(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 June 2006 (22.06.2006)

PCT

(10) International Publication Number
WO 2006/065657 A3

(51) International Patent Classification:
B32B 17/06 (2006.01)

(21) International Application Number:
PCT/US2005/044664

(22) International Filing Date:
8 December 2005 (08.12.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/011,323 13 December 2004 (13.12.2004) US

(71) Applicant *(for all designated States except US)*: **CORNING INCORPORATED** [US/US]; 1 Riverfront Plaza, Corning, New York 14831 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **LAPP, Jose, C** [US/US]; 10510 Cheese Factory Road, Corning, New York 14830 (US). **GULATI, Suresh, T** [US/US]; 49 Saddle Ridge Drive, Elmira Heights, New York 14903 (US).

(74) Agent: **NICASTRI, Christopher**; Corning Incorporated, Patent Department, Sp-ti-3-1, Corning, New York 14831 (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).

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:
24 August 2006

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: GLASS LAMINATE SUBSTRATE HAVING ENHANCED IMPACT AND STATIC LOADING RESISTANCE

(57) Abstract: A glass laminate substrate for electronic substrates, such as flat panel displays, includes a transparent glass core bounded by transparent glass skin layers, wherein the coefficient of thermal expansion of the core is greater than the coefficient of thermal expansion of the skin layers thereby forming a residual compressive stress in the skin layers and a residual tensile stress in the core. The relative thickness of the skin layers can be selected to enhance the strength of the glass laminate substrate while maintaining a sufficiently low residual tensile stress in the core to allow scribing and separating of the substrate to size. Interlayers can be located between the core and the skin layers, wherein the interlayers include a residual compressive stress, and produce a reduced residual tensile stress in the core.

WO 2006/065657 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/44664

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **B32B 17/06**(2006.01)

USPC: 428/426
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)
U.S. : 428/426

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 3,673,049 (Giffen et al) 27 June 1972 (27.06.1972), column 3, lines 15-23, 46-50, 73-75, column 7, tables 1-2, column 4, lines 49-54, column 5, lines 18-25,23-26, 57, column 14, lines 74-76, column 6, lines 45-59.	1-12, 14-19 ---------- 13, 20, 22-24, 26-28
X -- Y	US 3,958,052 (Galusha et al) 18 May 1976 (18.05.1976), column 6, lines 45-59, column 2, line 67-column 3, line 7, column 3 lines 15-22, 46-50	25 ---------- 13, 20, 22-24,26-28

☐ 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 application or patent 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
11 May 2006 (11.05.2006)

Date of mailing of the international search report
27 JUN 2006

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
Jennifer McNeil
Telephone No. (571) 272-8432

Form PCT/ISA/210 (second sheet) (April 2005)