What is claimed is:

1. A method for producing silicone hydrogel contact lenses, comprising the steps of:
   (1) obtaining a polymerizable composition which is clear at room temperature, wherein the polymerizable composition comprises
      (a) at least one siloxane-containing vinylic monomer,
      (b) at least one polysiloxane vinylic crosslinker,
      (c) from about 15% to about 55% by weight of at least one hydrophilic (meth)acrylamido monomer having 3 to 8 carbon atoms,
      (d) from 0 to about 25% by weight of an organic solvent having relative to the total weight of the polymerizable composition, wherein the organic solvent has 2 to 8 carbon atoms,
      (e) at least one thermal free radical initiator, and
      (f) at least one radical scavenger present in an amount for providing the polymerizable composition with a bi-phase curing profile determined by using thermal DSC to polymerization kinetics of the polymerizable composition at a curing temperature of from about 45^{o}C to about 100^{o}C as function of time;
   (2) introducing the polymerizable composition into a lens mold, wherein the lens mold comprises a male mold half having a first molding surface and a female mold half having a second molding surface, wherein the male and female mold halves are configured to receive each other such that a mold cavity is formed between the first and second molding surfaces when the mold is closed;
   (3) curing thermally the polymerizable composition in the lens mold in an oven at the curing temperature for at least 30 minutes to form an unprocessed silicone hydrogel lens contact lens;
   (4) separating the lens mold the male and female mold halves, with the unprocessed silicone hydrogel contact lens being adhered on a lens-adhered mold half which is one of the male and female mold halves; and
   (5) removing the unprocessed silicone hydrogel contact lens from the lens-adhered mold half.

2. The method of claim 1, wherein at least one hydrophilic (meth)acrylamido monomer is (meth)acrylamide, N-methyl (meth)acrylamide, N,N-dimethyl (meth)acrylamide, N-ethyl (meth)acrylamide, N,N-diethyl (meth)acrylamide, N-propyl (meth)acrylamide, N-isopropylacrylamide, N-3-methoxypropyl (meth)acrylamide, N-tert-butylacrylamide, N-2-hydroxyethyl (meth)acrylamide, N,N-bis(2-hydroxyethyl) (meth)acrylamide, N-2-hydroxypropyl (meth)acrylamide, N-3-hydroxypropyl (meth)acrylamide, N-2,3-

dihydroxypropyl (meth)acrylamide, *N*-[tris(hydroxymethyl)methyl]-acrylamide, N-2-aminoethyl (meth)acrylamide, N-2-methylaminoethyl (meth)acrylamide, N-2-ethylaminoethyl (meth)acrylamide, N-2-dimethylaminoethyl (meth)acrylamide, N-3-aminopropyl (meth)acrylamide, N-3-methylaminopropyl (meth)acrylamide, N-3-dimethylaminopropyl acrylamide, 2-(meth)acrylamidoglycolic acid, or a combination thereof.

3. The method of claim ~~1 or~~ 2, wherein the organic solvent is ethanol, 1-propanol, isopropanol, 1-butanol, sec-butanol, isobutanol, tert-butyl alcohol, 1-pentanol, 2-pentanol, 3-pentanol, 3-methyl-2-butanol, 2-methyl-1-butanol, 2,2-dimethyl-1-propanol, tert-amyl alcohol, 1-methoxy-2-propanol, 3-ethoxy-1-propanol, 1-ethoxy-2-propanol, or a combination thereof.
4. The method of ~~any one of claims 1 to~~claim 3, wherein the radical scavenger is a N-oxyl or nitroxide compound, a quinone methide, a nitroso compound, phenothiazine, phenols, or a naturally-occurring antioxidant free-radical scavenger.
5. The method of ~~any one of claims 1 to~~claim 4, wherein the polymerizable composition in the lens mold is thermally cured in the oven at the curing temperature under a nitrogen environment, wherein the nitrogen environment in the oven is maintained by flowing nitrogen gas through the oven at a first flow rate.
6. The method of ~~any one of claims 1 to~~claim 5, wherein the organic solvent has a boiling point of lower than 105°C, wherein the method further comprises, between steps (3) and (4), the steps of: raising oven temperature to a post-curing temperature of about 110°C or higher while increasing the flow rate of nitrogen gas through the oven to a second flow rate which is at least about 2.0 folds of the first flow rate; and heating the lens mold with the unprocessed silicone hydrogel contact lens therewithin in the oven at the post-curing temperature under nitrogen gas flow through the oven at the second flow rate for at least about 30 minutes.
7. The method of ~~any one of claims 1 to~~claim 6, wherein the lens mold with the unprocessed silicone hydrogel contact lens therewithin is heated in the oven at the post-curing temperature for at least about 60 minutes.
8. The method of ~~any one of claims 1 to~~claim 7, wherein the sum of the amounts of components (a) to (d) is at least about 90% by weight relative to the total weight of the polymerizable composition.
9. The method of ~~any one of claims 1 to~~claim 8, wherein the step (5) of removing is performed, before the unprocessed silicone hydrogel contact lens is contact with water or any liquid, by (a) bring a ultrasonic horn in direct contact with at least one area of a non-optical surface of the lens-adhered mold half having the unprocessed

silicone hydrogel lens precursor attached thereon and (b) applying a ultrasonic vibrational energy of from about 0.2 to about 18 J to the at least one area of the non-optical surface of the lens-adhered mold half having the unprocessed silicone hydrogel contact lens adhered thereon so as to remove the unprocessed silicone hydrogel contact lens from the lens-adhered mold half.

10. The method of claim 9, wherein the ultrasonic horn has a convex surface which is in contact with the lens-adhered mold half.
11. The method of claim 9, wherein the ultrasonic horn has a concave surface which is in contact with the lens-adhered mold half.
12. The method of claim 9, wherein the ultrasonic horn has a flat surface which is in contact with the lens-adhered mold half.
13. The method of ~~any one of claims 9 to 12~~claim 9, further comprising a step of subjecting the unprocessed silicone hydrogel contact lens obtained in step (5) to one or more post-molding processes selected from the group consisting of extraction, hydration, surface treatment, packaging, sterilization, and combinations thereof.
14. The method of ~~any one of claims 1 to 13~~claim 9, wherein the polymerizable composition further comprises about 10% or less by weight of one or more polymerizable components selected from the group consisting of an N-vinyl amide monomer, a hydrophilic (meth)acryloxy monomer, a hydrophobic acrylic monomer capable of forming a homopolymer with a T_g of at least about 60°C, a non-silicone vinylic crosslinker, and combinations thereof, relative to the total weight of the polymerizable composition,

wherein the N-vinyl amide monomer is selected from the group consisting of N-vinylpyrrolidone, N-vinyl piperidone, N-vinyl caprolactam, N-vinyl-N-methyl acetamide, N-vinyl formamide, N-vinyl acetamide, N-vinyl isopropylamide, N-vinyl-N-methyl acetamide, N-vinyl-N-ethyl acetamide, N-vinyl-N-ethyl formamide, and mixtures thereof~~. Preferably, the N-vinyl amide monomer is N-vinylpyrrolidone, N-vinyl-N-methyl acetamide, and combinations thereof,~~,

wherein the hydrophilic (meth)acryloxy monomer is selected from the group consisting of 2-hydroxyethyl (meth)acrylate, 3-hydroxypropyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate, glycerol methacrylate (GMA), di(ethylene glycol) (meth)acrylate, tri(ethylene glycol) (meth)acrylate, tetra(ethylene glycol) (meth)acrylate,

