What is claimed is:

1. A process comprising contacting a contact lens with a solution comprising a lipid uptake reducing amount of at least one water soluble, crosslinked copolymer under contacting conditions suitable to associate said copolymer with said contact lens; wherein said cross-linked copolymer comprises a plurality of crosslinked primary polymer chains each having a degree of polymerization in the range of about 10 to about 10,000, wherein said cross-linked copolymer does not comprise repeating units comprising a carboxylic acid group bonded directly to the polymer backbone.
2. The process of claim 1 wherein said contact lens comprises a silicone hydrogel contact lens.
3. The process of claims 1 or 2 wherein said water soluble cross-linked copolymer has a cross-linker to primary polymer chain molar ratio in the range of about 0.01 to about 3.
4. The process of any preceding claim wherein said lipid uptake reducing amount is at least about 10 ppm.
5. The process of any preceding claim wherein said lipid uptake reducing amount is in the range of about 10 ppm to about 10,000 ppm.
6. The process of any preceding claim wherein the lipid uptake by the lens is no more than about 10 µg/lens.
7. The process of any preceding claim, wherein said primary polymer chains are selected from the group consisting of hydrophilic polymers and copolymers, proton donating polymers and copolymers, proton accepting polymers and copolymers, ionic polymers and copolymers, complexing polymers and copolymers, stimuli responsive polymers and copolymers and mixtures thereof.
8. The process of claim 7, wherein the proton donating polymers and copolymers comprise one or more alcohols.
9. The process of claim 7 or 8, wherein the proton accepting polymers and copolymers comprise one or more amides.
10. The process of any one of claims 7-9, wherein the ionic polymers and copolymers comprise one or more of the following: a carboxylate, a sulfonate, an ammonium salt, and a phosphonium salt.

11. The process of any one of claims 7-10, wherein the complexing polymers and copolymers comprise one or more boronic acid functionalities and/or hydroxyl functionalities.

12. The process of any one of claims 7-11, wherein the stimuli responsive polymers and copolymers comprise a polymer selected from the group consisting of temperature-responsive polymers, pH responsive polymers, electrolyte responsive polymers, light responsive polymers and mixtures thereof.

13. The process of claim 12, wherein the temperature-responsive polymer is poly(*N*-isopropylacrylamide).

14. The process of any one of claims 7 to 13 wherein the copolymers are both hydrophilic and proton donating.

15. The process of claim 14 wherein the copolymers comprise repeating units derived from the polymerization of at least one monomer selected from the group consisting of *N*-vinyl pyrrolidone, *N,N*-dimethyl acrylamide, and *N*-hydroxypropyl methacrylamide.

16. The process of any preceding claim wherein the copolymers are formed from monomers selected from the group consisting of vinyl amides, vinyl lactones, vinylimides, vinyl lactams, hydrophilic (meth)acrylates, (meth)acrylamides, and mixtures thereof.

17. The process of any preceding claim wherein said primary polymer chains are cross-linked by at least one cross-linking agent selected from the group consisting of an *N,N'*-alkylenebis(meth)acrylamide, polyalkyleneglycoldi(meth)acrylate, polyalkyleneglycoldi(meth)acrylamide, and combinations thereof.

18. The process of any preceding claimwherein said copolymer does not comprise repeating units derived from a substituted or unsubstituted acrylic acid.

19. A composition comprising a hydrophilic nanogel material comprising one or more cross-linked copolymers, wherein said copolymer comprises one or more primary polymer chain having a degree of polymerization in the range of about 10 to about 10,000, and wherein said hydrophilic nanogel material (a) associates, with a surface and (b) is free from terminal substrate associating segments.

20. The composition of claim 19 wherein said primary polymer chains independently have a degree of polymerization in the range of about 50 to about 5,000.

21. The composition of claim 19 or 20 wherein said primary polymer chains independently have a degree of polymerization in the range of about 100 to about 1000.

22. The composition of any one of claims 19 to 21 wherein said primary polymer chains independently have a degree of polymerization in the range of about 100 to about 500.

23. The composition of any one of claims 19 to 22 wherein said primary polymer chains independently have a degree of polymerization in the range of about 100 to about 300.

