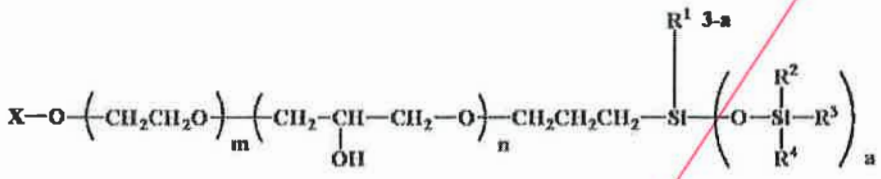
CLAIMS

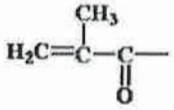
1. A silicone hydrogel soft contact lens obtained by polymerizing a mixed solution which contains at least one silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof and glycerol mono(meth)acrylate in a both-face cast mold, which has a wettable surface without applying an additional treatment to improve surface water wettability of the surface to a lens-shaped material after polymerization.

2. The silicone hydrogel soft contact lens according to claim 1, wherein the silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof is represented by the following general formula (I):

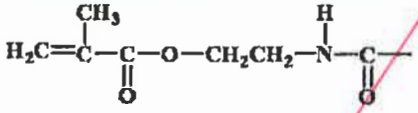


General formula (I)

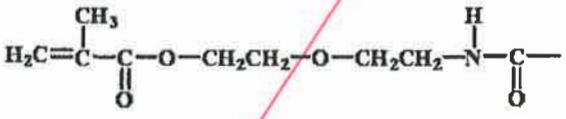
in which R1, R2, R3 and R4 are each a methyl group, a represents an integral number of 1-3, n represents 0 or 1, and m represents 0 or 4-10, provided that when n is 1, m is 0, and when n is 0, m is 4-10; X is one selected from substiturents represented by the following formulae (Y1)-(Y3):



(Y1)



(Y2)



(Y3).

3. The silicone hydrogel soft contact lens according to claim 1 or 2, wherein the silicone hydrogel soft contact lens is obtained by polymerizing a polymerizing solution containing 30-70 wt% of the silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof and 15-60 wt% of glycerol mono(meth)acrylate.

4. The silicone hydrogel soft contact lens according to any one of claims 1-3, wherein the silicone hydrogel soft contact lens is obtained by polymerizing a mixed solution containing:

(a) 30-70 wt% of the silicone monomer having at least one of hydroxyl group or polyethylene glycol group in a molecular structure thereof,

(b) 15-60 wt% of the glycerol mono(meth)acrylate,

(c) 0-20 wt% of a silicone monomer not having a hydroxyl group or a polyethylene glycol group in a molecular structure thereof,

(d) 0-50 wt% of a hydrophilic monomer, and

(e) 0.1-1 wt% of a cross-linkable monomer.

5. The silicone hydrogel soft contact lens according to claim 4, wherein the silicone monomer not having a hydroxyl group or a polyethylene glycol group in a molecular structure thereof (c) is one or more monomers selected from tris(trimethylsiloxy)-γ-methacryloxypropylsilane, and methacryloyloxyethylsuccinic acid 3-[tris(trimethylsiloxy) silyl] propyl.

6. The silicone hydrogel soft contact lens according to claim 4 or 5, wherein the hydrophilic monomer (d) is one or more monomers selected from 2-hydroxyethylmethacrylate, N-vinyl-2-pyrrolidone, and methacrylic acid.

7. The silicone hydrogel soft contact lens according to any one of claims 1-6, wherein the both-face cast mold is composed of polypropylene.

8. The silicone hydrogel soft contact lens according to any one of claims 1-7, wherein the soft contact lens has a moisture content of 20% or more and less than 50%.

9. A process for manufacturing a silicone hydrogel soft contact lens comprising:

a step of preparing a mixed solution by mixing at least one silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof, and glycerol mono(meth)acrylate;

a step of filling the mixed solution into a both-face cast mold; and

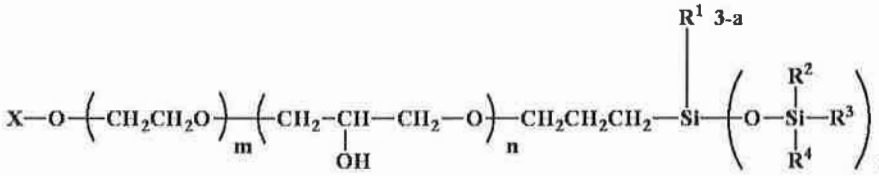
a step of polymerizing the mixed solution in the both-face cast mold.

