What is claimed is:

1. A method for producing silicone hydrogel contact lenses with crosslinked hydrophilic coatings thereon, comprising the steps of:

(a) obtaining a silicone hydrogel contact lens having amino groups and/or carboxyl groups on and/or near its surface and a water-soluble and thermally-crosslinkable hydrophilic polymeric material, wherein the silicone hydrogel contact lens comprises amino groups or carboxyl groups or both on and/or near the surface of the contact lens, wherein the hydrophilic polymeric material comprises (i) from 20% to 95%, preferably from 35% to 90%, more preferably from 50% to 85%, by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine, (ii) from 5% to 80%, preferably from 10% to 65%, even more preferably from 15% to 50%, by weight of hydrophilic moieties or second polymer chains derived from at least one hydrophilicity-enhancing agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, and (iii) positively-charged azetidinium groups which are parts of the first polymer chains or pendant or terminal groups covalently attached to the first polymer chains, wherein the hydrophilic moieties or second polymer chains are covalently attached to the first polymer chains through one or more covalent linkages each formed between one azetitdinium group of the epichlorohydrin-functionalized polyamine or polyamidoamine and one amino, carboxyl or thiol group of the hydrophilicity-enhancing agent; and

(b) heating the silicone hydrogel contact lens in an aqueous solution in the presence of the hydrophilic polymeric material to and at a temperature from 40°C to 140°C for a period of time sufficient to covalently attach the hydrophilic polymeric material onto the surface of the silicone hydrogel contact lens through second covalent linkages each formed between one azetidinium group of the hydrophilic polymeric material and one of the reactive functional groups on and/or near the surface of the contact lens, thereby forming a crosslinked hydrophilic coating on the silicone hydrogel contact lens, wherein the silicone hydrogel contact lens with the crosslinked hydrophilic coating thereon has a surface wettability characterized by having an averaged water contact angle of preferably 90 degrees or less, more preferably 80 degrees or less, even more preferably 70 degrees or less, most preferably 60 degrees or less.

2. The method of claim 1, wherein the hydrophilicity-enhancing agent is a hydrophilic polymers having one or more amino, carboxyl and/or thiol groups, wherein the content of monomeric units having an amino, carboxyl or thiol group in the hydrophilic polymer

as the hydrophilicity-enhancing agent is less than 40%, preferably less than 30%, more preferably less than 20%, even more preferably less than 10%, by weight based on the total weight of the hydrophilic polymer.

3. The method of claim 1 or 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is: a polyethylene glycol having one sole amino, carboxyl or thiol group; a polyethylene glycol with two terminal amino, carboxyl and/or thiol groups; multi-arm polyethylene glycol with one or more amino, carboxyl and/or thiol groups; polyethylene glycol dendrimers with one or more amino, carboxyl and/or thiol groups.

4. The method of claim 1 or 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a copolymer which is a polymerization product of a composition comprising (1) 60% by weight or less, preferably from 0.1% to 30%, more preferably from 0.5% to 20%, even more preferably from 1% to 15%, by weight of at least one reactive vinylic monomer and (2) at least one non-reactive hydrophilic vinylic monomer and/or at least one phosphorylcholine-containing vinylic monomer; or combinations thereof;

wherein the reactive vinylic monomer is selected from the group consisting of amino–C_1-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylate, allylamine, vinylamine, amino–C_1-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta-methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof, preferably selected from the group consisting of (meth)acrylic acid, C_2-C_{12} alkylacrylic acid, vinylamine, allylamine, amino-C_2-C_4 alkyl (meth)acrylate, amino-C_2-C_4 alkyl (meth)acrylamide, and combination thereof;

wherein the non-reactive hydrophilic vinylic monomer is selected from the group consisting of acrylamide, methacrylamide, N,N-dimethylacrylamide, N,N-dimethylmethacrylamide, N-vinylpyrrolidone, N,N,-dimethylaminoethylmethacrylate, N,N-dimethylaminoethylacrylate, N,N-dimethylaminopropylmethacrylamide, N,N-dimethylaminopropylacrylamide, glycerol methacrylate, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 2-hydroxyethyl (meth)acrylate, hydroxypropyl (meth)acrylate, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide,

N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combinations thereof, preferably selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, and combination thereof.

5. The method of claim 1 or 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a monoamino-, monocarboxyl-, diamino- or dicarboxyl-terminated homo- or copolymer of a non-reactive hydrophilic vinylic monomer selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, (meth)acryloyloxyethyl phosphorylcholine, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, N-methyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, N,N-dimethylaminoethyl (meth)acrylate, N,N-dimethylaminopropyl (meth)acrylamide, and combination thereof.

6. The method of claim 1 or 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is an amino- or carboxyl-containing polysaccharide, hyaluronic acid, chondroitin sulfate, and combinations thereof.

