

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 March 2001 (22.03.2001)

PCT

(10) International Publication Number
WO 01/19751 A1

- (51) International Patent Classification⁷: C04B 11/30, 14/10, 14/36
- (21) International Application Number: PCT/US00/24621
- (22) International Filing Date:
8 September 2000 (08.09.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/394,322 13 September 1999 (13.09.1999) US
09/538,217 30 March 2000 (30.03.2000) US
- (71) Applicant (for all designated States except US): M. GOLD INVESTMENTS (1999) LTD. [IL/IL]; P.O. Box 8029, Kiryat Nardau, 42504 Netanya (IL).
- (71) Applicant (for TJ only): FRIEDMAN, Mark, M. [US/IL]; Alharizi St. 1, 43406 Raanana (IL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): STAV, Elisha [IL/IL]; P.O. Box 424, 15241 Kfar Tavor (IL). GOLD-GRABER, Meir, Gamliel [IL/IL]; Holand St. 39, 42221 Netanya (IL).
- (74) Common Representative: FRIEDMAN, Mark, M.; c/o Castorina, Anthony, 2001 Jefferson Davis Highway, Suite 207, Arlington, VA 22202 (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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (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).
- 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.

WO 01/19751 A1

(54) Title: GYPSUM-RICH PORTLAND CEMENT

(57) Abstract: The present invention is of a cementitious composition containing Ordinary Portland Cement (OPC), calcined gypsum, a source of amorphous silica and a source of amorphous alumina. The ratio of calcium sulfate hemihydrate to OPC is 0.7:1.0 to 1.8:1.0, the ratio of amorphous silica and amorphous alumina to OPC is 0.26:1.0 to 0.4:1.0, and the ratio of amorphous alumina to amorphous silica is 0.3:1.0 to 1.5:1.0. The cementitious composition, by itself and mixed with aggregates, is fast-setting and exhibits good early compressive strength and very high compressive strength after hydration. Despite the high content of calcium sulfate relative to prior art OPC formulations, the cementitious composition according to the present invention is essentially waterproof and exhibits excellent strength characteristics, even after 2 years under water. The use of calcined gypsum in place of alumina cement or even OPC is of great economic advantage, and in addition, provides the cementitious composition with quick-setting characteristics. Soluble anhydrite can replace some or all of the calcined gypsum.