## (19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 1 April 2004 (01.04.2004)

PCT

(10) International Publication Number WO 2004/026167 A3

(51) International Patent Classification<sup>7</sup>: A61F 13/15, 13/20

(21) International Application Number:

PCT/US2003/029636

(22) International Filing Date:

18 September 2003 (18.09.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/411,645

18 September 2002 (18.09.2002)

(71) Applicant: POLYMER GROUP, INC. [US/US]; 4838 Jenkins Avenue, North Charleston, SC 29406 (US).

(72) Inventors: ZUCKER, Jerry; 16 Buckingham Drive, Charleston, SC 29407 (US). CARTER, Nick, Mark; 132 Dannyn Grove Court, Mooresville, NC (US).

(74) Agent: GEIMER, Stephen, D.; Wood, Phillips, Katz, Clark & Mortimer, Suite 3800, 500 West Madison Street, Chicago, IL 60661-2511 (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, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, 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, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 1 July 2004

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.

(54) Title: IMPROVED BARRIER PERFORMANCE OF ABSORBENT ARTICLE COMPONENTS

(57) Abstract: The present invention is directed to absorbent articles comprised of one or more components exhibiting an improved barrier to basis weight performance. The improved barrier performance of the aforementioned absorbent article components is a result of supplying a strong and durable nonwoven substrate layer followed by deposition of a nano-denier, essentially continuously filament barrier layer onto the nonwoven substrate layer thereby providing absorbent articles that exhibit enhanced barrier performance in comparison to conventional absorbent articles.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/29636

1 0-10	TOTAL PROPERTY OF THE PARTY OF			
A. CLASSIFICATION OF SUBJECT MATTER				
IPC(7) : A61F 13/15, 13/20				
US CL : 604/370				
According to	International Patent Classification (IPC) or to both nat	tional classification and IPC		
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols)				
		y classification symbols)		
U.S.: 604/370				
Decumentation			.1 6" 1 1 1 1	
Documentano	on searched other than minimum documentation to the	extent that such documents are included in	the fields searched	
Electronic da	ta base consulted during the international search (name	e of data base and, where practicable, sear	ch terms used)	
Please See Co	ontinuation Sheet	-	·	
C. DOC	UMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap	ppropriate of the relevant passages	Relevant to claim No.	
Y	US 5,492,751 A (BUTT, SR. et al) 20 February 199		1-3	
1		0 (20.02.1990), See abstract, cor. 1,	1-3	
	lines 15 et seq.	0077 (0.4.44.40077)		
Y	US 5,683,809 A (FREEMAN et al) 04 November 19	997 (04.11.1997), See col. 1, lines 13-	1-3	
	16, col. 6, lines 15-41.			
Y	US 5,804,512 A(LICKFIELD et al) 08 September 19		1-3	
	lines 13-20, col. 2, lines 14-36, col. 4, lines 223-34,	col. 5, lines 1-4 and 31-35.		
Y	US 6,103,647 A (SHULTZ et al) 15 August 2000 (1.	5.08.2000), See col. 3, lines 10-23 and	1-3	
	col. 4, lines 59-63.	,		
Α	US 2002/0035354 A1 (MIRLE et al) 21 March 2002	(21 03 2002) See paragraph 93	1-3	
11	OB 2002/0055554 FIT (MIRRISE OF AL) BIT MAION BOOM	(21.03.2002), 500 paragraps.	1.5	
		'		
	· · · · · · · · · · · · · · · · · · ·			
			i	
Further	documents are listed in the continuation of Box C.	See patent family annex.		
		· · · · · · · · · · · · · · · · · · ·		
* S <sub>1</sub>	pecial categories of cited documents:	"T" later document published after the inter		
"A" document	defining the general state of the art which is not considered to be	date and not in conflict with the application principle or theory underlying the investigation.		
	lar relevance	principle of incory underlying the inves	litton	
		"X" document of particular relevance; the c		
"E" earlier ap	plication or patent published on or after the international filing date	considered novel or cannot be consider	ed to involve an inventive step	
"L" document	which may throw doubte on priority glaim(c) or which is gited to	when the document is taken alone		
	which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as	"Y" document of particular relevance; the c	laimed invention cannot be	
specified)	•	considered to involve an inventive step		
		combined with one or more other such	•	
"O" document	referring to an oral disclosure, use, exhibition or other means	being obvious to a person skilled in the	art	
"P" document	published prior to the international filing date but later than the	"&" document member of the same patent f	amily	
	ate claimed	abbanioni moniori or the same paremi.	,	
Date of the actual completion of the international search  Date of mailing of the international search report			u rebort	
27 Ianuary 20	004 (27.01.2004)	<b>30</b> APR 2004	1.	
	niling address of the ISA/US	Authorized officer Shaken 11. L	G, Lak	
	<del>-</del>	Sharen II. L	nese you	
Mail Stop PCT, Attn: ISA/US Commissioner for Patents		Karin M. Reichle		
P.O. Box 1450			:	
	xandria, Virginia 22313-1450	Telephone No. (703) 308-0858		
Facsimile No. (703)305-3230				

INTERNATIONAL SEARCH REPORT	PC1/US03/29636			
	·			
Continuation of B. FIELDS SEARCHED Item 3: EAST, search terms: denier, nanometer, nano, continuous, fibers, impervious, barrier, diameter, diaper, average, micron, micrometer, absorbent				
Form PCT/ISA/210 (second sheet) (July 1998)				