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US-A- 3 004 950
US-A- 4 576 973

(73) Proprietor : **BAUSCH & LOMB INCORPORATED**
1400 North Goodman Street
Rochester, NY 14602 (US)

(72) Inventor : **Bambury, Ronald E.**
63 Matthew Drive
Fairport New York 14450 (US)
Inventor : **Dong, Joon Choo**
86-603 Hyundai Apt.
Kangnam-ku Seoul 135 (KR)

(74) Representative : **Allam, Peter Clerk et al**
LLOYD WISE, TREGEAR & CO. Norman House
105-109 Strand
London WC2R 0AE (GB)

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Jouve, 18, rue Saint-Denis, 75001 PARIS

Description

This invention relates to polymeric materials useful in biomedical devices, especially contact lenses, which are the product of reacting mixture comprising oxazolones.

A number of types of polymeric materials are known to be useful in contact lens manufacture. In general contact lens materials can be thought to fall into one of the following classifications: soft hydrophilic, soft, non-hydrophilic, and a more recent development, hard gas permeable. Gas permeable materials typically comprise polymeric materials formed by copolymerizing polyorganosiloxane monomers with various other monomers. These polymeric materials possess high oxygen permeabilities which make them particularly attractive as contact lens materials. In general, they are not as hydrophilic as the soft hydrophilic materials, and thus they are not as easily "wetted". These soft, non-hydrogels are illustrated by the following patents:

US-A- 4,153,641 discloses acrylate functional endcapped polyorganosiloxanes which can be polymerized to form high oxygen permeable polymeric networks, or which can be copolymerized with other monomers to form high oxygen permeable copolymers. Specific comonomers disclosed include low esters of acrylic acid, a methacrylic acid, styryls and N-vinyl pyrrolidinone.

US-A- 4,208,506 discloses soft contact lenses made from polymers and copolymers comprising polyparaffinsiloxane polymers and copolymers formed by polymerizing a polyparaffinsiloxane monomer alpha, omega terminally bonded through divalent hydrocarbon groups to polymerized, free radical polymerizably activated, unsaturated groups forming a polymer in a crosslinked network. Additionally, specific comonomers are disclosed which include lower esters of acrylic and methacrylic acid, styryls and N-vinyl pyrrolidinone which may be copolymerized with the above-described polyparaffinsiloxane monomer to form a copolymer.

US-A- 4,303,772 discloses polysiloxanyl alkyl esters of acrylic and methacrylic acids and its copolymerization with alkyl esters of acrylic, methacrylic acids and/or itaconate esters to produce highly permeable contact lens material. The copolymer preferably includes a crosslinking agent and hydrophilic monomer. Contact lenses manufactured from the material are easily machined and polished into hard or semi-hard contact lenses having excellent dimensional stability.

US-A- 4,330,383 discloses improved contact lens materials are obtained from copolymers containing a siloxanyl alkyl ester vinyl monomer by exposing the materials to high energy radiation thereby reducing the amount of unreacted monomer and residual contaminants.

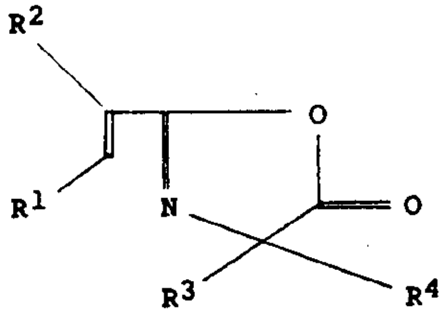
US-A- 4,327,203 discloses articles for biomedical applications made from a polymer formed by polymerizing (a) one or more polysiloxane monomers alpha, omega terminally bonded through divalent hydrocarbon groups to an activated, unsaturated group with (b) a cycloalkyl modulus modifier, e.g. tertiary butylcyclohexyl methacrylate, menthyl acrylate or methylisopentyl cyclooctyl acrylate, and (c) a tear film stabilizer. The product are useful as hard contact lenses. US-A- 4,341,889 discloses the modulus modifier above can be tertiary butyl styrene. US-A- 4,355,147 discloses the modulus modifier above can be a polycyclic acrylate or methacrylate such as isobornyl methacrylate, adamantyl acrylate or isopinocamphyl methacrylate.

US-A- 4,652,622 discloses polymeric materials comprised of monomeric polysiloxanes end capped with activated unsaturated groups, a modulus modifier and small amounts of an internal wetting agent such as N-alkenoyltrialkylsilyl aminate.

