What is claimed is:

1. A method of manufacturing a batch of silicone hydrogel contact lenses, comprising:

providing polymerized silicone hydrogel contact lens bodies in contact lens mold assemblies, wherein a single polymerized silicone hydrogel contact lens body is provided in a single contact lens mold assembly, and each contact lens mold assembly comprises a first mold section having a concave optical surface for forming an anterior surface of the silicone hydrogel contact lens body and a second mold section having a convex optical surface for forming a posterior surface of the silicone hydrogel contact lens body, and the first mold section and second mold section are coupled together;

separating the polymerized silicone hydrogel contact lens bodies from the contact lens mold assemblies to produce delensed contact lens bodies;

washing the delensed contact lens bodies with an aqueous liquid free of volatile organic solvent to produce washed contact lenses; and

sterilizing the washed contact lenses in sealed contact lens packages;

wherein the batch so manufactured comprises at least twenty silicone hydrogel contact lenses, and the anterior surfaces of the sterilized contact lenses have clinically acceptable surface wettabilities such that less than five percent of the silicone hydrogel contact lenses have visually identifiable non-wetting spots when located on eyes of subjects, and wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the contact lens, and are visually identifiable during a slit lamp examination at a total magnification from about 6x to about 70x.

2. The method of claim 1, wherein at least one of the first mold section or the second mold section comprises a polar resin having a polarity from 1% to 7%.

3. The method of claim 1, wherein at least one of the first mold section or the second mold section comprises a polybutylene terephthalate (PBT) resin.

4. The method of claim 1, wherein each polymerized contact lens body is obtained by polymerizing a polymerizable composition in a contact lens mold assembly using thermal radiation, or ultraviolet radiation, or both.

5. The method of claim 1, wherein each polymerized silicone hydrogel contact lens body is obtained by polymerizing a polymerizable composition comprising a first siloxane monomer, a second siloxane monomer, at least one hydrophilic monomer, at least

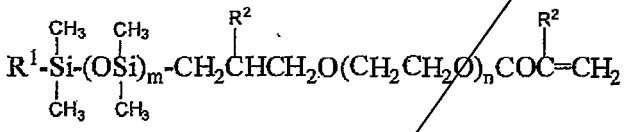
one hydrophobic monomer, and at least one cross-linking agent, and said polymerizable composition is free of a diluent, or free of a hydrophilic polymer, or both.

6. The method of claim 5, wherein the polymerizable composition comprises at least one hydrophilic vinyl monomer and at least one vinyl cross-linking agent.

7. The method of claim 1, wherein the batch of sterilized silicone hydrogel contact lenses has an average diameter that is at least 20% greater than the average diameter of the same batch of silicone hydrogel contact lens bodies prior to the washing step.

8. The method of claim 1, wherein each of the sterilized silicone hydrogel contact lenses has an oxygen permeability of at least 55 barrers, or an equilibrium water content from about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

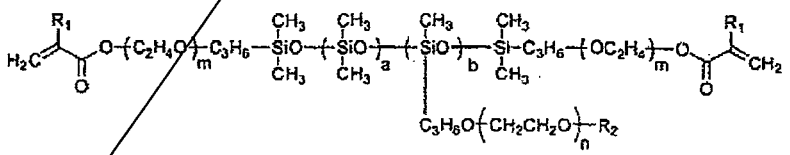
9. The method of claim 1, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (1):



(1)

wherein m of formula (1) represents one integer from 3 to 10, n of formula (1) represents one integer from 1 to 10, R^1 of formula (1) is an alkyl group having from 1 to 4 carbon atoms, and each R^2 of formula (1) is independently either a hydrogen atom or a methyl group; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (1).

