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(54) Title: SYSTEMS AND METHODS FOR SINGLE INTEGRATED SUBSTRATE CLEANING AND RINSING

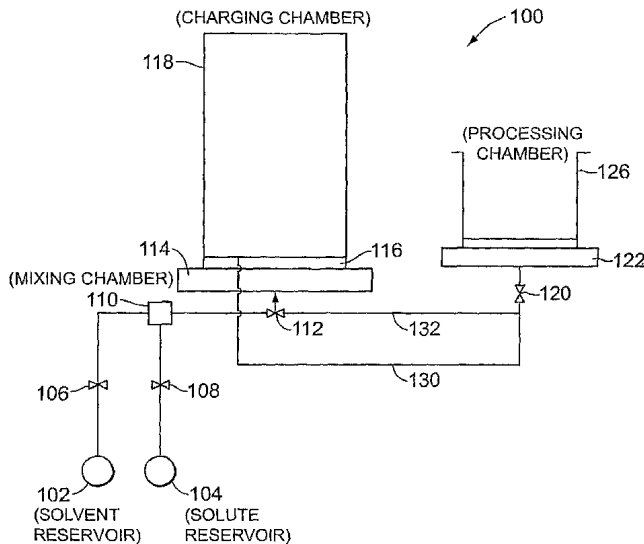


FIG. 2

(57) Abstract: Inventive methods and systems of cleaning patterned integrated circuit ("IC") substrates are described. The cleaning methods of the present invention include: (1) providing the patterned integrated circuit substrate having thereon poly silicon lines adjacent to each other; (2) charging a solution, which contains at least a solute selected to promote cleaning of the patterned integrated circuit substrate, to produce a charged solution, wherein at least a portion of the solute is present as clusters in the charged solution; and (3) conveying the charged solution for cleaning the patterned integrated circuit substrate.

WO 2006/105125 A3

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US06/11345

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: **B08B 3/00**( 2006.01);**B08B 6/00**( 2006.01);**C25F 3/30**( 2006.01)

USPC: 134/1,1.3,2,19,34,184

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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 134/1,1.3,2,19,34,184

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US PGPub 2002/0011253 (PURI et al) 31 January 2002 (31.01.2002), abstract; page 1, paragraph 5; page 3, paragraph 25, lines 9-17 and paragraph 23, lines 4-12; page 4, paragraphs 34-37, paragraph 38, lines 1-7, paragraph 39, lines 1-6; page 5, paragraphs 39-40, paragraph 45, lines 12-18; pages 8-9, paragraphs 70-71; claim 1.	1-18; 26-28
Y	US PGPub 2003/0045098 (VERHAVERBEKE et al) 6 March 2003 (06.03.2003), page 1, paragraph 2; page 6, paragraph 65, lines 1-7; page 19, paragraph 175, lines 3-6.	1-18; 26-28
Y	US PGPub 2003/0000548 (TSUGA et al) 2 January 2003 (02.01.2003), page 1, paragraphs 12 and 52.	8
Y	US 6,568,408 (MERTENS et al) 27 May 2003 (27.05.2003), column 4, lines 24-30; column 8, lines 39-49; column 12, lines 58-63.	13; 19-28
Y	US PGPub 2004/0130965 (ACHKIRE et al) 8 July 2004 (08.07.2004), page 1, paragraph 13, lines 5-9; page 2, paragraphs 17, 19 and 23; Figures 1-2.	19-25
Y	US 6,615,854 (HONGO et al) 9 September 2003 (09.09.2003), column 4, lines 12-17.	21-22

Further documents are listed in the continuation of Box C.

See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.

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International application No.  
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Continuation of B. FIELDS SEARCHED Item 3:

EAST search terms: (clean\$4 or etch\$4 or rins\$4), (ppm or ppb or dilute), ((ammonium adj hydroxide) or ammonia or (SC-1) or (SC1) or APM), (semiconductor or wafer or substrate), (pattern\$3), (supersonic\$ or ultrasonic\$ or megasonic\$4 or ultrasound\$4 or sonic\$4 or vibrat\$4), (poly\$1silicon), (repeat or twice or two or second or many or multiple or plural or plurality), (tank or container or chamber), mixer, (nozzle or (shower\$1head or (shower adj (head or plate)) or manifold or sprayer or ((distribution or diffuser) adj plate)))