The invention relates to polymeric materials, which are particularly useful in the manufacture of contact lenses, formed by polymerizing a mixture comprising:

(a) an acrylate- or methacrylate-functional endcapped siloxane monomer; and

(b) an internal wetting agent represented by the general formula

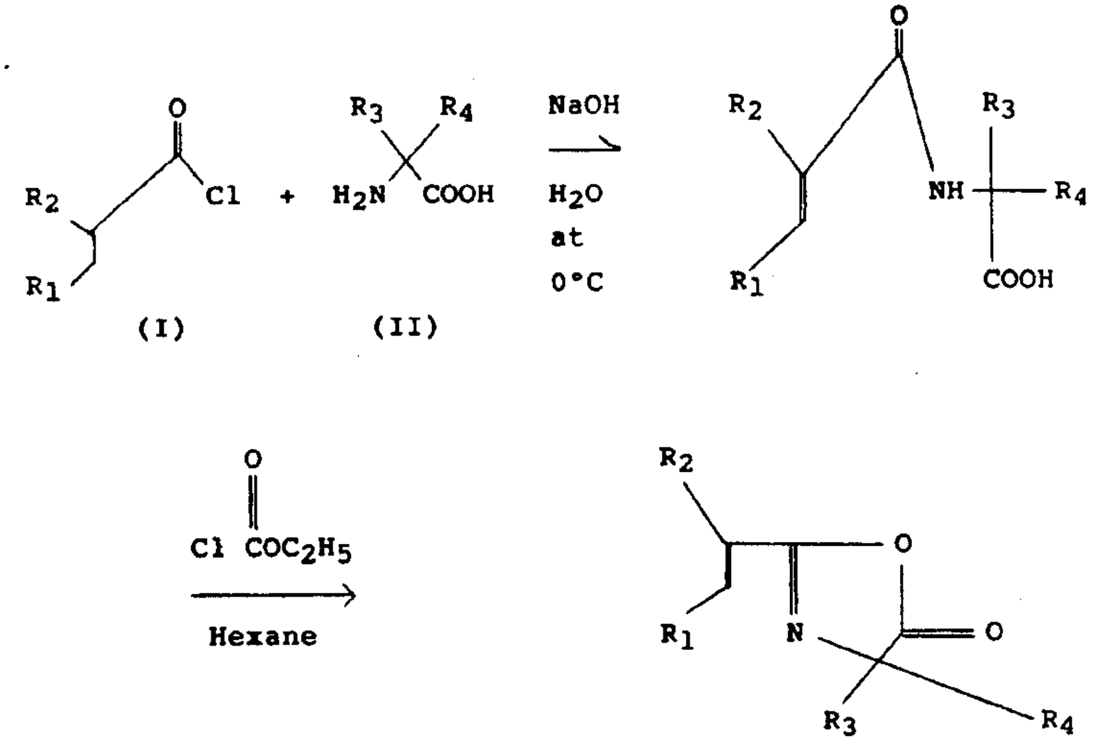


where R^1 and R^2 independently denote a hydrogen atom or a lower alkyl radical with one six carbon atoms, and R^3 and R^4 independently denote alkyl radicals with one to six carbon atoms or R^3 and R^4 taken together represent cyclohexyl.

Specific examples of the useful internal wetting agents include 2-isopropenyl-4,4-dimethyl-2-oxazolin-5-one (IPDMO); 2-vinyl-4,4-dimethyl-2-oxazolin-5-one (VDMO); spiro-4'-(2' isopropenyl-2'-oxazolin-5-one) cyclohexane (IPCO); spiro-4'-(2'-Vinyl-2'-oxazolin-5'-one) cyclohexane (VCO), and 2-(1-propenyl)-4,4-dimethyl-2-oxazolin-5-one (PDMO).

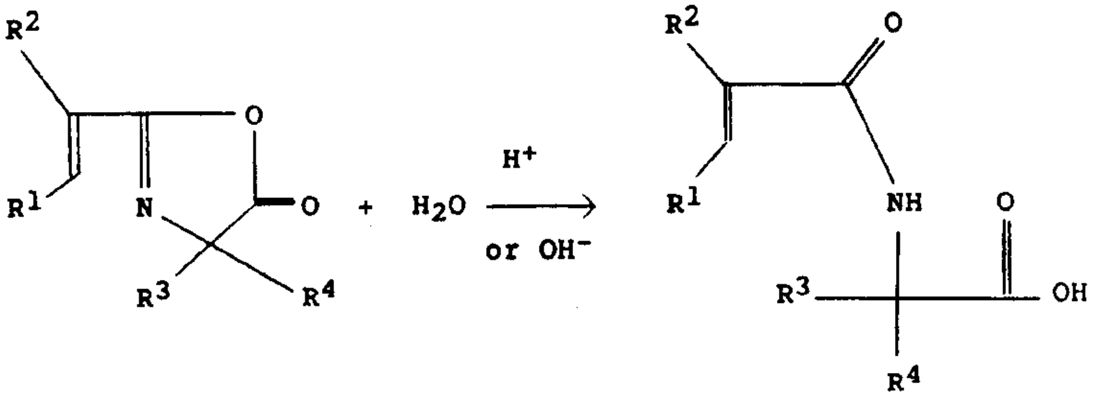
These compounds have two important features which make them particularly preferred comonomers with acrylate or methacrylate functional polysiloxane monomers: (1) They are relatively nonpolar and are thus highly compatible with polysiloxane monomers thus forming optically clear monomer mixtures and polymers, and (2) They are converted to highly polar amino acids upon mild hydrolysis. Thus they can be copolymerized into a hydrophobic polymeric matrix and then hydrolyzed to render the matrix substantially hydrophilic.

The internal wetting agents can be prepared by the general reaction sequence:



The first step is a Shotten-Bauman acylation of an amino acid. The polymerizable functionality is introduced by using either acryloyl or methacryloyl chloride. The second step involves a ring closure with a chloroformate to yield the desired oxazolone. The product is isolated and purified by the usual procedures of organic chemistry.

