

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 October 2004 (14.10.2004)

PCT

(10) International Publication Number
WO 2004/088718 A3

(51) International Patent Classification⁷: **G05D 11/00**

(74) Agent: **RYANN, William, F.**; Advanced Technology Materials, Inc., 7 Commerce Drive, Danbury, CT 06810 (US).

(21) International Application Number:
PCT/US2004/009168

(22) International Filing Date: 25 March 2004 (25.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/402,759 28 March 2003 (28.03.2003) US

(71) Applicant (for all designated States except US): **ADVANCED TECHNOLOGY MATERIALS INC.** [US/US]; William F. Ryann, 7 Commerce Drive, Danbury, CT 06810 (US).

(72) Inventors; and

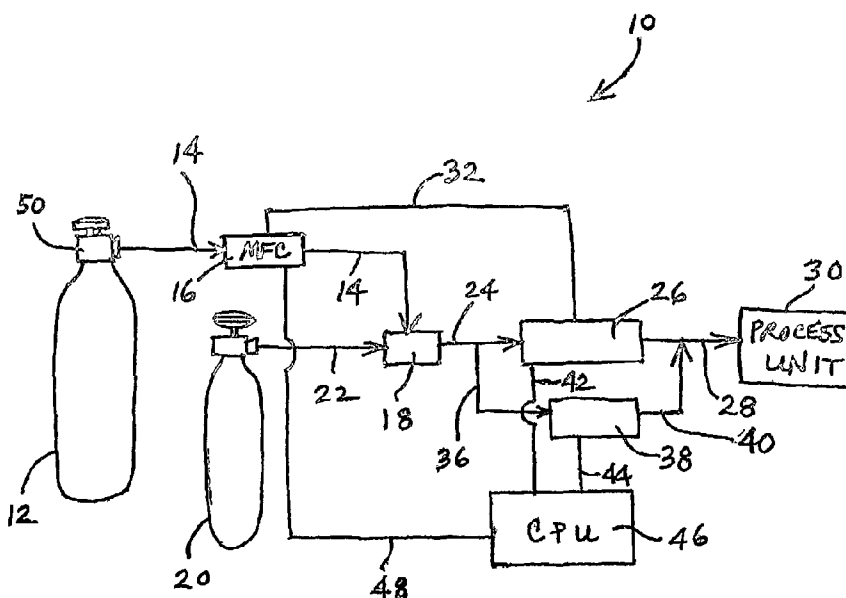
(75) Inventors/Applicants (for US only): **ARNO, Jose, I.** [ES/US]; 13 Twilight Lane, Brookfield, CT 06804 (US).
DIETZ, James, A. [US/US]; 95 Grand Boulevard, Scarsdale, NY 10583 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: IN-SITU GAS BLENDING AND DILUTION SYSTEM FOR DELIVERY OF DILUTE GAS AT A PREDETERMINED CONCENTRATION



(57) Abstract: Apparatus and method for delivery of dilute active fluid, e.g., to a downstream active fluid-consuming process unit of a semiconductor manufacturing plant. The delivery system includes an active fluid source, a diluent fluid source, a fluid flow metering device for dispensing of the active fluid at a predetermined flow rate, a mixer arranged to mix active gas from the active fluid source that is dispensed at such predetermined flow rate by the fluid flow metering device, with diluent fluid to form a diluted active fluid mixture, and a monitor arranged to measure concentration of active fluid in the diluted active fluid mixture, and responsively adjust the fluid flow metering device, to control the dispensing rate of the active fluid, and maintain a predetermined concentration of active fluid in the diluted active fluid mixture.

WO 2004/088718 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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.

(88) Date of publication of the international search report:

28 April 2005