24. The composition of any one of claims 19- 23 wherein said hydrophilic nanogel has a cross-linker to primary polymer chain molar ratio in the range of about 0.01 to about 3.

25. The composition of any one of claims 19 to 24 wherein said primary polymer chains are cross-linked to other primary polymer chains of said hydrophilic nanogel having polydispersity indices (PDIs) of less than about 1.5.

26. The composition of claim 24 wherein said primary polymer chains are cross-linked by covalent bonding, ionic bonding, hydrogen bonding, or a combination thereof.

27. The composition of any one of claims 19 to 26, wherein said primary polymer chains are selected from the group consisting of hydrophilic polymers and copolymers, proton donating polymers and copolymers, proton accepting polymers and copolymers, ionic polymers and copolymers, complexing polymers and copolymers, stimuli responsive polymers and copolymers and mixtures thereof.

28. The composition of any one of claims 19 to 27 wherein said primary polymer chains are formed from monomers selected from the group consisting of vinyl amides, vinyl lactones, vinylimides, vinyl lactams, hydrophilic (meth)acrylates, (meth)acrylamides, and mixtures thereof.

29. The composition of any one of claims 19 to 28 wherein said primary polymer chains are cross-linked by at least one cross-linking agent selected from the group consisting of an *N,N'*-alkylenebis(meth)acrylamide, an polyalkyleneglycoldi(meth)acrylate, an polyalkyleneglycoldi(meth)acrylamide, and combinations thereof.

30. The composition of any one of claims 19 to 29 wherein the surface is a silicone hydrogel which comprises a contact angle of no more than about 50° after said surface has been treated with said hydrophilic nanogel material.

31. A process comprising:

(a) forming a reaction mixture comprising at least one hydrophilic component, at least and at least one water soluble, cross-linked copolymer comprising a plurality of primary polymer chains each having a degree of polymerization in the range of about 10 to about 10,000, and

(b) curing said reaction mixture to form a contact lens.

32. The process of claim 31 wherein said reaction mixture further comprises at least one silicone containing component.

33. The process of claim 31 or 32 wherein said reaction mixture comprises about 0.1 to about 50 wt% of the copolymer.

34. The process of any one of claims 31 to 33 wherein said reaction mixture comprises about 1 to about 20 wt% of the copolymer.

35. The process of any one of claims 31 to 34 wherein said reaction mixture comprises about 2 to about 15 wt% of the copolymer.

36. An ophthalmic device comprising a silicone-containing polymer and at least one water soluble, cross-linked copolymer comprising a plurality of primary polymer chains each having a degree of polymerization in the range of about 10 to about 10,000, wherein said copolymer is associated with at least one surface of said ophthalmic device and provides said ophthalmic device with a reduction in lipid uptake compared to the silicone-containing polymer of at least about 20%.

37. The ophthalmic device of claim 36 wherein said lipid uptake is less than about 12 µg/lens.

38. The ophthalmic device of claim 36 or 37 wherein said lipid uptake is about 10 µg/lens or less.

39. The ophthalmic device of any one of claims 36 to 38 wherein said copolymer has a cross-linker to primary polymer chain molar ratio in the range of about 0.01 to about 3.

40. The ophthalmic device of any one of claims 36 to 39 wherein said primary polymer chains independently have a degree of polymerization in the range of about 50 to about 5,000.

41. The ophthalmic device of any one of claims 36 to 40 wherein said primary polymer chains independently have a degree of polymerization in the range of about 100 to about 1000.

42. An ophthalmic solution comprising at least one water soluble, cross-linked copolymer comprising a plurality of primary polymer chains each having a degree of polymerization in the range of about 10 to about 10,000, wherein said copolymer is present in an amount effective to inhibit lipid uptake in a contact lens which is soaked in said solution and said ophthalmic solution is transparent.

43. The ophthalmic solution of claim 42 wherein said copolymer has a cross-linker to primary chain molar ratio in the range of about 0.01 to about 3.

