CLAIMS

1. A composition comprising an effective amount of a dental whitening agent, and arginine in salt form wherein the dental whitening agent and arginine is dispersed within a matrix material, and
   wherein the composition further comprises a basic amino acid selected from lysine, citrullene, ornithine, creatine, histidine, diaminobutanoic acid, diaminopropionic acid, salts thereof and/or combinations thereof.
2. The composition of claim 1 wherein the basic amino acid has the L-configuration.
3. The composition of any one of the preceding claims wherein arginine has the L-configuration.
4. The composition of any one of the claims 1 to 3, wherein basic amino acids is in salt form.
5. The composition of any one of the preceding claims comprising arginine phosphate.
6. The composition of any one of the preceding claims comprising arginine hydrochloride.
7. The composition of any one of the preceding claims comprising arginine percarbonate.
8. The composition of any one of the preceding claims wherein comprising arginine bicarbonate.
9. The composition of any one of the preceding claims wherein compositions comprising from 0.1% to 50% by weight of arginine.
10. The composition of any one of the preceding claims further comprising a matrix material.
11. The composition of any one of the preceding claims further comprising carboxypolymethylene.
12. The composition of any one of the preceding claims comprising polyvinylpyrrolidone.
13. The composition of any one of the preceding claims further comprising water.
14. The composition of any one of the preceding claims further comprising glycerine.
15. The composition of any one of the preceding claims further comprising polyethylene glycol.
16. The composition of any one of the preceding claims having a pH of 5 to 12.
17. The composition of any one of the preceding claims having a pH of 6.1.

18. The composition of any one of the preceding claims wherein the dental whitening agent is a selected from peroxides, metal chlorites, perborates, percarbonates, peroxyacids, and combinations thereof.

19. The composition of any one of the preceding claims comprising carbamide peroxide, sodium perborate, sodium percarbonate, hydrogen peroxide, or combinations thereof.

20. The composition of any one of the preceding claims wherein the pH is adjusted to a pH of 7 to 9 with a base selected from triethanolamine, sodium hydroxide, or a basic amino acid.

21. The composition of claim 20 wherein the basic amino acid is arginine, lysine, citrullene, ornithine, creatine, histidine, diaminobutanoic acid, diaminoproprionic acid, salts thereof and/or combinations thereof.

22. The composition of claim 20 or 21 wherein the basic amino acid is in salt form selected from hydroxide, peroxide, bicarbonate, and/or combinations thereof.

23. The composition of claim 22 wherein the basic amino acid is selected from arginine bicarbonate and arginine hydroxide.

24. The composition of any one of the preceding claims further comprising a fluoride salt selected from stannous fluoride, sodium fluoride, potassium fluoride, sodium monofluorophosphate, sodium fluorosilicate, ammonium fluorosilicate, amine fluoride, ammonium fluoride, and combinations thereof.

25. The composition of any one of the preceding claims further comprising an antibacterial agent selected from halogenated diphenyl ether (e.g. triclosan), herbal extracts and essential oils (e.g., rosemary extract, tea extract, magnolia extract, thymol, menthol, eucalyptol, geraniol, carvacrol, citral, hinokitol, catechol, methyl salicylate, epigallocatechin gallate, epigallocatechin, gallic acid, miswak extract, sea-buckthorn extract), bisguanide antiseptics (e.g., chlorhexidine, alexidine or octenidine), quaternary ammonium compounds (e.g., cetylpyridinium chloride (CPC), benzalkonium chloride, tetradecylpyridinium chloride (TPC), N-tetradecyl-4-ethylpyridinium chloride (TDEPC)), phenolic antiseptics, hexetidine, octenidine, sanguinarine, povidone iodine, delmopinol, salifluor, metal ions (e.g., zinc salts, for example, zinc citrate, stannous salts, copper salts, iron salts), sanguinarine, propolis and oxygenating agents (e.g., hydrogen peroxide, buffered sodium peroxyborate or peroxycarbonate), phthalic acid and its salts,

monoperthalic acid and its salts and esters, ascorbyl stearate, oleoyl sarcosine, alkyl sulfate, dioctyl sulfosuccinate, salicylanilide, domiphen bromide, octapinol and other piperidino derivatives, nicin preparations, chlorite salts; and mixtures of any of the foregoing.

