Claims

1. A dentifrice composition comprising a cationically modified silica in an amount effective to treat or prevent erosive damage to an enamel surface of a tooth,
wherein the amount of cationically modified silica effective to treat or prevent erosive damage to an enamel surface of a tooth is 0.01 wt. % to 30 wt. % based on the weight of the composition; and
wherein the cationically modified silica comprises silica covalently bonded to positively charged amino acid; or
wherein the cationically modified silica comprises silica covalently bonded to a silane.

~~2. The composition of claim 1, wherein the cationically modified silica comprises silica covalently bonded to positively charged amino acid.~~

32. The composition of claim 21, wherein positively charged amino acid is lysine.

43. The composition of claim 1, wherein the cationically modified silica comprises silica covalently bonded to positively charged peptide.

54. The composition of claim 1, wherein the positively charged peptide is polylysine.

~~6. The composition of claim 1, wherein the cationically modified silica comprises silica covalently bonded to a silane.~~

75. The composition of claim 1, wherein the silane includes aminosilanes, glycidoxysilanes, mercaptosilanes, and combinations thereof.

86. The composition of claim 75, wherein the aminosilane comprises (3-aminopropyl)-triethoxysilane, (3-aminopropyl)-diethoxy-methylsilane, (3-aminopropyl)-dimethyl-ethoxysilane, and combination thereof.

97. The composition of claim 75, wherein the glycidoxysilane comprises (3-glycidoxypropyl)-dimethyl-ethoxysilane.

108. The composition of claim 75, wherein the mercaptosilane comprises (3-mercaptopropyl)-trimethoxysilane, (3-mercaptopropyl)-methyl-dimethoxysilane, and combinations thereof.

119. The composition of claim 1, wherein the amount of cationically modified silica effective to treat or prevent erosive damage to an enamel surface of a tooth is 0.05 wt. % to 20 wt. % based on the weight of the composition.

1210. The composition of claim 1, wherein the amount of cationically modified silica effective to treat or prevent erosive damage to an enamel surface of a tooth is 0.1 wt. % to 10 wt. % based on the weight of the composition.

1311. The composition of claim 1, wherein the amount of cationically modified silica effective to treat or prevent erosive damage to an enamel surface of a tooth is 1 wt. % to 5 wt. % based on the weight of the composition.

1412. The composition of claim 1 further comprising an abrasive, binder, surfactant, humectant, source of fluoride, and combinations thereof.

1513. The composition of claim 1, wherein the composition is a toothpaste.

1614. A dentifrice composition comprising at least one material selected from a cationically modified silica, calcium-containing silicates, wherein the silicates are selected from nesosilicates (or orthosilicates), sorosilicates, cyclosilicates, tectosilicates, inosilicates (single chain), inosilicates (double chain), and phyllosilicates, and combinations thereof, or calcium-containing colloidal silica or silica gel, magnesium-containing silicates wherein the silicates are selected from nesosilicates (or orthosilicates), sorosilicates, cyclosilicates, tectosilicates, inosilicates (single chain), inosilicates (double chain), and phyllosilicates, and combinations thereof, or magnesium-containing colloidal silica or silica gel, and combinations thereof, in an effective amount of 0.01 wt % to 30 wt % based on the weight of the composition for treating or preventing erosive damage to an enamel surface of a tooth of a subject in need thereof.

1715. The dentifrice composition of claim 1614, wherein the subject is a mammal.

~~18~~16. The dentifrice composition of claim ~~16~~14, wherein the subject is a human.

~~19~~17. The dentifrice composition of claim ~~16~~14, wherein the subject is a companion animal.

~~20~~18. The dentifrice composition of claim ~~16~~14, wherein the effective amount is 0.01 wt. % to 30 wt. % based on the weight of the composition.

~~21~~19. The dentifrice composition of claim ~~16~~14, wherein the effective amount is 0.05 wt. % to 20 wt. % based on the weight of the composition.

~~22~~20. The dentifrice composition of claim ~~16~~14, wherein the effective amount is 0.1 wt. % to 10 wt, % based on the weight of the composition.

~~23~~21. The dentifrice composition of claim ~~16~~14, wherein the effective amount is 1 wt. % to 5 wt. % based on the weight of the composition.

~~24~~22. The dentifrice composition of claim ~~16~~14, wherein the composition further comprises an abrasive, binder, surfactant, humectant, source of fluoride, and combinations thereof.

~~25~~23. The dentifrice composition of claim ~~16~~14, wherein the composition is a toothpaste.

~~26. Use of at least one material selected from a cationically modified silica, calcium-containing silicates, wherein the silicates are selected from nesosilicates (or orthosilicates), sorosilicates, cyclosilicates, tectosilicates, inosilicates (single chain), inosilicates (double chain), and phyllosilicates, and combinations thereof, or calcium-containing colloidal silica or silica gel, magnesium-containing silicates wherein the silicates are selected from nesosilicates (or orthosilicates), sorosilicates, cyclosilicates, tectosilicates, inosilicates (single chain), inosilicates (double chain), and phyllosilicates, and combinations thereof, or magnesium-containing colloidal silica or silica gel, and combinations thereof in the manufacture of a dentifrice composition for treating or preventing erosive damage to an enamel surface of a tooth of a subject in need thereof, wherein said at least one material, is in an effective amount of 0.01 wt % to 30 wt %~~

based on the weight of the composition, wherein said at least one material is in an amount of 0.01 wt % to 30 wt % based on the weight of the composition.

27. The use of claim 26, wherein the subject is a mammal.

28. The use of claim 26, wherein the subject is a human.

29. The use of claim 26, wherein the subject is a companion animal.

30. The use of claim 26, wherein the effective amount is 0.01 wt. % to 30 wt. % based on the weight of the composition.

31. The use of claim 26, wherein the effective amount is 0.05 wt. % to 20 wt. % based on the weight of the composition.

32. The use of claim 26, wherein the effective amount is 0.1 wt. % to 10 wt, % based on the weight of the composition.

33. The use of claim 26, wherein the effective amount is 1 wt. % to 5 wt. % based on the weight of the composition.

34. The use of claim 26, wherein the composition further comprises an abrasive, binder, surfactant, humectant, source of fluoride, and combinations thereof.

35. The use of claim 26, wherein the composition is a toothpaste.