Abstract

A process for the purification of hydrogen based gas mixtures utilizing zeolite X wherein the particle size distribution of the zeolite X powder has a coefficient of variation from 15% to 30%.
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

**IPC:** B01D 53/02 (2006.01), 59/26 (2006.01)

**USPC:** 95/96

According to International Patent Classification (IPC) or to both national classification and IPC

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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

**U.S.: 95/96**

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)

Please See Continuation Sheet

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**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>A</td>
<td>US 6,636,447 B1 (TANNOUS et al.) 02 December 2003</td>
<td>1-24</td>
</tr>
</tbody>
</table>

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- **D** further documents are listed in the continuation of Box C.
- **L** See patent family annex.

- **A** document defining the general state of the art which is not considered to be of particular relevance
- **E** earlier application or patent 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

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**Date of the actual completion of the international search**

03 April 2008 (03.04.2008)

**Date of mailing of the international search report**

14 May 2008

**Name and mailing address of the ISA/US**

Mail Step PCT, Attn: ISA/US

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Form PCT/ISA/210 (second sheet) (April 2007)
Continuation of B. FIELDS SEARCHED Item 3:
US-PUB; USPAT: zeolite, standard, deviation, coefficient, variation, size, distribution, not, pore, particle, hydrogen, adsor, narrow, diameter, cataly, crystal, swing, psa, patel, reastelli, buchan, griffith, herron, kirit, martha, michele