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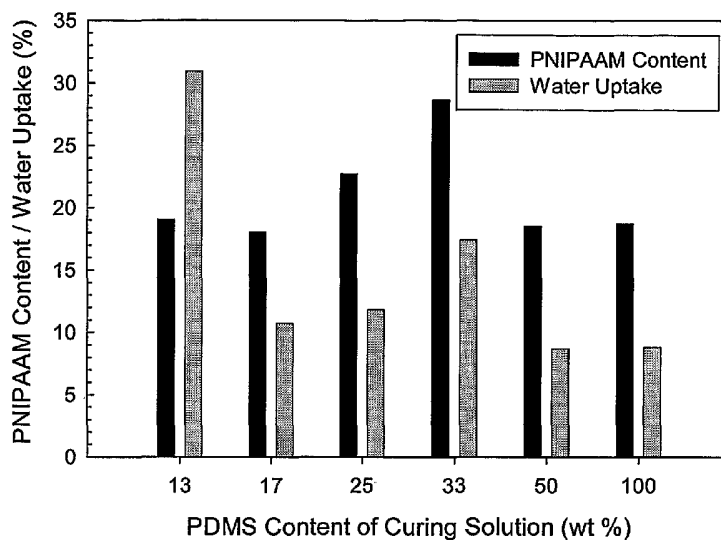
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[Continued on next page]

(54) Title: OPHTHALMIC BIOMATERIALS AND PREPARATION THEREOF



(57) Abstract: Composite interpenetrating network (IPN) of PDMS and PNIPAAm was formed to generate polymers with oxygen and glucose permeability as well as improved wettability compared to PDMS homopolymers and greater mechanical strength than PNIPAAm homopolymers. Transparent vinyl and hydroxyl terminated PDMS / PNIPAAm IPNs (PDMS-V and PDMS-OH IPNs respectively) were successfully synthesized. Transmission electron microscopy images verified the structure of the IPNs. Surface analysis suggested that PNIPAAm was present on the surface as well as in the bulk material. PDMS-OH IPNs generated from a PDMS-OH matrix cured in the presence of solvent had the highest glucose permeability at 10⁻⁷ cm²/s, comparable to that of the native cornea. The LCST phenomenon remained in these materials, although changes were not as abrupt as with pure PNIPAAm. These results suggest that these materials may be further developed as ophthalmic biomaterials or for controlled drug release applications.

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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)
IPC 7 G02B C08L C08G

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

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

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 315 836 A (HÜLS AMERICA) 17 May 1989 (1989-05-17) page 4, line 32 page 6, line 1 - line 5 page 6, line 47 - line 49; claims 3,17,21	1-26
X	US 6 011 082 A (WANG ET AL) 4 January 2000 (2000-01-04) column 5, line 5 - line 9; claim 1	1-4,6, 8-16,18, 21-26
X	EP 0 643 083 A (ESSILOR) 15 March 1995 (1995-03-15) page 4 - page 5; claim 13	1-4,6, 8-14,18, 22,25,26
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search 3 October 2005	Date of mailing of the international search report 07/11/2005
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ABBASI ET AL: "Sequential interpenetrating polymer networks etc." J. APPLIED POL. SCI., vol. 85, 2002, pages 1825-1831, XP002347574 page 1825 -----	1-4,6, 8-14,18, 21,22, 25,26

INTERNATIONAL SEARCH REPORT

Information on patent family members

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