poly(ethylene glycol) (meth)acrylate having a number average molecular weight of up to 1500, ethylene glycol methyl ether (meth)acrylate, di(ethylene glycol) methyl ether (meth)acrylate, tri(ethylene glycol) methyl ether (meth)acrylate, tetra(ethylene glycol) methyl ether (meth)acrylate, C_1-C_4-alkoxy poly(ethylene glycol) (meth)acrylate having a weight average molecular weight of up to 1500, (meth)acrylic acid, ethylacrylic acid, 2-aminoethyl (meth)acrylate, 2-methylaminoethyl (meth)acrylate, 2-ethylaminoethyl (meth)acrylate, 3-aminopropyl (meth)acrylate, 3-methylaminopropyl (meth)acrylate, 3-ethylaminopropyl (meth)acrylate, 3-amino-2-hydroxypropyl (meth)acrylate, trimethylammonium 2-hydroxy propyl (meth)acrylate hydrochloride, dimethylaminoethyl (meth)acrylate, and combinations thereof, wherein the hydrophobic acrylic monomer is selected from the group consisting of methyl methacrylate, ethyl methacrylate, isopropyl methacrylate, sec-butyl methacrylate, tert-butyl methacrylate, cyclohexyl methacrylate, isobornyl acrylate, isobornyl methacrylate, phenyl methacrylate, 4-tert-butylstyrene, 2-methylstyrene, styrene, 4-ethoxystyrene, 2,4-dimethystyrene, 2,5-dimethylstyrene, 3,5-dimethylstyrene, and combinations thereof.

15. The method of ~~any one of claims 1 to~~claim 14, wherein the polymerizable composition comprises from about 1.5% or less by weight of the non-silicone vinylic crosslinker relative to the total weight of all polymerizable components in the polymerizable composition, wherein the non-silicone vinylic crosslinker is ethyleneglycol di-(meth)acrylate, diethyleneglycol di-(meth)acrylate, triethyleneglycol di-(meth)acrylate, tetraethyleneglycol di-(meth)acrylate, glycerol di-(meth)acrylate, 1,3-propanediol di-(meth)acrylate, 1,3-butanediol di-(meth)acrylate, 1,4-butanediol di-(meth)acrylate, glycerol 1,3-diglycerolate di-(meth)acrylate, ethylenebis[oxy(2-hydroxypropane-1,3-diyl)] di-(meth)acrylate, bis[2-(meth)acryloxyethyl] phosphate, trimethylolpropane di-(meth)acrylate, and 3,4-bis[(meth)acryloyl]tetrahydrofuan, diacrylamide (i.e., N-(1-oxo-2-propenyl)-2-propenamide), dimethacrylamide (i.e., N-(1-oxo-2-methyl-2-propenyl)-2-methyl-2-propenamide), N,N-di(meth)acryloyl-N-methylamine, N,N-di(meth)acryloyl-N-ethylamine, N,N'-methylene bis(meth)acrylamide, N,N'-ethylene bis(meth)acrylamide, N,N'-dihydroxyethylene bis(meth)acrylamide, N,N'-propylene bis(meth)acrylamide, N,N'-2-hydroxypropylene bis(meth)acrylamide, N,N'-2,3-dihydroxybutylene bis(meth)acrylamide, 1,3-bis(meth)acrylamide-propane-2-yl dihydrogen phosphate (i.e., N,N'-2-phophonyloxypropylene bis(meth)acrylamide), piperazine diacrylamide (or 1,4-bis(meth)acryloyl piperazine), tetraethyleneglycol divinyl ether, triethyleneglycol divinyl ether, diethyleneglycol divinyl ether, ethyleneglycol divinyl ether, triallyl isocyanurate, triallyl cyanurate, trimethylopropane trimethacrylate, pentaerythritol tetramethacrylate, bisphenol A dimethacrylate, or combinations thereof.