26. The composition of any one of the preceding claims which is a gel.

27. A device for bleaching a patient's tooth comprising a delivery scaffold which is sized to cover a tooth surface to be bleached, said scaffold coated with the composition of any one of claims 1 to 26.

28. The device of claim 27 wherein the scaffold is a dental tray.

29. The device of claim 27 wherein the scaffold is a strip.

30. A method for bleaching a tooth comprising obtaining a delivery scaffold which is sized to cover a tooth surface to be bleached, coating said scaffold with the composition of any one of claims 1 – 26, positioning the scaffold over the tooth such that at least a portion of the composition is in contact with the tooth surface to be bleached, allowing the tray to remain in position over the tooth for at least one hour, and removing the tray from the tooth.

31. Use of the composition of any one of claims 1-26 in the manufacture of a medicament for whitening teeth and optionally, for (i) reducing or inhibiting formation of dental caries, (ii) reducing, repairing or inhibiting pre-carious lesions of the enamel (iii) reducing or inhibiting demineralization and promoting remineralization of the teeth, (iv) reducing hypersensitivity of the teeth, (v) reducing or inhibiting gingivitis, (vi) promoting healing of sores or cuts in the mouth, (vii) reducing levels of acid producing bacteria, (viii) increasing relative levels of arginolytic bacteria, (ix) inhibiting microbial biofilm formation in the oral cavity, (x) raising and/or maintaining plaque pH at levels of at least pH 5.5 following sugar challenge, (xi) reducing plaque accumulation, (xii) cleaning the teeth and oral cavity, (xiii) immunizing the teeth against cariogenic bacteria, (xiv) promoting systemic health, including cardiovascular health, (xv) reducing erosion and/or (xv) treating, relieving or reducing dry mouth.

32. Use of a basic amino acid in free or salt form as an agent for combating cavity formation and tooth sensitivity in a dental whitening composition wherein the dental whitening agent and the basic amino acid in free or salt form is dispersed within a matrix material.

CLAIMS

1. A composition comprising an effective amount of a dental whitening agent, and arginine in salt form wherein the dental whitening agent and arginine is dispersed within a matrix material.
2. The composition of claim 1 wherein the composition further comprises a basic amino acid selected from lysine, citrullene, ornithine, creatine, histidine, diaminobutanoic acid, diaminoproprionic acid, salts thereof and/or combinations thereof.
3. The composition of claim 2 wherein the basic amino acid has the L-configuration.
4. The composition of any one of the preceding claims wherein arginine has the L-configuration.
5. The composition of any one of the claims 2 to 4, wherein basic amino acid is in salt form.
6. The composition of any one of the preceding claims comprising arginine phosphate.
7. The composition of any one of the preceding claims comprising arginine hydrochloride.
8. The composition of any one of the preceding claims comprising arginine percarbonate.
9. The composition of any one of the preceding claims wherein comprising arginine bicarbonate.
10. The composition of any one of the preceding claims wherein compositions comprising from 0.1% to 50% by weight of arginine.
11. The composition of any one of the preceding claims further comprising a matrix material.
12. The composition of any one of the preceding claims further comprising carboxypolymethylene.
13. The composition of any one of the preceding claims further comprising a matrix material comprising reaction products of carboxypolymethylene,
14. The composition of any one of the preceding claims comprising polyvinylpyrrolidone.
15. The composition of any one of the preceding claims further comprising a matrix material having a stickiness and/or resistance to dilution by saliva such that when the dental composition is placed within a dental tray and the dental tray is

positioned over the teeth the dental composition will retain the dental tray in position over the teeth without significant pressure exerted by the dental tray.