7. The method of any one of claims 2 to 6, wherein the weight average molecular weight M_w of the hydrophilic polymer as the hydrophilicity-enhancing agent is from 500 to 1,000,000, preferably from 1,000 to 500,000.

8. The method of claim 1or 2, wherein the hydrophilicity-enhancing agent is: amino-, carboxyl- or thiol-containing monosaccharides; amino-, carboxyl- or thiol-containing disaccharides; and amino-, carboxyl- or thiol-containing oligosaccharides.

9. The method of any one of claims 1 to 8, wherein the step of heating is performed in a lens package containing the silicone hydrogel contact lens immersed in a packaging solution, more preferably by autoclaving the silicone hydrogel contact lens immersed in a packaging solution in a sealed lens package at a temperature of from 118°C to 125°C for approximately 20-90 minutes to form the crosslinked hydrophilic coating on the silicone hydrogel contact lens, wherein the packaging solution comprises at least one buffering agent in an amount sufficient to maintain a pH of from 6.0 to 8.5 and has a tonicity of from 200 to 450 milliosmol (mOsm), preferably from 250 to 350 mOsm and a viscosity of from 1 centipoise to 20 centipoises, preferably from 1.2 centipoises to 10 centipoises, more preferably from 1.5 centipoises to 5 centipoises, at 25°C.

10. The method of claim 9, wherein the packaging solution comprises from 0.01% to 2%, preferably from 0.05% to 1.5%, more preferably from 0.1% to 1%, even more preferably from 0.2% to 0.5%, by weight of the thermally-crosslinkable hydrophilic polymeric material.
11. The method of claim 9, wherein the method further comprises: before the step of heating, contacting at room temperature the silicone hydrogel contact lens with an aqueous solution of the thermally-crosslinkable hydrophilic polymeric material to form a top layer of the thermally-crosslinkable hydrophilic polymeric material on the surface of the silicone hydrogel contact lens, immersing the silicone hydrogel contact lens with the top layer of the thermally-crosslinkable hydrophilic polymeric material in the packaging solution in the lens package; and sealing the lens package.
12. The method of any one of claims 1 to 11, wherein the silicone hydrogel contact lens is made by polymerizing a silicone hydrogel lens formulation comprising from 0.1% to 10%, more preferably from 0.25% to 7%, even more preferably from 0.5% to 5%, most preferably from 0.75% to 3%, by weight of a reactive vinylic monomer selected from the group consisting of amino–C_2-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_2-C_6 alkyl (meth)acrylate, allylamine, vinylamine, amino–C_2-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_2-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof, preferably said reactive vinylic monomer being selected from the group consisting of: amino–C_2-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_2-C_6 alkyl (meth)acrylate, vinylamine, allylamine, amino–C_2-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_2-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, and combinations thereof.
13. The method of any one of claims 1-12, wherein the silicone hydrogel contact lens comprises a reactive base coating including amino and/or carboxyl groups.
14. The method of claim 13, wherein the reactive base coating comprises at least one layer of a reactive polymer having pendant amino groups and/or carboxyl groups and is obtained by contacting the silicone hydrogel contact lens with a solution of the reactive polymer, wherein the reactive polymer is: a homopolymer of amino-C_1 to C_4 alkyl (meth)acrylamide, amino-C_1 to C_4 alkyl (meth)acrylate, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylamide, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylate, allylamine, or vinylamine; polyethyleneimine; a polyvinylalcohol with pendant amino groups; a linear or branched polyacrylic acid; a homopolymer of C_1 to C_{12} alkylacrylic acid; a copolymer of amino-C_2 to C_4 alkyl (meth)acrylamide, amino-C_2 to C_4 alkyl

(meth)acrylate, C_1 to C_4 alkylamino-C_2 to C_4 alkyl (meth)acrylamide, C_1 to C_4 alkylamino-C_2 to C_4 alkyl (meth)acrylate, acrylic acid, C_1 to C_{12} alkylacrylic acid, maleic acid, and/or fumaric acid, with at least one non-reactive hydrophilic vinylic monomer (preferably selected from the group consisting of acrylamide, N,N-dimethyl (meth)acrylamide, N-vinylpyrrolidone, glycerol methacrylate, N,N-2-acrylamidoglycolic acid, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 1-n-propyl-3-methylene-2-pyrrolidone, 1-n-propyl-5-methylene-2-pyrrolidone, 1-isopropyl-3-methylene-2-pyrrolidone, 1-isopropyl-5-methylene-2-pyrrolidone, 1-n-butyl-3-methylene-2-pyrrolidone, 1-tert-butyl-3-methylene-2-pyrrolidone, 2-hydroxyethyl (meth)acrylate, hydroxypropyl (meth)acrylate, (meth)acryloyloxyethyl phosphorylcholine, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combination thereof); a carboxyl-containing cellulose; hyaluronate; chondroitin sulfate; poly(glutamic acid); poly(aspartic acid); or combinations thereof.

