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(71) Applicant (for all designated States except US):
STC.UNM [US/US]; 801 University Blvd. SE, Suite 101,
Albuquerque, New Mexico 87106 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KISSEL, David, J.**
[US/US]; 4949 San Pedrone, Apt. 17, Albuquerque, New
Mexico 87109 (US). **BRINKER, Charles, Jeffrey**
[US/US]; 14 Eagle Nest Dr. NE, Albuquerque, New Mex-
ico 87122 (US).

(74) Agent: **HSIEH, Timothy**; MH2 Technology Law Group
LLP, 1951 Kidwell Drive, Suite 550, Tysons Corner, Vir-
ginia 22182 (US).

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ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
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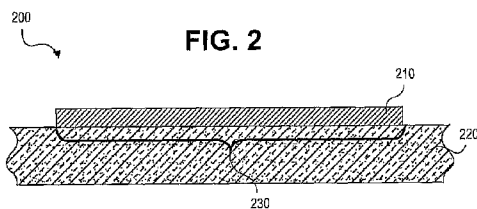
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(54) Title: DURABLE POLYMER-AEROGEL BASED SUPERHYDROPHOBIC COATINGS: A COMPOSITE MATERIAL



(57) Abstract: Provided are polymer-aerogel composite coatings, devices and articles including polymer-aerogel composite coat-
ings, and methods for preparing the polymer-aerogel composite. The exemplary article can include a surface, wherein the surface
includes at least one region and a polymer-aerogel composite coating disposed over the at least one region, wherein the polymer-
aerogel composite coating has a water contact angle of at least about 140° and a contact angle hysteresis of less than about 1°. The
polymer-aerogel composite coating can include a polymer and an ultra high water content catalyzed polysilicate aerogel, the
polysilicate aerogel including a three dimensional network of silica particles having surface functional groups derivatized with a
silylating agent and a plurality of pores.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/049205**A. CLASSIFICATION OF SUBJECT MATTER***C09D 133/04(2006.01)i, C09D 183/02(2006.01)i, C09D 5/00(2006.01)i, B05D 5/00(2006.01)i, B05D 7/00(2006.01)i*

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)

C09D 133/04; C08G 59/40; C08G 77/44; C08K 5/04; C08L 83/08; C09C 1/30; C09D 183/10; C09D 3/82

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

(Chinese Patents and application for patent)

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

eKOMPASS(KIPO internal) & Keywords: polymer-aerogel, superhydrophobic, polysilicate, silylating agent, alkoxy silane precursor, water, acid and three dimensional network

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0068671 A2 (DOW CORNING LIMITED) 05 January 1983 See abstract, example 1-4 and claims 1-11	14-21
A	EP 1412415 A1 (DOW CORNING TORAY SILICONE CO.,LTD. PATENT DEPARTMENT) 28 April 2004 See abstract, example 1-3 and claims 7-12	1-21
A	EP 0122483 A1 (TORAY SILICONE COMPANY LIMITED) 24 October 1984 See abstract, example 2,3,5 and claims 1-7	1-13
A	WO 2006-114420 A1 (NUPLEX RESINS B.V. et al.) 02 November 2006 See abstract, example 1,2,4,5,7 and claims 1-26	1-21



Further documents are listed in the continuation of Box C.



See patent family annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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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
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