

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
26 May 2017 (26.05.2017)



(10) International Publication Number
WO 2017/085565 A3

(51) International Patent Classification:

C04B 7/14 (2006.01) *C04B 14/28* (2006.01)
C04B 7/147 (2006.01) *C04B 22/12* (2006.01)
C04B 7/153 (2006.01) *C04B 22/14* (2006.01)
C04B 7/26 (2006.01) *C04B 22/16* (2006.01)

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

19 April 2018 (19.04.2018)

(21) International Application Number:

PCT/IB2016/001897

(22) International Filing Date:

16 November 2016 (16.11.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2,912,184 18 November 2015 (18.11.2015) CA

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(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, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KW,
KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK,
MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA,
PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, 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,
KM, ML, MR, NE, SN, TD, TG).

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))

(54) Title: PORTLAND CEMENT FREE ACTIVATION OF GROUND GRANULATED BLAST FURNACE SLAG

(57) Abstract: A Portland cement-free cementitious binder composition, said composition comprising: ground granulated blast furnace slag and/or pulverized fly ash; an alkali metal oxide; an alkali metal phosphate; an alkali metal fluoride; nano alkali metal carbonate; and an alkali metal sulfate. Preferably, the slag is present in an amount ranging from 80 to 90% by weight of the composition.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB16/01897

A. CLASSIFICATION OF SUBJECT MATTER

IPC - C04B 7/14, 7/147, 7/153, 7/26, 14/28, 22/12, 22/14, 22/16 (2018.01)

CPC - C04B 7/14, 7/147, 7/153, 7/1535, 7/243, 14/28, 22/126, 22/147, 22/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2014/0264140 A1 (THE CATHOLIC UNIVERSITY OF AMERICA) 18 September 2014; paragraphs [0046], [0050], [0059], [0067], [0069], [0091]-[0092], [0147]-[0149]; claims 1-2, 6-7, 14, 27, 32-33	1-2, 3/1-2, 18 ----- 19, 20/18-19, 23
Y	US 8,703,659 B2 (DALRYMPLE, ED et al.) 22 April 2014; abstract; column 28, lines 27-36, 61-67; column 29, lines 1-2	19, 20/19
Y	US 5,073,197 A (MAJUMDAR, AJ et al.) 17 December 1991; column 3, lines 7-13; claims 1, 13, 15	20/18-19
Y	US 4,761,183 A (CLARKE, WJ) 02 August 1988; abstract; column 4, lines 12-15, 48-61; claims 1, 11	23
A	US 5,411,092 A (COWAN, KM) 02 May 1995; entire document	1-2, 3/1-2, 18-19, 20/18-19, 23
A	US 2014/0360721 A1 (CEMBLEND SYSTEMS INC.) 11 December 2014; entire document	1-2, 3/1-2, 18-19, 20/18-19, 23

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

23 February 2018 (23.02.2018)

Date of mailing of the international search report

08 MAR 2018

Name and mailing address of the ISA/

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-8300

Authorized officer

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PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB16/01897

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.: 4-17, 21-22
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.