15. The method of claim 13, wherein the reactive polymer for forming a base coating is polyacrylic acid, polymethacrylic acid, poly(C_2-C_{12} alkylacrylic acid), poly[acrylic acid-co-methacrylic acid], poly[C_2-C_{12} alkylacrylic acid-co-(meth)acrylic acid], poly(N,N-2-acrylamidoglycolic acid), poly[(meth)acrylic acid-co-acrylamide], poly[(meth)acrylic acid-co-vinylpyrrolidone], poly[C_2-C_{12} alkylacrylic acid-co-acrylamide], poly[C_2-C_{12} alkylacrylic acid-co-vinylpyrrolidone], hydrolyzed poly[(meth)acrylic acid-co-vinylacetate], hydrolyzed poly[C_2-C_{12} alkylacrylic acid-co-vinylacetate], polyethyleneimine (PEI), polyallylamine hydrochloride (PAH) homo- or copolymer, polyvinylamine homo- or copolymer, or combinations thereof.

16. The method of claim 14 or 15, wherein the reactive polymer is dissolved in a mixture of water and one or more organic solvents, an organic solvent, or a mixture of one or more organic solvents.

17. The method of claim 13, wherein the reactive base coating on the contact lens is obtained by polymerizing at least one amino-containing or carboxyl-containing vinylic monomer under the effect of a plasma.

18. A silicone hydrogel contact lens product obtained according to the method of any one of claims 1-17, wherein the silicone hydrogel contact lens has at least one property selected from the group consisting of: an oxygen permeability of at least 40 barrers,

preferably at least 50 barrers, more preferably at least 60 barrers, even more preferably at least 70 barrers; an elastic modulus of 1.5 MPa or less, preferably 1.2 MPa or less, more preferably 1.0 or less, even more preferably from 0.3 MPa to 1.0 MPa; a water content of preferably from 18% to 70%, more preferably from 20% to 60% by weight when fully hydrated; and combinations thereof.

19. An ophthalmic lens product, which comprises a sterilized and sealed lens package, wherein the lens package comprises:

a post-autoclave lens packaging solution and a readily-usable silicone hydrogel contact lens immersed therein,

wherein the readily-usable silicone hydrogel contact lens comprises a crosslinked hydrophilic coating obtained by autoclaving an original silicone hydrogel contact lens having amino groups and/or carboxyl groups on and/or near the surface of the original silicone hydrogel contact lens in a pre-autoclave packaging solution containing a water-soluble and thermally-crosslinkable hydrophilic polymeric material,

wherein the thermally-crosslinkable hydrophilic polymeric material comprises (i) from 20% to 95%, preferably from 35% to 90%, more preferably from 50% to 85%, by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine, (ii) from 5% to 80%, preferably from 10% to 65%, even more preferably from 15% to 50%, by weight of hydrophilic moieties or second polymer chains derived from at least one hydrophilicity-enhancing agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, and (iii) azetidinium groups which are parts of the first polymer chains or pendant or terminal groups covalently attached to the first polymer chains,

wherein the thermally-crosslinkable hydrophilic polymeric material is covalently attached onto the original silicone hydrogel contact lens through first covalent linkages each formed between one amino or carboxyl group on and/or near the surface of the original silicone hydrogel contact lens and one azetidinium group of the thermally-crosslinkable hydrophilic polymeric material,

wherein the post-autoclave packaging solution comprises at least one buffering agent in an amount sufficient to maintain a pH of from 6.0 to 8.5 and has a tonicity of from 200 to 450 milliosmol (mOsm), preferably from 250 to 350 mOsm and a viscosity of from 1 centipoise to 20 centipoises, preferably from 1.2 centipoises to 10 centipoises, more preferably from 1.5 centipoises to 5 centipoises, at 25°C,

wherein the post-autoclave packaging solution comprises a polymeric wetting material which is an hydrolyzed product of the thermally-crosslinkable hydrophilic polymeric material after autoclave,

wherein the readily-usable silicone hydrogel contact lens has a surface hydrophilicity/wettability characterized by having an averaged water contact angle of 90 degrees or less, preferably 80 degrees or less, more preferably 70 degrees or less, even more preferably 60 degrees or less.

20. The ophthalmic lens product of claim 19, wherein the hydrophilicity-enhancing agent is a hydrophilic polymer having one or more amino, carboxyl and/or thiol groups, wherein the content of monomeric units having an amino, carboxyl or thiol group in the hydrophilic polymer as the hydrophilicity-enhancing agent is less than 40%, preferably less than 30%, more preferably less than 20%, even more preferably less than 10%, by weight based on the total weight of the hydrophilic polymer.

21. The ophthalmic lens product of claim 19 or 20, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is: a polyethylene glycol having one sole amino, carboxyl or thiol group; a polyethylene glycol with two terminal amino, carboxyl and/or thiol groups; multi-arm polyethylene glycol with one or more amino, carboxyl and/or thiol groups; polyethylene glycol dendrimers with one or more amino, carboxyl and/or thiol groups.

