

No.	Monomer	UV absorber (% by weight)	Initiators (% by weight)	Activators (% by weight)	Layer Thickness (mm)	Residual monomer	Smear Layer (mg/cm <sup>2</sup> )
1	bis-(acryloyl- oxyethyl-oxy- methyl)-tricyclo- [5.2.1.0 <sup>0.6</sup> ] decane	—	2,4,6-trimethyl- benzoyl-diphenyl phosphine oxide (0.5%)	—	7	0.5	0.3
2	bis-(acryloyl- oxyethyl-oxyethyl- oxymethyl)-tricyclo- [5.2.1.0 <sup>0.6</sup> ] decane	2-hydroxy- 4-methoxy- benzophenone (0.1%)	bis-(2,6 dichloro- benzoyl)-4-n-propyl- phenylphosphine oxide (0.5%)	—	12.5	0.2	0.3
3	2,2-bis [4- (acryloyl-oxyethyl- oxy)phenyl] propane	—	camphor quinone (0.22%) + 2,4,6- trimethyl-benzoyl- diphenylphosphine oxide (0.5%)	methyl diethanol amine (1%)	11	0.2	2
4	2,2-bis [4-(acryloyl- oxyethyl-oxyethyloxy) phenyl] propane	—	bis (2,6 dichloro- benzoyl)-4-n-pro- pylphenylphosphine oxide (0.5%)	—	7	0.4	2
5	2,2-bis [4-(acryloyl- oxyethyl-oxyethyloxy) phenyl]-propane	2-hydroxy- 4-methoxy- benzophenone (0.1%)	bis (2,6) dichloro- benzoyl)-4-n-pro- pylphenylphosphite oxide (0.5%)	—	9	0.4	2
6	2,2-bis [4-methacry- loyl-oxyethyl-oxy- ethyl-oxy)phenyl] propane	—	bis (2,6 dichloro- benzoyl)-4-n-butyl- phenylphosphine oxide (0.5%)	—	7.2	0.4	4
7	2,2-bis [methacry- loyl-oxyethyl-oxy- ethyl-oxy)phenyl] propane	2-hydroxy-4- methoxy-benzo- phenone (0.1%)	bis (2,6 dichloro- benzoyl)-4-n-propyl- phenylphosphine oxide (0.5%)	—	7.0	0.6	5

Silicone envelopes or shells as can be employed for pliable intraocular lenses can be filled very satisfactorily with all these compositions; the smear layer was so slight that the hardened filling could not be removed without destroying the shell; when using monofunctional acrylic or methacrylic acid esters the smear layer is so large that no stable filling can be produced in the intraocular lens.

With the mixtures of examples 4, 5, 6 and 7 cytotoxic investigations were carried out by curing the filling materials between two slides (20 sec. irradiation with Elipar 2). The polymer discs thus made were fixed under sterile conditions with a non-cytotoxic TCAB (Tissue culture adhesive system for biomaterials) and introduced into slide culture flasks. The preparations were then grown with bovine endothelial cells and epithelial cells in the presence of <sup>3</sup>H TdR. The incubation time was 24 h. In the evaluation, the cytoplasmic propagation, the absence of nuclei and the crosslinking of the cells were observed. It was found in all specimens that 95% of the nucleic and cytoplasmic structures had been preserved and only a slight crosslinking of the cells was to be observed. The materials are thus to be considered only slightly toxic. Thereafter, the unpolymerized monomer of example 7 was investigated for cytotoxicity. The same picture was obtained and the unpolymerized monomer also showed only moderately toxic properties.

The intraocular-lens filling materials according to the invention are thus very well-suited to the intended purpose because firstly they exhibit only a slight oxygen inhibition in the polymerization and secondly have only small contents of residual monomer and are to be classified as only moderately toxic.

The present invention is, of course, in no way restricted to the specific disclosure of the specification and Examples, but also encompasses any modification within the scope of the appended claims.

What we claim is:

1. A method of providing a composition for an eye, including the steps of:
  - a) providing a photopolymerizable composition for preparing an intraocular-lens filling material, said composition containing the following components: a) 94–99.799% by weight of at least one of the group consisting of at least difunctional acrylic and methacrylic acid esters of at least difunctional polyhydroxy compounds having an aliphatic or aromatic skeleton with at least six chain links, the skeleton consisting of the atoms carbon and oxygen, b) 0.1–2% by weight of at least one photoinitiator that is activatable with light in the wavelength range 400–500 nm, c) 0.001–2% by weight of an UV-absorber that can absorb light of wavelengths < 400 nm, and d) 0.1–2% by weight of other auxiliary substances, whereby in each case the quantity refers to the total mass;
  - during an operation, introducing said photopolymerizable composition directly into an eye; and
  - curing said photopolymerizable composition with light in the wavelength range 400–500 nm.
2. A method according to claim 1, in which said component d) auxiliary substances are selected from the group consisting of dyes and activators for said photoinitiator.
3. A method according to claim 2, in which said activator is a tertiary amine.
4. A method according to claim 1, which includes the step of using as said component a) difunctional acrylic or methacrylic acid esters having a molecular weight of greater than 310.
5. A method according to claim 1, in which as said component b) at least one of the group consisting of alpha-diketones and mono and bisacylphosphine oxides is used.