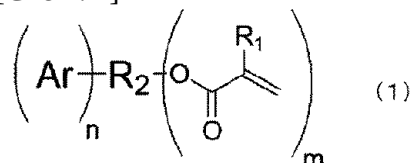


Claims

[Claim 1]

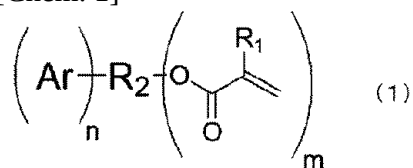
A photocurable composition comprising:
a polymerizable compound; and
a photopolymerization initiator,
wherein the photocurable composition contains a monofunctional (meth)acryl compound and a compound represented by General Formula (1) shown below as the polymerizable compound
[Chem. 1]



wherein, in General Formula (1), Ar represents a monovalent aromatic group which may have a substituent, R₁ represents an alkyl group which may have a substituent or a hydrogen atom, R₂ represents an alkyl group having (m + n) valences which may have a substituent, m is an integer of 2 or more, and n is an integer of 1 or more, and
wherein the photocurable composition is a photocurable composition for imprinting.

[Claim 2]

A photocurable composition comprising:
a polymerizable compound; and
a photopolymerization initiator,
wherein the photocurable composition contains a monofunctional (meth)acryl compound and a compound represented by General Formula (1) shown below as the polymerizable compound
[Chem. 1]

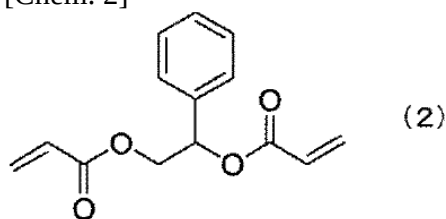


wherein, in General Formula (1), Ar represents a monovalent aromatic group which may have a substituent, R₁ represents an alkyl group which may have a substituent or a hydrogen atom, R₂ represents an alkyl group having (m + n) valences which may have a substituent, m is an integer of 2 or more, and n is an integer of 1 or more,
wherein the photocurable composition is a photocurable composition for imprinting, and
wherein a viscosity at 25°C of the photocurable composition is 1 mPa·s or more and 100 mPa·s or less.

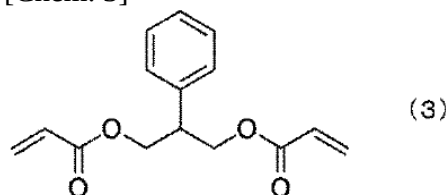
[Claim 3]

The photocurable composition according to Claim 1 or 2, further comprising a monofunctional (meth)acryl compound as the polymerizable compound.

- [Claim 4] The photocurable composition according to any one of Claims 1 to 3, comprising an acyl phosphine oxide polymerization initiator as the photopolymerization initiator.
- [Claim 5] The photocurable composition according to any one of Claims 1 to 4, wherein a content of a solvent of the photocurable composition is 3% by weight or less based on the entire photocurable composition.
- [Claim 6] The photocurable composition according to any one of Claims 1 to 5, wherein the photocurable composition is a photocurable composition for nanoimprinting.
- [Claim 7] The photocurable composition according to any one of Claims 1 to 6, wherein, in General Formula (1), n is 1.
- [Claim 8] The photocurable composition according to any one of Claims 1 to 7, wherein, in General Formula (1), Ar represents a monovalent phenyl group which may have a substituent.
- [Claim 9] The photocurable composition according to any one of Claims 1 to 8, wherein the content of compounds having a molecular weight of 2000 or more is 5% by weight or less.
- [Claim 10] The photocurable composition according to any one of Claims 1 to 9, comprising a compound represented by General Formula (2) shown below as the polymerizable compound



- [Claim 11] The photocurable composition according to any one of Claims 1 to 10, comprising a compound represented by General Formula (3) as the polymerizable compound
- [Chem. 3]



- [Claim 12] A method for producing a cured product pattern comprising:
a first step of disposing the photocurable composition according to any one of Claims 1 to Claim 11 on a substrate;

a second step of bringing the photocurable composition and a mold into contact with each other;
a third step of irradiating the photocurable composition with light to form a cured product; and
a fourth step of separating the cured product and the mold from each other.

- [Claim 13] The method for producing a cured product pattern according to Claim 12, wherein the first step to the fourth step are performed several times in different regions on the substrate.
- [Claim 14] The method for producing a cured product pattern according to Claim 12 or 13, wherein a material of the surface of the mold is quartz.
- [Claim 15] The method for producing a cured product pattern according to any one of Claims 12 to 14, wherein the third step is a step of irradiating the photocurable composition through the mold having a pattern on a surface.
- [Claim 16] The method for producing a cured product pattern according to any one of Claims 12 to 15, wherein the second step is performed under an atmosphere containing condensable gas.
- [Claim 17] The method for producing a cured product pattern according to any one of Claims 12 to 15, wherein the second step is performed under an atmosphere of mixed gas of the condensable gas and non-condensable gas.
- [Claim 18] The method for producing a cured product pattern according to Claim 17, wherein the non-condensable gas is helium.
- [Claim 19] The method for producing a cured product pattern according to any one of Claims 16 to 18, wherein the condensable gas is 1,1,1,3,3-pentafluoropropane.
- [Claim 20] A method for producing an optical component comprising:
a step of obtaining a cured product pattern by the method for producing a cured product pattern according to any one of Claims 12 to 19.
- [Claim 21] A method for producing a circuit board comprising:
a step of obtaining a cured product pattern by the method for producing a cured product pattern according to any one of Claims 12 to 19; and
a step of subjecting a substrate to etching or ion implantation using the obtained cured product pattern as a mask.
- [Claim 22] The method for producing a circuit board according to Claim 21, wherein the circuit board is a circuit board to be utilized in a semiconductor element.