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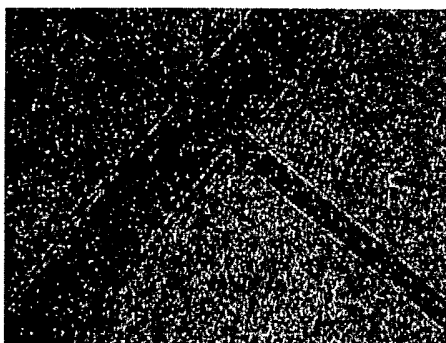
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(54) Title: REMOVAL OF PARTICLE CONTAMINATION ON PATTERNED SILICON/SILICON DIOXIDE USING SUPERCRITICAL CARBON DIOXIDE/CHEMICAL FORMULATIONS



(57) Abstract: A cleaning composition for cleaning particulate contamination from small dimensions on semiconductor substrates. The cleaning composition contains supercritical CO₂ (SCCO₂), alcohol, fluoride source and, optionally, hydroxyl additive. Such cleaning composition overcomes the intrinsic deficiency of SCCO₂ as a cleaning reagent, viz., the non-polar character of SCCO₂ and its associated inability to solubilize species such as inorganic salts and polar organic compounds that are present in particulate contamination on wafer substrates and that must be removed from the semiconductor substrate for efficient cleaning. The cleaning composition enables damage-free, residue-free cleaning of substrates having particulate contamination on Si/SiO₂ substrates.

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B08B 003/00; H01L 021/00; B05D 001/00

US CL : 134/2, 3, 36, 902

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)

U.S. : 134/2, 3, 36, 902

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)

Derwent, STN

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,149,828 A (VAARTSTRA) 21 November 2000 (21.11.2000), column 9, lines 1-12; column 11, lines 1-24.	1-5, 14-16, 18, 19
X	US 6,306,564 B1 (MULLEE) 23 October 2001 (23.10.2001), column 4, lines 12-50; column 3, lines 20-53.	1-5, 9, 10, 14-19, 21, 22, 24

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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