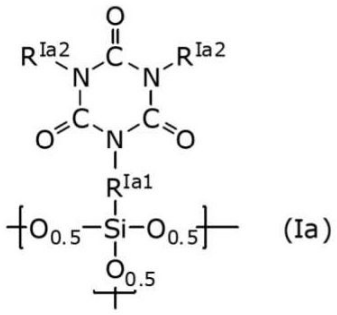
Patent claims

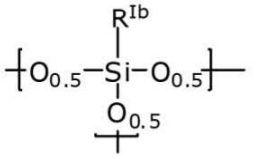
1. A negative type photosensitive composition comprising:
(I) a polysiloxane A comprising a repeating unit represented by the formula (Ia):



(Ia)

(wherein,
R^{Ia1} is an alkylene group having 1 to 5 carbon atoms, wherein -CH_2- in the alkylene group may be replaced with -O-,
R^{Ia2} is each independently hydrogen, an alkyl group having 1 to 5 carbon atoms, or an alkylene group having 1 to 5 carbon atoms, wherein -CH_2- in the alkyl group and the alkylene group may be replaced with -O-, and when R^{Ia2} is alkylene, a bond not bonded to nitrogen is bonded to Si contained in another repeating unit represented by the formula (Ia)),
(II) a photo radical generator,
(III) a compound containing two or more (meth)acryloyloxy groups, and
(IV) a solvent.

2. The composition according to claim 1, wherein the polysiloxane A further comprises a repeating unit represented by the formula (Ib):



(Ib)

(wherein,
R^{Ib} represents hydrogen, a C_{1-30} linear, branched or cyclic,

saturated or unsaturated, aliphatic hydrocarbon group or aromatic hydrocarbon group,
the aliphatic hydrocarbon group and the aromatic hydrocarbon group may be each substituted with fluorine, hydroxy or alkoxy, and
$-CH_2-$ in the aliphatic hydrocarbon group and the aromatic hydrocarbon group may be replaced with -O- or -CO-, provided that R^{Ib} is neither hydroxy nor alkoxy).

3. The composition according to claim 1 or 2, wherein the photo radical generator is selected from the group consisting of 2,2-dimethoxy-1,2-diphenylethan-1-one, 1-hydroxy-cyclohexylphenylketone, 2-hydroxy-2-methyl-1- phenylpropan-1-one, 1-[4-(2-hydroxyethoxy)phenyl]-2- hydroxy-2-methyl-1-propan-1-one, 2-hydroxy-1-{4-[4- (2-hydroxy-2-methyl propionyl)-benzyl] phenyl }-2-methyl prop a n-1-one, 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one, 2-benzyl-2-dimethylamino-1-(4-morpholinophenyl)-1-butanone, 2-(dimethylamino)- 2-[(4-methylphenyl)methyl]-1-[4-(4-morpholinyl)-phenyl]-1-butanone, 2,4,6-trimethylbenzoyld iphenylphosphineoxide, bis (2,4,6-trimethylbenzoyl)-phenylphosphine oxide, 1,2-octanedione, 1-[4-(phenylthio)-, 2-(O-benzoyloxime)], ethanone, 1-[9-ethyl-6-(2-methylbenzoyl)-9H-carbazol-3-yl]-, and 1-(O-acetyloxime).

4. The composition according to claim 1 or 2, wherein the total number of Si atoms of the formula (Ia) contained in the polysiloxane A is 1 to 15% based on the total number of Si atoms in the polysiloxane.

5. The composition according to claim 1 or 2, further comprising an acrylic resin and/or a polysiloxane B containing no repeating unit of the formula (Ia).

6. The composition according to claim 1 or 2, wherein the content of the polysiloxane A is 20 to 100 mass %, based on the

total mass of all polymer contained in the composition.

7. A method for producing a cured film, comprising applying the composition according to claim 1 onto a substrate to form a coating film, exposing the coating film, and developing.

8. The method according to claim 7, further comprising a process of heating at a temperature of 70 to 130°C after the development.

9. A cured film formed by the method according to claim 7 or 8.

10. An electronic device comprising the cured film according to claim 9.