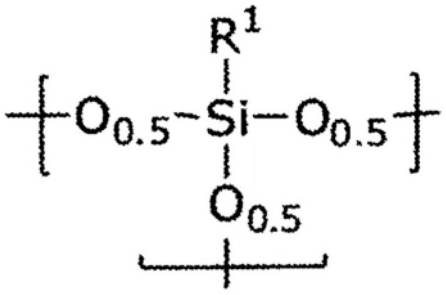
CLAIMS

1. A method for producing a cured film manufactured by applying a composition on a substrate and heating is performed at 450°C or more and wherein the composition comprises a polysiloxane (Pa) comprising:

a repeating unit represented by the following formula (Ia):

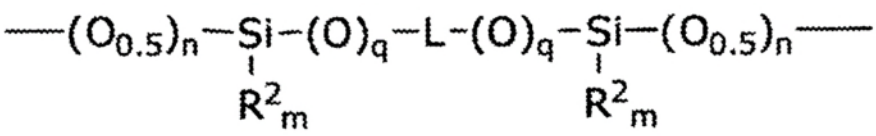


(Ia)

wherein,

R^1 is hydrogen, a monovalent, linear, branched or cyclic, saturated or unsaturated C_{1-30} aliphatic hydrocarbon group, or a monovalent, C_{6-30} aromatic hydrocarbon group, in said aliphatic hydrocarbon group and said aromatic hydrocarbon group, one or more methylene are unsubstituted or substituted with oxy, imide or carbonyl, one or more hydrogens are unsubstituted or substituted with fluorine, hydroxy or alkoxy, and one or more carbons are unsubstituted or substituted with silicon; and

a repeating unit represented by the following formula (Ib):



(Ib)

wherein,

R^2 is each independently hydrogen, C_{1-10} alkyl, C_{6-20} aryl or C_{2-10} alkenyl, which is unsubstituted or substituted with oxygen or nitrogen,

L is each independently phenylene, naphthylene or biphenylene, which is unsubstituted or substituted with oxygen or nitrogen,

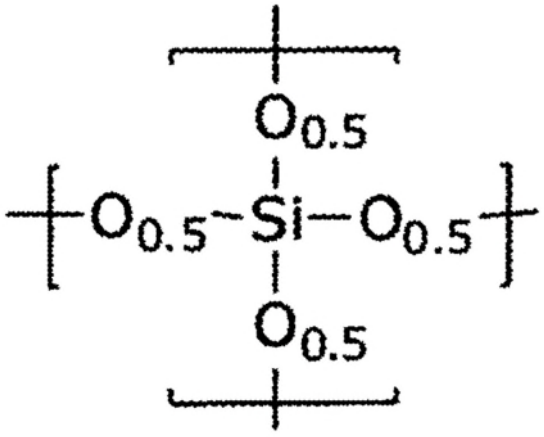
m is each independently an integer of 2,

n is each independently an integer of 1,

q is 1 and

a solvent.

2. The method according to claim 1, wherein the polysiloxane (Pa) further comprises a repeating unit represented by the following formula (Ic)



(Ic) .

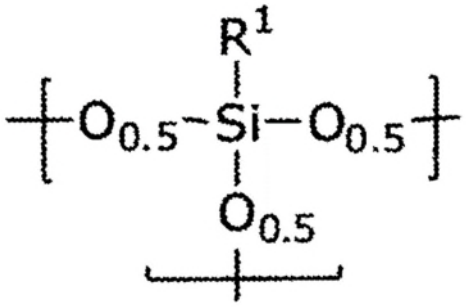
3. The method according to claim 1, wherein the repeating unit represented by said formula (Ib) is 0.5 to 50 mol% based on the total number of the repeating units of said polysiloxane.

