

(12) International Application Status Report

Received at International Bureau: 31 July 2015 (31.07.2015)

Information valid as of: 09 February 2016 (09.02.2016)

Report generated on: 11 February 2016 (11.02.2016)

(10) Publication number: WO2016/016867	(43) Publication date: 04 February 2016 (04.02.2016)	(26) Publication language: Portuguese (PT)
(21) Application Number: PCT/IB2015/055834	(22) Filing Date: 31 July 2015 (31.07.2015)	(25) Filing language: Portuguese (PT)
(31) Priority number(s): 107828 (PT)	(31) Priority date(s): 01 August 2014 (01.08.2014)	(31) Priority status: Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:

A61K 47/02 (2006.01); A01N 37/46 (2006.01); A01N 25/26 (2006.01); A01N 47/44 (2006.01); A01N 33/12 (2006.01)

(71) Applicant(s):

SMART INOVATION, LDA [PT/PT]; Parque Industrial Acib, Lote 7 Várzea P-4755-539 Barcelos (PT) *(for all designated states)*

(72) Inventor(s):

DE SÁ MARTINS, César André; Rua S. Tiago Nº 1313 P-4905-016 Aldreu (PT)

MARTINS INÁCIO, Afonso Henrique; Rua Dr. Santos Júnior Nº 97 P-4750-352 Barcelos (PT)

(54) Title (EN): FUNCTIONAL PARTICLES, PRODUCTION PROCESS AND USES

(54) Title (FR): PARTICULES FONCTIONNELLES, PROCÉDÉ D'OBTENTION ET APPLICATIONS CORRESPONDANTES

(54) Title (PT): PARTÍCULAS FUNCIONAIS, PROCESSO DE OBTENÇÃO E SUAS APLICAÇÕES

(57) Abstract:

(EN): The present invention relates to a process for producing and formulating functional particles made of silica and other materials with active principles or compounds for use in polymers, inks, mortars, ceramics, cements, textiles, pharmaceuticals, varnishes, paper, clays, cosmetics, sensors and effluents. The present disclosure describes a functional particle to be bonded to a substrate and comprising: a granule comprising an oxide or hydroxide of an element selected from the following list: silica, magnesium, zinc, iron, copper, silver, aluminium, gold, titanium or their mixtures, and having a size from 90 nm - 50 nm; a binder comprising silane-based compounds which binds the outside granule to the substrate; a functional compound or active compound bonded to the surface of the granule, to the binder, or to both; the functional compound is at least one of the following compounds: a mosquito or insect repellent, a fungicide, an antimicrobial agent or bactericide; an antimycotic agent, a fire retardant, anti-U.V. compounds, larvicides, waterproofing agents, vitamins, moisturizing agents, cosmetics, medicinal drugs, mechanical property enhancers, magnetic property enhancers or mixtures thereof.

(FR): La présente invention concerne un procédé d'obtention et de formulation de particules fonctionnelles de silice et d'autres matériaux avec principes actifs / composés trouvant une application dans les polymères, les peintures, les mortiers, la céramique, les ciments, le textile, les produits pharmaceutiques, les vernis, le papier, les argiles, les cosmétiques, les capteurs et les effluents. La présente invention concerne une particule fonctionnelle destinée à être liée à un substrat et comprenant : un granule renfermant un oxyde ou un hydroxyde d'un élément choisi dans la liste suivante : silice, magnésium, zinc, fer, cuivre, argent, aluminium, or, titane ou leurs mélanges, avec une dimension comprise entre 90 nm et 500 nm ; un liant renfermant des composés à base de silanes, lequel lie l'extérieur du granule au substrat ; un composé fonctionnel / composé actif lié à la surface du granule, au liant ou aux deux ; le composé fonctionnel étant au moins l'un des composés suivants : anti-moustiques/répulsif/anti-insectes, fongicide, antimicrobien/bactéricide, antimycosique, agent antifeu, produits anti-UV, larvicides, agents hydrophobes, vitamines, produits hydratants, cosmétiques, médicaments, renforceurs de propriétés mécaniques, de propriétés magnétiques ou leurs mélanges.

(PT): A presente invenção diz respeito a um processo de obtenção e formulação de partículas funcionais de sílica e de outros materiais com princípios ativos/compostos para aplicação em polímeros, tintas, argamassas, cerâmica, cimentos, têxtil, farmacêutica, vernizes, papel, argilas, cosméticos, sensores e efluentes. A presente divulgação descreve uma partícula funcional para ligação a um substrato que compreende: um grânulo que compreende óxido ou hidróxido de um elemento selecionado da seguinte lista: sílica, magnésio, zinco, ferro, cobre, prata, alumínio, ouro, titânio, ou suas misturas com uma dimensão entre

90nm-500nm; um ligante que compreende compostos baseados em silanos o qual liga o exterior grânulo ao substrato; um composto funcional/composto ativo ligado à superfície do grânulo, ao ligante, ou a ambos; em que o composto funcional é pelo menos um dos seguintes compostos: anti-mosquito/repelente/anti-insectos, fungicida, antimicrobiano/bactericida, anti-micótico, anti-fogo, protetores UV, larvicidas, hidrofóbicos, vitamínicos, hidratantes, cosméticos, medicamentos, aumento de propriedades mecânicas, propriedades magnéticas ou suas misturas.

International search report:

Received at International Bureau: 23 November 2015 (23.11.2015) [EP]

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM

