(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 December 2012 (06.12.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/166528 A3

(51) **International Patent Classification**:
H01L 21/02 (2006.01)

(21) **International Application Number**:
PCT/US2012/039386

(22) **International Filing Date**:
24 May 2012 (24.05.2012)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
61/491,178 28 May 2011 (28.05.2011) US

(71) **Applicant** *(for all designated States except US)*: **ADVANCED TECHNOLOGY MATERIALS, INC.** [US/US]; 7 Commerce Drive, Danbury, CT 06810-4169 (US).

(72) **Inventors; and**

(75) **Inventors/Applicants** *(for US only)*: **CHISM, Richard, D.** [US/US]; 2544 Santa Barbara Loop, Round Rock, TX 78665 (US). **KRELL, Andy** [US/US]; 4200 Cypress Canyon Trail, Spicewood, TX 78669 (US).

(74) **Agent**: **HULTQUIST, Steven, J.**; Hultquist IP, PO Box 14329, Research Triangle Park, NC 27709 (US).

(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) **Title**: REFILLABLE AMPOULE WITH PURGE CAPABILITY

(57) **Abstract**: A fluid delivery system adapted to isolate an ampoule and/or process line during purge, including an inlet control valve connecting a source of pressurized gas to a refillable ampoule, an outlet control valve connecting the refillable ampoule to a location of use, a process control valve connecting a process line to the refillable ampoule, a process isolation valve, and a purge supply valve, e.g., a three-way purge supply valve, arranged between the process isolation valve and the process control valve. A method of purging a fluid delivery system is also disclosed, including closing a process isolation valve, connecting a process line to a refillable ampoule, supplying a purge gas through a purge supply valve, e.g., a three-way purge supply valve, and cycling open and close at least once a process control valve coupled to the process line. A manifold for use in refilling an ampoule and purging a fluid supply system is also described.

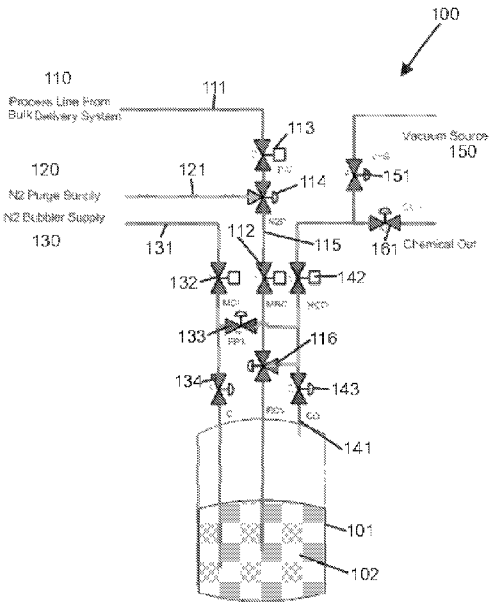


FIG. 1

WO 2012/166528 A3

WO 2012/166528 A3

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
7 March 2013