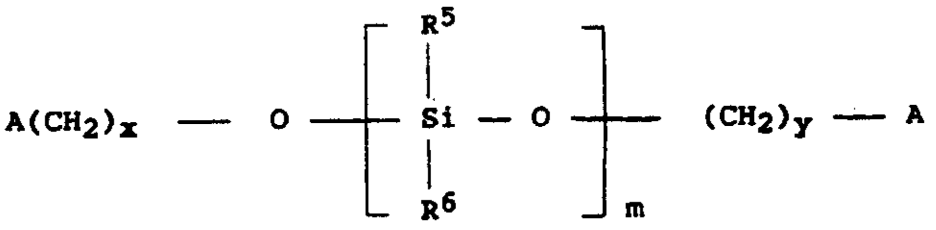
The internal wetting agents can be copolymerized with acrylate- or methacrylate- functional endcapped siloxane monomers to form polymeric materials which have high oxygen permeabilities. These polymeric materials may then be hydrolyzed in order to convert the oxazolone components into amino acids. In general, the hydrolysis step will follow the general reaction of:



This reaction occurs mainly on the surface of the polymeric material and renders said surface hydrophilic. This hydrophilic surface is substantive due to the fact that the polymer network has been previously reacted with the carbon-carbon double bond between the R^1 and R^2 radicals (the schematic reaction above shows the double bond unreacted). Thus the above compounds can be referred to as internal wetting agents.

These wetting agents are far superior to state of the art internal wetting agents by virtue of their miscibility with polysiloxane monomers. Thus, they can be copolymerized in greater proportion than the state of the art wetting agents, yielding materials which have hydrophilic surfaces.

As indicated above the hydrophobic monomers which in accordance with this invention are copolymerized with the above wetting agents are acrylate or methacrylate functional endcapped siloxane monomers which preferably are represented by the general formula:



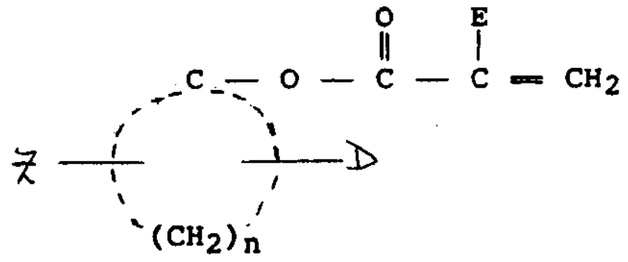
$$A(CH_2)_x - O - \left[\begin{array}{c} R^5 \\ | \\ Si - O \\ | \\ R^6 \end{array} \right]_m - (CH_2)_y - A$$

In this formula, A denotes an acrylate or methacrylate radical, R^5 and R^6 independently denote alkyl radicals with one to six carbon atoms or phenyl radicals, x and y are on the average one to six, and m is at least one.

In general the oxygen permeability of the copolymers will increase as the degree of polymerization of the polysiloxane monomer increases. However, as the degree of polymerization of the monomer increases, the copolymeric matrix will become more elastomeric. Toughening agents can be added to the prepolymerization mixture to add strength to the polymeric material.

Toughening agents are suitably selected from the group comprising tertiary butyl styrene, cycloalkyl toughening agents, fluorinated methacrylate toughening agents, and polycyclic toughening agents.

Useful cycloalkyl toughening agents are described and defined in US-A- 4,327,203. These agents are a cycloalkyl acrylate or methacrylate of the formula



wherein

E is either hydrogen or methyl
D is branched or normal alkyl having 3 to 6 carbon atoms, preferably 3 to 4 carbon atoms
Z is either hydrogen or methyl and
n is an integer from 3 to 8 and preferably from 4 to 6.

Illustrative of the foregoing cycloalkyl toughening agents are the following: Menthyl methacrylate, menthyl acrylate, tertiarybutylcyclohexyl methacrylate, isopropylcyclopentyl acrylate, tertiarypentylcycloheptyl methacrylate, tertiarybutylcyclohexyl acrylate, isohexylcyclopentyl acrylate and methylisopentyl cyclooctyl acrylate.

Useful polycyclic thoughening agents are described and defined in US-A- 4,355,147. These agents are a polycyclic acrylate or methacrylate selected from the group consisting of isobornyl acrylate, isobornyl methacrylate, dicyclopentadienyl acrylate, dicyclopentadienyl methacrylate, adamantyl acrylate, adamantyl methacrylate isopinocamphyl acrylate and isopinocamphyl methacrylate.

Illustrative of useful fluorinated methacrylate toughening agents are: octafluoropentylmethacrylate, trifluoromethylmethacrylate, and pentafluoroethyl methacrylate.

The toughening agent suitably may be present in an amount from 90 to 10 parts by weight per 10 to 90 parts by weight of the above-described monomers. More preferably the modifier is present in the amount of 70 to 10 parts, more preferably yet the modifier is 45 to 15 parts.

The polymeric materials of the present invention are formed by: (1) mixing the monomers together optionally with a toughening agent as described above; (2) adding a polymerization initiator; (3) subjecting the monomer/initiator mixture to a source of ultraviolet or actinic radiation and curing said mixture to a solid or elastomeric state.