10. The method of claim 1, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (2):

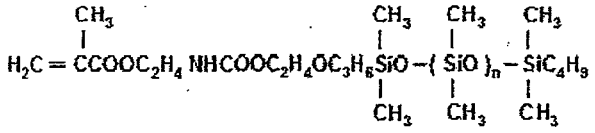


(2)

wherein R_1 of formula (2) is selected from either hydrogen atom or a methyl group; R_2 of formula (2) is selected from either of hydrogen atom or a hydrocarbon group having 1 to 4 carbon atoms; m of formula (2) represents an integer of from 0 to 10; n of formula (2)

represents an integer of from 4 to 100; a and b represent integers of 1 or more; a+b is equal to 20-500; b/(a+b) is equal to 0.01-0.22; and the configuration of siloxane units includes a random configuration; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (2).

11. The method of claim 1, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (6):



(6)

wherein n is an integer from 13-16, and the molecular weight is about 1500 daltons; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (6).

12. The method of claim 1, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a hydrophilic amide monomer having one N-vinyl group, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the hydrophilic amide monomer having one N-vinyl group.

13. The method of claim 1, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a vinyl-containing cross-linking agent, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the vinyl-containing cross-linking agent.

14. A batch of silicone hydrogel contact lenses, the batch comprising:

at least twenty silicone hydrogel contact lenses, each silicone hydrogel contact lens of the batch is an aqueous extracted silicone hydrogel contact lens comprising an anterior surface and an opposing posterior surface, the posterior surface dimensioned (sized and shaped) for placement against a subject's eye;

the anterior surface of each of the aqueous extracted contact lenses having a clinically acceptable surface wettability, such that less than five percent of the batch of

silicone hydrogel contact lenses has visually identifiable non-wetting spots when located on eyes of subject;

wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the lens body, and are visually identifiable during a slit lamp examination at a total magnification from about 6x to about 70x.

15. The batch of silicone hydrogel contact lenses of claim 14, wherein each silicone hydrogel contact lens is a cast molded silicone hydrogel contact lens without a plasma surface treatment or a polymeric internal wetting agent provided by including a hydrophilic polymer in a polymerizable composition used to form the silicone hydrogel contact lens.

16. The batch of silicone hydrogel contact lenses of claim 14, wherein each silicone hydrogel contact lens is a cast molded silicone hydrogel contact lens obtained from a contact lens mold assembly, the contact lens mold assembly comprising an anterior mold member and a posterior mold member, each mold member being formed from a polar resin having a polarity from about 1% to about 7%.

17. The batch of silicone hydrogel contact lenses of claim 16, wherein the polar resin is polybutylene terephthalate (PBT).

18. The batch of silicone hydrogel contact lenses of claim 14, wherein each contact lens comprises a polymeric component and a liquid component, the polymeric component comprising units of at least one siloxane having one or more functional acrylic groups, and units of one or more hydrophilic monomers having one or more functional non-acrylic vinyl groups.

19. The batch of silicone hydrogel contact lenses of claim 14, wherein each contact lens has an oxygen permeability of at least 55 barrers, or an equilibrium water content from about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

20. The population of silicone hydrogel contact lenses of claim 14, wherein each silicone hydrogel is provided in a sterilized contact lens packaging solution, and each lens body has a wet extractable content less than 10% (wt/wt).

What is claimed is:

1. A method of manufacturing a batch of silicone hydrogel contact lenses, comprising:

providing polymerized silicone hydrogel contact lens bodies in contact lens mold assemblies, wherein a single polymerized silicone hydrogel contact lens body is provided in a single contact lens mold assembly, and each contact lens mold assembly comprises a first mold section having a concave optical surface for forming an anterior surface of the silicone hydrogel contact lens body and a second mold section having a convex optical surface for forming a posterior surface of the silicone hydrogel contact lens body, and the first mold section and second mold section are coupled together;

separating the polymerized silicone hydrogel contact lens bodies from the contact lens mold assemblies to produce delensed contact lens bodies;

