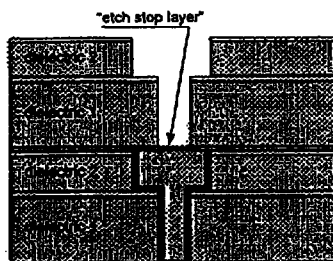




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(21) International Application Number: PCT/US99/15157 (22) International Filing Date: 2 July 1999 (02.07.99) (30) Priority Data: 60/092,024 6 July 1998 (06.07.98) US (71) Applicant (for all designated States except US): EKC TECHNOLOGY, INC. [US/US]; 2520 Barrington Court, Hayward, CA 94545 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): PEYNE, Catherine, M. [FR/US]; 22304 City Center Drive #3408, Hayward, CA 94541 (US). MALONEY, David, J. [CA/US]; 6237 Camino Del Lago, Pleasanton, CA 94566 (US). LEE, Shihying [-/US]; 925 Arrowtail Terrace, Fremont, CA 94536 (US). LEE, Wai, Mun [US/US]; 40898 Abuelo Way, Fremont, CA 94539 (US). ARKLESS, Leslie, W. [GB/GB]; 28 Ballindallock Drive, Dennistown, Glasgow, G31 3DR (GB). (74) Agents: HIGGINS, Willis, E.; Cooley Godward LLP, 3000 El Camino Real, Five Palo Alto Square, Palo Alto, CA 94306-2155 (US) et al.		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, 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). Published <i>With international search report.</i>

(54) Title: POST ETCH CLEANING COMPOSITION AND PROCESS FOR DUAL DAMASCENE SYSTEM

**(57) Abstract**

A new cleaning chemistry based on a choline compound, such as choline hydroxide, is provided in order to address the problem of dual damascene fabrication. An etch stop inorganic layer at the bottom of a dual damascene structure protects the underlying interconnect of copper and allows a better cleaning. A two step etch process utilizing the etch stop layer is used to achieve the requirements of ULSI manufacturing in a dual damascene structure.