Typical polymerization initiators include free radical generating polymerization initiators of the type illustrated by acetyl peroxide, lauroyl peroxide, decanoyl peroxide, coprylyl peroxide, benzoyl peroxide, tertiary butyl peroxypivalate, diisopropyl peroxycarbonate, tertiary butyl peroctoate, and α,α-azobis-isobutynnitrile. Ultraviolet free radical initiators illustrated by diethoxyacetophenone can also be used. The curing process will of course depend upon the initiator used and the physical characteristics of the comonomer mixture such as viscosity. In any event, the level of initiator employed generally will vary within the range of 0.01 to 2 weight percent of the mixture of monomers.

Typical formulations will comprise 1 to 98 weight percent siloxane monomer, 1 to 50 weight percent of the defined internal agents, and 1 to 80 weight percent toughening agent. Preferably, the composition will comprise 60 to 95 weight percent siloxane monomer, 4 to 20 weight percent toughening agent and 1 to 20 weight percent of the novel wetting agent.

EXAMPLES

A. Synthesis of 2-isopropenyl-4,4-dimethyl-2-oxazolin-5-one (IPDMO)

1. Methacryloylation: In a 500 ml 3-neck round bottom flask equipped with a mechanical stirrer, thermometer and an addition funnel, 51.5 grams (0.5 mole) of α-aminoisobutyric acid (Aldrich) and 40 grams (1 mole) of NaOH were dissolved in ~ 150 ml of H_2O. The reaction flask was cooled to 0~-5°C with MeOH-ice bath and 0.5 mole of methacryloyl chloride (distilled, Aldrich) was added dropwise while the temperature of the reaction mixture kept below 0°C. After stirring for an additional hour, the reaction mixture was acidified with concentrated HCl to a pH of about 3 to precipitate out the intermediate, which was then filtered, washed with cold H_2O and air dried. Further drying was accomplished in vacuum oven at 80°C overnight to obtain 44.9 grams (0.26 mole; 53%) N-methacryloyl-α-aminoisobutyric acid (MAIBA), which was suitable for IPDMO synthesis. m.p. 157-159°C.

2. Cyclization; Synthesis of IPDMO: In a 500 ml dry 3-neck round bottom flash, 0.26 mole of MAIBA was dispersed in 300 ml of dry hexane and allowed to react with 0.26 mole of alkylchloroformate with mechanical stirring by dropwise addition of triethylamine (0.52 mole) while the temperature of the reaction mixture was maintained at 45 ~ 50°C. During the addition, the copious evolution of carbon dioxide and the formation of white precipitate of TEA-HCl were observed. The reaction mixture was stirred for an additional two hours. After cooling to room temperature, white precipitate was filtered off and hexane evaporated off yielding an oil. Pure IPDMO was obtained after two times of recrystallization in hexane at dry ice-acetone temperature. Yield was 29 grams (73%).

B. Synthesis of 2-vinyl-4,4-dimethyl-2-oxazolin-5-one (VDMO)

1. Acryloiation was achieved by adopting a procedure similar to step 1 of the synthesis of IPDMO except acryloyl chloride was used in place of methacryloyl chloride. The intermediate N-acryloyl-α-aminobutyric acid (AAIBA) was produced.
2. AAIBA was reacted with triethylamine and ethyl chloroformate in a fashion similar to step 2 of the synthesis of IPDMO to produce VDMO.

C. Synthesis of Spiro-4′-(2′-isopropenyl-2-oxazolin-5′-one) Cyclohexane (IPCO)

The synthetic method used to synthesize IPDMO was followed except 1-amino-1-cyclohexane carboxylic acid was used in place of α-aminoisobutyric acid.

D. Synthesis of Spiro-4′-(2′-vinyl-2′-oxazolin-5′-one) Cyclohexane (VCO)

The synthetic method employed in the synthesis of VDMO was used except 1-amino-1-cyclohexane carboxylic acid was used in place of α-aminoisobutyric acid.

E. Synthesis of 2-(1-propenyl)-4,4-dimethyl-2-oxazolin-5-one (PDMO)

The method employed in the synthesis of VDMO was employed except crotonyl chloride was used in place of methacryloyl chloride and α-aminoisobutyric acid was used.

F. Synthesis and Characterization of Polymeric Materials

1. Polydimethylsiloxane Based Materials

Methacrylate end capped polydimethylsiloxane (PDMS) with an average degree of polymerization of about 180 was compounded with isobornylmethacrylate (IBOMA) and VDMO in the weight proportion of 85/5/5 (PDMS/IBOMA/VDMO). The mixture was stirred, a free radical initiator was added and polymerized by exposure to ultraviolet radiation. The resultant polymeric material was characterized for modulus, tensile strength, elongation, oleic acid uptake, and oxygen permeability (D_K). The material was purified by extraction with toluene and also the internal wetting agent (VDMO) was hydrolyzed in the polymeric material by boiling in buffered saline solution for 20 minutes. Both the toluene extracted sample and toluene extracted/hydrolyzed sample were characterized. The results of these tests are reported in Table 1.

