



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B29C 70/44, B32B 5/28, G01N 3/30	A3	(11) International Publication Number: WO 98/38031 (43) International Publication Date: 3 September 1998 (03.09.98)
(21) International Application Number: PCT/GB98/00603 (22) International Filing Date: 25 February 1998 (25.02.98) (30) Priority Data: 9704108.1 27 February 1997 (27.02.97) GB 9708960.1 1 May 1997 (01.05.97) GB (71) Applicant (for all designated States except US): ADVANCED COMPOSITES GROUP LTD. [GB/GB]; Composites House, Adams Close, Heanor Gate Industrial Estate, Derbyshire DE75 7SW (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): SLOMAN, Roger, Mark [GB/GB]; Advanced Composites Group Ltd., Composites House, Adams Close, Heanor Gate Industrial Estate, Derbyshire, DE75 7SW (GB). (74) Agent: CAMPBELL, Iain, Angus; Swindell & Pearson, 48 Friar Gate, Derby DE1 1GY (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 17 December 1998 (17.12.98)
(54) Title: IMPROVEMENTS IN OR RELATING TO MOULDING METHODS AND MOULDED ARTICLES		
(57) Abstract A method of moulding a composite material which includes a fibre reinforcement within a resin comprises laying alternately on a mould first and second layers of fibre material pre-impregnated with uncured resin, where the resin content of the first layer is different from that of the second layer and the combination of layers gives the desired overall total volume fraction of fibres and resin in the laminate, enclosing the layers within an impervious membrane, evacuating the membrane and applying heat to the layers to flow gellate and at least partially cure the resin and during the process to allow released gasses and vapours to flow along the layers of lower resin content towards the membrane for subsequent evaluation.		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00603

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B29C70/44 B32B5/28 G01N3/30

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 6 B32B B29C C08J G01N

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 480 706 A (HSIN L. LI ET AL) 2 January 1996	7-14
Y	see column 8, line 28 - column 10, line 37; claim 1; figure 1 ---	1-6,15
X	US 2 602 037 A (ROBERT N. GELB) 1 July 1952 see claim 1; figure 1 ---	7
Y	US 2 713 378 A (MAX A. NADLER ET AL) 19 July 1955 see column 1, line 64 - column 2, line 62; claims 1-4; figures 1,2 ---	1-6,15
Y	GB 2 124 130 A (ROLLS-ROYCE LIMITED) 15 February 1984 see claim 1; figure 1 ---	1-6
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

5 June 1998

Date of mailing of the international search report

14. 10. 98

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00603

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 096, no. 003, 29 March 1996 & JP 07 309963 A (MITSUBISHI RAYON CO LTD), 28 November 1995, see abstract ---	1,9
A	EP 0 076 673 A (ADVANCED COMPOSITE COMPONENTS) 13 April 1983 cited in the application see the whole document ---	9-12
A	EP 0 242 512 A (RÜTGERSWERKE AKTIENGESELLSCHAFT) 28 October 1987 see page 3, last paragraph; claims 1-3 ---	9-12
A	US 4 783 362 A (PETER B. THORNTON ET AL) 8 November 1988 see column 1, paragraph 1 - paragraph 3; figure 1 ---	1
A	DE 38 36 442 A (DORNIER GMBH) 3 May 1990 see column 1, line 38 - line 64 -----	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 98/00603

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
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because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. CLAIMS 1-15
2. CLAIMS 16-19

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
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4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 98/00603

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