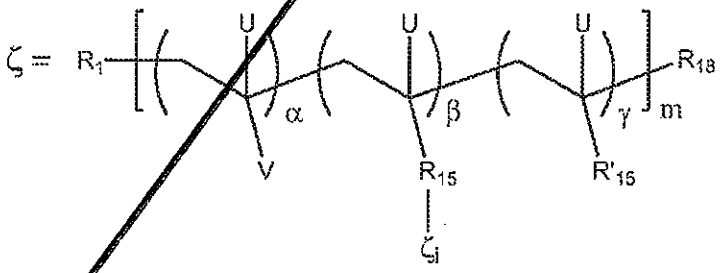
44. The ophthalmic solution of claim 42 or 43 wherein said at least one copolymer is present in an amount in the range of about 0.005 and about 2 weight %.

45. The ophthalmic solution of any one of claims 42 to 44 wherein said at least one copolymer is present in an amount in the range of about 0.01 and about 0.5 weight %.

46. The ophthalmic solution of any one of claims 42 to 45 wherein said primary polymer chains each have a degree of polymerization in the range of about 50 to about 1,000.

47. The ophthalmic solution of any one of claims 42 to46 wherein said primary polymer chains each have a degree of polymerization in the range of about 100 to about 500.

48. A composition comprising water soluble crosslinked polymers having primary chains, ζ, represented by the formula



wherein R_1 is a divalent group selected from the group consisting of optionally substituted alkylene; optionally substituted saturated, unsaturated or aromatic carbocyclic or heterocyclic rings; optionally substituted alkylthio; optionally substituted alkoxy; or optionally substituted dialkylamino;

U is independently selected from the group consisting of hydrogen, halogen, C_1-C_4 alkyl which may be optionally substituted with hydroxyl, alkoxy, aryloxy (OR"), carboxy, acyloxy, aroyloxy (O_2CR"), alkoxy-carbonyl, aryloxy-carbonyl (CO_2R") and combinations thereof.

V is independently selected from the group consisting of R", -CO_2R", -COR", -CN, -$CONH_2$, -CONHR", -CONR"$_2$, -O_2CR", -OR", cyclic and acyclic N-vinyl amides and combinations thereof;

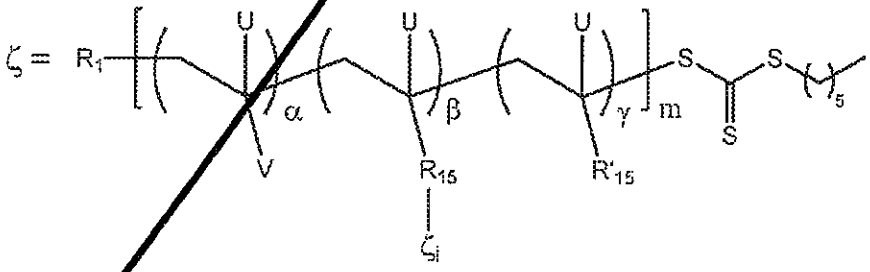
R_{15} is independently selected from the group consisting of optionally substituted C_1-C_{18} alkyl, C_2-C_{18} alkenyl, aryl, heterocyclyl, alkaryl wherein the substituents are independently selected from the group that consists of epoxy, hydroxyl, alkoxy, acyl, acyloxy, carboxy, carboxylate, sulfonic acid, and sulfonate, alkoxy- or aryloxy-carbonyl, isocyanato, cyano, silyl, halo, dialkylamino; phosphoric acids, phosphates, phosphonic acids, phosphonates and combinations thereof;

R_{15}' and R_{15} are residues of hydrophilic, free radical reactive cross-linking agents;

R_{18} is a controlled radical polymerization agent;

ζ_i is another primary chain, are mole fractions and α is equal to about 0.85 to about 0.999, β is not 0, and the mole fractions of β and γ combined are about 0.15 to about 0.001.

49. A composition comprising water soluble, crosslinked polymers having primary chains, ζ, represented by the formula



Wherein R_1, U, V, R_{15}, $R_{15'}$, α, β, γ and m are as defined in claim 48.

50. The composition of claim 48 or 49 wherein R_1 is selected from the group consisting of optionally substituted benzyl, optionally substituted phenyl, ethanoate, optionally substituted propionate, 4-cyanopentanoate, or isobutyroate functionalities.

51. The composition of any one of claims 48 to 50 wherein R_1 is selected from the group consisting of 4-cyanopentanoate, isobutanoic, or a benzylic group.

52. The composition of any one of claims 48 to 51 wherein R_1 is selected from the group consisting of a cyano-methy or cumyl group.