22. The ophthalmic lens product of claim 19 or 20, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a copolymer which is a polymerization product of a composition comprising (1) 60% by weight or less, preferably from 0.1% to 30%, more preferably from 0.5% to 20%, even more preferably from 1% to 15%, by weight of at least one reactive vinylic monomer and (2) at least one non-reactive hydrophilic vinylic monomer and/or at least one phosphorylcholine-containing vinylic monomer; or combinations thereof; wherein the reactive vinylic monomer is selected from the group consisting of amino–C_1-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylate, allylamine, vinylamine, amino–C_1-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta-methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof, preferably selected from the group consisting of (meth)acrylic acid, C_2-C_{12} alkylacrylic acid, vinylamine, allylamine, amino-C_2-C_4 alkyl (meth)acrylate, amino-C_2-C_4 alkyl (meth)acrylamide, and combination thereof; wherein the non-reactive hydrophilic vinylic monomer is selected from the group consisting of acrylamide, methacrylamide, N,N-dimethylacrylamide, N,N-dimethylmethacrylamide, N-vinylpyrrolidone, N,N,-dimethylaminoethylmethacrylate, N,N-dimethylaminoethylacrylate, N,N-dimethylaminopropylmethacrylamide, N,N-dimethylaminopropylacrylamide, glycerol

methacrylate, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 2-hydroxyethyl (meth)acrylate, hydroxypropyl (meth)acrylate, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combinations thereof, preferably selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, and combination thereof.

23. The ophthalmic lens product of claim 19 or 20, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a monoamino-, monocarboxyl-, diamino- or dicarboxyl-terminated homo- or copolymer of a non-reactive hydrophilic vinylic monomer selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, (meth)acryloyloxyethyl phosphorylcholine, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, N-methyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, N,N-dimethylaminoethyl (meth)acrylate, N,N-dimethylaminopropyl (metha)crylamide, and combination thereof.

24. The ophthalmic lens product of claim 19 or 20, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is an amino- or carboxyl-containing polysaccharide, hyaluronic acid, chondroitin sulfate, and combinations thereof.

25. The ophthalmic lens product of claim 19 or 20, wherein the hydrophilicity-enhancing agent is: amino-, carboxyl- or thiol-containing monosaccharides; amino-, carboxyl- or thiol-containing disaccharides; amino-, carboxyl- or thiol-containing oligosaccharides; and combinations thereof.

26. The ophthalmic lens product of any one of claims 20 to 24, wherein the weight average molecular weight M_w of the hydrophilic polymer as the hydrophilicity-enhancing agent is from 500 to 1,000,000, preferably from 1,000 to 500,000.

27. The ophthalmic lens product of any one of claims 19-26, wherein the pre-autoclave packaging solution comprises from 0.01% to 2%, preferably from 0.05% to 1.5%, more

preferably from 0.1% to 1%, even more preferably from 0.2% to 0.5%, by weight of the thermally-crosslinkable hydrophilic polymeric material.

28. The ophthalmic lens product of any one of claims 19 to 27, wherein the original silicone hydrogel contact lens is made by polymerizing a silicone hydrogel lens formulation comprising from 0.1% to 10%, more preferably from 0.25% to 7%, even more preferably from 0.5% to 5%, most preferably from 0.75% to 3%, by weight of a reactive vinylic monomer selected from the group consisting of: amino–C_1-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylate, allylamine, vinylamine, amino–C_1-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof.

29. The ophthalmic lens product of any one of claims 19-28, wherein the original silicone hydrogel contact lens comprises a reactive base coating including amino or carboxyl groups.

30. The ophthalmic lens product of claim 29, wherein the reactive base coating comprises at least one layer of a reactive polymer having pendant amino groups and/or carboxyl groups, wherein the reactive base coating is obtained by contacting the silicone hydrogel contact lens with a solution of the reactive polymer, wherein the reactive polymer is: a homopolymer of amino-C_1 to C_4 alkyl (meth)acrylamide, amino-C_1 to C_4 alkyl (meth)acrylate, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylamide, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylate, allylamine, or vinylamine; polyethyleneimine; a polyvinylalcohol with pendant amino groups; a linear or branched polyacrylic acid; a homopolymer of C_1 to C_{12} alkylacrylic acid; a copolymer of amino-C_1 to C_4 alkyl (meth)acrylamide, amino-C_1 to C_4 alkyl (meth)acrylate, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylamide, C_1 to C_4 alkylamino-C_1 to C_4 alkyl (meth)acrylate, acrylic acid, C_1 to C_{12} alkylacrylic acid, maleic acid, and/or fumaric acid, with at least one hydrophilic vinylic monomers (preferably selected from the group consisting of acrylamide, N,N-dimethyl (meth)acrylamide, N-vinylpyrrolidone, glycerol methacrylate, N,N-2-acrylamidoglycolic acid, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 1-n-propyl-3-methylene-2-pyrrolidone, 1-n-propyl-5-methylene-2-pyrrolidone, 1-isopropyl-3-methylene-2-pyrrolidone, 1-isopropyl-5-methylene-2-

