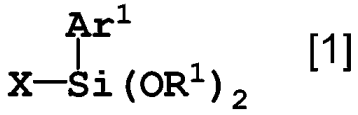
CLAIMS

1. A method for using a compound as a viscosity lowering agent for a high-refractive index polymerizable compound having at least one polymerizable double bond and exhibiting a refractive index of 1.60 or more at D-ray (589.3 nm) in a cured product of the high-refractive index polymerizable compound,

the compound as a viscosity lowering agent being in a solid state of matter at 23°C under 1013.25 hPa and having a melting point of lower than 100°C, wherein a viscosity of the compound as a viscosity lowering agent at 100°C is 10 mPa·s or less, and a cured product of the high-refractive index polymerizable compound has an Abbe number of 23 or less at D-ray (589.3 nm),

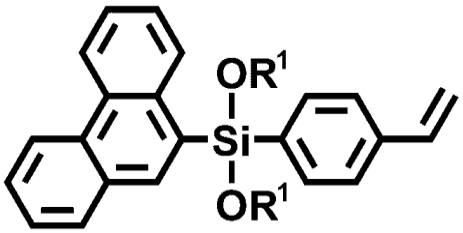
wherein the viscosity lowering agent is a compound of the following formula [1]:



[1]

wherein X is a phenyl group having at least one substituent having a polymerizable double bond, a naphthyl group having at least one substituent having a polymerizable double bond, a biphenyl group having at least one substituent having a polymerizable double bond, or a phenanthryl group having at least one substituent having a polymerizable double bond, Ar^1 is a condensed ring hydrocarbon group having two or more benzene ring structures optionally substituted with a C_{1-6} alkyl group, or a hydrocarbon ring assembly group in which two or more aromatic rings are directly bonded through a single bond optionally substituted with a C_{1-6} alkyl group, and R^1 is methyl group, ethyl group, or isopropyl group.

2. The method according to claim 1, wherein the viscosity lowering agent is a compound of the following formula [3-1]:



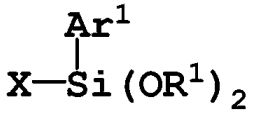
[3-1]

wherein R^1 is methyl group, ethyl group, or isopropyl group.

3. A viscosity lowering agent for a high-refractive index polymerizable compound having at least one polymerizable double bond and exhibiting a refractive index of 1.60 or more at D-ray (589.3 nm) in a cured product thereof,

the viscosity lowering agent comprising a compound, the compound being in a solid state of matter at 23°C under 1013.25 hPa and having a melting point of lower than 100°C, wherein a viscosity of the compound at 100°C is 10 mPa·s or less, and a cured product of the high-refractive index polymerizable compound has an Abbe number of 23 or less at D-ray (589.3 nm),

wherein the viscosity lowering agent is a compound of the following formula [1]:



[1]

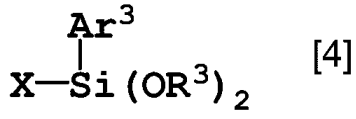
wherein X is a phenyl group having at least one substituent having a polymerizable double bond, a naphthyl group having at least one substituent having a polymerizable double bond, a biphenyl group having at least one substituent having a polymerizable double bond, or a phenanthryl group having at least one substituent having a polymerizable double bond, Ar^1 is a condensed ring hydrocarbon group having two or more benzene ring structures optionally substituted with a C_{1-6} alkyl group, or a hydrocarbon ring assembly group in which two or more aromatic rings are directly bonded through a single bond optionally substituted with a C_{1-6} alkyl group, and R^1 is methyl group, ethyl group, or isopropyl group.

4. A polymerizable composition comprising

100 parts by mass of (a) a high-refractive index polymerizable compound having at least one polymerizable double bond and exhibiting a refractive index of 1.60 or more at D-ray (589.3 nm) in a cured product thereof, and

10 to 500 parts by mass of (b) a viscosity lowering agent comprising a compound, the compound being in a solid state of matter at 23°C under 1013.25 hPa and having a melting point of lower than 100°C, wherein a viscosity of the compound at 100°C is 10 mPa·s or less, and a cured product of the high-refractive index polymerizable compound has an Abbe number of 23 or less at D-ray (589.3 nm),

wherein the high-refractive index polymerizable compound (a) comprises a reactive polysiloxane comprising at least one of a polycondensation product of alkoxy silicon compound A of formula [4], and a polycondensation product of the alkoxy silicon compound A of formula [4] with alkoxy silicon compound B of formula [5]:



[4]

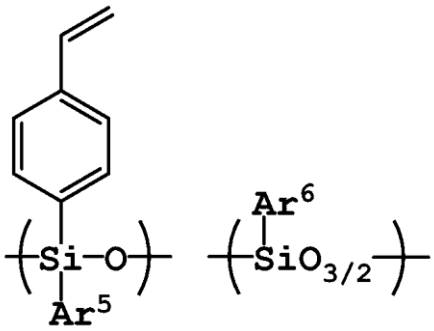
wherein X is a phenyl group having at least one substituent having a polymerizable double bond, a naphthyl group having at least one substituent having a polymerizable double bond, a biphenyl group having at least one substituent having a polymerizable double bond, or a phenanthryl group having at least one substituent having a polymerizable double bond, Ar^3 is a phenyl group optionally substituted with a C_{1-6} alkyl group, a condensed ring hydrocarbon group having two or more benzene ring structures optionally substituted with a C_{1-6} alkyl group, or a hydrocarbon ring assembly group in which two or more aromatic rings are directly bonded through a single bond optionally substituted with a C_{1-6} alkyl group, and R^3 is methyl group, ethyl group, or isopropyl group, and



[5]

wherein Ar^4 is a phenyl group optionally substituted with a C_{1-6} alkyl group, a condensed ring hydrocarbon group having two or more benzene ring structures optionally substituted with a C_{1-6} alkyl group, or a hydrocarbon ring assembly group in which two or more aromatic rings are directly bonded through a single bond optionally substituted with a C_{1-6} alkyl group, and R^4 is methyl group, ethyl group, or isopropyl group.

5. The polymerizable composition according to claim 4, wherein the high-refractive index polymerizable compound (a) is selected from the group consisting of a compound having a structural unit of formula [7-2], and a compound having a structural unit of formula [7-2] and a structural unit of formula [7-3]:



[7-2] [7-3]

wherein Ar^5 and Ar^6 are each independently phenyl group, naphthyl group, or phenanthryl group.

6. The polymerizable composition according to claim 4 or 5, further comprising (c) a polymerizable diluent being in a liquid state of matter at 23°C under 1013.25 hPa.

7. A cured product of the polymerizable composition according to any one of claims 4 to 6.

8. A material for a high-refractive index resin lens comprising the polymerizable composition according to any one of claims 4 to 6.

9. A resin lens prepared from the polymerizable composition according to any one of claims 4 to 6.

10. A process for producing a molded article, comprising the steps of:

introducing the polymerizable composition according to any one of claims 4 to 6 into space between a support and a mold in contact with each other, or internal space of a separable mold; and

photopolymerizing the introduced composition by light exposure.

11. The production process according to claim 10, further comprising the steps of:

taking the obtained photopolymer out of the space filled therewith for mold release; and

heating the photopolymer before, during, or after the mold release.

12. The production process according to claim 10 or 11, wherein the molded article is a lens for a camera module.