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[Continued on next page]

(54) Title: CREPED TISSUE PRODUCT WITH ENHANCED RETENTION CAPACITY

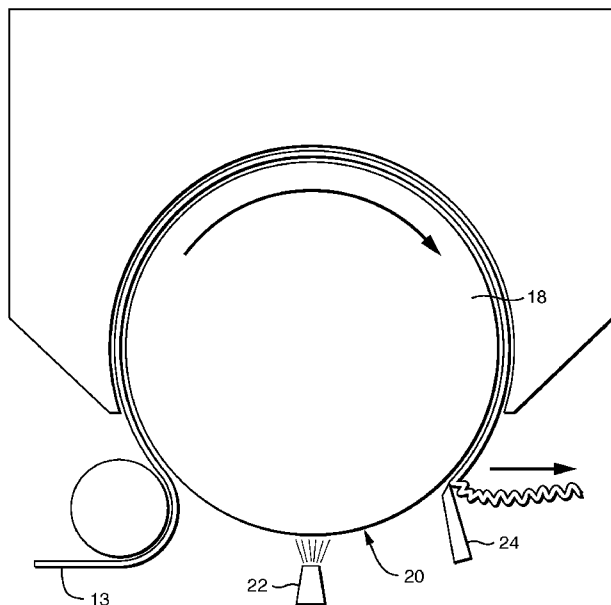


FIG. 1

(57) Abstract: An absorbent composite material may be manufactured by applying a flexible absorbent binder polymer (FAB), also referred to herein as a flexible superabsorbent, during the creping step of conventional tissue manufacturing. As such, the costly process of applying FAB to a substrate by spraying or printing followed by drying may be eliminated. The creping step has the additional advantage of improving the flexibility and softness of the FAB treated fibrous web.

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PCT/IB2011/055169**A. CLASSIFICATION OF SUBJECT MATTER****D21H 27/40(2006.01)i, D21H 27/30(2006.01)i, D21H 17/03(2006.01)i**

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)

D21H 27/40; D21F 11/00; D21H 23/24; D21H 17/37; D21H 21/18; D21H 27/00; B31F 1/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: creped tissue, web, creping additive composition, drum dryer, backing layer, absorbent layer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0137810 A1 (THOMAS JOSEPH DYER et al.) 21 June 2007 See abstract, claims 1, 13, 37, 41	1-20
A	US 2007-0137808 A1 (MICHAEL R. LOSTOCCO et al.) 21 June 2007 See abstract, claims 1, 12, 20	1-20
A	US 05865950 A (KENNETH DOUGLAS VINSON et al.) 02 February 1999 See abstract, claim 1	1-20
A	US 2008-0128101 A1 (GARY S. FURMAN et al.) 05 June 2008 See abstract, claims 1, 19, 23	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2011/055169

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0137810 A1	21.06.2007	AU 2006-329940 A1	05.07.2007
		AU 2006-329940 B2	11.08.2011
		AU 2006-333395 A1	12.07.2007
		AU 2006-333395 B2	24.02.2011
		AU 2007-330424 A1	12.06.2008
		AU 2007-330430 A1	12.06.2008
		AU 2007-330430 B2	14.04.2011
		AU 2007-330431 A1	12.06.2008
		CA 2631196 A1	12.07.2007
		CA 2631249 A1	05.07.2007
		CA 2669595 A1	12.06.2008
		CA 2670281 A1	12.06.2008
		CA 2670494 A1	12.06.2008
		CN 101326328 A	17.12.2008
		CN 101331222 A	24.12.2008
		CN 101331272 A	24.12.2008
		CN 101563445 A	21.10.2009
		CN 101563446 A	21.10.2009
		CN 101568688 A	28.10.2009
		CN 101595262 A	02.12.2009
		CN 101600788 A	09.12.2009
		CN 101600788 B	16.11.2011
		EP 1960600 A2	27.08.2008
		EP 1966440 A1	10.09.2008
		EP 2102412 A2	23.09.2009
		EP 2102413 A2	23.09.2009
		EP 2102414 A2	23.09.2009
		EP 2158360 A1	03.03.2010
		EP 2158361 A2	03.03.2010
		EP 2167628 A1	31.03.2010
		EP 2167730 A1	31.03.2010
		JP 2010-511806 A	15.04.2010
		JP 2010-511807 A	15.04.2010
		KR 10-2008-0083116 A	16.09.2008
		KR 10-2008-0083118 A	16.09.2008
		KR 10-2009-0095579 A	09.09.2009
		KR 10-2009-0095585 A	09.09.2009
		KR 10-2009-0095586 A	09.09.2009
		TW 200839059 A	01.10.2008
		TW 200846519 A	01.12.2008
		TW 200907142 A	16.02.2009
		TW 200909218 A	01.03.2009
		TW 200909219 A	01.03.2009
		TW 200912093 A	16.03.2009
		TW 200914685 A	01.04.2009
		TW 200914688 A	01.04.2009
		TW 200927916 A	01.07.2009
		US 2007-0137808 A1	21.06.2007
		US 2007-0137809 A1	21.06.2007