16. The composition of any one of the preceding claims further comprising water.
17. The composition of any one of the preceding claims further comprising glycerine.
18. The composition of any one of the preceding claims further comprising polyethylene glycol.
19. The composition of any one of the preceding claims having a pH of 5 to 12.
20. The composition of any one of the preceding claims having a pH of 6.1.
21. The composition of any one of the preceding claims wherein the dental whitening agent is a selected from peroxides, metal chlorites, perborates, percarbonates, peroxyacids, and combinations thereof.
22. The composition of any one of the preceding claims comprising carbamide peroxide, sodium perborate, sodium percarbonate, hydrogen peroxide, or combinations thereof.
23. The composition of any one of the preceding claims wherein the pH is adjusted to a pH of 7 to 9 with a base selected from triethanolamine, sodium hydroxide, or a basic amino acid.
24. The composition of claim 23 wherein the basic amino acid is arginine, lysine, citrullene, ornithine, creatine, histidine, diaminobutanoic acid, diaminoproprionic acid, salts thereof and/or combinations thereof.
25. The composition of claim 23 or 24 wherein the basic amino acid is in salt form selected from hydroxide, peroxide, bicarbonate, and/or combinations thereof.
26. The composition of claim 25 wherein the basic amino acid is selected from arginine bicarbonate and arginine hydroxide.
27. The composition of any one of the preceding claims further comprising a fluoride salt selected from stannous fluoride, sodium fluoride, potassium fluoride, sodium monofluorophosphate, sodium fluorosilicate, ammonium fluorosilicate, amine fluoride, ammonium fluoride, and combinations thereof.
28. The composition of any one of the preceding claims further comprising an antibacterial agent selected from halogenated diphenyl ether (e.g. triclosan), herbal extracts and essential oils (e.g., rosemary extract, tea extract, magnolia extract, thymol, menthol, eucalyptol, geraniol, carvacrol, citral, hinokitol, catechol, methyl salicylate, epigallocatechin gallate, epigallocatechin, gallic acid, miswak extract, sea-buckthorn extract), bisguanide antiseptics (e.g.,

chlorhexidine, alexidine or octenidine), quaternary ammonium compounds (e.g., cetylpyridinium chloride (CPC), benzalkonium chloride, tetradecylpyridinium chloride (TPC), N-tetradecyl-4-ethylpyridinium chloride (TDEPC)), phenolic antiseptics, hexetidine, octenidine, sanguinarine, povidone iodine, delmopinol, salifluor, metal ions (e.g., zinc salts, for example, zinc citrate, stannous salts, copper salts, iron salts), sanguinarine, propolis and oxygenating agents (e.g., hydrogen peroxide, buffered sodium peroxyborate or peroxycarbonate), phthalic acid and its salts, monoperthalic acid and its salts and esters, ascorbyl stearate, oleoyl sarcosine, alkyl sulfate, dioctyl sulfosuccinate, salicylanilide, domiphen bromide, octapinol and other piperidino derivatives, nicin preparations, chlorite salts; and mixtures of any of the foregoing.

29. The composition of any one of the preceding claims which is a gel.

30. A device for bleaching a patient's tooth comprising a delivery scaffold which is sized to cover a tooth surface to be bleached, said scaffold coated with the composition of any one of claims 1 to 29.

31. The device of claim 30 wherein the scaffold is a dental tray.

32. The device of claim 30 wherein the scaffold is a strip.

33. A method for bleaching a tooth comprising obtaining a delivery scaffold which is sized to cover a tooth surface to be bleached, coating said scaffold with the composition of any one of claims 1 – 29, positioning the scaffold over the tooth such that at least a portion of the composition is in contact with the tooth surface to be bleached, allowing the tray to remain in position over the tooth for at least one hour, and removing the tray from the tooth.

34. Use of the composition of any one of claims 1-29 in the manufacture of a medicament for whitening teeth and optionally, for (i) reducing or inhibiting formation of dental caries, (ii) reducing, repairing or inhibiting pre-carious lesions of the enamel, (iii) reducing or inhibiting demineralization and promoting remineralization of the teeth, (iv) reducing hypersensitivity of the teeth, (v) reducing or inhibiting gingivitis, (vi) promoting healing of sores or cuts in the mouth, (vii) reducing levels of acid producing bacteria, (viii) increasing relative levels of arginolytic bacteria, (ix) inhibiting microbial biofilm formation in the oral cavity, (x) raising and/or maintaining plaque pH at levels of at least pH 5.5 following sugar challenge, (xi) reducing plaque accumulation, (xii) cleaning the teeth and oral cavity, (xiii) immunizing the teeth against cariogenic bacteria, (xiv) promoting systemic health, including cardiovascular health, (xv) reducing erosion and/or (xv) treating, relieving or reducing dry mouth.

35. Use of a basic amino acid in free or salt form as an agent for combating cavity formation and tooth sensitivity in a dental whitening composition wherein the dental whitening agent and the basic amino acid in free or salt form is dispersed within a matrix material.