Abstract: An improved barrier stack. The barrier stack (315) is made by the process of depositing the polymeric decoupling layer (320) on a substrate (305); depositing a first inorganic layer (330) on the decoupling layer under a first set of conditions wherein an ion and neutral energy arriving at the substrate is less than about 20 eV so that the first inorganic layer is not a barrier layer, wherein a temperature of the substrate is less than about 150 °C; and depositing a second inorganic layer (335) on the first inorganic layer under a second set of conditions wherein an ion and neutral energy arriving at the substrate is greater than about 50 eV so that the second inorganic layer is a barrier layer. Methods of reducing damage to a polymeric layer in a barrier stack are also described.
Published: 23 April 2009

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. C23C14/06 C23C16/30 B05D7/26 H01L51/54

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
HOIL

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, INSPEC

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</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>paragraphs [0094] - [0100]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cited in the application</td>
<td></td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C

Date of the actual completion of the international search

18 February 2009

Date of mailing of the international search report

26/02/2009

Authorized officer

Patterson, Anthony

* 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

"S" document member of the same patent family

See patent family annex

Form PCT/ISA/210 (second sheet) (April 2005)
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 2005239294 A1</td>
<td>27-10-2005</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>