pyrrolidone, 1-n-butyl-3-methylene-2-pyrrolidone, 1-tert-butyl-3-methylene-2-pyrrolidone, 2-hydroxyethyl (meth)acrylate, hydroxypropyl (meth)acrylate, a phosphorylcholine-containing vinylic monomer, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combination thereof); a carboxyl-containing cellulose; hyaluronate; chondroitin sulfate; poly(glutamic acid); poly(aspartic acid); or combinations thereof.

31. The ophthalmic lens product of claim 30, wherein the reactive polymer is dissolved in a mixture of water and one or more organic solvents, an organic solvent, or a mixture of one or more organic solvent.

32. The ophthalmic lens product of claim 31, wherein the reactive base coating on the contact lens is obtained by polymerizing at least one amino-containing or carboxyl-containing vinylic monomer under the effect of a plasma.

33. The ophthalmic lens product of any one of claims 19-32, wherein the readily usable silicone hydrogel contact lens has at least one property selected from the group consisting of: an oxygen permeability of at least 40 barrers, preferably at least 50 barrers, more preferably at least 60 barrers, even more preferably at least 70 barrers; an elastic modulus of 1.5 MPa or less, preferably 1.2 MPa or less, more preferably 1.0 or less, even more preferably from 0.3 MPa to 1.0 MPa; a water content of preferably from 18% to 70%, more preferably from 20% to 60% by weight when fully hydrated; and combinations thereof

34. A water-soluble and thermally crosslinkable hydrophilic polymeric material, comprising:
(a) from 20% to 95%, preferably from 35% to 90%, more preferably from 50% to 85%, by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine;
(b) from 5% to 80%, preferably from 10% to 65%, even more preferably from 15% to 50%, by weight of second polymer chains derived from at least one hydrophilicity-enhancing polymeric agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, wherein the second polymer chains are covalently attached to the first polymer chains through one or more covalent linkages each formed between one azetitdinium group of the epichlorohydrin-functionalized polyamine or polyamidoamine and one amino, carboxyl or thiol group of the hydrophilicity-enhancing polymeric agent; and
(c) azetidinium groups which are parts of the first polymer chains or pendant groups covalently attached to the first polymer chains.

35. The hydrophilic polymeric material of claim 34, wherein the hydrophilicity-enhancing polymeric agent is a hydrophilic polymers having one or more amino, carboxyl and/or thiol groups, wherein the content of the amino, carboxyl and/or thiol groups in the hydrophilic polymer as the hydrophilicity-enhancing agent is less than 40%, preferably less than 30%%, more preferably less than 20%, even more preferably less than 10%, by weight based on the total weight of the hydrophilic polymer.

36. The hydrophilic polymeric material of claim 34 or 35, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is: a polyethylene glycol having one sole amino, carboxyl or thiol group; a polyethylene glycol with two terminal amino, carboxyl and/or thiol groups; multi-arm polyethylene glycol with one or more amino, carboxyl and/or thiol groups; polyethylene glycol dendrimers with one or more amino, carboxyl and/or thiol groups.

37. The hydrophilic polymeric material of claim 34 or 35, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a copolymer which is a polymerization product of a composition comprising (1) 60% by weight or less, preferably from 0.1% to 30%, more preferably from 0.5% to 20%, even more preferably from 1% to 15%, by weight of at least one reactive vinylic monomer and (2) at least one non-reactive hydrophilic vinylic monomer and/or at least one phosphorylcholine-containing vinylic monomer; or combinations thereof; wherein the reactive vinylic monomer is selected from the group consisting of amino–C_1-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylate, allylamine, vinylamine, amino–C_1-C_6 alkyl (meth)acrylamide, C_1-C_6 alkylamino–C_1-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta-methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof, preferably selected from the group consisting of (meth)acrylic acid, C_2-C_{12} alkylacrylic acid, vinylamine, allylamine, amino-C_2-C_4 alkyl (meth)acrylate, amino-C_2-C_4 alkyl (meth)acrylamide, and combination thereof; wherein the non-reactive hydrophilic vinylic monomer is selected from the group consisting of acrylamide, methacrylamide, N,N-dimethylacrylamide, N,N-dimethylmethacrylamide, N-vinylpyrrolidone, N,N,-dimethylaminoethylmethacrylate, N,N-dimethylaminoethylacrylate, N,N-dimethylaminopropylmethacrylamide, N,N-dimethylaminopropylacrylamide, glycerol methacrylate, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 2-

hydroxyethyl (meth)acrylate, hydroxypropyl (meth)acrylate, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combinations thereof, preferably selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, and combination thereof.

