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(54) Title: METHOD OF MAKING OPHTHALMIC DEVICES AND COMPONENTS THEREOF FROM HYDROPHOBIC AC-
RYLIC (HA) POLYMERS WITH REDUCED OR ELIMINATED GLISTENINGS

(57) Abstract: This invention relates to the fields of polymer chemistry, materials science and ophthalmology. More particularly it
relates to optical components and method(s) of preparing same from hydrophobic acrylic (HA) monomer(s) that exhibit reduced or
eliminated glistenings when implanted in a patient's eye. The method of this invention uses a mixture of one or more low temperat-
ure initiators (LTI) combined with one or more high temperature initiators (HTI), to polymerize one or more HA monomers to pro-
duce an optical HA polymer which, when used to manufacture an optical component and implanted as with an intraocular lens
(IOL), exhibit reduced glistenings to the patient.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/021690**A. CLASSIFICATION OF SUBJECT MATTER***A61K 9/00(2006.01)i, A61K 31/78(2006.01)i, A61K 47/48(2006.01)i, A61P 27/02(2006.01)i, A61P 27/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61K 9/00; G02B 1/04; C08F 20/10; A61F 2/16; A61K 8/85; C08F 2/01; B29D 11/00; C08F 26/12; G02C 7/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: hydrophobic acrylic polymer, monomer, optical component, intraocular lens, glistening, polymerization, initiator, ophthalmic, UV blocker, cross-linker, di(n-propyl)peroxydicarbonate, 2,3'-azobis(isobutyronitrile)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2011-0021733 A1 (B. F. M. WANDERS et al.) 27 January 2011 See abstract, paragraphs [0020], [0030], and claims 17, 23-27.	1-18
A	US 2004-0056371 A1 (X. LIAO et al.) 25 March 2004 See abstract, paragraphs [0015]-[0017], [0032]-[0033], and claims 1-36.	1-18
A	US 2010-0261858 A1 (K. MENTAK et al.) 14 October 2010 See abstract, paragraphs [0012]-[0019], [0036]-[0039], and claims 22, 32-34, 41-44.	1-18
A	US 2009-0281209 A1 (C. LEHMAN et al.) 12 November 2009 See abstract, paragraphs [0006], [0029]-[0033], and claims 1, 14.	1-18
A	US 7789509 B2 (K. MENTAK et al.) 07 September 2010 See abstract, line 65 in column 2 - line 8 in column 3, lines 5-10, 43-45 in column 4, and claims 1-4.	1-18
A	US 2009-0088493 A1 (W. R. LAREDO et al.) 02 April 2009 See abstract, paragraphs [0013]-[0014], [0052]-[0053], [0056], and claims 1, 12-15.	1-18

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
US 2011-0021733 A1	27.01.2011	CN 101401012 A	01.04.2009		
		CN 102250282 A	23.11.2011		
		DE 602007013360 D1	05.05.2011		
		EP 1818690 A1	15.08.2007		
		EP 1984761 A1	29.10.2008		
		EP 1984761 B1	23.03.2011		
		ES 2362134 T3	28.06.2011		
		JP 2009-526561 A	23.07.2009		
		JP 2009-526561 T	23.07.2009		
		US 2009-0054978 A1	26.02.2009		
		WO 2007-094665 A1	23.08.2007		
		US 2004-0056371 A1	25.03.2004	EP 1543356 A1	22.06.2005
				WO 2004-029675 A1	08.04.2004
US 2010-0261858 A1	14.10.2010	EP 1828270 A2	05.09.2007		
		EP 1828270 A4	16.02.2011		
		JP 2008-523221 A	03.07.2008		
		JP 2008-523221 T	03.07.2008		
		US 2006-0122349 A1	08.06.2006		
		US 2008-0064821 A1	13.03.2008		
		US 2008-0064840 A1	13.03.2008		
		US 7399811 B2	15.07.2008		
		US 7446157 B2	04.11.2008		
		US 7745555 B2	29.06.2010		
		US 8048972 B2	01.11.2011		
		WO 2006-063139 A2	15.06.2006		
		WO 2006-063139 A3	09.08.2007		
US 2009-0281209 A1	12.11.2009	AR 071616 A1	30.06.2010		
		AU 2009-244393 A1	12.11.2009		
		CA 2722784 A1	12.11.2009		
		CN 102016649 A	13.04.2011		
		EP 2274640 A1	19.01.2011		
		EP 2274640 B1	07.12.2011		
		IL 208727 D0	30.12.2010		
		JP 2011-519685 A	14.07.2011		
		KR 10-2011-0014614 A	11.02.2011		
		MX 2010012098 A	30.11.2010		
		TW 201000155 A	01.01.2010		
		US 7790825 B2	07.09.2010		
		WO 2009-137525 A1	12.11.2009		
US 7789509 B2	07.09.2010	CA 2652383 A1	13.12.2007		
		CN 101484091 A	15.07.2009		
		EP 2026717 A2	25.02.2009		
		JP 2009-538689 A	12.11.2009		
		KR 10-2009-0034323 A	07.04.2009		
		US 2007-0282057 A1	06.12.2007		

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/021690

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 2007-142782 A2	13.12.2007
US 2009-0088493 A1	02.04.2009	AR 068830 A1	09.12.2009
		AT 507851 T	15.05.2011
		AU 2008-308780 A1	09.04.2009
		CA 2700898 A1	09.04.2009
		CN 101815543 A	25.08.2010
		DE 602008006745 D1	16.06.2011
		EP 2192931 A1	09.06.2010
		EP 2192931 B1	04.05.2011
		ES 2362976 T3	18.07.2011
		JP 2011-501986 A	20.01.2011
		JP 2011-501986 T	20.01.2011
		KR 10-2010-0085926 A	29.07.2010
		MX 2010003144 A	07.04.2010
		RU 2010116897 A	10.11.2011
		TW 200916130 A	16.04.2009
		WO 2009-046055 A1	09.04.2009