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(74) Agents: PATTERSON, B., Todd et al.; Moser, Patterson & Sheridan, LLP., 3040 Post Oak Blvd., Suite 1500, Houston, TX 77056 (US).

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(71) Applicant: APPLIED MATERIALS, INC. [US/US]; 3050 Bowers Avenue, Santa Clara, CA 95054 (US).

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(72) Inventors: DUBOUSE, Alain; 668 Bryan Avenue, Sunnyvale, CA 94086 (US). LIU, Feng, Q.; 10200 Miller Avenue, Apt. 425, Cupertino, CA 95014 (US). WANG, Yan; 920 Rockfeller Drive, 11B, Sunnyvale, CA 94087 (US). CHEN, Liang-Yuh; 1400 Melbourne Street, Foster City, CA 94404 (US). SUN, Lizhong; 952 Windsor Hills Circle, San Jose, CA 95123 (US). WANG, Yuchun; 4498 Jan

(88) Date of publication of the international search report: 16 October 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROLYTE COMPOSITION AND TREATMENT FOR ELECTROLYTIC CHEMICAL MECHANICAL POLISHING

(57) Abstract: An electrolyte composition and method for planarizing a surface of a wafer using the electrolyte composition is provided. In one aspect, the electrolyte composition includes ammonium dihydrogen phosphate, diammonium hydrogen phosphate, or a mixture thereof. The composition has a pH between about 3 and about 10 which is environmentally friendly and does not present hazardous operation concerns. The composition may further comprise one or more additives selected from a group consisting of benzotriazole, ammonium citrate, ethlylenediamine, tetraethylenepentamine, triethylenetetramine, diethylenetriamine, amino acids, ammonium oxalate, ammonium succinate, and citric acid.

Interponal Application No PCT/US 02/40754

Relevant to claim No.

# A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L21/321

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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

#### **B. FIELDS SEARCHED**

Category 6

 $\frac{\text{Minimum documentation searched (classification system followed by classification symbols)}}{1PC \ 7 \ \ H01L}$ 

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, WPI Data, PAJ, INSPEC, CHEM ABS Data

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<ul> <li>Special categories of cited documents:</li> <li>"A" document defining the general state of the art which is not considered to be of particular relevance</li> <li>"E" earlier document but published on or after the international filing date</li> <li>"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)</li> <li>"O" document referring to an oral disclosure, use, exhibition or other means</li> <li>"P" document published prior to the international filing date but later than the priority date claimed</li> </ul>		"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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	5 July 2003	5. 08. 2003			
Name and r	nailing address of the ISA	Authorized officer			

European Patent Office, P.B. 5818 Patentlaan 2 NL -- 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016

Szarowski, A

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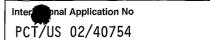
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Intermonal Application No
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national application No. PCT/US 02/40754

## INTERNATIONAL SEARCH REPORT

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
1. X 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 fee, this Authority did not invite payment of any additional fee.
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. 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.:
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  X  No protest accompanied the payment of additional search fees.

#### FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

#### 1. Claims: 1-38

A method for planarizing a surface of a wafer, comprising: disposing the wafer in an electrolyte composition comprising a phosphate system, wherein the wafer is connected to an electrical power source.

An electrolyte composition.

#### 2. Claim: 39

A method for electrochemically polishing a wafer, comprising: disposing the wafer in an electrolyte composition; flowing the electrolyte composition through an ion exchange resin; and recycling the electrolyte solution to the substrate.