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(54) Title: COMPOSITION FOR PERSONAL CARE, METHOD OF PREPARING THE COMPOSITION, AND TREATMENT METHOD INVOLVING THE COMPOSITION

(57) Abstract: A composition comprises nanoparticles. The nanoparticles are produced via a plasma process. The nanoparticles independently comprise a Group IV element. The composition further comprises at least one personal care ingredient. A method of preparing the composition ("preparation method") comprises producing the nanoparticles via a plasma process. The preparation method further comprises combining the nanoparticles with at least one personal care ingredient. A method of treating a substrate ("treatment method") comprises applying the composition to the substrate. The substrate generally comprises hair, skin, teeth, and/or nails.



WO 2020/142282 A3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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ADD.

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)

A61K C01B A61Q

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 practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2018/147684 A1 (SHONANO CO LTD [KR]) 16 August 2018 (2018-08-16) paragraph [0009] claim 1 Production examples 1-5 Experimental part	1-9, 18, 19
X	US 2010/129300 A1 (NAYFEH MUNIR H [US] ET AL) 27 May 2010 (2010-05-27) claim 1 paragraph [0030] paragraph [0023]	1, 3-16, 18, 19
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Further documents are listed in the continuation of Box C.



See patent family annex.

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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.
X	WO 2011/109299 A1 (DOW CORNING [US]; ANDERSON JEFFERY [US] ET AL.) 9 September 2011 (2011-09-09) paragraph [0008] example 1 paragraph [0036] -----	1,3-16
X	WO 2013/184458 A1 (DOW CORNING [US]) 12 December 2013 (2013-12-12) paragraph [0004] paragraph [0070] paragraph [0074] -----	1,3-15
X	US 2013/105806 A1 (LIU GUOJUN [US] ET AL) 2 May 2013 (2013-05-02) paragraph [0001] paragraph [0211]; example 4 -----	1-15,17, 18
X	US 2015/325328 A1 (KORTSHAGEN UWE RICHARD [US] ET AL) 12 November 2015 (2015-11-12) paragraph [0007] figure 5 paragraph [0022] paragraph [0003] paragraph [0063] paragraph [0132] claim 15 -----	1-18
X	US 2009/056628 A1 (KORTSHAGEN UWE [US] ET AL) 5 March 2009 (2009-03-05) paragraph [0003] example 5 paragraph [0043] -----	1-4,6,7, 10-18
X	WO 2006/011014 A1 (OREAL [FR]; CASSIN GUILLAUME [FR]; SIMMONET JEAN-THIERRY [FR]) 2 February 2006 (2006-02-02) page 1 example 1 -----	1-15,18, 19

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/US2019/068026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2018147684 A1	16-08-2018	NONE	
US 2010129300 A1	27-05-2010	US 2010129300 A1 WO 2010059604 A2	27-05-2010 27-05-2010
WO 2011109299 A1	09-09-2011	CN 102781834 A EP 2542502 A1 JP 2013521215 A KR 20130014529 A TW 201134762 A US 2012326089 A1 WO 2011109299 A1	14-11-2012 09-01-2013 10-06-2013 07-02-2013 16-10-2011 27-12-2012 09-09-2011
WO 2013184458 A1	12-12-2013	CN 104379247 A EP 2855003 A1 JP 2015526271 A KR 20150027150 A TW 201412394 A US 2015147257 A1 WO 2013184458 A1	25-02-2015 08-04-2015 10-09-2015 11-03-2015 01-04-2014 28-05-2015 12-12-2013
US 2013105806 A1	02-05-2013	EP 2774174 A2 JP 2015505791 A KR 20150000466 A TW 201334197 A US 2013105806 A1 US 2014151706 A1 WO 2013066669 A2	10-09-2014 26-02-2015 02-01-2015 16-08-2013 02-05-2013 05-06-2014 10-05-2013
US 2015325328 A1	12-11-2015	NONE	
US 2009056628 A1	05-03-2009	DE 112005001429 T5 JP 2008508166 A US 2006051505 A1 US 2009056628 A1 WO 2006009881 A2	26-04-2007 21-03-2008 09-03-2006 05-03-2009 26-01-2006
WO 2006011014 A1	02-02-2006	NONE	