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2011/055169

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 2007-0137811 A1	21.06.2007
		US 2007-0137813 A1	21.06.2007
		US 2007-0144697 A1	28.06.2007
		US 2007-0284069 A1	13.12.2007
		US 2007-0295464 A1	27.12.2007
		US 2007-0295465 A1	27.12.2007
		US 2008-0000598 A1	03.01.2008
		US 2008-0000602 A1	03.01.2008
		US 2008-0041543 A1	21.02.2008
		US 2008-0073045 A1	27.03.2008
		US 2008-0073046 A1	27.03.2008
		US 2008-0216977 A1	11.09.2008
		US 2011-0129645 A1	02.06.2011
		US 7678231 B2	16.03.2010
		US 7803249 B2	28.09.2010
		US 7803250 B2	28.09.2010
		US 7807023 B2	05.10.2010
		US 7820010 B2	26.10.2010
		US 7837831 B2	23.11.2010
		US 7837832 B2	23.11.2010
		US 7842163 B2	30.11.2010
		US 7879188 B2	01.02.2011
		US 7879189 B2	01.02.2011
		US 7879190 B2	01.02.2011
		US 7879191 B2	01.02.2011
		US 7883604 B2	08.02.2011
		WO 2007-070129 A1	21.06.2007
		WO 2007-070145 A1	21.06.2007
		WO 2007-070153 A1	21.06.2007
		WO 2007-075356 A2	05.07.2007
		WO 2007-075356 A3	05.07.2007
		WO 2007-078342 A1	12.07.2007
		WO 2007-078499 A1	12.07.2007
		WO 2008-068652 A2	12.06.2008
		WO 2008-068652 A3	12.06.2008
		WO 2008-068653 A1	12.06.2008
		WO 2008-068654 A1	12.06.2008
		WO 2008-068658 A2	12.06.2008
		WO 2008-068658 A3	12.06.2008
		WO 2008-068659 A2	12.06.2008
		WO 2008-068659 A3	12.06.2008
		WO 2008-157132 A1	24.12.2008
		WO 2008-157139 A2	24.12.2008
		WO 2008-157139 A3	24.12.2008
		WO 2008-157139 A4	24.12.2008
		WO 2008-157144 A1	24.12.2008
		WO 2008-157145 A1	24.12.2008
US 2007-0137808 A1	21.06.2007	AU 2006-329940 A1	05.07.2007
		AU 2006-329940 B2	11.08.2011

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2011/055169

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		AU 2006-333395 A1	12.07.2007
		AU 2006-333395 B2	24.02.2011
		AU 2007-330424 A1	12.06.2008
		AU 2007-330430 A1	12.06.2008
		AU 2007-330430 B2	14.04.2011
		AU 2007-330431 A1	12.06.2008
		CA 2631196 A1	12.07.2007
		CA 2631249 A1	05.07.2007
		CA 2669595 A1	12.06.2008
		CA 2670281 A1	12.06.2008
		CA 2670494 A1	12.06.2008
		CN 101326328 A	17.12.2008
		CN 101331222 A	24.12.2008
		CN 101331272 A	24.12.2008
		CN 101563445 A	21.10.2009
		CN 101563446 A	21.10.2009
		CN 101568688 A	28.10.2009
		CN 101595262 A	02.12.2009
		CN 101600788 A	09.12.2009
		CN 101600788 B	16.11.2011
		EP 1960600 A2	27.08.2008
		EP 1966440 A1	10.09.2008
		EP 2102412 A2	23.09.2009
		EP 2102413 A2	23.09.2009
		EP 2102414 A2	23.09.2009
		EP 2158360 A1	03.03.2010
		EP 2158361 A2	03.03.2010
		EP 2167628 A1	31.03.2010
		EP 2167730 A1	31.03.2010
		JP 2010-511806 A	15.04.2010
		JP 2010-511807 A	15.04.2010
		KR 10-2008-0083116 A	16.09.2008
		KR 10-2008-0083118 A	16.09.2008
		KR 10-2009-0095579 A	09.09.2009
		KR 10-2009-0095585 A	09.09.2009
		KR 10-2009-0095586 A	09.09.2009
		TW 200839059 A	01.10.2008
		TW 200846519 A	01.12.2008
		TW 200907142 A	16.02.2009
		TW 200909218 A	01.03.2009
		TW 200909219 A	01.03.2009
		TW 200912093 A	16.03.2009
		TW 200914685 A	01.04.2009
		TW 200914688 A	01.04.2009
		TW 200927916 A	01.07.2009
		US 2007-0137809 A1	21.06.2007
		US 2007-0137810 A1	21.06.2007
		US 2007-0137811 A1	21.06.2007
		US 2007-0137813 A1	21.06.2007
		US 2007-0144697 A1	28.06.2007

