

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 October 2005 (06.10.2005)

PCT

(10) International Publication Number
WO 2005/092948 A3

(51) International Patent Classification:

C08G 63/02 (2006.01) C08L 67/00 (2006.01)
C08G 63/183 (2006.01)

(21) International Application Number:

PCT/US2005/008214

(22) International Filing Date: 10 March 2005 (10.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/554,838 19 March 2004 (19.03.2004) US
10/852,502 24 May 2004 (24.05.2004) US

(71) Applicant: **EASTMAN CHEMICAL COMPANY**
[US/US]; 100 North Eastman Road, Kingsport, TN 37660
(US).

(72) Inventors: **MATOSKY, Andrew, Joseph**; 5039 Dublin
Road, Kingsport, TN 37664 (US). **VANZANT, Leia,**
Georganna; 266 Free Hill Road, Gray, TN 37615,
us. **GERMROTH, Ted, Calvin**; 1974 Cooks Valley
Road, Kingsport, TN 37664 (US). **TANNER, Candace,**
Michele; 704 Thornwood Place, Kingsport, TN 37660
(US).

(74) Agent: **BOSHEARS, Betty, J.**; P.O. Box 511, Kingsport,
TN 37662-5075 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,
ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:

4 January 2007

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: ANAEROBICALLY BIODEGRADABLE POLYESTERS

(57) **Abstract:** Anaerobically biodegradable polyesters, and compositions and articles of manufacture containing the polyesters are described. Polyesters previously thought to be non-biodegradable under anaerobic conditions have been surprisingly and unexpectedly rendered anaerobically biodegradable by controlling the aromatic monomer content in the polyester. These polyesters can be made into fibers, films, non-woven fabrics, and adhesives. They are suitable for use in absorbent articles such as flushable personal hygiene products.



WO 2005/092948 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/008214

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08G63/02 C08G63/183 C08L67/00

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 C08G 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 44 32 161 A1 (GESELLSCHAFT FUER BIOTECHNOLOGISCHE FORSCHUNG MBH , 38124 BRAUNSCHWEIG) 14 March 1996 (1996-03-14) claims 1,4,5 tables 2,6 example 8 page 5, paragraph 4-7 figures 3,4 ----- -/-	1,3-19, 32-42

☒ 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

17 May 2005

Date of mailing of the international search report

03/06/2005

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

Lauteschlaeger, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/008214

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 195 08 737 A1 (GESELLSCHAFT FUER BIOTECHNOLOGISCHE FORSCHUNG MBH , 38124 BRAUNSCHWEIG) 12 September 1996 (1996-09-12) claims 1,4-8 page 3, paragraph 2 - paragraph 6 table 2 page 6, line 20 - line 65 example 8 figures 3,4 -----	1,3-19, 32-44
X,Y	US 5 446 079 A (BUCHANAN ET AL) 29 August 1995 (1995-08-29) claims 1,4,5,10,12,13 column 12, lines 29,30 column 13, line 3 - line 17 column 18, line 50 - column 19, line 13 tables I,II,XVI column 45, lines 51,52 -----	1-45
X	US 2003/088033 A1 (SHELBY MARCUS DAVID ET AL) 8 May 2003 (2003-05-08) paragraphs [0061], [0069] -----	1-19,42, 43
X,Y	WO 93/07199 A (E.I. DU PONT DE NEMOURS AND COMPANY) 15 April 1993 (1993-04-15) claim 1 page 4, paragraph 1-3 page 6, line 14 - line 23 page 7, line 30 - page 8, line 33 example 2 -----	1-45

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/008214

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4432161	A1	14-03-1996	WO 9607687 A1 14-03-1996
		EP 0779907 A1 25-06-1997	
		JP 10505620 T 02-06-1998	
DE 19508737	A1	12-09-1996	WO 9607687 A1 14-03-1996
		EP 0779907 A1 25-06-1997	
		JP 10505620 T 02-06-1998	
US 5446079	A	29-08-1995	US 5292783 A 08-03-1994
		US 6342304 B1 29-01-2002	
		US 5599858 A 04-02-1997	
		US 5580911 A 03-12-1996	
		US 5559171 A 24-09-1996	
		US 6495656 B1 17-12-2002	
		US 5900322 A 04-05-1999	
		AT 150058 T 15-03-1997	
		AT 199383 T 15-03-2001	
		AU 696544 B2 10-09-1998	
		AU 4557496 A 06-06-1996	
		AU 664831 B2 07-12-1995	
		AU 9105091 A 25-06-1992	
		BR 9107138 A 05-04-1994	
		CA 2095536 A1 31-05-1992	
		CN 1324891 A ,C 05-12-2001	
		CN 1062740 A 15-07-1992	
		CN 1183426 A 03-06-1998	
		CN 1183423 A ,C 03-06-1998	
		CN 1183433 A ,C 03-06-1998	
		CN 1183427 A 03-06-1998	
		CN 1183428 A 03-06-1998	
		CN 1183429 A 03-06-1998	
		DE 69125170 D1 17-04-1997	
		DE 69132548 D1 05-04-2001	
		DE 69132548 T2 28-06-2001	
		EP 0559785 A1 15-09-1993	
		EP 0736557 A1 09-10-1996	
		EP 0950678 A1 20-10-1999	
		FI 932450 A 28-05-1993	
		FI 20000496 A 03-03-2000	
		HK 1041708 A1 08-10-2004	
		IE 914155 A1 03-06-1992	
		JP 6504558 T 26-05-1994	
		JP 3362040 B2 07-01-2003	
		JP 3393124 B2 07-04-2003	
		JP 2001354802 A 25-12-2001	
		JP 3530178 B2 24-05-2004	
		JP 2003128768 A 08-05-2003	
		JP 2003221464 A 05-08-2003	
		JP 2004084156 A 18-03-2004	
		KR 220443 B1 15-09-1999	
		KR 245905 B1 15-03-2000	
		KR 233885 B1 15-03-2000	
		KR 245906 B1 15-03-2000	
		MX 9102312 A1 31-01-1994	
		NO 931920 A 16-07-1993	
		NZ 240799 A 26-01-1994	
		SG 47853 A1 17-04-1998	
		WO 9209654 A2 11-06-1992	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/008214

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2003088033	A1	08-05-2003	CN 1541252 A	27-10-2004
			EP 1414904 A1	06-05-2004
			JP 2004536192 T	02-12-2004
			WO 03008499 A1	30-01-2003

WO 9307199	A	15-04-1993	AU 2694992 A	03-05-1993
			AU 2751592 A	03-05-1993
			WO 9307198 A1	15-04-1993
			WO 9307199 A1	15-04-1993
			US 5295985 A	22-03-1994
			AU 2762992 A	03-05-1993
			WO 9307213 A1	15-04-1993
			US 5219646 A	15-06-1993
			AU 2753592 A	03-05-1993
			DE 69207201 D1	08-02-1996
			DE 69207201 T2	18-07-1996
			DK 606362 T3	29-01-1996
			EP 0606362 A1	20-07-1994
			ES 2083195 T3	01-04-1996
			WO 9307197 A1	15-04-1993
			US 5171309 A	15-12-1992
