

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 September 2009 (11.09.2009)

PCT

(10) International Publication Number
WO 2009/111122 A3

(51) International Patent Classification:

C08G 77/04 (2006.01) **C08L 77/06** (2006.01)
C08G 77/06 (2006.01) **C08L 77/04** (2006.01)
C08G 77/18 (2006.01) **C09D 183/06** (2006.01)
C08G 77/28 (2006.01) **C09D 183/04** (2006.01)
C08G 77/20 (2006.01)

(21) International Application Number:

PCT/US2009/032907

(22) International Filing Date:

3 February 2009 (03.02.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/033,495 4 March 2008 (04.03.2008) US

(71) Applicant (for all designated States except US): **DOW CORNING CORPORATION** [US/US]; 2200 West Salzburg Road, Midland, MI 48686-0994 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRADFORD, Michael, L.** [US/US]; 3923 East Patrick Street, Midland, MI 48642 (US). **MOYER, Eric, Scott** [US/US]; 4500 Andre Street, Midland, MI 48642 (US). **WANG, Sheng** [CN/US]; 1505 Settlers Passage, Midland, MI 48642 (US). **YEAKLE, Craig, Rollin** [US/US]; 181 Yendor, Midland, MI 48640 (US).

(74) Agent: **BRADY, Sharon, K.**; IP Department-CO1232, Dow Corning Corporation, 2200 West Salzburg Road, Midland, MI 48686-0994 (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, BR, BW, BY, BZ,

CA, CH, 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, KM, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

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:

29 October 2009

(54) Title: SILSESQUIOXANE RESINS

(57) Abstract: A silsesquioxane resin comprised of the units $(\text{Ph}(\text{CH}_2)_x\text{SiO}_{(3-x)/2}(\text{OR}')_x)_m$, $(\text{HSiO}_{(3-x)/2}(\text{OR}')_x)_n$, $(\text{MeSiO}_{(3-x)/2}(\text{OR}')_x)_o$, $(\text{RSiO}_{(3-x)/2}(\text{OR}')_x)_p$, $(\text{R}^1\text{SiO}_{(3-x)/2}(\text{OR}')_x)_q$ where Ph is a phenyl group, Me is a methyl group; R' is hydrogen atom or a hydrocarbon group having from 1 to 4 carbon atoms; R is selected from an aryl sulfonate ester group; and R¹ is selected from substituted phenyl groups, ester groups, polyether groups, mercapto groups, and reactive or curable organic functional groups; and r has a value of 0, 1, 2, 3, or 4; x has a value of 0, 1 or 2; wherein in the resin m has a value of 0 to 0.95; n has a value of 0.05 to 0.95; o has a value of 0.05 to 0.95; p has a value of 0.05 to 0.5; q has a value of 0 to 0.5; and m + n + o + p + q = 1.



WO 2009/111122 A3