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(54) Title: CHARCOALS

(57) Abstract: Non-activated charcoals from living plant materials are useful as ion exchange agents for adsorbing cations from an environment, especially metal ions.

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K8/97 B01J20/04 B01J20/20 B01J20/24 C01B31/02
B09C1/10 C10B53/02 C02F1/28 C05F9/00 B09C1/00
C09K17/02 C05D9/00 C05F11/00

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)
A61K B01J B01D C01B C02F C05F C10B B09C C09K C05D

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/054691 A (UNIV SURREY [GB]; HUTCHINGS TONY RICHARD [GB]; DE LEIJ FRANCISCUS ANTO) 18 May 2007 (2007-05-18) page 14, line 27 - line 28 page 17, line 10 - page 18, line 14 page 22, line 1 - line 12 page 22, line 14 - line 19 page 24, line 27 - line 33 example 1 claims 1,2,32 page 26, line 17 - line 19 page 37, line 30 ----- -/--	1-29,31, 32, 36-40, 42,43

[X] Further documents are listed in the continuation of Box C.

[X] 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 document 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.

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Date of the actual completion of the international search	Date of mailing of the international search report
22 April 2009	06/05/2009

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

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International application No
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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	US 2005/035057 A1 (ZIKELI STEFAN [AT] ET AL) 17 February 2005 (2005-02-17) paragraph [0022] - paragraph [0039] paragraph [0044] - paragraph [0046] claims 1-4	1-29,31, 36-40, 42,43
X	US 4 877 534 A (NISHIDA KONOSUKE [JP] ET AL) 31 October 1989 (1989-10-31) column 3, line 24 - line 32 column 3, line 54 - line 57 column 2, line 29 - line 54 figures 1-3 claim 1	1-29,31, 36-40, 42,43
X	CN 1 373 001 A (MA W) 9 October 2002 (2002-10-09) claim 1 & DATABASE WPI Week 200341 Thomson Scientific, London, GB; AN 2003-431271 & CN 1 373 001 A (MA W) 9 October 2002 (2002-10-09) abstract	1,36-40, 42
X	SATOSHI FUJIWARA, KAZUTO SHIMA, KYOZO CHIBA: "Heavy metal absorption ability of bamboo charcoal and effect as a mulching material" JOURNAL OF THE JAPANESE SOCIETY OF REVEGETATION TECHNOLOGY, [Online] vol. 30, no. 1, August 2004 (2004-08), pages 39-44, XP002512630 Japan Retrieved from the Internet: URL:http://www.jstage.jst.go.jp/article/jjsrt/30/1/39/_pdf> [retrieved on 2009-01-28] abstract figures 4,10	1-29, 36-40, 42,43
X	DURSUN ET AL: "Adsorption of phenol from aqueous solution by using carbonised beet pulp" 17 October 2005 (2005-10-17), JOURNAL OF HAZARDOUS MATERIALS, ELSEVIER, PAGE(S) 175 - 182 , XP005048411 ISSN: 0304-3894 abstract sections 3.1, 3.3-3.4, 4.1-4.2 page 177 - page 178 figures 1,2	1-29, 36-40,42

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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	ALTUNDOGAN ET AL: "The use of sulphuric acid-carbonization products of sugar beet pulp in Cr(VI) removal" 11 May 2007 (2007-05-11), JOURNAL OF HAZARDOUS MATERIALS, ELSEVIER, PAGE(S) 255 - 264 , XP022071611 ISSN: 0304-3894 abstract sections 2.1-2.2 page 256 section 3.3 page 259 - page 263	1-29, 36-40,42
X	DE LEIJ F ET AL: "Charcoal as a Potential Tool for Land and Water Remediation" SUBRIM CONFERENCE,, 29 March 2006 (2006-03-29), pages 99-102, XP007908202 page 99, paragraph 3 page 100, paragraph 1	32
X	"SUBRIM Newsletter (issue two Autumn 2005)" INTERNET CITATION, [Online] no. 2, 2005, pages 1-12, XP007908199 Retrieved from the Internet: URL:http://www.subrim.org.uk/SUBRIMNewsletter2005.pdf> [retrieved on 2009-04-15] page 6, right-hand column page 7, left-hand column	41
X	B. GLASER, J. LEHMANN, W. ZECH: "Ameliorating physical and chemical properties of highly weathered soils in the tropics with charcoal -a review" BIOLOGY AND FERTILITY OF SOILS, [Online] vol. 35, no. 4, 18 April 2002 (2002-04-18), pages 219-230, XP002523819 Berlin Heidelberg Retrieved from the Internet: URL:http://www.springerlink.com/content/jlfy6u3r3n9cyplw/fulltext.pdf> [retrieved on 2009-04-15] page 221, left-hand column - right-hand column page 224; table 4	41

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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	M. YAMATO, Y. OKIMORI, I.R. WOBOWO, S. ANSHORI, M. OGAWA: "Effects of the application of charred bark of Accacia mangium on the yield of maize, cowpea and peanut, and sil chemical properties in South Sumatra, Indonesia" SOIL SCIENCE AND PLANT NUTRITION, [Online] vol. 52, no. 4, 2006, pages 489-495, XP002523820 Retrieved from the Internet: URL:http://www3.interscience.wiley.com/cgi-bin/fulltext/118609635/PDFSTART> [retrieved on 2009-04-15] page 490, left-hand column page 493; table 2	41
X	JP 2001 049255 A (IZUMI TEKKO) 20 February 2001 (2001-02-20) claims 1-4 paragraph [0003]	41
P,X	WO 2007/088163 A (SGL CARBON AG [DE]; CENTRE NAT RECH SCIENT [FR]; UNIV D ORLEANS L [FR]) 9 August 2007 (2007-08-09) the whole document	1-29,31, 32, 36-40, 42,43

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:

32, 41

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.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-29, 31, 36-40, 42, 43

an agent, its preparation, its use for removal or binding cationic species and a method of removal of cationic species

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2. claim: 30

an animal bedding or clothing

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3. claim: 32

a filter

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4. claim: 33

a composting enhancer or accelerator

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5. claim: 34

a cosmetic product

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6. claim: 35

a plant growth medium

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7. claims: 1-14 (in part), 41

a use of the agent of claim 1 to modify the pH of an acidic soil

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2008/002612

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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