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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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(54) Title: SEPARATION OF LIGNIN FROM PLANT MATERIAL

(57) Abstract: Technology for separating lignin from alkaline solutions which arise in production of cellulose is presented. Isolated lignin can be applied, for instance, for production of carbon fibre, adhesives and binding materials, antioxidants and organic chemicals. Starting materials are non-woody plant materials, from which lignin is dissolved by sulphur free alkaline solutions at temperatures below 130°C. Lignin is precipitated by acid, and purified by hydrolyzing hemicellulose by acid or by enzymatic reactions or a combination of these. Lignin separated has a closely similar structure as lignin in plant material, and its content of functional atom groups can be controlled by changes in processing conditions.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI2012/000013

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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: C07G, C08H, D21C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
FI, SE, NO, DKElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2007065241 A1 (O'FLYNN KELLY ANTHONY et al.) 14 June 2007 (14.06.2007) page 3, first paragraph; page 11, point 6; page 12, Table 2	1-18
A	EP 0098490 A2 (ERNE JOSEF ROHRBOGENWERK) 18 January 1984 (18.01.1984) the paragraph spanning pages 11 and 12; page 13, first paragraph	1-18
A	CA 2129172 A1 (UNIV SHERBROOKE) 30 January 1996 (30.01.1996) the abstract	1, 8



Further documents are listed in the continuation of Box C.



See patent family annex.

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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Patent document cited in search report	Publication date	Patent family members(s)	Publication date
WO 2007065241 A1	14/06/2007	NZ 568905 A	12/01/2012
		AT 553246T T	15/04/2012
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CA 2129172 A1	30/01/1996	None	
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International application No.
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Int.Cl.

C08H 7/00 (2011.01)

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