53. The composition of any one of claims 48 to 52 wherein R_1 is polyvalent.

54. The composition of any one of claims 48 to 53 wherein U is selected from H or methyl.

55. The composition of any one of claims 48 to 54 wherein R" is selected from the group consisting of methyl, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2CH_2CH_2OH$, $-CH_2-CO_2^-$, $-CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2CH_2CH_2-CO_2^-$, $-CH_2-SO_3^-$, $-CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2CH_2CH_2-SO_3^-$, $-(CH_3)_2-CH_2-CO_2^-$, $-(CH_3)_2-CH_2-SO_3H$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-CO_2^-$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-PO_3^{-2}$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-PO_3^{-2}$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-PO_3^{-2}$ $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-PO_3^{-2}$, and combinations thereof.

56. The composition of claim 54 wherein V is selected from the group consisting of pyrrolidonyl, piperidonyl, 2-caprolactam, 3-methyl-2- caprolactam, 3-methyl-2-piperidonyl, 4-methyl-2- piperidonyl, 4-methyl-2-caprolactam, 3-ethyl-2- pyrrolidonyl, 4,5-dimethyl-2-pyrrolidonyl, imidazolyl, *N*-*N*-dimethylamido, amido, *N,N*-bis(2-hydroxyethyl)amido, -cyano, *N*-isopropyl amido, acetate, , carboxypolyethylene glycol, *N*-(2-hydroxypropyl) amido, *N*-(2-hydroxyethyl) amido, carboxyethyl phosphorylcholine, 3-(dimethyl(4-benzyl)ammonio)propane-1-sulfonate 3-((3-amidopropyl)dimethylammonio)propane-1-sulfonate 3-((3-(carboxy)propyl)dimethylammonio)propane-1-sulfonate *N*-methylacetamide, -acetamide, *N*-methylpropionamide, *N*-methyl-2-methylpropionamide, 2-methylpropionamide, *N,N'*-dimethylurea, and the like, and mixtures thereof.

57. The composition of claim 54 or 56 wherein V is selected from the group consisting of -*N*-$(CH_3)_2$, pyrrolidonyl, $-CON(CH_3)_2$, *N*-(2-hydroxyethyl) amido or $-N(CH_3)COCH_3$.

58. The composition of any one of claims 48 to 57 wherein R_{15} and R_{15}'cross-linking agents are free of dimethylsiloxane groups.

59. The composition of any one of claims 48 to 58 wherein R_{15} and R_{15}' are polymerization residues of at least one crosslinking agent selected from the group consisting of *N,N'*-alkylenebis(meth)acrylamides; polyalkyleneglycoldi(meth)acrylates, polyalkyleneglycoldi(meth)acrylamides, triallyl cyanurate, 1,3-divinylimidazolidin-2-one, and 3,3''alkylenebis(1-vinylpyrrolidin-2-one), wherein the alkylene has 1-12 carbons, and mixtures thereof.

60. The composition of any one of claims 48 to 59 wherein R_{15} and R_{15}' are polymerization residues of at least one crosslinking agent selected from the group consisting of *N,N'*-methylenebis(meth)acrylamide; *N,N'*-ethylenebis(meth)acrylamide; *N,N'*-propylenebis(meth)acrylamide; *N,N'*-butylenebis(meth)acrylamide; *N,N'*-pentamethylenebis(meth)acrylamide; *N,N'*-hexamethylenebis(meth)acrylamide; ethylene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, tetra-ethylene glycol di(meth)acrylate; *N,N'*-(oxybis(ethane-2,1-diyl))diacrylamide *N,N'*-(((oxybis(ethane-2,1-diyl))bis(oxy))bis(ethane-2,1-diyl))diacrylamide, triallyl cyanurate, 1,3-divinylimidazolidin-2-one and mixtures thereof.

61. The composition of any one of claims 48 to 60 wherein R_{18} is a RAFT, TERP, NMP or ATRP control agent.

62. The composition of any one of claims 48 to 61 wherein α is about 0.92 to about 0.999, and the combined mole fraction of β and γ is about 0.08 to about 0.001.

63. The composition of any one of claims 48 to 62 wherein α is about 0.95 to about 0.999, and the combined mole fraction of β and γ is about 0.05 to about 0.001.

