What is claimed is:

1. A method for producing coated SiHy contact lenses each having a hydrogel coating thereon, comprising the steps of:

(1) obtaining a preformed SiHy contact lens comprising a silicone hydrogel material as lens bulk material;

(2) forming a base coating on the preformed SiHy contact lens according to a solution-coating procedure to form a treated SiHy contact lens having the base coating thereon, wherein the solution-coating procedure comprises the sub-steps of

(a) contacting the preformed SiHy contact lens with a first coating solution for a first coating period of time, wherein the first coating solution has a first pH and comprises from about 0.001% to about 5.0% by weight of a first polyanionic polymer,

(b) rinsing the preformed SiHy contact lens obtained in sub-step (a) with a first buffered saline having a second pH for a first rinsing period of time,

(c) optionally rinsing the preformed SiHy contact lens obtained in sub-step (b) with water, one or more organic solvent miscible with water, or a mixture thereof for a second rinsing period of time,

(d) contacting the preformed SiHy contact lens obtained in sub-step (b) or (c) with a second coating solution for a second coating period of time, wherein the second coating solution has a third pH and comprises from about 0.001% to about 5.0% by weight of a second polyanionic polymer,

(e) rinsing the preformed SiHy contact lens obtained in sub-step (d) with a second buffered saline having a fourth pH for a third rinsing period of time, and

(f) optionally rinsing the preformed SiHy contact lens obtained in sub-step (e) with water, one or more organic solvent miscible with water, or a mixture thereof for a fourth rinsing period of time,

wherein the first and second polyanionic polymer independent of each other are a homo- or copolymer of acrylic acid or C_1-C_3 alkylacrylic acid, wherein the first pH and the third pH independent of each other are from 0 to about 4.5, wherein the second pH and the fourth pH independent of each other are from about 6.5 to about 10; and

(3) heating the treated SiHy contact lens having the base coating thereon in an aqueous solution having a pH of from about 6.5 to about 9.5 and including a water-soluble, thermally-crosslinkable hydrophilic polymeric material at a temperature from about 60°C to about 140°C to form a coated SiHy contact lens have a hydrogel coating thereon, wherein the

hydrogel coating is covalently attached onto the base coating and is intact and durable, wherein the durability of the hydrogel coating is independent of the optical power or the center thickness of the preformed SiHy contact lens.

2. The method of claim 1, wherein the coated SiHy contact lens having the hydrogel coating thereon passes Sudan Black staining test after being subjected to 30 cycles of digital rubbing treatment, wherein the first and second polyanionic polymers independent of each other are polyacrylic acid, polymethacrylic acid, poly(ethylacrylic acid), poly(propyacrylic acid), poly(acrylic acid-co-methacrylic acid), poly(acrylic acid-co-ethylacrylic acid), poly(acrylic acid-co-propylacrylic acid), poly[ethylacrylic acid-co-(meth)acrylic acid], poly[propylacrylic acid-co-(meth)acrylic acid], poly[ethylacrylic acid-co-propylacrylic acid], or mixtures thereof, wherein the first and second polyanionic polymers independent of each other have a weight average molecular weight of from about 50,000 to about 10,000,000 Daltons.
3. The method of claim 2, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of any organic solvent, wherein the solution-coating procedure is free of sub-step (c), sub-step (f), or both.
4. The method of claim 2, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of water, wherein the solution-coating procedure is free of sub-step (c), sub-step (f), or both.
5. The method of claim 2, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of any organic solvent, wherein the solution-coating procedure comprises sub-step (c), sub-step (f), or both.
6. The method of claim 2, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of water, wherein the solution-coating procedure comprises sub-step (c), sub-step (f), or both.
7. The method of claim 3, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
8. The method of claim 4, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
9. The method of claim 5, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing

periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.

10. The method of claim 6, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
11. The method of claim 1, wherein the coated SiHy contact lens having the hydrogel coating thereon passes Sudan Black staining test after simulated abrasion cycling treatment, wherein the first and second polyanionic polymers independent of each other are polyacrylic acid, polymethacrylic acid, poly(ethylacrylic acid), poly(propyacrylic acid), poly(acrylic acid-co-methacrylic acid), poly(acrylic acid-co-ethylacrylic acid), poly(acrylic acid-co-propylacrylic acid), poly[ethylacrylic acid-co-(meth)acrylic acid], poly[propylacrylic acid-co-(meth)acrylic acid], poly[ethylacrylic acid-co-propylacrylic acid], or mixtures thereof, wherein the first and second polyanionic polymers independent of each other have a weight average molecular weight of from about 50,000 to about 10,000,000 Daltons.
12. The method of claim 11, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of any organic solvent, wherein the solution-coating procedure is free of sub-step (c), sub-step (f), or both.
13. The method of claim 11, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of water, wherein the solution-coating procedure is free of sub-step (c), sub-step (f), or both.
14. The method of claim 11, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of any organic solvent, wherein the solution-coating procedure comprises sub-step (c), sub-step (f), or both.
15. The method of claim 11, wherein the first and second coating solutions independent of each other comprises about 50% or less by weight of water, wherein the solution-coating procedure comprises sub-step (c), sub-step (f), or both.
16. The method of claim 12, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
17. The method of claim 13, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes,

wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.

18. The method of claim 14, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
19. The method of claim 15, wherein the first and second coating periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the first and second rinsing periods of time independent of each other are from about 5 minutes to about 240 minutes, wherein the aqueous solution in step (3) has a pH of from about 6.8 to about 9.0.
20. The method of claim 2, wherein the aqueous solution in step (3) is a lens packaging solution, wherein the step of heating is performed by autoclaving the treated silicone hydrogel contact lens immersed in the lens packaging solution in a sealed lens package at a temperature of from about 115°C to about 125°C for from about 20 to 90 minutes, wherein the thermally-crosslinkable hydrophilic polymeric material is a partially-crosslinked polymeric material that comprises a three-dimensional network and thermally-crosslinkable groups within the network or being attached to the network, wherein the thermally-crosslinkable hydrophilic polymeric material comprises azetidinium groups and is a partial reaction product of at least one azetidinium-containing polymer with at least one hydrophilicity-enhancing agent having at least one carboxyl, primary amine, secondary amine, or thiol group.