



(51) International Patent Classification:

C09D 5/00 (2006.01) **C09D 183/00** (2006.01)
C09D 7/12 (2006.01)

(21) International Application Number:

PCT/US2013/044913

(22) International Filing Date:

10 June 2013 (10.06.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/657,152 8 June 2012 (08.06.2012) US
61/667,203 2 July 2012 (02.07.2012) US

(71) Applicant: UNIVERSITY OF HOUSTON [US/US]; 316
Ezekiel Cullen, Houston, TX 77204 (US).(72) Inventors: CURRAN, Seamus; 2415 Alberton Ave, Pear-
land, TX 77584 (US). LIAO, Kang-Shyang; 2380 S.
MacGregor Way, Apt. 205, Houston, TX 77021 (US).
BARTON, Killian; 2825 Bellefontaine, Apt. 329a, Hous-
ton, TX 77025 (US).(74) Agent: CHEEMA, Sangeeta; Winstead PC, P.O. Box
131851, Dallas, TX 75313 (US).(81) Designated States (unless otherwise indicated, for every
kind of national protection available): 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, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, 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, 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.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (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), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

15 May 2014

(54) Title: SELF-CLEANING COATINGS AND METHODS FOR MAKING SAME

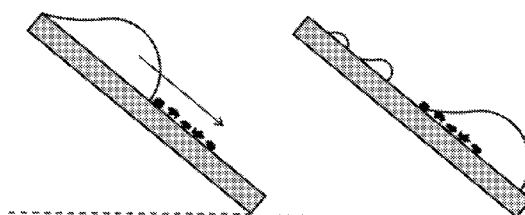


Figure 1

(57) Abstract: An embodiment of the present disclosure relates to a method of forming a self-cleaning coating on a substrate. Such a method comprises the step of selecting a substrate. In an embodiment, the substrate may be a flat or a non-flat substrate. In a related embodiment, the substrate may comprise of metals, metal oxides, organic/inorganic composites containing metals/metal oxides and plastic with silicon dioxide or metal oxides layer by sol-gel formation or other methods. In an embodiment, such a method comprises the step of cleaning the substrate. In another embodiment, the method comprises the step of roughening the substrate using an abra-
sive. In an embodiment, roughening of the substrate create microscopic tortuous grooves. Another embodiment of the method com-
prises coating the roughened surface with at least one hydrophobic chemical agent.