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— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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(54) Title: DYEING AND FINISHING OF LYOCCELL FABRICS

(57) Abstract: A process for producing a dyed and finished lyocell fabric having a clean, soft-touch finish by carrying out the steps of dyeing, washing and drying a lyocell fabric using vigorous action such as by jet dyeing or rotary tumbling on the fabric in at least one of the steps so as to produce fibrillation on the surface of the fabric, is characterised in that, before the dyeing step is carried out, the fabric is evenly impregnated with an aqueous solution of an acid or acid donor and is then heat treated in a gaseous atmosphere to activate the action of the acid or acid donor. The dyed and finished fabric has a clean, soft-touch finish substantially free from visible crease marks normally produced on lyocell fabrics which have been subjected to vigorous action in dyeing and/or finishing.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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 7 D06M D06P

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)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 30043 A (TAYLOR JAMES MARTIN ;COURTAULDS FIBRES HOLDINGS LTD (GB); POTTER C) 9 November 1995 (1995-11-09) cited in the application	1,5-17, 19
Y	page 3, line 30 -page 4, line 12 page 5, line 1 -page 6, line 12 examples 3,6	2-4,20, 22,25,26
Y	GB 2 314 568 A (COURTAULDS FIBRES) 7 January 1998 (1998-01-07) cited in the application page 2, line 30 -page 4, line 23 examples --- -/--	2-4,20, 22,25,26



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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"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.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94 20656 A (COURTAULDS FIBRES HOLDINGS LTD ;TAYLOR JAMES MARTIN (GB)) 15 September 1994 (1994-09-15) examples ---	1,2, 5-17,19
A	WO 99 02767 A (NOVONORDISK AS) 21 January 1999 (1999-01-21) examples ---	1-27
A	WO 97 30204 A (COURTAULDS FIBRES HOLDINGS LTD ;COOPER KAREN JANE (GB); TAYLOR JAM) 21 August 1997 (1997-08-21) examples -----	1-27

INTERNATIONAL SEARCH REPORT

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PCT/GB 02/02682

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9530043	A	09-11-1995	AU 688898 B2	19-03-1998
			AU 2316895 A	29-11-1995
			BR 9507538 A	05-08-1997
			CA 2186471 A1	09-11-1995
			CN 1147281 A	09-04-1997
			EP 0758415 A1	19-02-1997
			FI 964364 A	29-10-1996
			WO 9530043 A1	09-11-1995
			JP 9512591 T	16-12-1997
			NO 964594 A	30-10-1996
			TR 28783 A	06-03-1997
			US 5759210 A	02-06-1998
			ZA 9503408 A	10-01-1996
GB 2314568	A	07-01-1998	NONE	
WO 9420656	A	15-09-1994	AU 6149494 A	26-09-1994
			BR 9406424 A	09-01-1996
			CA 2157681 A1	15-09-1994
			CN 1119030 A	20-03-1996
			EP 0688371 A1	27-12-1995
			FI 954236 A	08-09-1995
			WO 9420656 A1	15-09-1994
			HU 76069 A2	30-06-1997
			JP 8507334 T	06-08-1996
			PL 310550 A1	27-12-1995
			SK 110795 A3	06-12-1995
			US 5580356 A	03-12-1996
			ZA 9401286 A	30-09-1994
WO 9902767	A	21-01-1999	AU 7908198 A	08-02-1999
			WO 9902767 A1	21-01-1999
WO 9730204	A	21-08-1997	AU 1800697 A	02-09-1997
			EP 0888475 A1	07-01-1999
			WO 9730204 A1	21-08-1997