38. The hydrophilic polymeric material of claim 34 or 35, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a monoamino-, monocarboxyl-, diamino- or dicarboxyl-terminated homo- or copolymer of a non-reactive hydrophilic vinylic monomer selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl (meth)acrylate, N-hydroxyethyl (meth)acrylamide, (meth)acryloyloxyethyl phosphorylcholine, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, N-methyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, N,N-dimethylaminoethyl (meth)acrylate, N,N-dimethylaminopropyl (metha)crylamide, and combination thereof.

What is claimed is:

1. A method for producing silicone hydrogel contact lenses with crosslinked hydrophilic coatings thereon, comprising the steps of:

(a) obtaining a silicone hydrogel contact lens having amino groups and/or carboxyl groups on and/or near its surface and a water-soluble and thermally-crosslinkable hydrophilic polymeric material, wherein the silicone hydrogel contact lens comprises amino groups or carboxyl groups or both on and/or near the surface of the contact lens, wherein the hydrophilic polymeric material comprises (i) from about 20% to about 95% by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine, (ii) from about 5% to about 80% by weight of hydrophilic moieties or second polymer chains derived from at least one hydrophilicity-enhancing agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, and (iii) positively-charged azetidinium groups which are parts of the first polymer chains or pendant or terminal groups covalently attached to the first polymer chains, wherein the hydrophilic moieties or second polymer chains are covalently attached to the first polymer chains through one or more covalent linkages each formed between one azetitdinium group of the epichlorohydrin-functionalized polyamine or polyamidoamine and one amino, carboxyl or thiol group of the hydrophilicity-enhancing agent; and

(b) heating the silicone hydrogel contact lens in an aqueous solution in the presence of the hydrophilic polymeric material to and at a temperature from about 40° C. to about 140° C. for a period of time sufficient to covalently attach the hydrophilic polymeric material onto the surface of the silicone hydrogel contact lens through second covalent linkages each formed between one azetidinium group of the hydrophilic polymeric material and one of the reactive functional groups on and/or near the surface of the contact lens, thereby forming a crosslinked hydrophilic coating on the silicone hydrogel contact lens, wherein the silicone hydrogel contact lens with the crosslinked hydrophilic coating thereon has a surface wettability characterized by having an averaged water contact angle of about 90 degrees or less.

2. The method of claim 1, wherein the hydrophilicity-enhancing agent is a hydrophilic polymers having one or more amino, carboxyl and/or thiol groups, wherein the content of monomeric units having an amino, carboxyl or thiol group in the hydrophilic polymer as the hydrophilicity-enhancing agent is less than about 40% by weight based on the total weight of the hydrophilic polymer.

3. The method of claim 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is: a polyethylene glycol having one sole amino, carboxyl or thiol group; a polyethylene glycol with two terminal amino, carboxyl and/or thiol groups; multi-arm polyethylene glycol with one or more amino, carboxyl and/or thiol groups; polyethylene glycol dendrimers with one or more amino, carboxyl and/or thiol groups.

4. The method of claim 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a copolymer which is a polymerization product of a composition comprising (1) about 60% by weight or less by weight of at least one reactive vinylic monomer and (2) at least one non-reactive hydrophilic vinylic monomer and/or at least one phosphorylcholine-containing vinylic monomer; or combinations thereof;

wherein the reactive vinylic monomer is selected from the group consisting of amino-C_1-C_6 alkyl(meth)acrylate, C_1-C_6 alkylamino-C_1-C_6 alkyl(meth)acrylate, allylamine, vinylamine, amino-C_1-C_6 alkyl(meth)acrylamide, C_1-C_6 alkylamino-C_1-C_6 alkyl (meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta-methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof;

wherein the non-reactive hydrophilic vinylic monomer is selected from the group consisting of acrylamide, methacrylamide, N,N-dimethylacrylamide, N,N-dimethylmethacrylamide, N-vinylpyrrolidone, N,N,-dimethylaminoethylmethacrylate, N,N-dimethylaminoethylacrylate, N,N-dimethylaminopropylmethacrylamide, N,N-dimethylaminopropylacrylamide, glycerol methacrylate, 3-acryloylamino-1-propanol, N-hydroxyethyl acrylamide, N-[tris(hydroxymethyl)methyl]-acrylamide, N-methyl-3-methylene-2-pyrrolidone, 1-ethyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 1-ethyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, 5-ethyl-3-methylene-2-pyrrolidone, 2-hydroxyethyl(meth)acrylate, hydroxypropyl (meth)acrylate, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 1500 Daltons, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, allyl alcohol, vinyl alcohol (hydrolyzed form of vinyl acetate in the copolymer), and combinations thereof.

