

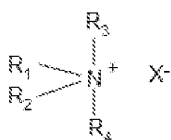
Claims

1. A solid composition comprising:
 - (a) from about 5% to about 70% by weight of at least one quaternary ammonium compound, amine or protonated amine, or mixtures thereof;
 - (b) from about 30% to about 95% by weight of water-soluble polysaccharide having an aerated bulk density in the range of 150 g/L to 600 g/L; and
 - (c) optionally, up to 30% by weight of a solubilizer;wherein,

the quaternary ammonium compound, amine or protonated amine has at least one alkyl chain of 10 carbons or greater, and is absorbed by the polysaccharide; with the proviso that, when the water-soluble polysaccharide is not agglomerated, the amount of the quaternary ammonium compound, amine, or protonated amine in the solid composition is not greater than 20% by weight, and when the water-soluble polysaccharide is agglomerated and has an aerated bulk density in the range of 250 g/L to 600 g/L, the amount of the quaternary ammonium compound, amine, or protonated amine in the solid composition is not greater than 35% by weight.
2. The composition of claim 1, wherein the water-soluble polysaccharide comprises maltodextrin, preferably agglomerated maltodextrin.

3. The composition of claim 1 or 2, wherein the at least one amine, protonated amine or quaternary ammonium compound is at least one esteramine or esterquat.
4. The composition of claim 3, wherein the at least one esteramine or esterquat is the reaction product of an alkanolamine reacted with a fatty acid source.
5. The composition of claim 4, wherein the fatty acid source is derived from sunflower oil, canola oil, low erucic acid rapeseed (LEAR) oil, or a combination thereof.
6. The composition of claim 4, wherein the fatty acid source is canola fatty acid, LEAR rapeseed fatty acid, or a combination thereof.
7. The composition of any one of claims 4-6, wherein the alkanolamine is triethanolamine (TEA) or methyldiethanolamine (MDEA).
8. The composition of any one of claims 4-7, wherein the alkanolamine is TEA, and the fatty alkyl chain to alkanolamine ratio is about 1.3:1 to about 2.2:1.
9. The composition of any one of claims 4-7, wherein the alkanolamine is MDEA, and the fatty alkyl chain to alkanolamine ratio is about 1.0:1 to about 2.0:1.

10. The composition of any one of claims 3-9, wherein the quaternary ammonium compound is an esterquat having a Hansen polarity parameter of greater than about 5.
11. The composition of 1 or 2, wherein the at least one amine, protonated amine or quaternary ammonium compound is at least one amidoamine, amidoamine salt, or amidoamine quat.
12. The composition of claim 1 or 2, wherein the at least one quaternary ammonium compound has the following chemical formula:



where R₁ is a straight or branched, saturated or unsaturated, alkyl or alkene chain having

from 6 to 22, preferably from 8 to 18 carbon atoms;

R₂ is a straight or branched, saturated or unsaturated, alkyl or alkene chain having from 1 to 16 carbon atoms, preferably from 1 to 10 carbon atoms;

R₃ is methyl, ethyl, benzyl or ethylbenzyl;

R₄ is methyl or ethyl; and

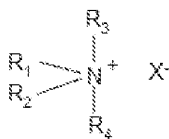
X⁻ is: Cl⁻, Br⁻, F⁻, I⁻, $(SO_4^{2-})_{\frac{1}{2}}$, $CH_3OSO_3^-$, HCO_3^- , $(CO_3^{2-})_{\frac{1}{2}}$, CH_3COO^- .

13. The composition of any one of claims 1-12, wherein the solubilizer is selected from the group consisting of citric acid, sodium citrate, potassium carbonate, urea, sodium acetate, magnesium sulfate, and combinations thereof.
14. The composition of any one of claims 1-13, wherein the solid composition is water-dispersible.
15. The composition of any one of claims 1-14, wherein the solid composition is in the form of a powder.
16. The composition of any one of claims 1-15, wherein the solid composition has a flowability parameter value above about 2.0 and a cohesion parameter value below about 2.0.
17. The composition of any one of claims 1-14, wherein the solid composition is in the form of a pod, a packet, a pouch, or a capsule.
18. The composition of any one of claims 1-14, wherein the solid composition is in the form of a tablet, a stick, a puck, pastilles, or pellets.
19. A hair conditioning composition comprising the solid composition of any one of claims 1-14.