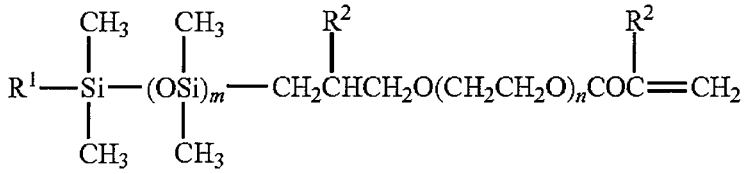
washing the delensed contact lens bodies with an aqueous liquid free of volatile organic solvent to produce washed contact lenses; and

sterilizing the washed contact lenses in sealed contact lens packages;

wherein the batch so manufactured comprises at least twenty silicone hydrogel contact lenses, and the anterior surfaces of the sterilized contact lenses have clinically acceptable surface wettabilities such that less than five percent of the silicone hydrogel contact lenses have visually identifiable non-wetting spots when located on eyes of subjects, and wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the contact lens, and are visually identifiable during a slit lamp examination at a total magnification from about 6× to about 70×;

wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (1):

(1)



wherein m of formula (1) represents one integer from 3 to 10, n of formula (1) represents one integer from 1 to 10, R^1 of formula (1) is an alkyl group having from 1 to 4 carbon atoms, and each R^2 of formula (1) is independently either a hydrogen atom or a methyl group; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (1).

2. The method of claim **1**, wherein at least one of the first mold section or the second mold section comprises a polar resin having a polarity from 1% to 7%.

3. The method of claim **1**, wherein at least one of the first mold section or the second mold section comprises a polybutylene terephthalate (PBT) resin.

4. The method of claim **1**, wherein each polymerized contact lens body is obtained by polymerizing a polymerizable composition in a contact lens mold assembly using thermal radiation, or ultraviolet radiation, or both.

5. The method of claim **1**, wherein each polymerized silicone hydrogel contact lens body is obtained by polymerizing a polymerizable composition comprising a first siloxane monomer, a second siloxane monomer, at least one hydrophilic monomer, at least one hydrophobic monomer, and at least one cross-linking agent, and said polymerizable composition is free of a diluent, or free of a hydrophilic polymer, or both.

6. The method of claim **5**, wherein the polymerizable composition comprises at least one hydrophilic vinyl monomer and at least one vinyl cross-linking agent.

7. The method of claim **1**, wherein the batch of sterilized silicone hydrogel contact lenses has an average diameter that is at least 20% greater than the average diameter of the same batch of silicone hydrogel contact lens bodies prior to the washing step.

8. The method of claim **1**, wherein each of the sterilized silicone hydrogel contact lenses has an oxygen permeability of at least 55 barrers, or an equilibrium water content from

about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

9. A method of manufacturing a batch of silicone hydrogel contact lenses, comprising:

providing polymerized silicone hydrogel contact lens bodies in contact lens mold assemblies, wherein a single polymerized silicone hydrogel contact lens body is provided in a single contact lens mold assembly, and each contact lens mold assembly comprises a first mold section having a concave optical surface for forming an anterior surface of the silicone hydrogel contact lens body and a second mold section having a convex optical surface for forming a posterior surface of the silicone hydrogel contact lens body, and the first mold section and second mold section are coupled together;

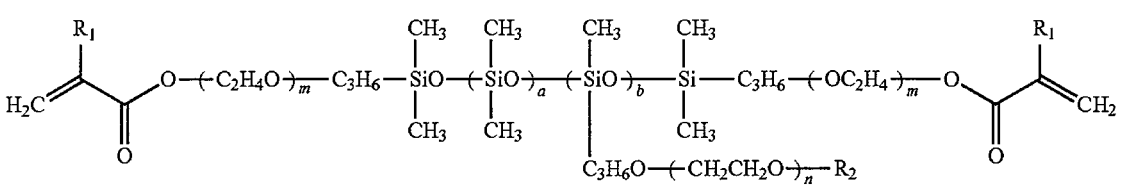
separating the polymerized silicone hydrogel contact lens bodies from the contact lens mold assemblies to produce delensed contact lens bodies;

