

Title (en)
POWDER COMPRISING ZIRCONIA GRANULES

Title (de)
PULVER MIT ZIRKONOXIDGRANULAT

Title (fr)
POUDRE DE GRANULES DE ZIRCON

Publication
EP 2516351 A1 20121031 (FR)

Application
EP 10814667 A 20101221

Priority
• FR 0959581 A 20091224
• IB 2010055993 W 20101221

Abstract (en)
[origin: WO2011077381A1] The invention relates to a granulated powder intended, in particular, for the production of ceramic sintered parts, said powder having the following chemical weight composition, based on dry matter, namely: a zirconia stabiliser selected from the group containing Y₂O₃, Sc₂O₃, MgO, CaO, CeO₂, and mixtures thereof, the weight content of stabiliser, based on the total zirconia and stabiliser content, being between 2 % and 20 % and the MgO + CaO content being less than 5 % based on the total zirconia and stabiliser content; at least 1 % of a first binder having a glass transition temperature less than or equal to 25 °C; 0 - 4 % of an additional binder having a glass transition temperature greater than 25 °C; 5 - 50 % alumina; 0 - 4 % of a temporary additive different from the first binder and the additional binder, the total content of the first binder, the additional binder and the temporary additive being less than 9 %; less than 2 % impurities; and ZrO₂ to make up 100%. According to the invention, the median diameter D₅₀ of the powder is between 80 and 130 µm, the percentile D_{99.5} is less than 500 µm and the relative density of the granules is between 30% and 60%.

IPC 8 full level
C04B 35/48 (2006.01); **C04B 35/482** (2006.01); **C04B 35/622** (2006.01); **C04B 35/63** (2006.01); **C04B 35/632** (2006.01)

CPC (source: EP US)
C04B 35/4885 (2013.01 - EP US); **C04B 35/62655** (2013.01 - EP US); **C04B 35/62695** (2013.01 - EP US); **C04B 35/63416** (2013.01 - EP US); **C04B 35/63424** (2013.01 - EP US); **C04B 35/63488** (2013.01 - EP US); **C04B 2235/3201** (2013.01 - EP US); **C04B 2235/3206** (2013.01 - EP US); **C04B 2235/3208** (2013.01 - EP US); **C04B 2235/3224** (2013.01 - EP US); **C04B 2235/3225** (2013.01 - EP US); **C04B 2235/3229** (2013.01 - EP US); **C04B 2235/3232** (2013.01 - EP US); **C04B 2235/3272** (2013.01 - EP US); **C04B 2235/3418** (2013.01 - EP US); **C04B 2235/528** (2013.01 - EP US); **C04B 2235/5409** (2013.01 - EP US); **C04B 2235/5427** (2013.01 - EP US); **C04B 2235/5436** (2013.01 - EP US); **C04B 2235/5445** (2013.01 - EP US); **C04B 2235/5481** (2013.01 - EP US); **C04B 2235/6562** (2013.01 - EP US); **C04B 2235/661** (2013.01 - EP); **C04B 2235/72** (2013.01 - EP US); **C04B 2235/77** (2013.01 - EP US); **C04B 2235/96** (2013.01 - EP US)

Citation (search report)
See references of WO 2011077381A1

Citation (third parties)
Third party :
• STANLEY J.LUKASIEWICZ: "SPRAY-DRYING CERAMIC POWDERS", JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol. 72, no. 4, 1 January 1989 (1989-01-01), pages 617 - 624, XP002595161
• HANNINK R.H.J.: "TRANSFORMATION TOUGHENING IN ZIRCONIA-CONTAINING CERAMICS", JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol. 83, no. 3, 1 January 2000 (2000-01-01), pages 461 - 487, XP008078755
• ONDIK H.M.: "PHASE DIAGRAMS FOR ZIRCONIUM AND ZIRCONIA SYSTEMS", 1998, ISBN: 1574980556, pages: 100 - 119, XP003035618
• WHITMAN D.W. ET AL: "USING POLYMER BLENDS TO FINE-TUNE BINDER PERFORMANCE", ANNUAL MEETING OF THE AMERICAN CERAMIC SOCIETY, 1995, pages 1 - 4, XP003035619
• REED J.S.: "PRINCIPLES OF CERAMICS PROCESSING, 2ND EDITION", March 1995, ISBN: 978-0-471-59721-6, pages: 200-209 - 386-387, XP003035620
• MATSUU K.: "INITIAL SINTERING MECHANISM OF 3 MOL % YTTRIA-DOPED ZIRCONIA POWDER EFFECT OF ALUMINIA", TOSCH RESEARCH AND TECHNOLOGY REVIEW, vol. 51, 2007, pages 9 - 19, XP003035621
• RAINFORTH W.M. ET AL: "CERAMIC MICROSTRUCTURES", 1994, ISBN: 0412431408, pages: 20 - 21, XP003035622
• DUBBIN D.M.: "CONTROL OF CERAMIC PARTICLE PROPERTIES BY SPRAY DRYING POWDER TECHNOLOGY DIVISION", GE A POWER TECHNOLOGY DIVISION, 5 July 1999 (1999-07-05), pages 1 - 8, XP055184591
• ROHM AND HAAS COMPANY: "DURAMAX B100 AND DURAMAX B 1007", DURAMAX CERAMIC ADDITIVES POLYMERS, 2002, pages 1 - 2, XP003035647
• TOSOH: "SPECIFICATION AND TYPICAL PROPERTIES GARDES: TZ-3Y-E, 3YS-E, 3YB-E, 3YSB-E, 3YSB-C", TOSOH PRODUCT DATASHEET, 19 October 2004 (2004-10-19), pages 1 - 2, XP003035648

Cited by
EP3272724A4; US10716649B2

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2011077381 A1 20110630; CN 102803181 A 20121128; CN 102803181 B 20141112; EP 2516351 A1 20121031; FR 2954761 A1 20110701; FR 2954761 B1 20151127; JP 2013515666 A 20130509; JP 5732473 B2 20150610; US 2012326361 A1 20121227; US 9193630 B2 20151124

DOCDB simple family (application)
IB 2010055993 W 20101221; CN 201080059306 A 20101221; EP 10814667 A 20101221; FR 0959581 A 20091224; JP 2012545516 A 20101221; US 201013518565 A 20101221