

Appendix A

Asserted Claims

U.S. Patent No. 5,760,100

1. An ophthalmic lens having a surface modified by *a surface treatment process, said lens having* ophthalmically compatible inner and outer surfaces, said lens being suited to extended periods of wear in continuous, intimate contact with ocular tissue and ocular fluids *while having adequate movement on the eye with blinking to promote adequate tear exchange and without producing significant corneal swelling, without having substantial amounts of lipid adsorption, and without causing substantial wearer discomfort during a period of wear of at least 24 hours*, said lens comprising a polymeric material which has a high oxygen permeability and a high ion permeability, said polymeric material being formed from polymerizable materials comprising:

(a) at least one oxypem polymerizable material and

(b) at least one ionopem polymerizable material,

wherein said lens allows oxygen permeation in an amount sufficient to maintain corneal health and wearer comfort during [a] *the period of extended, continuous contact with ocular tissue and ocular fluids,*

wherein said oxypem polymerizable material forms a phase or phases substantially separate from the phase or phases formed by said ionopem polymerizable material,

wherein said lens allows ion or water permeation via ion or water pathways in an amount sufficient to enable the lens to move on the eye such that corneal health is not substantially harmed and wearer comfort is acceptable during [a] *the period of extended, continuous contact with ocular tissue and ocular fluids,*

wherein said ionopem polymerizable material, if polymerized alone would form a hydrophilic polymer having a water content of at least 10 weight percent upon full hydration, and

wherein said ophthalmic lens has an oxygen transmissibility of at least about 70 barrers/mm and an ion permeability characterized either by (1) an Ionoton Ion Permeability Coefficient of greater than about $0.2 \times 10^{-6} \text{cm}^2/\text{sec}[\dots]$ or (2) an Ionoflux Diffusion Coefficient of greater than about $1.5 \times 10^{-6} \text{mm}^2/\text{min}$. wherein said ion permeability is measured with respect to sodium ions.

(*100 Patent cl.1 (emphasis in original).)

28. An ophthalmic lens of claim 27¹, wherein said lens produces, after wear of about 24 hours, including normal sleep periods, less than about 6% corneal swelling.

(‘100 Patent cl.28.)

56. *An ophthalmic lens having ophthalmically compatible inner and outer surfaces, said lens being suited to extended periods of wear in continuous, intimate contact with ocular tissue and ocular fluids with adequate movement on the eye with blinking to promote adequate tear exchange and without producing significant corneal swelling, without having substantial amounts of lipid adsorption, and without causing substantial wearer discomfort during a period of wear of at least 24 hours, said lens comprising a polymeric material which has a high oxygen permeability and a high ion permeability, said polymeric material being formed from polymerizable materials comprising:*

(a) at least one oxyperm polymerizable material and

(b) at least one ionoperm polymerizable material,

wherein said lens allows oxygen permeation in an amount sufficient to maintain corneal health and wearer comfort during the period of extended, continuous contact with ocular tissue and ocular fluids, wherein said oxyperm polymerizable material forms a phase or phases substantially separate from the phase or phases formed by said ionoperm polymerizable material,

wherein said lens allows ion or water permeation via ion or water pathways in an amount sufficient to enable the lens to move on the eye such that corneal health is not substantially harmed and wearer comfort is acceptable during the period of extended, continuous contact with ocular tissue and ocular fluids,

wherein said ionoperm polymerizable material, if polymerized alone would form a hydrophilic polymer having a water content of at least 10 weight percent upon full hydration,

wherein said ophthalmic lens has an oxygen transmissibility of at least about 70 barrers/mm and an ion permeability characterized by an Ionoflux Diffusion Coefficient of greater than about $2.6 \times 10^{-6} \text{mm}^2/\text{min}$, wherein said ion permeability is measured with respect to sodium ions, and

wherein said lens is autoclaved without lowering either said oxygen permeability or said ion permeability below levels sufficient to maintain good corneal health and on-eye movement.

(‘100 Patent cl.56 (emphasis in original).)

¹ 27. An ophthalmic lens of claim 1, wherein said lens produces, after wear of about 24 hours, including normal sleep periods, less than about 8% corneal swelling.

(‘100 Patent cl.27.)

U.S. Patent No. 5,849,811

28. *An ophthalmic lens having a surface modified by a surface treatment process, said lens comprising an inner and outer surface, wherein said inner surface is adapted to rest immediately adjacent to the human cornea, wherein said lens has the following properties:*
- (a) an oxygen permeability equal to or greater than about 72 barrers from said inner to said outer surface sufficient to prevent substantial corneal swelling during a period of extended wear;*
 - (b) ophthalmic compatibility during a period of extended, continuous, intimate contact with the ocular environment while having adequate movement on the eye with blinking to promote adequate tear exchange and without producing significant corneal swelling, without having substantial amounts of lipid adsorption, and without causing substantial wearer discomfort during the period of wear of at least 7 days; and*
 - (c) ion or water permeability sufficient to allow lens movement on the eye in an amount sufficient to sustain corneal health and wearer comfort.*
- wherein said ophthalmic lens has an oxygen transmissibility of at least about 70 barrers/mm and an ion permeability characterized either by an Ionoflux Diffusion Coefficient of greater than about $1.5 \times 10^{-6} \text{mm}^2/\text{min}$, wherein said ion permeability is measured with respect to sodium ions.*

('811 Patent cl.28 (emphasis in original).)

29. *An ophthalmic lens of claim 28, wherein said lens has an Ionoflux Diffusion Coefficient of greater than about $2.6 \times 10^{-6} \text{mm}^2/\text{min}$.*

('811 Patent cl.29 (emphasis in original).)

U.S. Patent No. 6,951,894 B1

89. A contact lens comprising a polymeric material formed from at least:
- (a) an ionoperm polymerizable material comprising at least one of 2-hydroxyethyl methacrylate or N,N-dimethylacrylamide; and
 - (b) an oxyperm polymerizable material;
- wherein said lens has an oxygen transmissibility of at least about 70 barrers/mm and an ion permeability characterized either by (1) an ionoton ion permeability coefficient of greater than about $0.25 \times 10^{-3} \text{cm}^2/\text{sec}$, or (2) an Ionoflux diffusion coefficient of greater than about $1.3 \times 10^{-5} \text{mm}^2/\text{min}$, wherein said ion permeability is measured with respect to sodium ions; wherein said lens is suitable for continuous, intimate contact with ocular tissue and ocular fluids while having adequate movement on the eye with blinking to promote adequate tear exchange and without producing significant corneal swelling, without having substantial amounts of lipid adsorption, and without causing substantial wearer discomfort during a period of wear of at least 24 hours.

('894 Patent cl.89.)

90. The contact lens of claim 89 wherein said ionoperm polymerizable material comprises both 2-hydroxyethyl methacrylate and N,N-dimethylacrylamide.

('894 Patent cl.90.)

96. The contact lens of claim 89 further comprising polyvinylpyrrolidone at a surface of said lens.

('894 Patent cl.96.)

99. The contact lens of claim 89 wherein said period of wear is at least 7 days.

('894 Patent cl.99.)