TABLE 1

Polydimethylsiloxane Based Material

Material	Youngs Modulus MPa (g/mm^2)	Tensile Strength MPa (g/mm^2)	Elongation %	Oleic %	D_K
95/5/5(PDMS /IBOMA/VDMO)	1.049 (107)	0.922 (94)	127	4.7	200
toluene extracted	5.108 (521)	1.392 (142)	35	4.4	200
extracted/ hydrolyzed	8.902 (908)	1.951 (199)	37	6.0	200

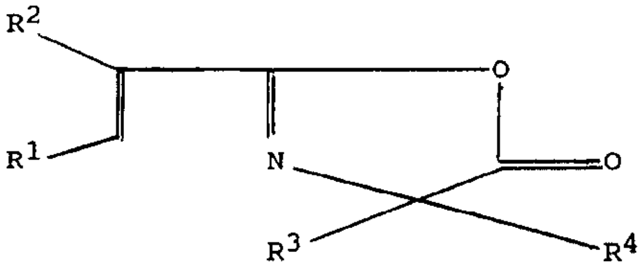
Comparison with Prior Art Polymeric Materials

The polymeric material from Example F was immersed in a buffered solution for a period of time under controlled conditions. As a control polymeric material combining the wetting agents described by US-A-4,652,622 was subjected to the same conditions and the wettability of each sample was monitored. The polymeric material of the present invention maintains its wettability to a greater degree than the state of the art wetting agent (the control).

Claims

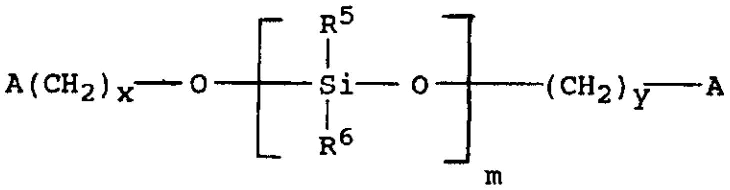
Claims for the following Contracting States : AT, DE, FR, GB

1. A composition formed by polymerizing a mixture comprising:
   (a) an acrylate- or methacrylate-functional endcapped siloxane monomer; and
   b) an internal wetting agent represented by the general formula



   where R^1 and R^2 independently denote a hydrogen atom or a lower alkyl radical with one to six carbon atoms, and R^3 and R^4 independently denote alkyl radicals with one to six carbon atoms or R^3 and R^4 taken together represent a cyclohexyl radical.

2. A composition according to Claim 1, wherein the siloxane monomer is represented by the formula:



$$A(CH_2)_x - O - \left[\begin{array}{c} R^5 \\ | \\ Si - O \\ | \\ R^6 \end{array} \right]_m - (CH_2)_y - A$$

   wherein A denotes an acrylate or methacrylate radical, R^5 and R^6 independently denote alkyl radicals with one to six carbon atoms or phenyl radicals, x and y are on the average one to six, and m is at least one.

3. A composition according to Claim 1 or Claim 2, comprising 1-98 weight percent of the siloxane monomer (a), 1-50 weight percent of said internal wetting agent (b) and from 1 to 80 weight percent of a toughening agent.

4. A composition according to Claim 3, which comprises: 60-95 weight percent of the siloxane monomer (a); 1-20 weight percent of said internal wetting agent (b); and 4-20 weight percent of said toughening agent.

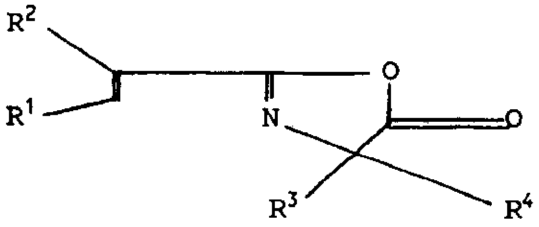
5. A composition according to any preceding claim, wherein said internal wetting agent is 2-vinyl-4,4-dimethyl-2-oxazolin-5-one.

6. A composition according to any one of Claims 1-4, wherein said internal wetting agent is 2-isopropenyl-4,4-dimethyl-2-oxazolin-5-one.

7. A contact lens made from a composition according to any preceding claim.

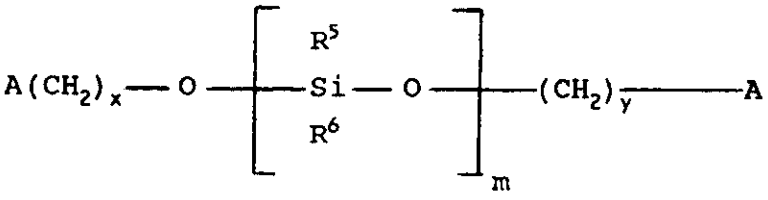
Claims for the following Contracting State : ES

1. A process for preparing a composition, formed by polymerizing a mixture comprising:
   (a) an acrylate- or methacrylate-functional endcapped siloxane monomer; and
   (b) an internal wetting agent represented by the general formula



where R^1 and R^2 independently denote a hydrogen atom or a lower alkyl radical with one to six carbon atoms, and R^3 and R^4 independently denote alkyl radicals with one to six carbon atoms or R^3 and R^4 taken together represent a cyclohexyl radical.

