

Title (en)

METHOD FOR PRODUCING CARBON COATED NANOPARTICLES OF A TRANSITION METAL OXIDE

Title (de)

VERFAHREN ZUR HERSTELLUNG VON KOHLENSTOFFBESCHICHTETEN NANOPARTIKELN EINES ÜBERGANGSMETALLOXIDS

Title (fr)

PROCÈDE DE FABRICATION DE NANOPARTICULES D'OXYDE DE MÉTAL DE TRANSITION ENROBÉES DE CARBONE

Publication

EP 2155612 A2 20100224 (FR)

Application

EP 08805653 A 20080606

Priority

- FR 2008000765 W 20080606
- FR 0704031 A 20070606

Abstract (en)

[origin: WO2009004187A2] The invention relates to a method for producing nanoparticles of at least one oxide of a transition metal selected from Ti, Zr, Hf, V, Nb and Ta, which are coated with amorphous carbon, wherein said method includes the following successive steps: (i) a liquid mixture containing as precursors at least one alkoxyde of the transition metal, an alcohol, and an acetic acid relative to the transition metal is prepared and diluted in water in order to form an aqueous solution, the precursors being present in the solution according to a molar ratio such that it prevents or sufficiently limits the formation of a sol so that the aqueous solution can be freeze-dried, and such that the transition metal, the carbon and the oxygen are present in a stoichiometric ratio according to which they are included in the nanoparticles; (ii) the aqueous solution is freeze-dried; (iii) the freeze-dried product obtained during the preceding step is submitted to pyrolysis under vacuum or in an inert atmosphere in order to obtain the nanoparticles. The invention also relates to the application of the method for producing transition metal carbide.

IPC 8 full level

C01G 23/04 (2006.01); **C01B 31/30** (2006.01); **C01G 25/02** (2006.01); **C01G 27/02** (2006.01)

CPC (source: EP KR US)

B82B 3/00 (2013.01 - KR); **B82Y 30/00** (2013.01 - EP US); **C01B 32/90** (2017.07 - EP KR US); **C01B 32/914** (2017.07 - EP US); **C01G 23/04** (2013.01 - KR); **C01G 25/02** (2013.01 - KR); **C09C 1/3661** (2013.01 - EP US); **C09C 1/3669** (2013.01 - EP US); **C09C 1/3676** (2013.01 - EP US); **C09C 1/3692** (2013.01 - EP US); **C09C 3/063** (2013.01 - EP US); **C09C 3/08** (2013.01 - EP US); **C09C 3/10** (2013.01 - EP US); **C01P 2002/77** (2013.01 - EP US); **C01P 2004/64** (2013.01 - EP US); **Y10T 428/2991** (2015.01 - EP US)

Citation (search report)

See references of WO 2009004187A2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA MK RS

DOCDB simple family (publication)

FR 2917080 A1 20081212; **FR 2917080 B1 20090904**; BR PI0811962 A2 20141111; CA 2690121 A1 20090108; CA 2690121 C 20140204; CN 101743201 A 20100616; CN 101743201 B 20121226; EP 2155612 A2 20100224; JP 2010528967 A 20100826; KR 101427247 B1 20140806; KR 20100062989 A 20100610; RU 2009148871 A 20110720; RU 2485052 C2 20130620; US 2010202956 A1 20100812; US 8337799 B2 20121225; WO 2009004187 A2 20090108; WO 2009004187 A3 20090312

DOCDB simple family (application)

FR 0704031 A 20070606; BR PI0811962 A 20080606; CA 2690121 A 20080606; CN 200880019183 A 20080606; EP 08805653 A 20080606; FR 2008000765 W 20080606; JP 2010510843 A 20080606; KR 20107000254 A 20080606; RU 2009148871 A 20080606; US 66335208 A 20080606