Title (en)

METHOD FOR MANUFACTURING NANOSTRUCTURED POWDER BY WIRE EXPLOSION IN LIQUID AND DEVICE FOR MANUFACTURING THE SAME

Title (de)

VERFAHREN ZUR HERSTELLUNG VON NANOSTRUKTURIERTEM PULVER DURCH DRAHTEXPLOSION IN FLÜSSIGKEIT UND VORRICHTUNG ZU DESSEN HERSTELLUNG

Title (fr)

PROCEDE DE FABRICATION DE POUDRE NANOSTRUCTUREE PAR EXPLOSION ELECTRIQUE DANS UN LIQUIDE ET DISPOSITIF DE FABRICATION ASSOCIE

Publication

EP 1981669 A4 20100421 (EN)

Application

EP 06783612 A 20060816

Priority

- KR 2006003195 W 20060816
- KR 20050078518 A 20050826

Abstract (en)

[origin: WO2007024067A1] The present invention relates to a method for manufacturing the nanostructured powder by a wire explosion in liquid and a device for manufacturing the same. To be more specific, the object of the invention is to provide a method for manufacturing the nanostructured powder by a wire explosion in liquid and a device for manufacturing the same, in which, a metal wire (18) is vaporized in liquid (14) by generating an electrical explosion using the same principle al in gas, with the characteristic of pulsed power, even though the liquid (14) with a low conductivity is used, and the nanostructured powder of a metal wire (18) is produced in the space made by the volume expansion of vaporized vapour, all of which was performed with an understanding that electrical explosion is not so different in principle weather in gas or in liquid. By achieving this object, the present invention can provide an advantage of natural disperse of the nanostructured powder into a liquid,, hence either the agglomeration between powder particles or the surface oxidation of the nanostructured powder is not generated, as the powder is not in contact with oxygen in liquid. Moreover, the classification according to size becomes possible with the reduction of the number of processes, hence providing an advantage of an effective application of the nanostructured powder an the economic ripple effect thereto.

IPC 8 full level

B22F 1/00 (2006.01); **B22F 1/054** (2022.01); **B22F 9/14** (2006.01)

CPC (source: EP KR US)

B22F 1/054 (2022.01 - EP KR US); **B22F 9/14** (2013.01 - EP US); **B82B 3/00** (2013.01 - KR); **B82Y 30/00** (2013.01 - EP US); B22F 2998/10 (2013.01 - EP US); B82Y 40/00 (2013.01 - KR)

Citation (search report)

- [YA] KR 20040105378 A 20041216 - KOREA ELECTRO TECH RES INST
- [YA] KR 20050000667 A 20050106 - KOREA ATOMIC ENERGY RES, et al
- [XY] PARKANSKY N ET AL: "Pulsed discharge production of nano- and microparticles in ethanol and their characterization", POWDER TECHNOLOGY, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 150, no. 1, 31 January 2005 (2005-01-31), pages 36 - 41, XP025305932, ISSN: 0032-5910, [retrieved on 20050131]
- See references of WO 2007024067A1

Cited by

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Designated contracting state (EPC)

DE

DOCDB simple family (publication)

WO 2007024067 A1 20070301; EP 1981669 A1 20081022; EP 1981669 A4 20100421; JP 2009506205 A 20090212; KR 100726713 B1 20070612; KR 20070024041 A 20070302; US 2008216604 A1 20080911

DOCDB simple family (application)

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