

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 March 2003 (06.03.2003)

PCT

(10) International Publication Number
WO 03/018685 A3

(51) International Patent Classification⁷: **C08L 9/00**,
B32B 27/32, A61L 29/04

(21) International Application Number: PCT/US02/25258

(22) International Filing Date: 8 August 2002 (08.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/939,294 24 August 2001 (24.08.2001) US

(71) Applicant: **BAXTER INTERNATIONAL INC.**
[US/US]; One Baxter Parkway, Deerfield, IL 60015 (US).

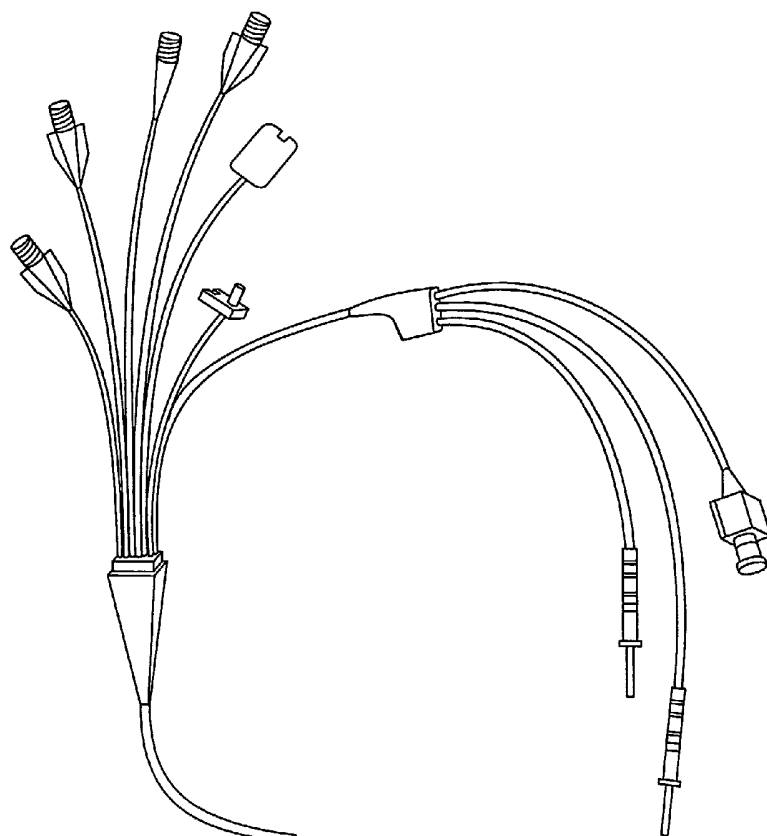
(74) Agents: **BUONAIUTO, Mark, J.** et al.; Baxter International, Inc., One Baxter Parkway, Deerfield, IL 60015 (US).

(72) Inventors: **DING, Yuan-Pang, Samuel**; 1117 Trevor Circle, Libertyville, IL 60048 (US). **LAL, Birendra, K.**;

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

[Continued on next page]

(54) Title: MEDICAL TUBING MADE FROM POLYBUTADIENE



(57) Abstract: A polymer blend for fabricating medical products having a first 1,2 polybutadiene present from about 1 % to about 99 % by weight of the blend and having a first melting point temperature; and a second 1,2 polybutadiene present from about 1 % to about 99 % by weight of the blend and having a second melting point temperature higher than the first melting point temperature.



WO 03/018685 A3



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, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

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:
18 September 2003

(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR).

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 02/25258

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C08L9/00 B32B27/32 A61L29/04

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 C08L B32B

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 612 799 A (UBE INDUSTRIES) 31 August 1994 (1994-08-31) abstract; claims page 4, line 24 - line 39 -----	1-85
X	US 5 310 497 A (VE SPEER DREW ET AL) 10 May 1994 (1994-05-10) abstract; claims examples -----	1-86
X	EP 0 417 552 A (REHAU AG & CO) 20 March 1991 (1991-03-20) abstract; claims page 4, line 47 - line 54 -----	9-16, 25-36, 69-86
	-/--	

