PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant’s or agent’s file reference
1990809WO2

FOR FURTHER ACTION
see Form PCT/ISA/220
as well as, where applicable, item 5 below.

International application No.
PCT/US2015/052402

International filing date (day/month/year)
25 September 2015 (25-09-2015)

(Earliest) Priority Date (day/month/year)
26 September 2014 (26-09-2014)

Applicant
JDCPHOSPHATE, INC.

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report
   a. With regard to the language, the international search was carried out on the basis of:
      ☑ the international application in the language in which it was filed
      ☐ a translation of the international application into __________, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☑ Unity of invention is lacking (see Box No. III)

4. With regard to the title,
   ☑ the text is approved as submitted by the applicant
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,
   ☑ the text is approved as submitted by the applicant
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the drawings,
   a. the figure of the drawings to be published with the abstract is Figure No. 2
      ☑ as suggested by the applicant
      ☐ as selected by this Authority, because the applicant failed to suggest a figure
      ☐ as selected by this Authority, because this figure better characterizes the invention

   b. ☐ none of the figures is to be published with the abstract

Form PCT/ISA/210 (first sheet) (January 2015)
INTERNATIONAL SEARCH REPORT

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. [X] 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.: 1-11

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.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2005)
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. C01B25/12
ADD.

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)
C01B

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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2013/136682 A1 (MEGY JOSEPH A [US]) 30 May 2013 (2013-05-30) paragraphs [0027], [0028], [0051], [0052], [0070] - [0077], [0133]; claims 1,11,17 the whole document</td>
<td>1-11</td>
</tr>
</tbody>
</table>

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 application or patent 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

** 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
"A" document member of the same patent family

Date of the actual completion of the international search
21 December 2015

Date of mailing of the international search report
22/03/2016

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax. (+31-70) 340-2016

Authorized officer

Straub, Thomas
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent document cited in search report</td>
<td>Publication date</td>
<td>Patent family member(s)</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2013136682 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 2013081999 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2008219909 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 2005118468 A2</td>
</tr>
<tr>
<td>US 2008289385 A1</td>
<td>27-11-2008</td>
<td>NONE</td>
</tr>
<tr>
<td>WO 2008153521 A1</td>
<td>18-12-2008</td>
<td>AP 3422 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU 2007354897 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BR P10721729 A2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA 2689983 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 101730719 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EG 26428 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2160438 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IL 202222 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MA 31673 B1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TN 20090000502 A1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 2008153521 A1</td>
</tr>
</tbody>
</table>
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

A phosphorous pentoxide producing method comprising:
forming pre-feed agglomerates containing phosphate ore particles, carbonaceous material particles, and silica particles;
heating the pre-feed agglomerates in a reducing or inert atmosphere to an induration temperature from above 900 °C to less than 1180 °C and maintaining the induration temperature for 15 minutes or more;
forming feed agglomerates and increasing a compression strength of the feed agglomerates to above 25 lbf using the heating, the feed agglomerates exhibiting a calcium-to-silica mole ratio less than 1 and a silica-to-(calcium + magnesium) mole ratio greater than 2;
forming a reducing kiln bed using the feed agglomerates; and
generating kiln off-gas and collecting phosphorous pentoxide from the kiln off gas.

2. claims: 12-19

A phosphorous pentoxide producing method comprising:
forming green agglomerates containing phosphate ore particles, carbonaceous material particles, silica particles, and a polymer;
drying the green agglomerates at a drying temperature from 40 °C to 300 °C, the dried agglomerates exhibiting a compression strength above 25 lbf;
heating the dried agglomerates in a reducing or inert atmosphere to an induration temperature from above 900 °C to less than 1180 °C and maintaining the induration temperature for 15 minutes or more;
forming feed agglomerates, the feed agglomerates exhibiting a calcium-to-silica mole ratio less than 1 and a silica-to-(calcium + magnesium) mole ratio greater than 2;
forming a reducing kiln bed using the feed agglomerates; and
generating kiln off-gas and collecting phosphorous pentoxide from the kiln off gas.

3. claims: 20-23

A phosphorous pentoxide producing method comprising:
extruding a material to form green agglomerates containing phosphate ore particles, carbonaceous material particles, silica particles, and 2 to 5 wt% (dry basis) clay particles;
drying the extruded, green agglomerates at a drying temperature from 40 °C to 150 °C, the dried agglomerates exhibiting a compression strength above 50 lbf;
heating the dried agglomerates in a reducing or inert atmosphere to an induration temperature from above 900 °C to
less than 1180 oC and maintaining the induration temperature for 15 minutes or more; forming feed agglomerates, the feed agglomerates exhibiting a calcium-to-silica mole ratio less than 1 and a silica-to-(calcium + magnesium) mole ratio greater than 2; forming a reducing kiln bed using the feed agglomerates; and generating kiln off-gas and collecting phosphorous pentoxide from the kiln off gas.

---