4. The method according to claim 1, wherein L in said formula (Ib) is an unsubstituted C_{6-20} arylene.

5. The method according to claim 1, wherein the polysiloxane (Pa) has a mass average molecular weight of 500 to 25,000.

6. The method according to claim 1, wherein the polysiloxane (Pa) has a dissolution rate after prebaking in 2.38 mass% tetramethylammonium hydroxide aqueous solution of 50 to 20,000 Å/sec.

7. The method according to claim 1, wherein the composition further comprises a polysiloxane (Pb) which comprises the repeating unit represented by the following formula (Ia) and does not comprise the repeating unit represented by the following formula (Ib):

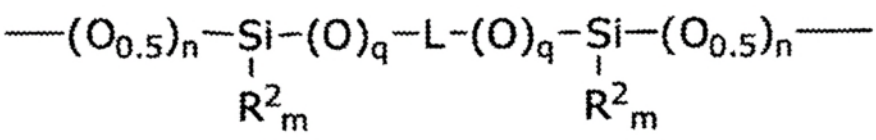


(Ia)

wherein,

R^1 is hydrogen, a monovalent, linear, branched or cyclic, saturated or unsaturated C_{1-30}

aliphatic hydrocarbon group, or a monovalent, C_{6-30} aromatic hydrocarbon group, in said aliphatic hydrocarbon group and said aromatic hydrocarbon group, one or more methylene are unsubstituted or substituted with oxy, imide or carbonyl, one or more hydrogens are unsubstituted or substituted with fluorine, hydroxy or alkoxy, and one or more carbons are unsubstituted or substituted with silicon,



(Ib)

wherein,

R^2 is each independently hydrogen, C_{1-10} alkyl, C_{6-20} aryl or C_{2-10} alkenyl, which is unsubstituted or substituted with oxygen or nitrogen,

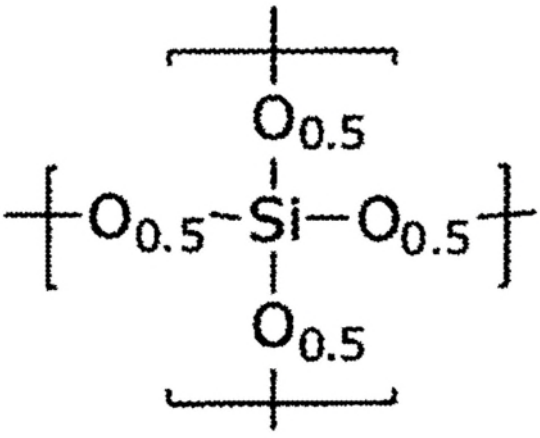
L is each independently phenylene, naphthylene or biphenylene, which is unsubstituted or substituted with oxygen or nitrogen,

m is each independently an integer of 2,

n is each independently an integer of 1,

q is 1.

8. The method according to claim 7, wherein said polysiloxane (Pb) further comprises a repeating unit represented by the following formula (Ic):



(Ic) .

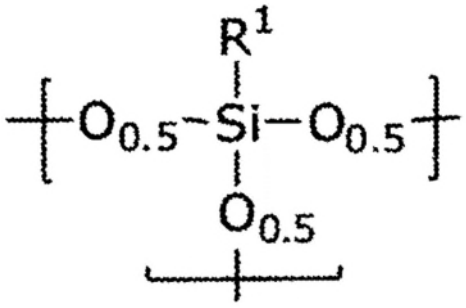
9. The method according to claim 1, wherein the composition further comprises a silanol condensation catalyst.

10. The method according to claim 1, wherein the composition further comprises a diazonaphthoquinone derivative.

11. The method according to claim 1, wherein the repeating unit represented by said formula (Ib) is 0.5 to 50 mol% based on the total number of the repeating units of said polysiloxane.