64. The composition of any one of claims 48 to 63 wherein α is about 0.97 to about 0.999, and the combined mole fraction of β and γ is about 0.025 to about 0.001.

65. The composition of any one of claims 48 to 64 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 25 to about 5,000.

66. The composition of any one of claims 48 to 65 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 1000.

67. The composition of any one of claims 48 to 66 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 500.

68. The composition of any one of claims 48 to 67 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 300.

69. The composition of any one of claims 48 to 68 wherein said water soluble, crosslinked polymer is free of substrate associative blocks.

70. The composition of claim 48 to 69 wherein said primary chain, ζ, has a PDI of less than about 1.5.

71. The composition of any one of claims 48 to 70 wherein at least about 20% of V are derived from N-(2-hydroxypropyl) (meth)acrylamide.

72. The composition of any one of claims 48 to 71 wherein V comprises repeating units derived from comonomers.

73. The composition of any one of claims 48 or 49 wherein V is substantially free of anionic groups.

74. The composition of any one of claims 48 or 49 wherein V is free of anionic groups.

75. The composition of any one of claims 72 to 74 wherein said comonomers are selected from the group consisting of hydrophilic monomers, hydrophobic monomers, anionic monomers, cationic monomers, zwitterionic monomers, stimuli responsive monomers and combinations thereof.

76. The composition of any one of claims 72 to 75 wherein said comonomers are selected from the group consisting of anionic monomers, zwitterionic monomers and combinations thereof.

77. The process of any one of claims 1 to 35 wherein said at least one water soluble, crosslinked copolymer is free of reactive groups.

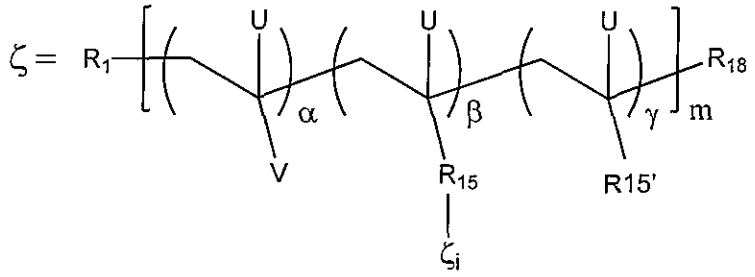
78. The composition of any one of claims claim 20 to 30 wherein said at least one water soluble, crosslinked copolymer is free of reactive groups.

79. The ophthalmic device of any one of claims 37 to 41 wherein said at least one water soluble, crosslinked copolymer is free of terminal associative segments.

80. The ophthalmic solution of any one of claims 42 to 47 wherein said at least one water soluble, crosslinked copolymer is free of terminal associative segments.

Claims

1. An ophthalmic device comprising a silicone-containing polymer and at least one water soluble, cross-linked copolymer comprising a plurality of primary polymer chains, ζ, each having a degree of polymerization in the range of about 10 to about 10,000, wherein ζ is represented by the formula



wherein R_1 is a divalent group selected from the group consisting of optionally substituted benzyl, optionally substituted phenyl, ethanoate, optionally substituted propionate, 4-cyanopentanoate, or isobutyroate functionalities;

U is independently selected from the group consisting of hydrogen, halogen, C_1-C_4 alkyl which may be optionally substituted with hydroxyl, alkoxy, aryloxy (OR"), carboxy, acyloxy, aroyloxy (O_2CR"), alkoxy-carbonyl, aryloxy-carbonyl (CO_2R") and combinations thereof.

V is independently selected from the group consisting of R", -CO_2R", -COR", -CN, -$CONH_2$, -CONHR", -$CONR"_2$, -O_2CR", -OR", cyclic and acyclic N-vinyl amides and combinations thereof;

R" is independently selected from the group consisting of optionally substituted C_1-C_{18} alkyl, C_2-C_{18} alkenyl, aryl, heterocyclyl, alkaryl wherein the substituents are independently selected from the group that consists of epoxy, hydroxyl, alkoxy, acyl, acyloxy, carboxy, carboxylate, sulfonic acid, and sulfonate, alkoxy- or aryloxy-carbonyl, isocyanato, cyano, silyl, halo, dialkylamino; phosphoric acids, phosphates, phosphonic acids, phosphonates and combinations thereof;

R_{15}' and R_{15} are residues of hydrophilic, free radical reactive cross-linking agents;R_{18} is a controlled radical polymerization agent;

ζ_t is another primary chain, are mole fractions, and α is equal to about 0.85 to about 0.999, β is not 0, and the mole fractions of β and γ combined are about 0.15 to about 0.001, and

wherein said copolymer is associated with at least one surface of said ophthalmic device and provides said ophthalmic device with a reduction in lipid uptake compared to the silicone-containing polymer of at least about 20%.