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

1 July 2003

Date of mailing of the international search report

28. 07. 2003

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

Mettler, R-M.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/25258

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 106 190 A (NISSHO KK) 13 June 2001 (2001-06-13) abstract; claims; examples page 6, line 40 - line 53 page 4, line 29 - line 30 -----	1-86
A	WO 01 56783 A (BAXTER INT) 9 August 2001 (2001-08-09) abstract; claims; figures; examples -----	1-91
A	US 5 741 452 A (QIN CHUAN ET AL) 21 April 1998 (1998-04-21) cited in the application abstract; claims column 8, line 23 - line 31 -----	1-91

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/25258

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-85

Polymer blends and tubings thereof comprising a first 1,2 polybutadiene present from 1% to 99% by weight of the blend and having a first melting temperature; and a second 1,2 polybutadiene present from 1% to 99% by weight of the blend and having a second melting temperature higher than the first melting temperature.

2. claim: 86

a multiple layered tubing comprising a first layer of a first low crystallinity syndiotactic 1,2 polybutadiene; and a second layer of a second low crystallinity syndiotactic 1,2 polybutadiene.

3. claims: 87-91

a tubing and a method for fabricating a tubing, the tubing comprising a first 1,2 polybutadiene present from 1% to 99% by weight of the tubing and having a first melting temperature; and a second 1,2 polybutadiene present from 1% to 99% by weight of the tubing and having a second melting temperature higher than the first melting temperature, the tubing having been exposed to a heat treatment process.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/25258

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0612799	A	31-08-1994	DE 69418364 D1	17-06-1999
			DE 69418364 T2	07-10-1999
			EP 0612799 A1	31-08-1994
			JP 6293852 A	21-10-1994
			US 5468822 A	21-11-1995
US 5310497	A	10-05-1994	AT 162689 T	15-02-1998
			AU 677240 B2	17-04-1997
			AU 5140293 A	26-04-1994
			BR 9307155 A	30-03-1999
			CA 2146026 A1	14-04-1994
			DE 69316765 D1	05-03-1998
			DE 69316765 T2	10-06-1998
			DK 663800 T3	30-03-1998
			EP 0663800 A1	26-07-1995
			ES 2113554 T3	01-05-1998
			FI 951537 A	23-05-1995
			IL 107137 A	13-07-1997
			JP 3218040 B2	15-10-2001
			JP 8502202 T	12-03-1996
			MX 9306020 A1	29-07-1994
			NZ 256613 A	20-12-1996
			WO 9407379 A1	14-04-1994
US 5648020 A	15-07-1997			
ZA 9307137 A	27-03-1995			
EP 0417552	A	20-03-1991	DE 3930753 A1	28-03-1991
			AT 113241 T	15-11-1994
			DE 59007553 D1	01-12-1994
			DK 417552 T3	10-04-1995
			EP 0417552 A2	20-03-1991
EP 1106190	A	13-06-2001	JP 2001161813 A	19-06-2001
			EP 1106190 A1	13-06-2001
			US 2001021429 A1	13-09-2001
WO 0156783	A	09-08-2001	US 6461696 B1	08-10-2002
			AU 3675601 A	14-08-2001
			BR 0107948 A	22-10-2002
			CA 2395063 A1	09-08-2001
			CN 1396862 T	12-02-2003
			EP 1259374 A1	27-11-2002
			WO 0156783 A1	09-08-2001
			US 2002164492 A1	07-11-2002
US 5741452	A	21-04-1998	AU 714189 B2	23-12-1999
			AU 2744797 A	26-11-1997
			BR 9702210 A	20-07-1999
			CA 2225163 A1	13-11-1997
			CN 1197423 A ,B	28-10-1998
			DE 69714179 D1	29-08-2002
			DE 69714179 T2	03-04-2003
			DK 836550 T3	04-11-2002
			EP 0836550 A1	22-04-1998
			JP 11512674 T	02-11-1999
			NO 980007 A	20-02-1998
			NZ 329409 A	29-07-1999
			TR 9700340 A1	21-11-1997

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/25258

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5741452	A	WO 9742020 A1	13-11-1997