



- (51) **International Patent Classification:**  
*C09J 5/06* (2006.01)      *C09J 163/00* (2006.01)
- (21) **International Application Number:**  
PCT/EP2011/003736
- (22) **International Filing Date:**  
26 July 2011 (26.07.2011)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
1012595.3      27 July 2010 (27.07.2010)      GB
- (71) **Applicant (for all designated States except US):**  
ZEPHYROS INC [US/US]; 160 McLean Drive, Romeo,  
MI 48065 (US).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only): CZAPLICKI, Mi-  
chael, J.** [US/FR]; 1 rue Lindberg, ZA Activeum, Altorf,  
F-67129 Molsheim Cedex (FR).

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,  
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,  
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,  
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,  
OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG,  
SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ,  
UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every  
kind of regional protection available):** ARIPO (BW, GH,  
GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,  
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,  
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,  
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,  
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report (Art. 21(3))

- (88) **Date of publication of the international search report:**  
30 August 2012

- (74) **Agent: BAWDEN, Peter, Charles;** Bawden & Associates,  
4 The Gatehouse, 2 High Street, Harpenden, Herts, AL5  
2TH (GB).

- (81) **Designated States (unless otherwise indicated, for every  
kind of national protection available):** AE, AG, AL, AM,

- (54) **Title:** ORIENTED STRUCTURAL ADHESIVES

(57) **Abstract:** A solid, dry to the touch at ambient temperature, heat curable, generally non-foaming structural adhesive that exhibits shape memory characteristics. The adhesive can be cured at an elevated temperature and contains a high molecular weight polymeric constituent that can be oriented such that at an elevated temperature below the curing temperature the material will shrink in one plane while increasing its thickness at a temperature in the range of from above the elevated temperature to below the curing temperature.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/EP2011/003736

A. CLASSIFICATION OF SUBJECT MATTER  
INV. C09J5/06 C09J163/00  
ADD.  
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)  
C09J

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)  
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	US 2009/280330 A1 (XIE TAO [US] ET AL) 12 November 2009 (2009-11-12) the whole document	1-18
X	EP 1 900 787 A2 (ZEPHYROS INC [US]) 19 March 2008 (2008-03-19) paragraphs [0058], [0064] - [0066]; claims 1-12	1-18

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 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 May 2012**

Date of mailing of the international search report  
**06/06/2012**

Name and mailing address of the ISA/  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040,  
Fax: (+31-70) 340-3016

Authorized officer  
**Sperry, Pascal**

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/003736

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009280330	A1	12-11-2009	NONE
-----			
EP 1900787	A2	19-03-2008	EP 1900787 A2 19-03-2008
			JP 2008144133 A 26-06-2008
			US 2008060757 A1 13-03-2008
-----			