2. The ophthalmic device of claim 1 wherein said lipid uptake is less than about 12 µg/lens.

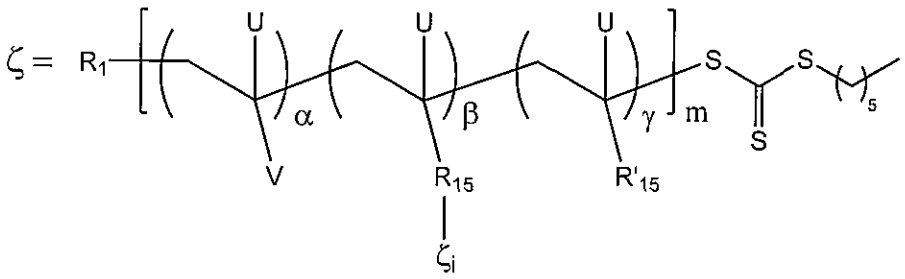
3. The ophthalmic device of claim 1 wherein said lipid uptake is about 10 µg/lens or less.

4. The ophthalmic device of claim 1 wherein said copolymer has a cross-linker to primary polymer chain molar ratio in the range of about 0.01 to about 3.

5. The ophthalmic device of claim 1 wherein said primary polymer chains independently have a degree of polymerization in the range of about 50 to about 5,000.

6. The ophthalmic device of claim 1 wherein said primary polymer chains independently have a degree of polymerization in the range of about 100 to about 1000.

7. The ophthalmic device of claim 1 wherein said water soluble, crosslinked copolymer has primary chains, ζ, represented by the formula



8. The ophthalmic device of claim 1 or 7 wherein R_1 is selected from the group consisting of 4-cyanopentanoate, isobutanoic, or a benzylic group.

9. The ophthalmic device of claim 1 or 7 wherein R_1 is selected from the group consisting of a cyano-methy or cumyl group.

10. The ophthalmic device of claim 1 or 7 wherein R_1 is polyvalent.

11. The ophthalmic device of claim 1 or 7 wherein U is selected from H or methyl.

12. The ophthalmic device of claim 1 or 7 wherein R" is selected from the group consisting of methyl, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2CH_2CH_2OH$, $-CH_2-CO_2^-$, $-CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2CH_2CH_2-CO_2^-$, $-CH_2-SO_3^-$, $-CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2CH_2CH_2-SO_3^-$, $-(CH_3)_2-CH_2-CO_2^-$, $-(CH_3)_2-CH_2-SO_3H$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-CO_2^-$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-CO_2^-$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-SO_3^-$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-PO_3^{-2}$, $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2CH_2-PO_3^{-2}$, $-CH_2CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-PO_3^{-2}$ $-CH_2CH_2-{}^+N(CH_3)_2-CH_2CH_2-PO_3^{-2}$, and combinations thereof.

13. The ophthalmic device of claim 11 wherein V is selected from the group consisting of pyrrolidonyl, piperidonyl, 2-caprolactam, 3-methyl-2- caprolactam, 3-methyl-2-piperidonyl, 4-methyl-2- piperidonyl, 4-methyl-2-caprolactam, 3-ethyl-2- pyrrolidonyl, 4,5-dimethyl-2-pyrrolidonyl, imidazolyl, *N-N*-dimethylamido, amido, *N,N*-bis(2-hydroxyethyl)amido, -cyano, *N*-isopropyl amido, acetate, , carboxypolyethylene glycol, *N*-(2-hydroxypropyl) amido, *N*-(2-hydroxyethyl)

amido, carboxyethyl phosphorylcholine, 3-(dimethyl(4-benzyl)ammonio)propane-1-sulfonate 3-((3-amidopropyl)dimethylammonio)propane-1-sulfonate 3-((3-(carboxy)propyl)dimethylammonio)propane-1-sulfonate *N*-methylacetamide, -acetamide, *N*-methylpropionamide, *N*-methyl-2-methylpropionamide, 2-methylpropionamide, *N,N'*-dimethylurea, and the like, and mixtures thereof.

