

(12) United States Patent Jeon

(10) Patent No.:

US 9,061,946 B2

(45) Date of Patent:

Jun. 23, 2015

(54) PRODUCTION METHOD FOR A TRULY SPHERICAL CERAMIC BALL BY MEANS OF A ROTATIONAL METHOD, AND A DEVICE THEREFOR

(75) Inventor: Hyoung Tag Jeon, Wanju-gun (KR)

(73) Assignee: Biocera Co., Ltd, Seongnam-si (KR)

Subject to any disclaimer, the term of this (*) Notice: patent is extended or adjusted under 35 U.S.C. 154(b) by 148 days.

(21) Appl. No.: 13/254,258

(22) PCT Filed: Jul. 15, 2010

PCT/KR2010/004599 (86) PCT No.: § 371 (c)(1),

(2), (4) Date:

Sep. 1, 2011

(87) PCT Pub. No.: WO2011/008031 PCT Pub. Date: Jan. 20, 2011

(65)**Prior Publication Data** US 2012/0098170 A1 Apr. 26, 2012

(30)

(KR) 10-2009-0065041 Jul. 16, 2009

Foreign Application Priority Data

(51) Int. Cl. B29C 67/24 (2006.01)C04B 35/64 (2006.01)C04B 35/626 (2006.01)

(52) U.S. Cl. CPC C04B 35/64 (2013.01); C04B 2235/602 (2013.01); C04B 2235/94 (2013.01); C04B 35/62635 (2013.01); C04B 2235/3232 (2013.01); C04B 2235/96 (2013.01); C04B 2235/963 (2013.01)

(58) Field of Classification Search USPC 425/222; 264/117; 118/19, 308 See application file for complete search history.

References Cited (56)

U.S. PATENT DOCUMENTS

4,108,932 A * 8/1978 Takewell	et al 264/117
5,182,119 A * 1/1993 Edens	425/222
5,601,873 A * 2/1997 Nakazaw	a et al 118/19
5,868,982 A * 2/1999 Strait et a	d 264/117
6,142,095 A * 11/2000 Long	118/19
6,508,591 B2 * 1/2003 Niwa et a	d 384/492

* cited by examiner

Primary Examiner - Joseph S Del Sole Assistant Examiner - Thukhanh T Nguyen (74) Attorney, Agent, or Firm - John K. Park; Park Law Firm

(57)ABSTRACT

The present invention relates to a production method for a truly spherical ceramic ball by means of a rotational method, and to a device therefor. More specifically, a method is disclosed which uses seeds to facilitate formation of ceramic balls into a spherical shape and repeats heating and cooling or grades ceramic balls according to size to form ceramic balls having a similar size during the formation process, thereby increasing strength of the ceramic balls while ensuring excellent particle size distribution. Also, an apparatus for producing ceramic balls using a rotation manner is disclosed.

12 Claims, 5 Drawing Sheets

