

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 January 2007 (18.01.2007)

PCT

(10) International Publication Number
WO 2007/008442 A3

(51) International Patent Classification:

B32B 7/00 (2006.01) *B32B 37/00* (2006.01)
B32B 7/04 (2006.01) *B32B 37/06* (2006.01)
B32B 27/00 (2006.01) *B32B 37/10* (2006.01)
B32B 27/40 (2006.01)

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, 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, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(21) International Application Number:

PCT/US2006/025439

(22) International Filing Date: 28 June 2006 (28.06.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/175,642 6 July 2005 (06.07.2005) US
11/335,204 19 January 2006 (19.01.2006) US

(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).

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

(71) Applicant and

(72) Inventor: **KESSING, Reinhard, H.** [DE/US]; 18536 Sw 79th Court, Miami, FL 33157 (US).

(74) Agents: **RICHARDS, Rowland et al.**; PHILLIPS LYTTLE LLP, 3400 HSBC Center, Buffalo, NY 14203 (US).

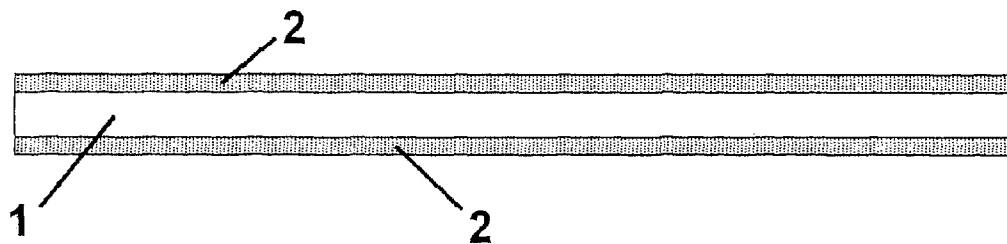
(88) Date of publication of the international search report:
5 April 2007

(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,

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: THREE LAYER COMPOSITE PANEL FROM RECYCLED POLYURETHANES

Cross Sectional View of the Three-Layer Composite Panel



(57) Abstract: A process for the manufacture of a three layer composite panel with improved moisture resistance, minimal thickness swell, thermal stability, and a smooth hard surface suitable for direct lamination. The composite panel is produced utilizing recycled polyurethanes, preferably obtained from vehicle headliners, insulated foam panels, foam insulation, energy absorbent panels, and polyisocyanurate foams along with materials incidental to at least one recycled component including composite resins, cloth, adhesives, fiberglass, and plastics. The composite panel is composed of a core layer pressed between two surface layers.

WO 2007/008442 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 06/25439

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - B32B 7/00, 7/04, 27/00, 27/40, 37/00, 37/06 37/10 (2006.01)
 USPC - 428/98, 428/212, 428/422.8, 428/423.1, 428/903.3
 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(8) - B32B 7/00, 7/04, 27/00, 27/40, 37/00, 37/06 and 37/10 (2006.01)
 USPC - 428/98, 428/212, 428/422.8, 428/423.1 and 428/903.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 IPC(8) - B32B 7/00, 7/04, 27/00, 27/40, 37/00, 37/06 and 37/10 (2006.01) - see keywords below
 USPC - 428/98, 428/212, 428/422.8, 428/423.1 and 428/903.3 - see keywords below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 USPTO - WEST - PGPB,USPT,EPAB,JPAB
 keywords: composite , laminate , plies , ply , polyurethane , recycle, sandwich

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0200567 A1 (Mott et al.) 14 October 2004 (14.10.2004) para [0009], [0010], [0011], [0012], [0013], [0013], [0017], [0019] and [0035].	1-39
A	US 5,604,266 A (Mushovic) 18 February 1997 (18.02.1997).	1-39
A	US 2003/0082365 A1 (Geary et al.) 1 May 2003 (01.05.2003).	1-39
A	US 6,093,481 A (Lynn et al.) 25 July 2000 (25.07.2000).	1-39
A	US 5,879,608 A (Lammeck et al.) 9 March 1999 (09.03.1999).	1-39

Further documents are listed in the continuation of Box C.

* 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 application or patent 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 25 December 2006 (25.12.2006)	Date of mailing of the international search report 01 FEB 2007
--	--

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
---	--