2. A process according to Claim 1, wherein the siloxane monomer is represented by the formula:



$$A(CH_2)_x-O-\left[\begin{matrix} R^5 \\ -Si-O- \\ R^6 \end{matrix}\right]_m-(CH_2)_y-A$$

wherein A denotes an acrylate or methacrylate radical, R^5 and R^6 independently denote alkyl radicals with one to six carbon atoms or phenyl radicals, x and y are on the average one to six, and m is at least one.

3. A process according to Claim 1 or Claim 2, wherein said mixture comprises 1-98 weight percent of the siloxane monomer (a), 1-50 weight percent of said internal wetting agent (b) and from 1 to 80 weight percent of a toughening agent.

4. A process according to Claim 3, wherein said mixture comprises: 60-95 weight percent of the siloxane monomer (a); 1-20 weight percent of said internal wetting agent (b); and 4-20 weight percent of said toughening agent.

5. A process according to any preceding claim, wherein said internal wetting agent is 2-vinyl-4,4-dimethyl-2-oxazolin-5-one.

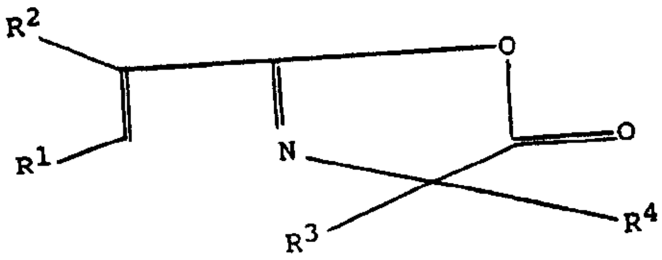
6. A process according to any one of Claims 1-4, wherein said internal wetting agent is 2-isopropenyl-4,4-dimethyl-2-oxazolin-5-one.

7. A contact lens made from a composition prepared by a process according to any preceding claim.

Patentansprüche

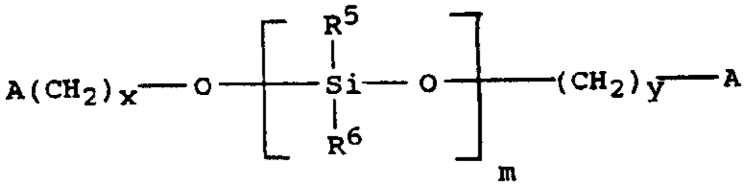
Patentansprüche für folgende Vertragsstaaten : AT, DE, FR, GB

1. Zusammensetzung, gebildet durch das Polymerisieren einer Mischung, die umfaßt:
   (a) ein mit funktioneller Acrylat- oder Methacrylatgruppe endverkapptes Siloxanmonomer; und
   (b) ein inneres Benetzungsmittel der allgemeinen Formel:



worin R^1 und R^2 unabhängig voneinander für ein Wasserstoffatom oder einen Niederalkylrest mit 1 bis 6 C-Atomen stehen und R^3 und R^4 unabhängig voneinander für Alkylreste mit 1 bis 6 C-Atomen stehen oder R^3 und R^4 zusammengenommen einen Zyklohexylrest darstellen.

2. Zusammensetzung nach Anspruch 1, worin das Siloxanmonomer von der Formel



$$A(CH_2)_x-O-\left[\begin{array}{c}R^5\\|\\-Si-O-\\|\\R^6\end{array}\right]_m-(CH_2)_y-A$$

dargestellt wird, worin A einen Acrylat- oder Methacrylatrest bezeichnet, R^5 und R^6 unabhängig voneinander Alkylreste mit 1 bis 6 C-Atomen oder Phenylreste bezeichnen, x und y durchschnittlich 1 bis 6 sind und m zumindest 1 ist.

3. Zusammensetzung nach Anspruch 1 oder 2, die 1 bis 98 Gew.-% des Siloxanmonomers (a), 1 bis 50 Gew.-% des genannten inneren Benetzungsmittels (b) und von 1 bis 80 Gew.-% eines festigkeitserhöhenden Mittels umfaßt.

4. Zusammensetzung nach Anspruch 3, die umfaßt: 60 bis 95 Gew.-% des Siloxanmonomers (a); 1 bis 20 Gew.-% des genannten inneren Benetzungsmittels (b); und 4 bis 20 Gew.-% des genannten festigkeitserhöhenden Mittels.

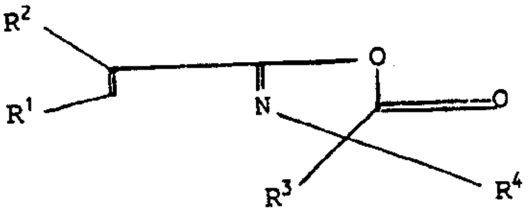
5. Zusammensetzung nach einem der vorhergehenden Ansprüche, worin das genannte innere Benetzungsmittel 2-Vinyl-4,4-dimethyl-2-oxazolin-5-on ist.

6. Zusammensetzung nach einem der Ansprüche 1 bis 4, worin das genannte innere Benetzungsmittel 2-Isopropenyl-4,4-dimethyl-2-oxazolin-5-on ist.

