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WO 2007/106372 A3

(54) Title: CARBON DIOXIDE SEQUESTRATION MATERIALS AND PROCESSES

(57) Abstract: The disclosure provides methods and systems for sequestering and/or reducing carbon dioxide present in an industrial effluent fluid stream containing carbon dioxide. A scrubbing material comprising a first component, a second component (distinct from the first component), and preferably water, is contacted with the effluent fluid stream. The first component comprises a source of calcium oxide and a source of alkali metal ions. The second component comprises a slag having one or more reactive silicate compounds. Methods of reducing carbon dioxide from exhaust generated by combustion sources, lime and/or cement kilns, iron and/or steel furnaces, and the like are provided. Carbon dioxide emission abatement systems are also disclosed. Methods of recycling industrial byproducts are further provided.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/05976

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **B01D 53/62**(2006.01);**B01J 10/00**(2006.01);**C01F 11/02**(2006.01),**11/18**(2006.01);**C04B 2/00**(2006.01),**7/00**(2006.01);**C09K 3/00**(2006.01)

 USPC: 106/713;252/182.11,182.32;422/168;423/210,215.5,219,220,225,235,238,240R,243.01,245.1,430,635
 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)
 U.S. : 106/713;252/182.11,182.32;422/168;423/210,215.5,219,220,225,235,238,240R,243.01,245.1,430,635

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 NONE

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 2007/0006778 A1 (KEHRMANN) 11 January 2007 (11.01.2007), please see the entire document.	1-75
A	US 2001/0054253 A1 (TAKAHASHI et al) 27 December 2001 (27.12.2001), please see claims 1-17.	1-75
A	US 4,917,732 A (BAKER) 17 April 1990 (17.04.1990), please see all of the claims.	30-42
A	US 4,124,404 A (SUZUKI et al) 07 November 1978 (07.11.1978), please see all of the claims.	30-42

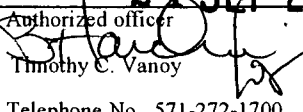
Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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 the theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/05976

Continuation of B. FIELDS SEARCHED Item 3:

EAST Search:

L1 (carbon adj dioxide) or "CO.sub.2"

L2 (calcium adj oxide) or CaO

L3 slag

L4 silicate

L5 1 and 2 and 3 and 4

L6 5 and "423".clas.

L7 5 and "422".clas.

L8 5 and "252".clas.

L9 5 and "106".clas.