an oxalate or terephthalate.

6. The use of claim 5, wherein the quaternizing agent is a hydrocarbyl epoxide in combination with an acid.

7. The use of any previous claim, wherein the imide quat comprises compounds having the structure:



(XIV)

wherein R^{21} and R^{22} are a hydrocarbyl group containing from 1 to 10 carbon atoms; R^{23} is a hydrocarbylene group containing from 1 to 20 carbon atoms; R^{24} is a hydrocarbyl group containing from 20 to 55 carbon atoms, or from 25 to 50, or from 28 to 43 or 47 carbon atoms; and X is a group derived from the quaternizing agent.

8. The use of any previous claim, wherein the composition further comprises at least one other additive comprising at least one hydrocarbyl-substituted succinic acid wherein the hydrocarbyl-substituent is a polyisobutylene having a number average molecular weight ranging from 100 to 5000.

9. The use of any previous claim, wherein the fuel is a fuel that is liquid at room temperature.

10. The use of claim 9, wherein the fuel is gasoline or diesel.

11. The use of claim 9or claim 10, wherein the fuel further comprises at least one of a low number average molecular weight soap with a number average molecular weight (M_n) of less than 340, a low number average molecular weight M_n of less than 400 polyisobutylene succinimide (PIBSI), or a mixture thereof.

12. The use of claims 9 through 11, wherein the fuel further comprises from 0.01 to 25 ppm of a metal and from 1 to 12 ppm of a corrosion inhibitor, wherein the corrosion inhibitor is an alkenyl succinic acid comprising at least one of dodecenyl succinic acid (DDSA), hexadecenyl succinic acid (HDSA), or mixtures thereof.