

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 January 2001 (18.01.2001)

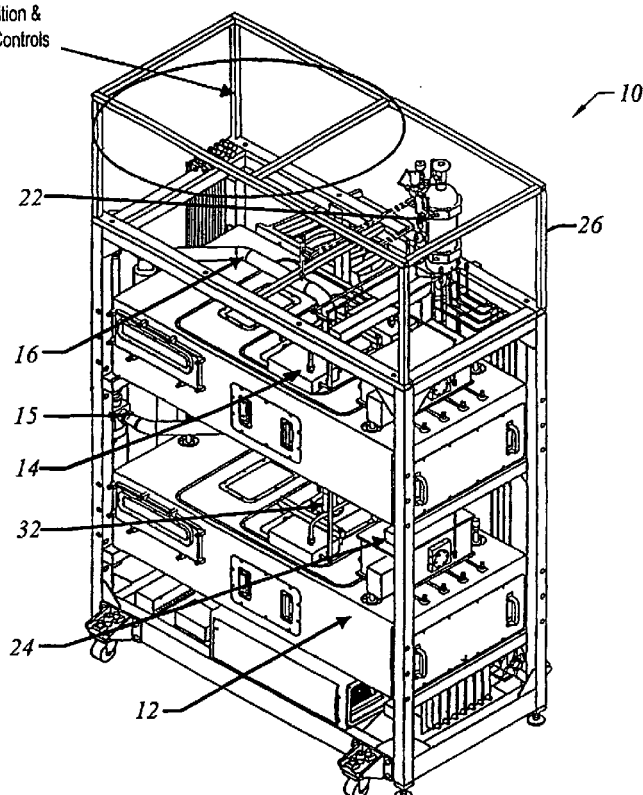
(10) International Publication Number
PCT
WO 01/003858 A1

- (51) International Patent Classification⁷: B08B 7/00, 7/04, 9/00, 9/027
- (21) International Application Number: PCT/US00/40359
- (22) International Filing Date: 12 July 2000 (12.07.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/143,285 12 July 1999 (12.07.1999) US
- (71) Applicant: ASML US, INC. [US/US]; 440 Kings Village Road, Scotts Valley, CA 95066 (US).
- (72) Inventors: MAYER, Bruce, E.; 3336 O'Neill Court, Soquel, CA 95073-2237 (US). CHATHAM, Robert, H., III; 211 Sherman Drive, Scotts Valley, CA 95066 (US). INGLE, Nitin, K.; 999 West Hamilton Avenue, Campbell, CA 95008 (US). YUAN, Zheng; 42024 Benbow Drive, Fremont, CA 94539 (US).
- (74) Agents: TEST, Aldo, J. et al.; Flehr Hohbach Test Albritton & Herbert LLP, Suite 3400, 4 Embarcadero Center, San Francisco, CA 94111-4187 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR *IN SITU* CLEANING OF SEMICONDUCTOR MANUFACTURING EQUIPMENT USING COMBINATION CHEMISTRIES

Area for Deposition &
Cleaning Gas-Controls



(57) Abstract: An in situ, two step or combination, method and system for cleaning of semiconductor manufacturing equipment (10) is provided. The present invention utilizes two separate fluorine based chemistries in each step which selectively target the removal of different types of deposits that build up on the equipment surfaces. In particular, powdery and dense film-like solid deposits, as well as a combination of both, build up on the chamber (12) surfaces and associated equipment components. These two types of deposits are removed selectively by the present invention. Such selective targeting of combined cleaning steps, yields an improved cleaning technique. In another embodiment, the method and system of the present invention provides for cleaning of the chamber (12) and associated equipment using separate steps with different chemicals, and then performing these steps in a variety of desired sequences.

WO 01/003858 A1



NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(48) Date of publication of this corrected version:

1 August 2002

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(15) Information about Correction:

see PCT Gazette No. 31/2002 of 1 August 2002, Section II

Published:

— with international search report

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.