20. A fabric softening composition comprising the solid composition of any one of claims 1-14.
21. An antimicrobial composition comprising the solid composition of any one of claims 12-14.
22. A corrosion inhibitor for use in oilfield applications comprising the solid composition of any one of claims 1-14.
23. A method of making a water-dispersible solid composition comprising the steps of:
- providing a water-soluble polysaccharide in an amount of about 30% to about 95% by weight, based on the total weight of the solid composition;
- adding from about 5% to about 70% by weight of at least one liquid or molten amine, protonated amine, or quaternary ammonium compound, or mixtures thereof, to the water-soluble polysaccharide, with the proviso that, when the water-soluble polysaccharide is not agglomerated, the amount of the amine, protonated amine, or quaternary ammonium compound added to the water-soluble polysaccharide is not greater than 20% by weight of the solid composition, and when the water-soluble polysaccharide is agglomerated, and has an aerated bulk density in the range of 250 g/L to 600 g/L, the amount of the amine, protonated amine, or quaternary ammonium

- compound added to the agglomerated polysaccharide is not greater than 35% by weight of the solid composition; and
- mixing the water-soluble polysaccharide and the amine, protonated amine or quaternary ammonium compound until the amine, protonated amine or quaternary ammonium compound is absorbed by the water-soluble polysaccharide to form the water-dispersible solid composition.
24. The method of claim 23, further comprising the step of adding from about 0.5% to about 50% by weight of a solubilizer before, during, or after the addition of the protonated amine or quaternary ammonium compound.
25. The method of claim 23 or 24, wherein the water-soluble polysaccharide comprises maltodextrin, preferably agglomerated maltodextrin.
26. The method any one of claims 23-25, wherein the at least one amine, protonated amine, or quaternary ammonium compound is at least one esteramine or esterquat.
27. The method of claim 26, wherein the at least one esteramine or esterquat is the reaction product of an alkanolamine reacted with a fatty acid source.
28. The method of claim 27, wherein the fatty acid source is derived from sunflower oil, canola oil, LEAR rapeseed oil, or a combination thereof.

29. The method of claim 27, wherein the fatty acid source is canola fatty acid, LEAR rapeseed fatty acid, or a combination thereof.
30. The method of any one of claims 27-29, wherein the alkanolamine is triethanolamine (TEA) or methyldiethanolamine (MDEA).
31. The method of any one of claims 27-30, wherein the alkanolamine is TEA, and the fatty alkyl chain to alkanolamine ratio is about 1.3:1 to about 2.2:1.
32. The method of any one of claims 27- 30, wherein the alkanolamine is MDEA, and the fatty alkyl chain to alkanolamine ratio is about 1.0:1 to about 2.0:1.
33. The method of any one of claims 26-32, wherein the quaternary ammonium compound is an esterquat having a Hansen polarity parameter of greater than about 5.
34. The method of any one of claims 23-25, wherein the at least one amine, protonated amine, or quaternary ammonium compounds is at least one amidoamine, amidoamine salt, or amidoamine quat.
35. The method of any one of claims 23-25, wherein the at least one quaternary ammonium compound has the following chemical formula:



where R₁ is a straight or branched, saturated or unsaturated, alkyl or alkene chain

having from 6 to 22, preferably from 8 to 18 carbon atoms;

R₂ is a straight or branched, saturated or unsaturated, alkyl or alkene chain having

from 1 to 16 carbon atoms, preferably from 1 to 10 carbon atoms;

R₃ is methyl, ethyl, benzyl or ethylbenzyl;

R₄ is methyl or ethyl; and

X⁻ is: Cl⁻, Br⁻, F⁻, I⁻, $(SO_4^{2-})_{\frac{1}{2}}$, $CH_3OSO_3^-$, HCO_3^- , $(CO_3^{2-})_{\frac{1}{2}}$, CH_3COO^- .

36. The method of any one of claims 24-35, wherein the solubilizer is selected from the group consisting of citric acid, sodium citrate, potassium carbonate, urea, sodium acetate, magnesium sulfate, and combinations thereof.

37. The method of any one of claims 23-36, wherein the solid composition is in the form of a powder.

38. The method of claim 37, wherein the powder is encapsulated within a water-soluble or water-rupturable film or coating.

39. The method of any one of claims 23-36, wherein the solid composition is formed into a tablet, a stick, a puck, pastilles, or pellets.

40. The composition of any one of claims 1-21, the corrosion inhibitor of claim 22, or the method of any one of claims 23-39, wherein the solid composition comprises one or more additional ingredients selected from the group consisting of nonionic surfactants, cationic surfactants, amphoteric surfactants, imidazolines, mercaptans, glycerides, glycerin, silicones, cationic polymers, and combinations thereof, in an amount up to 30% by weight of the solid composition.