5. The method of claim 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is a monoamino-, monocarboxyl-, diamino- or dicarboxyl-terminated homo- or copolymer of a non-reactive hydrophilic vinylic monomer selected from the group consisting of acryamide, N,N-dimethylacrylamide, N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, glycerol (meth)acrylate, hydroxyethyl(meth) acrylate, N-hydroxyethyl (meth)acrylamide, (meth)acryloyloxyethyl phosphorylcholine, C_1-C_4-alkoxy polyethylene glycol (meth)acrylate having a weight average molecular weight of up to 400 Daltons, vinyl alcohol, N-methyl-3-methylene-2-pyrrolidone, 1-methyl-5-methylene-2-pyrrolidone, 5-methyl-3-methylene-2-pyrrolidone, N,N-dimethylaminoethyl(meth)acrylate, N,N-dimethylaminopropyl (metha)crylamide, and combination thereof.

6. The method of claim 2, wherein the hydrophilic polymer as the hydrophilicity-enhancing agent is an amino- or carboxyl-containing polysaccharide, hyaluronic acid, chondroitin sulfate, and combinations thereof.

7. The method of claim 2, wherein the weight average molecular weight M_w of the hydrophilic polymer as the hydrophilicity-enhancing agent is from about 500 to about 1,000,000.

8. The method of claim 2, wherein the hydrophilicity-enhancing agent is: amino-, carboxyl- or thiol-containing monosaccharides; amino-, carboxyl- or thiol-containing disaccharides; and amino-, carboxyl- or thiol-containing oligosaccharides.

9. The method of claim 2, wherein the step of heating is performed by autoclaving the silicone hydrogel contact lens immersed in a packaging solution in a sealed lens package at a temperature of from about 118° C. to about 125° C. for approximately 20-90 minutes to form the crosslinked hydrophilic coating on the silicone hydrogel contact lens, wherein the packaging solution comprises at least one buffering agent in an amount sufficient to maintain a pH of from about 6.0 to about 8.5 and has a tonicity of from about 200 to about 450 milliosmol (mOsm) and a viscosity of from about 1 centipoise to about 20 centipoises at 25° C.

10. The method of claim 9, wherein the packaging solution comprises from about 0.01% to about 2% by weight of the thermally-crosslinkable hydrophilic polymeric material.

11. The method of claim 9, wherein the method further comprises: before the step of heating, contacting at room temperature the silicone hydrogel contact lens with an aqueous solution of the thermally-crosslinkable hydrophilic polymeric material to form a top layer of the thermally-crosslinkable hydrophilic polymeric material on the surface of the silicone hydrogel contact lens, immersing the silicone hydrogel contact lens with the top layer of the thermally-crosslinkable hydrophilic polymeric material in the packaging solution in the lens package; and sealing the lens package.

12. The method of claim 9, wherein the silicone hydrogel contact lens is made by polymerizing a silicone hydrogel lens formulation comprising from about 0.1% to about 10% by weight of a reactive vinylic monomer selected from the group consisting of amino-C_2-C_6 alkyl (meth)acrylate, C_1-C_6 alkylamino-C_2-C_6 alkyl(meth)acrylate, allylamine, vinylamine, amino-C_2-C_6 alkyl(meth)acrylamide, C_1-C_6 alkylamino-C_2-C_6 alkyl(meth)acrylamide, acrylic acid, C_1-C_{12} alkylacrylic acid, N,N-2-acrylamidoglycolic acid, beta methyl-acrylic acid, alpha-phenyl acrylic acid, beta-acryloxy propionic acid, sorbic acid, angelic acid, cinnamic acid, 1-carobxy-4-phenyl butadiene-1,3, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxy ethylene, and combinations thereof.

13. The method of claim 12, wherein the silicone hydrogel contact lens comprises a reactive base coating including amino and/or carboxyl groups.

14. The method of claim **13**, wherein the reactive base coating comprises at least one layer of a reactive polymer having pendant amino groups and/or carboxyl groups and is obtained by contacting the silicone hydrogel contact lens with a solution of the reactive polymer, wherein the reactive polymer is: a homopolymer of amino-C_1 to C_4 alkyl(meth)acrylamide, amino-C_1 to C_4 alkyl(meth)acrylate, C_1 to C_4 alkylamino-C_1 to C_4 alkyl(meth)acrylamide, C_1 to C_4 alkylamino-C_1 to C_4 alkyl(meth)acrylate, allylamine, or vinylamine; polyethyleneimine; a polyvinylalcohol with pendant amino groups; a linear or branched polyacrylic acid; a homopolymer of C_1 to C_{12} alkylacrylic acid; a copolymer of amino-C_2 to C_4 alkyl(meth)acrylamide, amino-C_2 to C_4 alkyl(meth)acrylate, C_1 to C_4 alkylamino-C_2 to C_4 alkyl(meth)acrylamide, C_1 to C_4 alkylamino-C_2 to C_4 alkyl(meth)acrylate, acrylic acid, C_1 to C_{12} alkylacrylic acid, maleic acid, and/or fumaric acid, with at least one non-reactive hydrophilic vinylic monomer; a carboxyl-containing cellulose; hyaluronate; chondroitin sulfate; poly(glutamic acid); poly(aspartic acid); or combinations thereof.

