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(54) Title: A COMBUSTION PROCESS FOR THE MANUFACTURE OF CALCIUM PHOSPHATE AND CALCIUM PHOSPHATE COMPOSITE PARTICLES

(57) Abstract: The present application is directed to methods of manufacturing calcium phosphate particles. In particular, the method is directed at eliminating the requirement for a sintering step in the manufacturing process. The method involves the atomisation and combustion of one or more antecedent compositions containing calcium precursors, phosphorus precursors and hydrogen peroxide.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
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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)
C01B

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

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

EPO-Internal, WPI Data, INSPEC, COMPENDEX, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	M. VALLET-REGI, J.M. GONZÁLEZ-CALBET: "Calcium phosphates as substitution of bone tissues" PROGRESS IN SOLID STATE CHEMISTRY, vol. 32, 2004, pages 1-31, XP002567347 page 23, paragraph 4 - page 25, paragraph 1 figure 14	27-36
A	E. HERRERO, M.V. CABAÑAS, J. ALONSO, F. CONDE, J.M. GONZÁLEZ-CALBET, M. VALLET-REGÍ: "Influence of the Deposition Parameters on La-A-Mn-O (A = Ca, Sr) Films Grown by Low-Pressure Aerosol Pyrolysis" CHEMISTRY OF MATERIALS, vol. 11, 1999, pages 3521-3527, XP002567348 figure 1	32-36
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☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	S. LOHER, W.J. STARK, M. MACIEJEWSKI, A. BAIKER, S.E. PRATSINIS, D. REICHARDT, F. MASPERO, F. KRUMEICH, D. GÜNTHER: "Fluoro-apatite and Calcium Phosphate Nanoparticles by Flame Synthesis" CHEMISTRY OF MATERIALS, vol. 17, 12 January 2004 (2004-01-12), pages 36-42, XP002567349 the whole document	1-36
A	P. HABIBOVIC, F. BARRÈRE, C. A. VAN BLITTERSWIJK, K. DE GROOT, P. LYROLLE: "Biomimetic Hydroxyapatite Coating on Metal Implants" JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol. 85, 2002, pages 517-522, XP002567350 the whole document	27-31
A	M.V. CABAÑAS, M. VALLET-REGÍ: "Calcium phosphate coatings deposited by aerosol chemical vapour deposition" JOURNAL OF MATERIALS CHEMISTRY, vol. 13, 28 March 2003 (2003-03-28), pages 1104-1107, XP002567351 the whole document	1-36
A	WO 2005/087660 A1 (EIDGENOESS TECH HOCHSCHULE [CH]; STARK WENDELIN JAN [CH]; PRATSINIS SO) 22 September 2005 (2005-09-22) the whole document	1-36

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2005087660 A1	22-09-2005	CN 1942396 A	04-04-2007
		EP 1761459 A1	14-03-2007
		JP 2007529399 T	25-10-2007
		US 2007196259 A1	23-08-2007