Title: TANTALUM REMOVAL DURING CHEMICAL MECHANICAL PROCESSING

Abstract: The invention relates generally to a composition and a method for selective removal of a barrier layer in chemical mechanical polishing. In one aspect, the composition for selective removal of a barrier layer includes at least one reducing agent, ions from at least one transitional metal, and water. The composition may further include at least one buffer for pH stability, at least one pH adjusting agent for providing an initial pH, a corrosion inhibitor, abrasive particles, and/or a metal chelating agent. In another embodiment, the invention relates generally to a composition and a method for removal of a conductive material layer and a barrier layer in chemical mechanical polishing. In one aspect, the method for removal of a conductive material layer and a barrier layer includes applying a conductive-material-layer-selective composition to a polishing pad, polishing the substrate in presence of the conductive-material-layer-selective composition, applying a barrier-layer-selective composition to a polishing pad, and polishing the substrate in presence of the barrier-layer-selective composition.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C09G1/02 H01L21/00

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 7 C09G H01L C09K

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

Electronic database consulted during the international search (name of database and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>X</td>
<td>EP 1 006 166 A (FUJIMI INC) 7 June 2000 (2000-06-07)</td>
<td>1-6,12, 13, 20-24, 27-32, 38,39, 46,48, 51,52, 54-58, 60,61, 63,64, 66,67</td>
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(paragraph '0016!', paragraphs '0018!-'0032!, paragraphs '0038!-'0040!, paragraphs '0043!-'0045!, paragraph '0054!, paragraph '0046!)

table 3

Further documents are listed in the continuation of box C.

* Special categories of cited documents:
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  *E* earlier document but published on or after the international filing date
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Date of the actual completion of the international search
25 June 2002

Date of mailing of the international search report
08/07/2002

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Miller, A

Form PCT/ISA/2/10 (second sheet) (July 1992)
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<tr>
<td>A</td>
<td>US 5 735 963 A (OBENG YAW SAMJEL) 7 April 1998 (1998-04-07)</td>
<td>1-7,17, 20,21, 27,28, 30-33, 43,44, 46,47, 55-58, 60, 62-64,67</td>
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<tr>
<td>US 6139763 A</td>
<td>31-10-2000</td>
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<td>US 5735963 A</td>
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