12. The method for producing a cured film manufactured by applying a composition on a substrate and heating wherein the composition comprises a polysiloxane (Pa) comprising:

a repeating unit represented by the following formula (Ia):



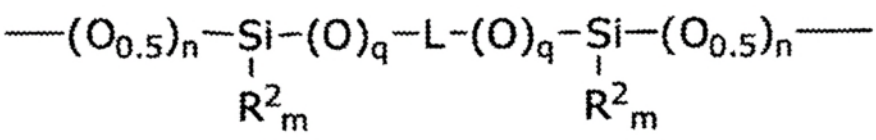
(Ia)

wherein,

R^1 is hydrogen, a monovalent to trivalent, linear, branched or cyclic, saturated or unsaturated C_{1-30} aliphatic hydrocarbon group, or a monovalent to trivalent, C_{6-30} aromatic hydrocarbon group,

in said aliphatic hydrocarbon group and said aromatic hydrocarbon group, one or more methylene are unsubstituted or substituted with oxy, imide or carbonyl, one or more hydrogens are unsubstituted or substituted with fluorine, hydroxy or alkoxy, and one or more carbons are unsubstituted or substituted with silicon, when R^1 is divalent or trivalent, R^1 connects Si atoms contained in a plurality of repeating units; and

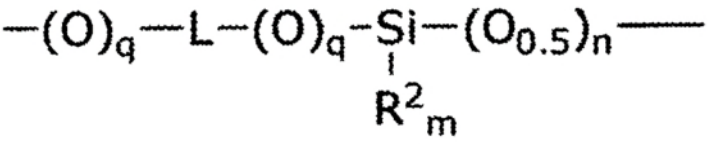
a repeating unit represented by the following formula (Ib):



(Ib)

wherein,

R^2 is each independently hydrogen, Ci_{1-10} alkyl, C_{6-20} aryl or C_{2-10} alkenyl, which is unsubstituted or substituted with oxygen or nitrogen, or a linking group represented by the formula (Ib'):



(Ib')

L is each independently C_{6-20} arylene, which is unsubstituted or substituted with oxygen or nitrogen,

m is each independently an integer of 0 to 2,

n is each independently an integer of 1 to 3,

q is each independently 0 or 1,

the total number of n, the number of $O_{0.5}$, and m, the number of R^2, bonding to one Si is 3, and

the total number of q contained in the repeating unit represented by the above formula (Ib) is 1 or more,

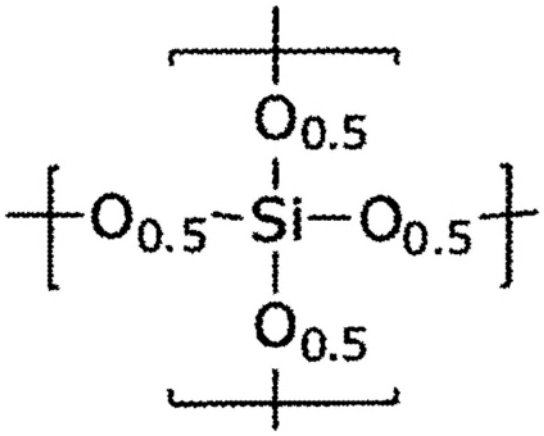
and a solvent,

wherein the heating is performed at 450°C or more.

13. The method according to claim 12, wherein n is 1 in said general formula (Ib).

14. The method according to claim 12, wherein L in said formula (Ib) is an unsubstituted C_{6-20} arylene.

15. The method according to claim 12, wherein the polysiloxane (Pa) further comprises a repeating unit represented by the following formula (Ic)



(Ic).

16. The method according to claim 12, wherein the repeating unit represented by said formula (Ib) is 0.5 to 50 mol% based on the total number of the repeating units of said polysiloxane.

17. The method according to claim 12, wherein the polysiloxane (Pa) has a mass average molecular weight of 500 to 25,000.

18. The method according to claim 12, wherein the polysiloxane (Pa) has a dissolution rate after prebaking in 2.38 mass% tetramethylammonium hydroxide aqueous solution of 50 to 20,000 Å/sec.