

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 March 2007 (08.03.2007)

PCT

(10) International Publication Number
WO 2007/027652 A3

(51) International Patent Classification:
C07C 209/84 (2006.01) C07C 211/63 (2006.01)

(74) Agent: ADAMS, Thomas W.; Renner, Otto, Boisselle & Sklar, LLP, 1621 Euclid Avenue, 19th Floor, Cleveland, Ohio 44115 (US).

(21) International Application Number:
PCT/US2006/033621

(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, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(22) International Filing Date: 25 August 2006 (25.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/223,247 2 September 2005 (02.09.2005) US

(71) Applicant (for all designated States except US):
SACHEM, INC. [US/US]; 821 East Woodward Street, Austin, Texas 78704 (US).

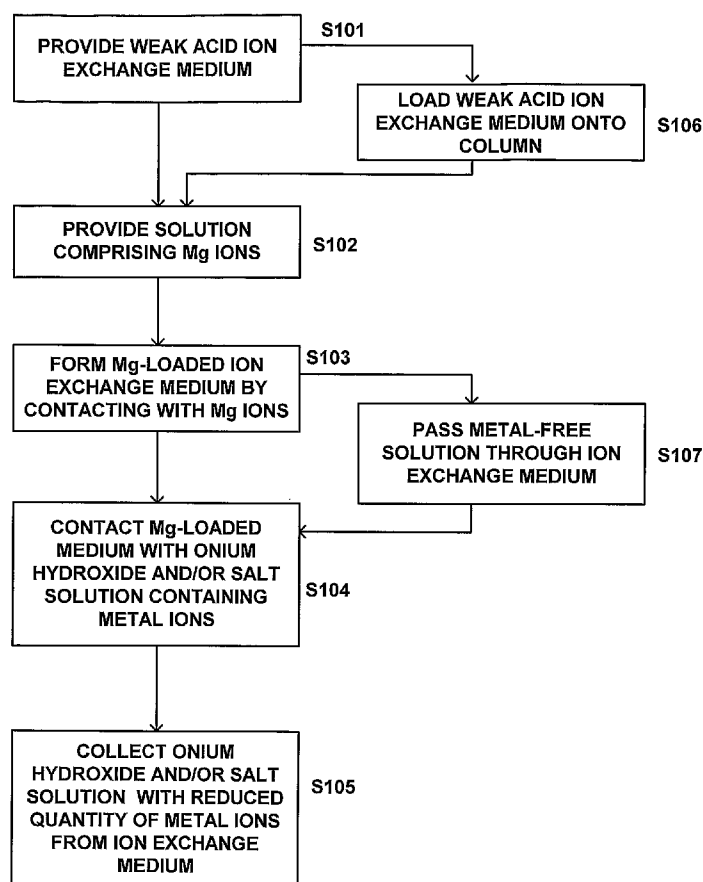
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, 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).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NIINOBE, Takao** [JP/JP]; 2-12-4 Gakuenmidorigaoka, Nara City, Nara 631-0026 (JP). **WILSON, Wilfred Wayne** [US/US]; 505 FM 1209, Bastrop, Texas 78602 (US).

[Continued on next page]

(54) Title: REMOVAL OF METAL IONS FROM ONIUM HYDROXIDES AND ONIUM SALT SOLUTIONS



(57) Abstract: The present invention relates to a process for removing dissolved metal ions from an onium hydroxide and/or salt solution, including providing a weak acid ion exchange medium; providing a solution comprising magnesium ions; forming a magnesium-loaded ion exchange medium by contacting the ion exchange medium with the solution comprising magnesium ions; contacting the magnesium-loaded ion exchange medium with an onium hydroxide and/or salt solution containing a first quantity of dissolved metal ions, wherein at least a portion of the dissolved metal ions are removed from the onium hydroxide and/or salt solution; and collecting the onium hydroxide and/or salt solution after the contacting, wherein the solution collected contains a second quantity of dissolved metal ions smaller than the first quantity. The onium hydroxide and/or salt may be tetramethylammonium hydroxide and/or salt, and the metal content may be reduced to about 1 part per billion or less by the process.

WO 2007/027652 A3



Published:

- *with international search report*
- *with amended claims*

Date of publication of the amended claims: 28 June 2007

(88) Date of publication of the international search report:
24 May 2007

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.