

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 August 2001 (30.08.2001)

PCT

(10) International Publication Number
WO 01/63358 A1

(51) International Patent Classification⁷:
1/492, 1/494, G11B 7/24, G03F 7/00

G03C 1/76,

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(21) International Application Number: PCT/US01/03568

(22) International Filing Date: 2 February 2001 (02.02.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

09/511,421 22 February 2000 (22.02.2000) US
09/745,350 21 December 2000 (21.12.2000) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

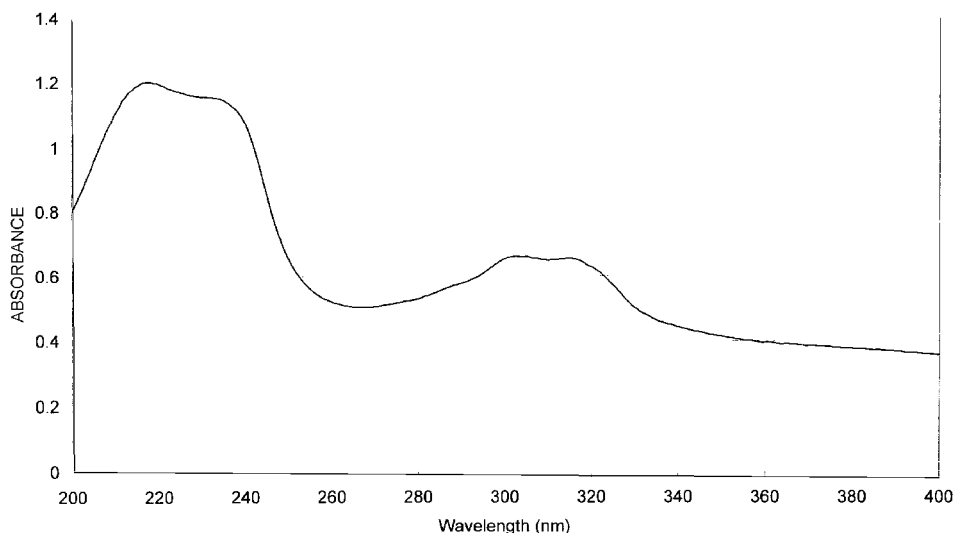
Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: ORGANIC POLYMERIC ANTIREFLECTIVE COATINGS DEPOSITED BY CHEMICAL VAPOR DEPOSITION



(57) Abstract: An improved method for applying organic antireflective coatings to substrate surfaces and the resulting precursor structures are provided. Broadly, the methods comprise chemical vapor depositing (CVD) an antireflective compound on the substrate surface. In one embodiment, the compound is highly strained (e.g., having a strain energy of at least about 10 kcal/mol) and comprises two cyclic moieties joined to one another via a linkage group. The most preferred monomers are [2.2](1,4)-naphthalenophane and [2.2](9,10)-anthracenophane. The CVD processes comprise heating the antireflective compound so as to vaporize it, and then pyrolyzing the vaporized compound to form stable diradicals which are subsequently polymerized on a substrate surface in a deposition chamber. The inventive methods are useful for providing highly conformal antireflective coatings on large substrate surfaces having super submicron (0.25 μ m or smaller) features.