washing the delensed contact lens bodies with an aqueous liquid free of volatile organic solvent to produce washed contact lenses; and

sterilizing the washed contact lenses in sealed contact lens packages;

wherein the batch so manufactured comprises at least twenty silicone hydrogel contact lenses, and the anterior surfaces of the sterilized contact lenses have clinically acceptable surface wettabilities such that less than five percent of the silicone hydrogel contact lenses have visually identifiable non-wetting spots when located on eyes of subjects, and wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the contact lens, and are visually identifiable during a slit lamp examination at a total magnification from about 6× to about 70×,

wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (2):



(2)

wherein R_1 of formula (2) is selected from either hydrogen atom or a methyl group; R_2 of formula (2) is selected from either of hydrogen atom or a hydrocarbon group having 1 to 4 carbon atoms; m of formula (2) represents an integer of from 0 to 10; n of formula (2) represents an integer of from 4 to 100; a and b represent integers of 1 or more; a+b is equal to 20-500; b/(a+b) is equal to 0.01-0.22; and the configuration of siloxane units includes a random configuration; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (2).

10. A method of manufacturing a batch of silicone hydrogel contact lenses, comprising:

providing polymerized silicone hydrogel contact lens bodies in contact lens mold assemblies, wherein a single polymerized silicone hydrogel contact lens body is provided in a single contact lens mold assembly, and each contact lens mold assembly comprises a first mold section having a concave optical surface for forming an anterior surface of the silicone hydrogel contact lens body and a second mold section having a convex optical surface for forming a posterior surface of the silicone hydrogel contact lens body, and the first mold section and second mold section are coupled together;

separating the polymerized silicone hydrogel contact lens bodies from the contact lens mold assemblies to produce delensed contact lens bodies;

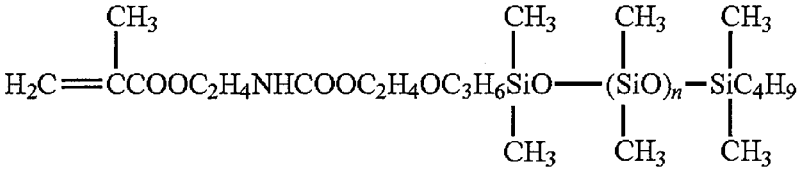
washing the delensed contact lens bodies with an aqueous liquid free of volatile organic solvent to produce washed contact lenses; and

sterilizing the washed contact lenses in sealed contact lens packages;

wherein the batch so manufactured comprises at least twenty silicone hydrogel contact lenses, and the anterior surfaces of the sterilized contact lenses have clinically acceptable surface wettabilities such that less than five percent of the silicone hydrogel contact lenses have visually identifiable non-wetting spots when located on eyes of subjects, and wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the contact lens, and are visually identifiable during a slit lamp examination at a total magnification from about 6× to about 70×,

wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a siloxane monomer represented by formula (6):

(6)



wherein n is an integer from 13-16, and the molecular weight is about 1500 daltons; and wherein the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the siloxane monomer represented by formula (6).

11. The method of claim **1**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a hydrophilic amide monomer having one N-vinyl group, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the hydrophilic amide monomer having one N-vinyl group.

12. The method of claim **1**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a vinyl-containing cross-linking agent, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the vinyl-containing cross-linking agent.

13. A batch of silicone hydrogel contact lenses, the batch comprising:

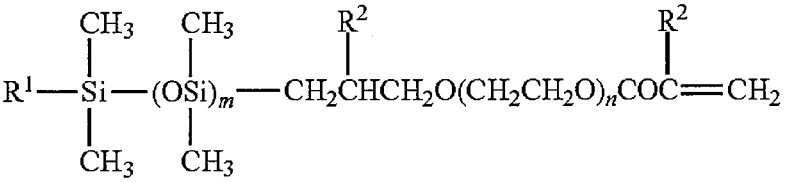
at least twenty silicone hydrogel contact lenses, each silicone hydrogel contact lens of the batch is an aqueous extracted silicone hydrogel contact lens comprising an anterior surface and an opposing posterior surface, the posterior surface dimensioned by size and shape for placement against a subject's eye;

