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(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): **FU, Peng-Fei** [US/US]; 5004 Redfern Circle, Midland, MI 48642 (US). **MOYER, Eric** [US/US]; 4500 Andre Street, Midland, MI 48642 (US). **YEAKLE, Craig** [US/US]; 181 Yendor, Midland, MI 48640 (US).

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

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(54) Title: SILSESQUOXANE RESINS

(57) Abstract: This invention pertains to silsesquioxane resins useful in antireflective coatings wherein the silsesquioxane resin is comprised of the units $(\text{Ph}(\text{CH}_2)_r\text{SiO}_{(3-x)/2}(\text{OR}')_x)_m (\text{HSiO}_{(3-x)/2}(\text{OR}')_x)_n (\text{MeSiO}_{(3-x)/2}(\text{OR}')_x)_o (\text{RSiO}_{(3-x)/2}(\text{OR}')_x)_p (\text{R}^1\text{SiO}_{(3-x)/2}(\text{OR}')_x)_q$ where Ph is a phenyl group, Me is a methyl group; R^1 is hydrogen atom or a hydrocarbon group having from 1 to 4 carbon atoms; R is selected from a carboxylic acid group or a carboxylic acid forming group or mixtures thereof; and R is selected from substituted phenyl groups, ester groups, polyether groups; mercapto groups, sulfur-containing organic functional groups, hydroxyl producing group, aryl sulphonic ester 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 0.90; n has a value of 0.05 to 0.99; o has a value of 0 to 0.95; p has a value of 0.01 to 0.5; q has a value of 0 to 0.5; and $m + n + o + p + q \approx 1$.



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