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2011/055169

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 2007-0284069 A1	13.12.2007
		US 2007-0295464 A1	27.12.2007
		US 2007-0295465 A1	27.12.2007
		US 2008-0000598 A1	03.01.2008
		US 2008-0000602 A1	03.01.2008
		US 2008-0041543 A1	21.02.2008
		US 2008-0073045 A1	27.03.2008
		US 2008-0073046 A1	27.03.2008
		US 2008-0216977 A1	11.09.2008
		US 2011-0129645 A1	02.06.2011
		US 7678231 B2	16.03.2010
		US 7803249 B2	28.09.2010
		US 7803250 B2	28.09.2010
		US 7807023 B2	05.10.2010
		US 7820010 B2	26.10.2010
		US 7837831 B2	23.11.2010
		US 7837832 B2	23.11.2010
		US 7842163 B2	30.11.2010
		US 7879188 B2	01.02.2011
		US 7879189 B2	01.02.2011
		US 7879190 B2	01.02.2011
		US 7879191 B2	01.02.2011
		US 7883604 B2	08.02.2011
		WO 2007-070129 A1	21.06.2007
		WO 2007-070145 A1	21.06.2007
		WO 2007-070153 A1	21.06.2007
		WO 2007-075356 A2	05.07.2007
		WO 2007-075356 A3	05.07.2007
		WO 2007-078342 A1	12.07.2007
		WO 2007-078499 A1	12.07.2007
		WO 2008-068652 A2	12.06.2008
		WO 2008-068652 A3	12.06.2008
		WO 2008-068653 A1	12.06.2008
		WO 2008-068654 A1	12.06.2008
		WO 2008-068658 A2	12.06.2008
		WO 2008-068658 A3	12.06.2008
		WO 2008-068659 A2	12.06.2008
		WO 2008-068659 A3	12.06.2008
		WO 2008-157132 A1	24.12.2008
		WO 2008-157139 A2	24.12.2008
		WO 2008-157139 A3	24.12.2008
		WO 2008-157139 A4	24.12.2008
		WO 2008-157144 A1	24.12.2008
		WO 2008-157145 A1	24.12.2008
US 05865950 A	02.02.1999	AU 1997-31297 B2	19.10.2000
		CA 2255655 C	20.07.2004
		CA 2280082 A1	06.08.1998
		CA 2280082 C	01.08.2006
		CN 1224476 A0	28.07.1999

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2011/055169

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		CN 1251149 A0	19.04.2000
		EP 0904455 A1	31.03.1999
		EP 0904455 B1	17.10.2001
		EP 0964955 A1	22.12.1999
		EP 0964955 B1	07.05.2003
		JP 11-514049 A	30.11.1999
		JP 2001-511224 A	07.08.2001
		JP 3193726 B2	30.07.2001
		KR 10-2000-0015880 A	15.03.2000
		KR 10-2000-0070781 A	25.11.2000
		TW 379273 A	11.01.2000
		US 05944954 A	31.08.1999
		US 6207734 B1	27.03.2001
		WO 97-44526 A1	27.11.1997
		WO 98-33978 A1	06.08.1998
US 2008-0128101 A1	05.06.2008	US 8021518 B2	20.09.2011
		WO 2008-067243 A1	05.06.2008