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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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**Declarations under Rule 4.17:**

- 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))

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

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(54) **Title:** METHOD FOR TREATING SCR CATALYSTS HAVING ACCUMULATED IRON COMPOUNDS

(57) **Abstract:** The present disclosure relates to methods for treating deactivated SCR catalysts having an increased SO<sub>2</sub>/SO<sub>3</sub> conversion rate as a result of the accumulation of one or more iron compounds. The methods are characterized in that the catalysts are treated with an aqueous solution of an acidic reactive salt or hydrogen fluoride, with the addition of at least one antioxidant.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/22865

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC(8) - B01D 53/56, 53/86; B01J 8/00 (2012.01)  
 USPC - 423/239.1-239.2

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)  
 USPC - 423/239.1-239.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 USPC - 502/63, 65, 73-75, 316 (see search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 PubWEST (PGPB,USPT,USOC,EPAB,JPAB) Terms - regenerate regenerating catalyst ammonium fluoride denox SCR antioxidant iron ascorbic corrosion  
 Google - regenerate-(denox OR SCR)-catalysts ammonium-chloride

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 7,569,506 B2 (FOERSTER) 04 August 2009 (04.08.2009) col 1, ln 63 to col 2, ln 17; col 2, ln 61-62; col 3, ln 45-65; col 4, ln 9-16	1-3, 20-21
Y	US 5,260,238 A (MURAKAWA et al.) 09 November 1993 (09.11.1993) col 3, ln 45 to col 4, ln 2	1-3, 20-21
X/T	US 2012/0053046 A1 (HOFFMANN et al.) 01 March 2012 (01.02.2012) entire document	1-3, 20-21
A	US 2010/0230359 A1 (WHITEHEAD et al.) 16 September 2010 (16.09.2010) entire document	1-3, 20-21
A	US 2006/0135347 A1 (SCHLUTTIG et al.) 22 June 2006 (22.06.2006) entire document	1-3, 20-21
A	US 2003/0166451 A1 (KOVEAL et al.) 04 September 2003 (04.09.2003) entire document	1-3, 20-21
A	US 3,692,692 A (WARD et al.) 19 September 1972 (19.09.1972) entire document	1-3, 20-21

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

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Date of mailing of the international search report

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Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/22865

**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.: 4-19  
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:

- 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 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.:

- 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.