Title: CHROMIUM-FREE PICKLE FOR PLASTIC SURFACES

Abstract: A pickling solution for the surface pre-treatment of plastic surfaces in preparation for metallization, the solution comprising a source of Mn(VII) ions; and an inorganic acid; wherein the pickling solution is substantially free of chromium (VI) ions, alkali ions, and alkaline-earth ions. In particular, the present invention relates to a pickling solution and to a pickling process for pickling ABS plastic surfaces or ABS polymer blend surfaces prior to a subsequent metallization of these surfaces.
# INTERNATIONAL SEARCH REPORT

## A. CLASSIFICATION OF SUBJECT MATTER

- **IPC(8):** C25D 5/56 (2008.04)
- **USPC:** 205/158

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)

- **IPC(8):** C25D 5/56 (2008.04)
- **USPC:** 205/158

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

- All Prior Art Databases (text search - see terms below)
  - **USPC:** 205/158; 427/306 (text search - see terms below)

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

- PubWEST (PGDB, USPT, USOC, EPAB, JPAB), Google Scholar, Google Patents, FreePatentsOnline
- Search Terms: acid$1, alkali, alkaline, cell, chromium, concentration$1, defoamer, free, inorganic, Manganese, Mn, oxidation, oxidizing, pickling, plastic$1, solution, sulfuric, VII

## 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>Y</td>
<td>EP 1785507 A2 (SCHILDMAN et al.) 16 May 2007 (16.05.2007), entire document, especially para [0001], [0016], [0017], [0022], [0030]</td>
<td>1-13</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,669,978 A (BROWN) 23 September 1997 (23.09.1997), col. 4, In. 1-5.</td>
<td>8</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

**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
- **"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
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- **"&"** document member of the same patent family

### Date of the actual completion of the international search
24 October 2008 (24.10.2008)

### Date of mailing of the international search report
03 NOV 2008

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