

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 September 2006 (08.09.2006)

PCT

(10) International Publication Number
WO 2006/093553 A3

(51) International Patent Classification:

C25D 11/04 (2006.01) B32B 3/24 (2006.01)
C25D 11/08 (2006.01) B32B 15/04 (2006.01)
C25D 11/18 (2006.01) B32B 15/08 (2006.01)

(21) International Application Number:

PCT/US2005/046503

(22) International Filing Date:

19 December 2005 (19.12.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/636,986 17 December 2004 (17.12.2004) US

(71) Applicant (for all designated States except US): **HEXCEL CORPORATION** [—/US]; 11711 Dublin Blvd., Dublin, California 94568 (US).

(72) Inventors: **MORRISON, Robert**; 3945 E. Sequoia Trail, Phoenix, Arizona (US). **ROUILLE, Christopher**; 7724 N. Paseo Monserrat, Tucson, AZ 85704 (US). **BOWERS, Mary, Stone** (US).

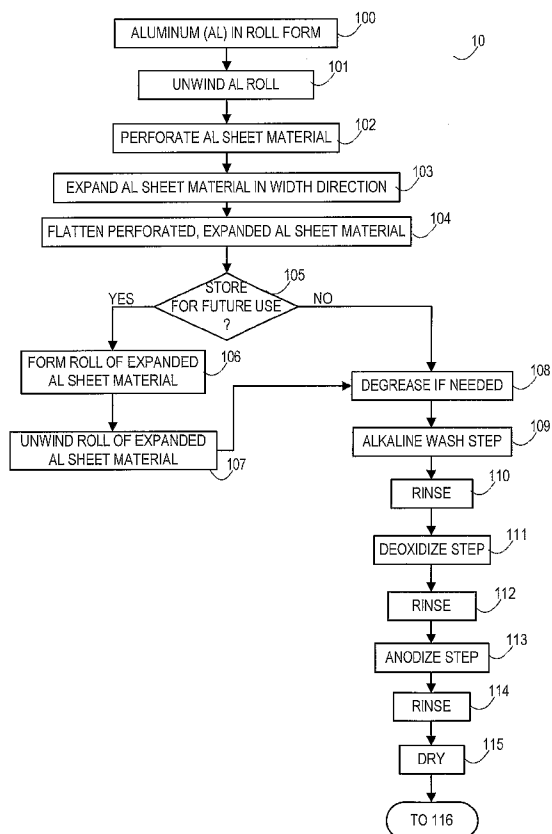
(74) Agent: **WITHERS, James, D.**; WITHERS & KEYS, LLC, P.O. Box 2049, McDonough, Georgia 30253 (US).

(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, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, 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, US, 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, LV, 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).

[Continued on next page]

(54) Title: ANODIZED ALUMINUM FOIL SHEETS AND EXPANDED ALUMINUM FOIL (EAF) SHEETS AND METHODS OF MAKING AND USING THE SAME



(57) Abstract: Anodized aluminum foil sheets and expanded aluminum foil (EAF) and composites containing the same are disclosed. Methods of making anodized aluminum foil sheets and expanded aluminum foil (EAF) and composites containing the same are also disclosed. Methods of using anodized aluminum foil sheets and expanded aluminum foil (EAF) and composites containing the same are further disclosed.

WO 2006/093553 A3



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

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.

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

26 April 2007

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2005/046503

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C25D11/04 C25D11/08 C25D11/18 B32B3/24 B32B15/04
 B32B15/08

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)
 C25D 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WOOTTON ERIC: "The surface treatment and coil coating of aluminium" [Online] 1994, EUROPEAN ALUMINIUM ASSOCIATION , XP002420652 Retrieved from the Internet: URL: http://www.eaa.net/eea/education/TALAT/5000/5300.htm [retrieved on 2007-02-15]	1,2,4,8, 10,12, 13,17,19
Y	page 1, lines 5-11 page 4, line 18 - line 36 page 10, line 10 - page 11, line 10 page 14, line 10 - page 15, line 7 page 17, line 1 - line 12 page 19, line 4 - line 22 page 21, line 12 - line 18 page 22, line 28 - page 23, line 3 figures 5301.02.07, 5301.03.01, 5301.03.02 ----- -/--	3,5-7

Further documents are listed in the continuation of Box C. See patent family 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 22 February 2007	Date of mailing of the international search report 05/03/2007
--	---

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 Le Hervet, Morgan
---	--

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/046503

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5 225 265 A (PRANDY JILL M [US] ET AL) 6 July 1993 (1993-07-06) claim 1 column 3, line 10 - line 17 column 4, line 23 - line 61 column 5, line 67 - column 6, line 4 column 7, line 23 - line 36 column 8, line 48 - line 66 figures 4A,6,7	18-38 3,5-7, 9-11, 14-16
X Y	US 4 025 681 A (DONNELLY DENNIS J ET AL) 24 May 1977 (1977-05-24) claims 1,5 column 3, line 20 - line 63 column 4, line 7 - line 12 figure 2	1,2,4 9-11, 14-16
A	WO 90/01857 A (SAAB SCANIA AB [SE]) 22 February 1990 (1990-02-22) claims 1-7 figure 5	17-36
A	MARCZAK G. S., WAKELING P. O.: "Production of an adhesive substrate using phosphoric and a continuous coil operation" ANNUAL TECHNICAL CONFERENCE OF THE AMERICAN ELECTROPLATERS AND SURFACE FINISHERS SOCIETY, 26 June 2000 (2000-06-26), - 29 June 2000 (2000-06-29) XP008075418 cited in the application the whole document	1,19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/046503

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5225265	A	06-07-1993	CA	2084626 A1		07-06-1993
US 4025681	A	24-05-1977	BE	852110 A1		01-07-1977
WO 9001857	A	22-02-1990	BR	8907605 A		14-05-1991
			EP	0429496 A1		05-06-1991
			SE	461949 B		09-04-1990
			SE	8802892 A		16-02-1990