7. Kontaktlinse, die aus einer Zusammensetzung nach einem der vorhergehenden Ansprüche hergestellt ist.

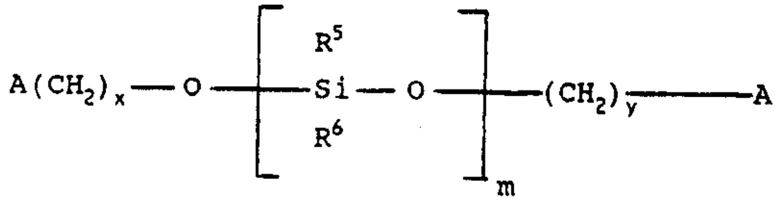
Patentansprüche für folgenden Vertragsstaat : ES

1. Verfahren zur Herstellung einer Zusammensetzung, umfassend das Polymerisieren einer Mischung, die umfaßt:
   (a) ein mit funktioneller Acrylat- oder Methacrylatgruppe endverkapptes Siloxanmonomer; und
   (b) ein inneres Benetzungsmittel allgemeinen Formel:



worin R^1 und R^2 unabhängig voneinander für ein Wasserstoffatom oder einen Niederalkylrest mit 1 bis 6 C-Atomen stehen und R^3 und R^4 unabhängig voneinander für Alkylreste mit 1 bis 6 C-Atomen stehen oder R^3 und R^4 zusammengenommen einen Zyklohexylrest darstellen.

2. Verfahren nach Anspruch 1, worin das Siloxanmonomer von der Formel



$$A(CH_2)_x-O-\left[\begin{array}{c}R^5\\ |\\ Si\\ |\\ R^6\end{array}-O\right]_m-(CH_2)_y-A$$

dargestellt wird, worin A einen Acrylat- oder Methacrylatrest bezeichnet, R^5 und R^6 unabhängig voneinander Alkylreste mit 1 bis 6 C-Atomen oder Phenylreste bezeichnen, x und y durchschnittlich 1 bis 6 sind und m zumindest 1 ist.

3. Verfahren nach Anspruch 1 oder 2, worin die genannte Mischung 1 bis 98 Gew.-% des Siloxanmonomers (a), 1 bis 50 Gew.-% des genannten inneren Benetzungsmittels (b) und von 1 bis 80 Gew.-% eines festigkeit serhöhenden Mittels umfaßt.

4. Verfahren nach Anspruch 3, worin die genannte Mischung umfaßt: 60 bis 95 Gew.-% des Siloxanmonomers (a); 1 bis 20 Gew.-% des genannten inneren Benetzungsmittels (b); und 4 bis 20 Gew.-% des genannten festigkeitserhöhenden Mittels.

5. Verfahren nach einem der vorhergehenden Ansprüche, worin das genannte innere Benetzungsmittel 2-Vinyl-4,4-dimethyl-2-oxazolin-5-on ist.

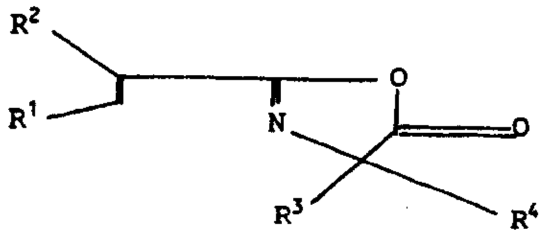
6. Verfahren nach einem der Ansprüche 1 bis 4, worin das genannte innere Benetzungsmittel 2-Isopropenyl-4,4-dimethyl-2-oxazolin-5-on ist.

7. Kontaktlinse, die aus einer Zusammensetzung hergestellt ist, die nach einem Verfahren nach einem der vorhergehenden Ansprüche hergestellt ist.

Revendications

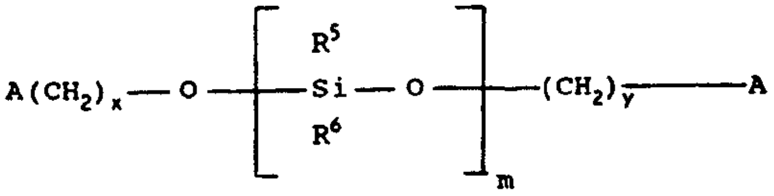
Revendications pour les Etats contractants suivants : AT, DE, FR, GB

1. Composition formée par polymérisation d'un mélange comprenant:
   a) un monomère de siloxane comprenant des groupes terminaux à fonction acrylate ou méthacrylate; et
   b) un agent mouillant interne représenté par la formule générale



dans laquelle R^1 et R^2 représentent indépendamment un atome d'hydrogène ou un radical alkyle inférieur avec de 1 à 6 atomes de carbone, et R^3 et R^4 représentent indépendamment des radicaux alkyle avec de 1 à 6 atomes de carbone ou R^3 et R^4 pris ensemble représentent un radical cyclohexyle.

2. Une composition selon la revendication 1, dans laquelle le monomère de siloxane est représenté par la formule:



$$A(CH_2)_x-O-\left[\begin{array}{c}R^5\\ |\\ Si-O\\ |\\ R^6\end{array}\right]_m-(CH_2)_y-A$$

dans laquelle A représente un acrylate ou un méthacrylate, R^5 et R^6 représentent indépendamment des radicaux alkyle avec de 1 à 6 atomes de carbone ou des radicaux phényles, x et y sont sur la moyenne de 1 à 6, et m vaut au moins 1.