14. The ophthalmic device of claim 11 wherein V is selected from the group consisting of -*N*-$(CH_3)_2$, pyrrolidonyl, -$CON(CH_3)_2$, *N*-(2-hydroxyethyl) amido or -$N(CH_3)COCH_3$.

15. The ophthalmic device of claim 1 or 7 wherein R_{15} and R_{15}'cross-linking agents are free of dimethylsiloxane groups.

16. The ophthalmic device of claim 1 or 7 wherein R_{15} and R_{15}' are polymerization residues of at least one crosslinking agent selected from the group consisting of *N,N'*-alkylenebis(meth)acrylamides; polyalkyleneglycoldi(meth)acrylates, polyalkyleneglycoldi(meth)acrylamides, triallyl cyanurate, 1,3-divinylimidazolidin-2-one, and 3,3''alkylenebis(1-vinylpyrrolidin-2-one), wherein the alkylene has 1-12 carbons, and mixtures thereof.

17. The ophthalmic device of claim 1 or 7 wherein R_{15} and R_{15}' are polymerization residues of at least one crosslinking agent selected from the group consisting of *N,N'*-methylenebis(meth)acrylamide; *N,N'*-ethylenebis(meth)acrylamide; *N,N'*-propylenebis(meth)acrylamide; *N,N'*-butylenebis(meth)acrylamide; *N,N'*-pentamethylenebis(meth)acrylamide; *N,N'*-hexamethylenebis(meth)acrylamide; ethylene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, tetra-ethylene glycol di(meth)acrylate; *N,N'*-(oxybis(ethane-2,1-diyl))diacrylamide *N,N'*-(((oxybis(ethane-2,1-diyl))bis(oxy))bis(ethane-2,1-diyl))diacrylamide, triallyl cyanurate, 1,3-divinylimidazolidin-2-one and mixtures thereof.

18. The ophthalmic device of claim 1 or 7 wherein R_{18} is a RAFT or ATRP control agent.

19. The ophthalmic device of claim 1 or 7 wherein α is about 0.92 to about 0.999, and the combined mole fraction of β and γ is about 0.08 to about 0.001.

20. The ophthalmic device of claim 1 or 7 wherein α is about 0.95 to about 0.999, and the combined mole fraction of β and γ is about 0.05 to about 0.001.

21. The ophthalmic device of claim 1 or 7 wherein α is about 0.97 to about 0.999, and the combined mole fraction of β and γ is about 0.025 to about 0.001.

22. The ophthalmic device of claim 1 or 7 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 25 to about 5,000.

23. The ophthalmic device of claim 1 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 1000.

24. The ophthalmic device of claim 1 or 7 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 500.

25. The ophthalmic device of claim 1 or 7 wherein said water soluble, crosslinked polymer has a degree of polymerization in the range of about 100 to about 300.

26. The ophthalmic device of claim 1 or 7 wherein said water soluble, crosslinked polymer is free of substrate associative blocks.

27. The ophthalmic device of claim 1 or 7 wherein said primary chain, ζ_1 has a PDI of less than about 1.5.

28. The ophthalmic device of claim 1 or 7 wherein at least about 20% of V are derived from N-(2-hydroxypropyl) (meth)acrylamide.

29. The ophthalmic device of claim 1 or 7 wherein V comprises repeating units derived from comonomers.

30. The ophthalmic device of claim 1 or 7 wherein V is substantially free of anionic groups.

31. The ophthalmic device of claim 1 or 7 wherein V is free of anionic groups.

32. The ophthalmic device of claim 29 wherein said comonomers are selected from the group consisting of hydrophilic monomers, hydrophobic monomers, anionic monomers, cationic monomers, zwitterionic monomers, stimuli responsive monomers and combinations thereof.

33. The ophthalmic device of claim 29 wherein said comonomers are selected from the group consisting of anionic monomers, zwitterionic monomers and combinations thereof.