the anterior surface of each of the aqueous extracted contact lenses having a clinically acceptable surface wettability, such that less than five percent of the batch of silicone hydrogel contact lenses has visually identifiable non-wetting spots when located on eyes of subject;

wherein the non-wetting spots are discontinuities of the contact lens wearer's pre-lens tear film present on the anterior surface of the contact lenses, and are visually identifiable during a slit lamp examination at a total magnification from about 6× to about 70×, and

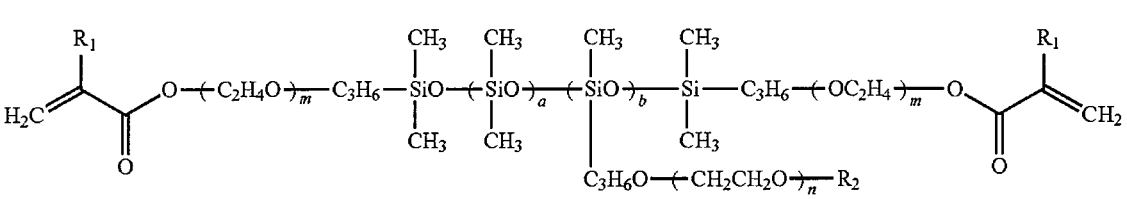
wherein a) a polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (1):

(1)



wherein m of formula (1) represents one integer from 3 to 10, n of formula (1) represents one integer from 1 to 10, R^1 of formula (1) is an alkyl group having from 1 to 4 carbon atoms, and each R^2 of formula (1) is independently either a hydrogen atom or a methyl group; and wherein the silicone hydrogel contact lenses comprise a copolymer including polymerized units of the siloxane monomer represented by formula (1), or

b) the polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (2):

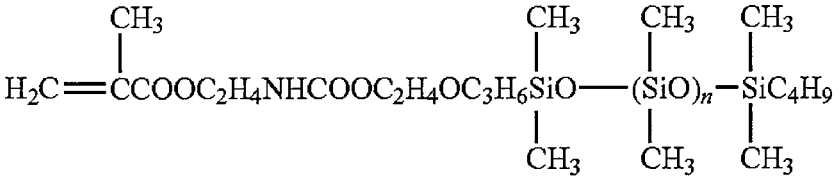


(2)

wherein R_1 of formula (2) is selected from either hydrogen atom or a methyl group; R_2 of formula (2) is selected from either of hydrogen atom or a hydrocarbon group having 1 to 4 carbon atoms; m of formula (2) represents an integer of from 0 to 10; n of formula (2) represents an integer of from 4 to 100; a and b represent integers of 1 or more; a+b is equal to 20-500; b/(a+b) is equal to 0.01-0.22; and the configuration of siloxane units includes a random configuration; and wherein the silicone hydrogel contact lenses comprise a copolymer including polymerized units of the siloxane monomer represented by formula (2), or

c) the polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (6):

(6)



wherein n is an integer from 13-16, and the molecular weight is about 1500 daltons; and wherein the silicone hydrogel contact lenses comprise a copolymer including polymerized units of the siloxane monomer represented by formula (6).

14. The batch of silicone hydrogel contact lenses of claim **13**, wherein each silicone hydrogel contact lens is a cast molded silicone hydrogel contact lens without a plasma surface treatment or a polymeric internal wetting agent provided by including a hydrophilic polymer in the polymerizable composition used to form the silicone hydrogel contact lens.

15. The batch of silicone hydrogel contact lenses of claim **13**, wherein each silicone hydrogel contact lens is a cast molded silicone hydrogel contact lens obtained from a contact lens mold assembly, the contact lens mold assembly comprising an anterior mold member and a posterior mold member, each mold member being formed from a polar resin having a polarity from about 1% to about 7%.

16. The batch of silicone hydrogel contact lenses of claim **15**, wherein the polar resin is polybutylene terephthalate (PBT).

17. The batch of silicone hydrogel contact lenses of claim **13**, wherein each contact lens comprises a polymeric component and a liquid component, the polymeric component comprising units of at least one siloxane having one or more functional acrylic groups, and units of one or more hydrophilic monomers having one or more functional non-acrylic vinyl groups.

18. The batch of silicone hydrogel contact lenses of claim **13**, wherein each contact lens has an oxygen permeability of at least 55 barrers, or an equilibrium water content from about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

19. The batch of silicone hydrogel contact lenses of claim **13**, wherein each silicone hydrogel is provided in a sterilized contact lens packaging solution, and each lens body has a wet extractable content less than 10% (wt/wt).

20. The method of claim **9**, wherein at least one of the first mold section or the second mold section comprises a polar resin having a polarity from 1% to 7%.

21. The method of claim **9**, wherein at least one of the first mold section or the second mold section comprises a polybutylene terephthalate (PBT) resin.

22. The method of claim **9**, wherein each polymerized contact lens body is obtained by polymerizing a polymerizable composition in a contact lens mold assembly using thermal radiation, or ultraviolet radiation, or both.

23. The method of claim **9**, wherein each polymerized silicone hydrogel contact lens body is obtained by polymerizing a polymerizable composition comprising a first siloxane monomer, a second siloxane monomer, at least one hydrophilic monomer, at least one hydrophobic monomer, and at least one cross-linking agent, and said polymerizable composition is free of a diluent, or free of a hydrophilic polymer, or both.

24. The method of claim **23**, wherein the polymerizable composition comprises at least one hydrophilic vinyl monomer and at least one vinyl cross-linking agent.

25. The method of claim **9**, wherein the batch of sterilized silicone hydrogel contact lenses has an average diameter that is at least 20% greater than the average diameter of the same batch of silicone hydrogel contact lens bodies prior to the washing step.

26. The method of claim **9**, wherein each of the sterilized silicone hydrogel contact lenses has an oxygen permeability of at least 55 barrers, or an equilibrium water content from about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

27. The method of claim **9**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a hydrophilic amide monomer having one N-vinyl group, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the hydrophilic amide monomer having one N-vinyl group.

28. The method of claim **9**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a vinyl-containing cross-linking agent, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the vinyl-containing cross-linking agent.

29. The method of claim **10**, wherein at least one of the first mold section or the second mold section comprises a polar resin having a polarity from 1% to 7%.

30. The method of claim **10**, wherein at least one of the first mold section or the second mold section comprises a polybutylene terephthalate (PBT) resin.

31. The method of claim **10**, wherein each polymerized contact lens body is obtained by polymerizing a polymerizable composition in a contact lens mold assembly using thermal radiation, or ultraviolet radiation, or both.

32. The method of claim **10**, wherein each polymerized silicone hydrogel contact lens body is obtained by polymerizing a polymerizable composition comprising a first siloxane monomer, a second siloxane monomer, at least one hydrophilic monomer, at least one hydrophobic monomer, and at least one cross-linking agent, and said polymerizable composition is free of a diluent, or free of a hydrophilic polymer, or both.

33. The method of claim **32**, wherein the polymerizable composition comprises at least one hydrophilic vinyl monomer and at least one vinyl cross-linking agent.

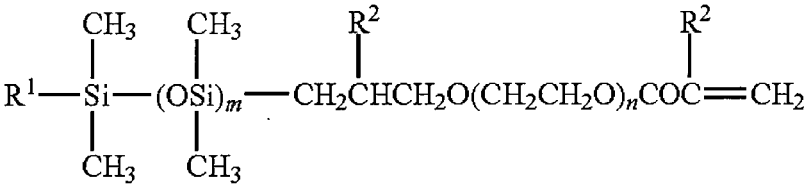
34. The method of claim **10**, wherein the batch of sterilized silicone hydrogel contact lenses has an average diameter that is at least 20% greater than the average diameter of the same batch of silicone hydrogel contact lens bodies prior to the washing step.