16. The method of ~~any one of claims 1 to 15~~claim 14, wherein said at least one siloxane-containing vinylic monomer is tris(trimethylsilyloxy)silylpropyl (meth)acrylate, [3-(meth)acryloxy-2-hydroxypropyloxy]propylbis(trimethylsiloxy) methylsilane, [3-(meth)acryloxy-2-hydroxypropyloxy]propylbis(trimethylsiloxy)butylsilane, 3-(meth)acryloxy-2-(2-hydroxyethoxy)-propyloxy)propylbis(trimethylsiloxy)methylsilane, 3-(meth)acryloxy-2-hydroxypropyloxy)propyltris(trimethylsiloxy)silane, N-[tris(trimethylsiloxy)silylpropyl]-(meth)acrylamide, N-(2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)propyloxy)-propyl)-2-methyl (meth)acrylamide, N-(2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)-propyloxy)propyl) (meth)acrylamide, N-(2-hydroxy-3-(3-(tris(trimethylsilyloxy)silyl)-propyloxy)propyl)-2-methyl acrylamide, N-(2-hydroxy-3-(3-(tris(trimethylsilyloxy)silyl)-propyloxy)propyl) (meth)acrylamide, N-[tris(dimethylpropylsiloxy)silylpropyl]-(meth)acrylamide, N-[tris(dimethylphenylsiloxy) silylpropyl] (meth)acrylamide, N-[tris(dimethylethylsiloxy)silylpropyl] (meth)acrylamide, N,N-bis[2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)propyloxy)propyl]-2-methyl (meth)acrylamide, N,N-bis[2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)propyloxy)-propyl] (meth)acrylamide, N,N-bis[2-hydroxy-3-(3-(tris(trimethylsilyloxy)silyl)propyloxy)-propyl]-2-methyl (meth)acrylamide, N,N-bis[2-hydroxy-3-(3-(tris(trimethylsilyloxy)-silyl)propyloxy)propyl] (meth)acrylamide, N-[2-hydroxy-3-(3-(t-butyldimethylsilyl)-propyloxy)propyl]-2-methyl (meth)acrylamide, N-[2-hydroxy-3-(3-(t-butyldimethylsilyl)propyloxy)propyl] (meth)acrylamide, N,N-bis[2-hydroxy-3-(3-(t-butyldimethylsilyl)propyloxy)propyl]-2-methyl (meth)acrylamide, N-2-(meth)acryloxyethyl-O-(methyl-bis-trimethylsiloxy-3-propyl)silyl carbamate, 3-(trimethylsilyl)propylvinyl carbonate, 3-(vinyloxycarbonylthio)-propyl-tris(trimethyl-siloxy)silane, 3-[tris(trimethylsiloxy)silyl]propylvinyl carbamate, 3-[tris(trimethylsiloxy)silyl] propyl allyl carbamate, 3-[tris(trimethylsiloxy)silyl]propyl vinyl carbonate, or a combination thereof.

17. The method of ~~any one of claims 1 to 15~~claim 14, wherein said at least one siloxane-containing vinylic monomer is tris(trimethylsilyloxy)silylpropyl (meth)acrylate, [3-(meth)acryloxy-2-hydroxypropyloxy]propylbis(trimethylsiloxy) methylsilane, [3-(meth)acryloxy-2-hydroxypropyloxy]propylbis(trimethylsiloxy)butylsilane, 3-(meth)acryloxy-2-(2-hydroxyethoxy)-propyloxy)propylbis(trimethylsiloxy)methylsilane, 3-(meth)acryloxy-2-hydroxypropyloxy)propyltris(trimethylsiloxy)silane, or a combination thereof.

18. The method of ~~any one of claims 1 to 15~~claim 14, wherein said at least one siloxane-containing vinylic monomer is N-[tris(trimethylsiloxy)silylpropyl]-(meth)acrylamide, N-(2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)propyloxy)-propyl)-2-methyl (meth)acrylamide, N-(2-hydroxy-3-(3-(bis(trimethylsilyloxy)methylsilyl)-propyloxy)propyl) (meth)acrylamide, N-(2-hydroxy-3-(3-(tris(trimethylsilyloxy)silyl)-propyloxy)propyl)-2-methyl acrylamide, N-(2-hydroxy-3-(3-(tris(trimethylsilyloxy)silyl)-propyloxy)propyl) (meth)acrylamide, or a combination thereof.

