

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 June 2002 (20.06.2002)

PCT

(10) International Publication Number
WO 02/048253 A3

(51) International Patent Classification⁷: B29C 61/00,
C08L 101/12

(21) International Application Number: PCT/US01/48081

(22) International Filing Date:
13 December 2001 (13.12.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/739,075 15 December 2000 (15.12.2000) US

(71) Applicant: KIMBERLY-CLARK WORLDWIDE,
INC. [US/US]; 401 North Lake Street, Neenah, WI 54956
(US).

(72) Inventors: TOPOLKARAEV, Vasily, A.; 1730 South
Lee Street, Appleton, WI 54915 (US). SOERENS, Dave,
A.; 736 Kensington Road, Neenah, WI 54956 (US).

ODORZYNSKI, Thomas, Walter; 255 Warren Court,
Green Bay, WI 54301 (US). GARVEY, Michael, J.;
309 N. Drew Street, Appleton, WI 54911 (US). UITEN-
BROEK, Duane, Girard; 123 Homewood Court, Little
Chute, WI 54140 (US).

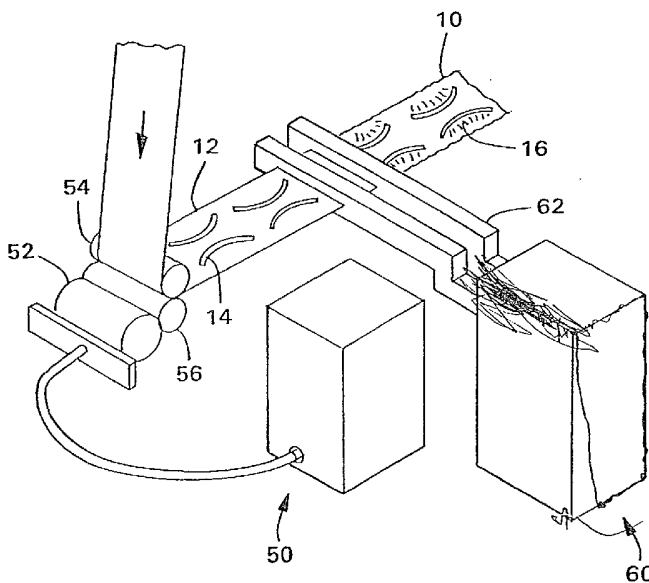
(74) Agents: PRATT, John, S. et al.; Kilpatrick Stockton LLP,
Suite 2800, 1100 Peachtree Street, Atlanta, GA 30309
(US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,
ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent

[Continued on next page]

(54) Title: MATERIALS HAVING SHAPE-MEMORY



(57) Abstract: The present invention relates to shape deformable materials, which are capable of (1) being deformed, (2) storing an amount of shape deformation, and (3) recovering at least a portion of the shape deformation when exposed to electromagnetic radiation (EMR) energy. The shape deformable materials can advantageously be in the form of films, fibers, filaments, strands, nonwovens, and pre-molded elements. The shape deformable materials of the present invention may be used to form products, which are both disposable and reusable. More specifically, the shape deformable materials of the present invention may be used to produce products such as disposable diapers, training pants, incontinence products, and feminine care products.



WO 02/048253 A3



(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

(88) Date of publication of the international search report:
14 August 2003

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/48081

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B29C61/00 C08L101/12

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 B29C B32B A61F C08L

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	GB 2 160 473 A (KIMBERLY CLARK CO) 24 December 1985 (1985-12-24) claims 1,9,10,13,14,16,17 page 5, line 36 - line 45 ---	1-7, 21, 22
X	US 5 916 203 A (BRANDON ROBERT GRIFFITHS ET AL) 29 June 1999 (1999-06-29) claims 1,2 column 4, line 48 -column 5, line 10 example ---	1-10
A	US 4 665 306 A (ROLAND DAVID R ET AL) 12 May 1987 (1987-05-12) claim 1 ---	1
A	WO 96 13434 A (RUUTTU JARI ;DATALAB OY (FI)) 9 May 1996 (1996-05-09) claim 1 ---	1
	-/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

15 October 2002

Date of mailing of the international search report

24/10/2002

Name and mailing address of the ISA
 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer
 Niaounakis, M

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/US 01/48081

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 42528 A (MNEMOSCIENCE GMBH ;LANGER ROBERT S (US)) 26 August 1999 (1999-08-26) claims 1,15,28,36-39 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/48081

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2160473	A	24-12-1985	AU 572286 B2	05-05-1988
			AU 4129185 A	07-11-1985
			BR 8502101 A	31-12-1985
			CA 1247319 A1	27-12-1988
			DE 3515804 A1	07-11-1985
			FR 2563769 A1	08-11-1985
			JP 60250935 A	11-12-1985
			KR 9207728 B1	16-09-1992
			US 4816094 A	28-03-1989
			ZA 8502583 A	27-11-1985
US 5916203	A	29-06-1999	AU 728737 B2	18-01-2001
			AU 1291199 A	24-05-1999
			BR 9815274 A	05-03-2002
			CN 1283093 T	07-02-2001
			EP 1035816 A1	20-09-2000
			JP 2001521782 T	13-11-2001
			WO 9922686 A1	14-05-1999
US 4665306	A	12-05-1987	NONE	
WO 9613434	A	09-05-1996	FI 944769 A	12-04-1996
			AU 3655695 A	23-05-1996
			WO 9613434 A1	09-05-1996
WO 9942528	A	26-08-1999	AU 3308499 A	06-09-1999
			BR 9908339 A	02-10-2001
			CA 2316945 A1	26-08-1999
			EP 1062278 A2	27-12-2000
			HU 0102138 A2	28-09-2001
			JP 2002504585 T	12-02-2002
			PL 342996 A1	16-07-2001
			TR 200002451 T2	21-03-2001
			WO 9942528 A2	26-08-1999
			US 6388043 B1	14-05-2002