3. Composition selon la revendication 1 ou 2, comprenant de 1 à 98 % en poids de monomère siloxane (a), 1 à 50 % en poids de l'agent mouillant interne, et de 1 à 80 % en poids d'un durcisseur.

4. Composition selon la revendication 3, qui comporte de 60 à 95 % en poids du monomère de siloxane (a), de 1 à 20 % en poids de l'agent mouillant interne (b) et de 4 à 20 % en poids du durcisseur.

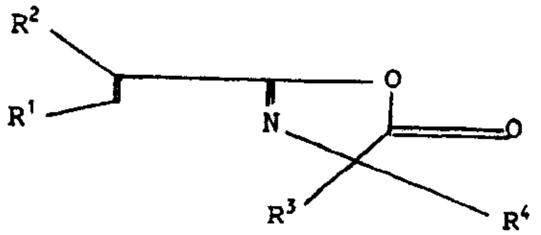
5. Composition selon l'une quelconque des revendications précédentes, dans laquelle l'agent mouillant interne est le 2-vinyl-4,4-diméthyl-2-oxazoline-5-one.

6. Composition selon l'une quelconque des revendications 1 à 4, dans laquelle l'agent mouillant interne est le 2-isopropényl-4,4-diméthyl-2-oxazoline-5-one.

7. Lentille de contact fabriquée à partir d'une composition selon l'une des revendications précédentes.

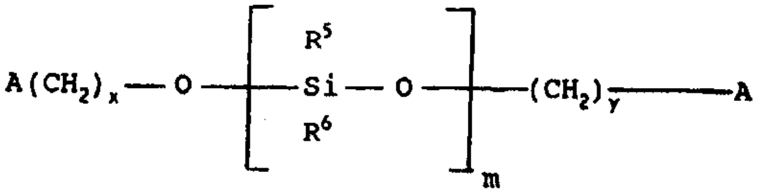
Revendications pour l'Etat contractant suivant : ES

1. Procédé de préparation d'une composition comportant la polymérisation d'un mélange qui comprend:
   a) un monomère de siloxane comprenant des groupes terminaux à fonction acrylate ou méthacrylate; et
   b) un agent mouillant interne représenté par la formule générale



dans laquelle R^1 et R^2 représentent indépendamment un atome d'hydrogène ou un radical alkyle inférieur avec de 1 à 6 atomes de carbone, et R^3 et R^4 représentent indépendamment des radicaux alkyle avec de 1 à 6 atomes de carbone ou R^3 et R^4 pris ensemble représentent un radical cyclohexyle.

2. Procédé selon la revendication 1, dans lequel le monomère de siloxane est représenté par la formule:



$$A(CH_2)_x-O-\left[\begin{array}{c}R^5\\ |\\ Si\\ |\\ R^6\end{array}-O\right]_m-(CH_2)_y-A$$

dans laquelle A représente un acrylate ou un méthacrylate, R^5 et R^6 représentent indépendamment des radicaux alkyle avec de 1 à 6 atomes de carbone ou des radicaux phényles, x et y sont sur la moyenne de 1 à 6, et m vaut au moins 1.

3. Procédé selon la revendication 1 ou 2, dans lequel ledit mélange comprend de 1 à 98 % en poids de monomère siloxane (a), 1 à 50 % en poids de l'agent mouillant interne, et de 1 à 80 % en poids d'un durcisseur.
4. Procédé selon la revendication 3, dans lequel ledit mélange comporte de 60 à 95 % en poids du monomère de siloxane (a), de 1 à 20 % en poids de l'agent mouillant interne (b) et de 4 à 20 % en poids du durcisseur.
5. Procédé selon l'une quelconque des revendications précédentes, dans lequel l'agent mouillant interne est le 2-vinyl-4,4-diméthyl-2-oxazoline-5-one.
6. Procédé selon l'une quelconque des revendications 1 à 4, dans lequel l'agent mouillant interne est le 2-isopropényl-4,4-diméthyl-2-oxazoline-5-one.
7. Lentille de contact fabriquée à partir d'une composition préparée au moyen du procédé selon l'une des revendications précédentes.

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Applicant/Proprietor Address see ?
BAUSCH & LOMB INCORPORATED, 1400 North Goodman Street, Rochester, NY
14602, United States of America [ADP No. 50326073003]

Inventors
RONALD E. BAMBURY, 63 Matthew Drive, Fairport New York 14450, United
States of America [ADP No. 54802855001]

JOON CHOO DONG, 86-603 Hyundai Apt., Kangnam-ku Seoul 135, Republic of
Korea [ADP No. 56757412001]

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Address for Service
PETER CLERK ALLAM, LLOYD WISE, TREGEAR & CO. Norman House 105-109 Strand,
London WC2R 0AE, United Kingdom [ADP No. 50128842001]

EPO Representative
PETER CLERK ALLAM, LLOYD WISE, TREGEAR & CO. Norman House 105-109 Strand,
London WC2R 0AE, United Kingdom [ADP No. 50128842001]

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BAUSCH & LOMB INCORPORATED, 1400 North Goodman Street, Rochester,
NY 14602, United States of America

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