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Declarations under Rule 4.17:

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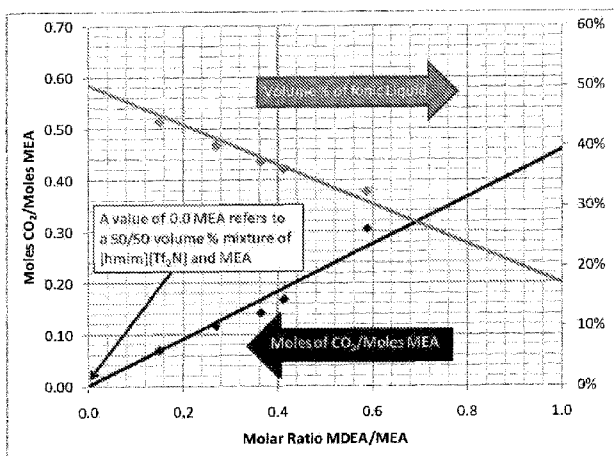
— with international search report (Art. 21(3))
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

1 April 2010

(54) Title: IONIC LIQUIDS AND METHODS FOR USING THE SAME

Figure 9



(57) Abstract: The present application discloses compositions comprising ionic liquids and an amine compound, and methods for using and producing the same. In some embodiments, the compositions disclosed herein are useful in reducing the amount of impurities in a fluid medium or a solid substrate.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/044900

A. CLASSIFICATION OF SUBJECT MATTER

INV. B01D53/14 B01D11/04 C10G21/20 C11D17/00 C11D3/37
C11D7/32 C11D11/00

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)

B01D C10G C11D

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	<p>DATABASE WPI Week 20086 Thomson Scientific, London, GB; AN 2008-A87600 XP002549763 & JP 2007 222847 A (MITSUBISHI MATERIALS CORP) 6 September 2007 (2007-09-06) abstract; figures 1,2</p>	1-33
X	<p>ZHAO D; DUAN E; LIU R; XIAO Q; FAN S: "Efficient synthesis of 1,4-diazabicyclo(2.2.2)octane in ionic liquids" CATALYSIS COMMUNICATIONS, vol. 9, no. 8, 20 April 2008 (2008-04-20), pages 1725-1727, XP002549762 paragraphs [02.1], [2.2]; table 1</p> <p align="center">-/--</p>	14-21

Further documents are listed in the continuation of Box C.

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.

"&" document member of the same patent family

Date of the actual completion of the international search

12 October 2009

Date of mailing of the international search report

09/02/2010

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INTERNATIONAL SEARCH REPORT

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 2005/129598 A1 (CHINN DANIEL [US] ET AL) 16 June 2005 (2005-06-16) paragraphs [0043], [0071]; figure 3; examples 1,3 -----	1-13, 22-33
E	WO 2009/076530 A1 (UNIV COLORADO [US]; BARA JASON E [US]; HATAKEYAMA EVAN S [US]; GIN DOU) 18 June 2009 (2009-06-18) cited in the application paragraphs [0042] - [0051] -----	14-17
A	US 2008/112866 A1 (DAVIS JAMES HILLARD [US]) 15 May 2008 (2008-05-15) paragraphs [0425] - [0470] -----	1-33

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/044900

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 all searchable 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 report covers only those claims for which fees were paid, specifically claims Nos.:

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.:

1-33

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: 1-33

Compositions comprising an ionic liquid and an amine, and a method for reducing a gas impurity in a fluid stream by contact with a mixture comprising an ionic liquid and an amine.

2. claims: 34-38

A method for removing an impurity from a solid substrate surface by contact with a mixture comprising an ionic liquid and an amine.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2009/044900

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