10. A process according to claim 9, which does not require applying an additional treatment to improve surface water wettability to a lens-shaped material after polymerization.

Claims

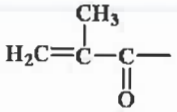
1. A silicone hydrogel soft contact lens, which is a cured product of a mixed solution which contains at least one silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof and glycerol mono(meth)acrylate in a both-face cast mold, which has a wettable surface without applying an additional treatment to improve surface water wettability to a lens-shaped material after polymerization and has a wettable surface without containing a high molecular weight hydrophilic polymer for enhancing the surface water wettability.

2. The silicone hydrogel soft contact lens according to claim 1, wherein the silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof is represented by the following general formula (I):

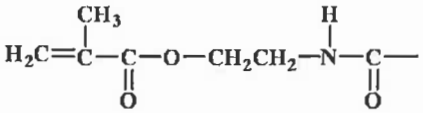


General formula (I)

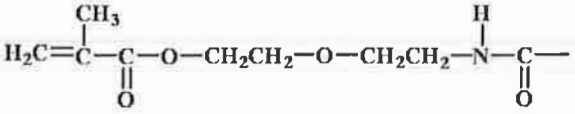
in which R^1, R^2, R^3 and R^4 are each a methyl group, a represents an integral number of 1-3, n represents 0 or 1, and m represents 0 or 4-10, provided that when n is 1, m is 0, and when n is 0, m is 4-10; X is one selected from substiturents represented by the following formulae (Y1)-(Y3):



(Y1)



(Y2)



(Y3).

3. The silicone hydrogel soft contact lens according to claim 1 or 2, which is a polymer product of a polymerizing solution containing 30-70 wt% of the silicone monomer having at least one hydroxyl group or polyethylene glycol

group in a molecular structure thereof and 15-60 wt% of glycerol mono(meth)acrylate.

4. The silicone hydrogel soft contact lens according to any one of claims 1-3, which is a polymer product of a mixed solution containing:
(a) 30-70 wt% of the silicone monomer having at least one of hydroxyl group or polyethylene glycol group in a molecular structure thereof,
(b) 15-60 wt% of the glycerol mono(meth)acrylate,
(c) 0-20 wt% of a silicone monomer not having a hydroxyl group or a polyethylene glycol group in a molecular structure thereof,
(d) 0-50 wt% of a hydrophilic monomer, and
(e) 0.1-1 wt% of a cross-linkable monomer.

5. The silicone hydrogel soft contact lens according to claim 4, wherein the silicone monomer not having a hydroxyl group or a polyethylene glycol group in a molecular structure thereof (c) is one or more monomers selected from tris(trimethylsiloxy)- γ-methacryloxypropylsilane, and methacryloyloxyethylsuccinic acid 3-[tris(trimethylsiloxy) silyl] propyl.

6. The silicone hydrogel soft contact lens according to claim 4 or 5, wherein the hydrophilic monomer (d) is one or more monomers selected from 2-hydroxyethylmethacrylate, N-vinyl-2-pyrrolidone, and methacrylic acid.

7. The silicone hydrogel soft contact lens according to any one of claims 1-6, wherein the both-face cast mold is composed of polypropylene.

8. The silicone hydrogel soft contact lens according to any one of claims 1-7, wherein the soft contact lens has a moisture content of 20% or more and less than 50%.

9. A process for manufacturing a silicone hydrogel soft contact lens comprising:

a step of preparing a mixed solution by mixing at least one silicone monomer having at least one hydroxyl group or polyethylene glycol group in a molecular structure thereof, and glycerol mono(meth)acrylate;

a step of filling the mixed solution into a both-face cast mold; and

a step of polymerizing the mixed solution in the both-face cast mold, wherein said mixed solution does not contain a high molecular weight hydrophilic polymer for enhancing the surface water wettability, and an additional treatment to improve the surface water wettability to a lens-shaped material after polymerization is not carried out.