19. The method of ~~any one of claims 1 to 15~~claim 14, wherein said at least one siloxane-containing vinylic monomer is α-(meth)acryloxypropyl terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-(meth)acryloxy-2-hydroxypropyloxypropyl terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-(2-hydroxyl-methacryloxypropyloxypropyl)-ω-C_1-C_4-alkyl-decamethylpentasiloxane, α-[3-(meth)acryloxyethoxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxy-propyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxyisopropyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxybutyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxyethylamino-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxypropylamino-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloxy-butylamino-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-(meth)acryloxy(polyethylenoxy)-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[(meth)acryloxy-2-hydroxypropyloxy-ethoxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[(meth)acryloxy-2-hydroxypropyl-N-ethylaminopropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[(meth)acryloxy-2-hydroxypropyl-aminopropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[(meth)acryloxy-2-hydroxypropyloxy-(polyethylenoxy)propyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-(meth)acryloylamidopropyloxypropyl terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-N-methyl-(meth)acryloylamidopropyloxypropyl terminated ω-C_1-C_4-alkyl

terminated polydimethylsiloxane, α-[3-(meth)acrylamidoethoxy-2-hydroxypropyloxy-propyl]-terminated ω-C_1-C_4-alkyl polydimethylsiloxane, α-[3-(meth)acrylamidopropyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acrylamidoisopropyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acrylamidobutyloxy-2-hydroxypropyloxypropyl]-terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, α-[3-(meth)acryloylamido-2-hydroxypropyloxypropyl] terminated ω-C_1-C_4-alkyl polydimethylsiloxane, α-[3-[N-methyl-(meth)acryloylamido]-2-hydroxypropyloxypropyl] terminated ω-C_1-C_4-alkyl terminated polydimethylsiloxane, N-methyl-N'-(propyltetra(dimethylsiloxy)dimethylbutylsilane) (meth)acrylamide, N-(2,3-dihydroxypropane)-N'-(propyltetra(dimethylsiloxy)dimethylbutylsilane) (meth)acrylamide, (meth)acryloylamidopropyltetra(dimethylsiloxy)dimethylbutylsilane, α-vinyl carbonate-terminated ω-C_1-C_4-alkyl-terminated polydimethylsiloxanes, α-vinyl carbamate-terminated ω-C_1-C_4-alkyl-terminated polydimethylsiloxane, or a mixture thereof.

20. The method of ~~any one of claims 1 to 19~~claim 14, wherein the polymerizable materials comprise at least one silicone-containing vinylic crosslinker which is α,ω-bis[3-(meth)acrylamidopropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxyethoxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxypropyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxy-isopropyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxybutyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamidoethoxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamidopropyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamidoisopropyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamidobutyloxy-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxyethylamino-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxypropylamino-2-

hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acryloxybutylamino-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acrylamidoethylamino-2-hydroxypropyloxy-propyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamidopropylamino-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[3-(meth)acrylamide-butylamino-2-hydroxypropyloxypropyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acryloxy-2-hydroxypropyloxy-ethoxypropyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acryloxy-2-hydroxypropyl-N-ethylaminopropyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acryloxy-2-hydroxypropyl-aminopropyl]-polydimethylsiloxane, α,ω-bis[(meth)acryloxy-2-hydroxypropyloxy-(polyethylenoxy)propyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acryloxyethylamino-carbonyloxy-ethoxypropyl]-terminated polydimethylsiloxane, α,ω-bis[(meth)acryloxyethylamino-carbonyloxy-(polyethylenoxy)propyl]-terminated polydimethylsiloxane, or a combination thereof.