15. The method of claim **13**, wherein the reactive polymer for forming a base coating is polyacrylic acid, polymethacrylic acid, poly(C_2-C_{12} alkylacrylic acid), poly [acrylic acid-co-methacrylic acid], poly[C_2-C_{12} alkylacrylic acid-co-(meth)acrylic acid], poly(N,N-2-acrylamidoglycolic acid), poly[(meth)acrylic acid-co-acrylamide], poly[(meth) acrylic acid-co-vinylpyrrolidone], poly[C_2-C_{12} alkylacrylic acid-co-acrylamide], poly[C_2-C_{12} alkylacrylic acid-co-vinylpyrrolidone], hydrolyzed poly[(meth)acrylic acid-co-vinylacetate], hydrolyzed poly[C_2-C_{12} alkylacrylic acid-co-vinylacetate], polyethyleneimine (PEI), polyallylamine hydrochloride (PAH) homo- or copolymer, polyvinylamine homo- or copolymer, or combinations thereof.

16. The method of claim **15**, wherein the reactive polymer is dissolved in a mixture of water and one or more organic solvents, an organic solvent, or a mixture of one or more organic solvents.

17. The method of claim **13**, wherein the reactive base coating on the contact lens is obtained by polymerizing at least one amino-containing or carboxyl-containing vinylic monomer under the effect of a plasma.

18. A silicone hydrogel contact lens product obtained according to a method of claim **16**, wherein the silicone

hydrogel contact lens has at least one property selected from the group consisting of: an oxygen permeability of at least about 40 barrers; an elastic modulus of about 1.5 MPa or less; an Ionoflux Diffusion Coefficient, D, of, at least about 1.5×10^{-6} mm^2/min; a water content of preferably from about 18% to about 70% by weight when fully hydrated; and combinations thereof.

19. An ophthalmic lens product, which comprises a sterilized and sealed lens package,

wherein the lens package comprises:

a post-autoclave lens packaging solution and a readily-usable silicone hydrogel contact lens immersed therein,

wherein the readily-usable silicone hydrogel contact lens comprises a crosslinked hydrophilic coating obtained by autoclaving an original silicone hydrogel contact lens having amino groups and/or carboxyl groups on and/or near the surface of the original silicone hydrogel contact lens in a pre-autoclave packaging solution containing a water-soluble and thermally-crosslinkable hydrophilic polymeric material,

wherein the thermally-crosslinkable hydrophilic polymeric material comprises (i) from about 20% to about 95% by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine, (ii) from about 5% to about 80% by weight of hydrophilic moieties or second polymer chains derived from at least one hydrophilicity-enhancing agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, and (iii) azetidinium groups which are parts of the first polymer chains or pendant or terminal groups covalently attached to the first polymer chains,

wherein the thermally-crosslinkable hydrophilic polymeric material is covalently attached onto the original silicone hydrogel contact lens through first covalent linkages each formed between one amino or carboxyl group on and/or near the surface of the original silicone

hydrogel contact lens and one azetidinium group of the thermally-crosslinkable hydrophilic polymeric material,

wherein the post-autoclave packaging solution comprises at least one buffering agent in an amount sufficient to maintain a pH of from about 6.0 to about 8.5 and has a tonicity of from about 200 to about 450 milliosmol, and a viscosity of from about 1 centipoise to about 20 centipoises at 25° C.,

wherein the post-autoclave packaging solution comprises a polymeric wetting material which is an hydrolyzed product of the thermally-crosslinkable hydrophilic polymeric material after autoclave,

wherein the readily-usable silicone hydrogel contact lens has a surface hydrophilicity/wettability characterized by having an averaged water contact angle of about 90 degrees or less.

20. A water-soluble and thermally-crosslinkable hydrophilic polymeric material, comprising:

(a) from about 20% to about 95% by weight of first polymer chains derived from an epichlorohydrin-functionalized polyamine or polyamidoamine;

(b) from about 5% to about 80% by weight of second polymer chains derived from at least one hydrophilicity-enhancing polymeric agent having at least one reactive functional group selected from the group consisting of amino group, carboxyl group, thiol group, and combination thereof, wherein the second polymer chains are covalently attached to the first polymer chains through one or more covalent linkages each formed between one azetitdinium group of the epichlorohydrin-functionalized polyamine or polyamidoamine and one amino, carboxyl or thiol group of the hydrophilicity-enhancing polymeric agent; and

(c) azetidinium groups which are parts of the first polymer chains or pendant groups covalently attached to the first polymer chains.