35. The method of claim **10**, wherein each of the sterilized silicone hydrogel contact lenses has an oxygen permeability of at least 55 barrers, or an equilibrium water content from about 30% wt/wt to about 70% wt/wt, or a tensile modulus from about 0.2 MPa to about 0.9 MPa, or any combination thereof.

36. The method of claim **10**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a hydrophilic amide monomer having one N-vinyl group, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the hydrophilic amide monomer having one N-vinyl group.

37. The method of claim **10**, wherein a polymerizable composition used to form the polymerized silicone hydrogel contact lens bodies comprises a vinyl-containing cross-linking agent, and the polymerized silicone hydrogel contact lens bodies comprise a copolymer including polymerized units of the vinyl-containing cross-linking agent.

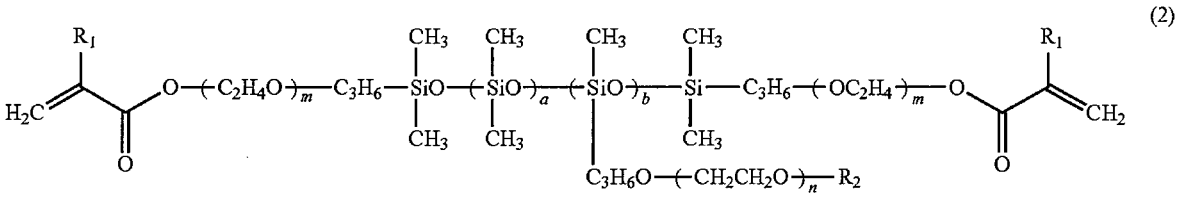
38. The batch of claim **13**, wherein the polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (1):



(1)

wherein m of formula (1) represents one integer from 3 to 10, n of formula (1) represents one integer from 1 to 10, R^1 of formula (1) is an alkyl group having from 1 to 4 carbon atoms, and each R^2 of formula (1) is independently either a hydrogen atom or a methyl group; and wherein the silicone hydrogel contact lenses comprise a copolymer including polymerized units of the siloxane monomer represented by formula (1).

39. The batch of claim **13**, wherein the polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (2):

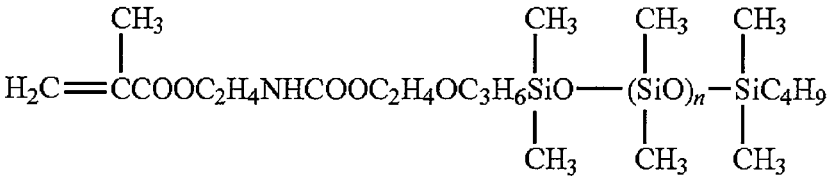


(2)

wherein R_1 of formula (2) is selected from either hydrogen atom or a methyl group; R_2 of formula (2) is selected from either of hydrogen atom or a hydrocarbon group having 1 to 4 carbon atoms; m of formula (2) represents an integer of from 0 to 10; n of formula (2) represents an integer of from 4 to 100; a and b represent integers of 1 or more; a+b is equal to 20-500; b/(a+b) is equal to 0.01-0.22; and the configuration of siloxane units includes a random configuration; and wherein the polymerized silicone hydrogel contact lenses comprise a copolymer including units of the siloxane monomer represented by formula (2).

40. The batch of claim **13**, wherein the polymerizable composition used to form the silicone hydrogel contact lenses comprises a siloxane monomer represented by formula (6):

(6)



wherein n is an integer from 13-16, and the molecular weight is about 1500 daltons; and wherein the silicone hydrogel contact lenses comprise a copolymer including polymerized units of the siloxane monomer represented by formula (6).