### (19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 26 August 2004 (26.08.2004)

PCT

## (10) International Publication Number WO 2004/073106 A3

(51) International Patent Classification<sup>7</sup>: 1/20, H01Q 1/00

H01B 1/22,

(21) International Application Number:

PCT/US2004/004172

(22) International Filing Date: 10 February 2004 (10.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

12 February 2003 (12.02.2003) 60/446,832 Not furnished 29 January 2004 (29.01.2004)

- (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DEAN, David, M. [US/US]; 1073 Forest Road, West Chester, PA 19382 (US). MEHDIZADEH, Mehrdad [US/US]; 107 Whitney Drive, Avondale, PA 19311 (US). FECANIN, Steven, F. [US/US]; 48 Valley Court, Carmel, IN 46032 (US). FEINBERG, Stewart, Carl [US/US]; 447 Spruce Drive, Exton, PA 19341 (US).
- (74) Agent: STEVENSON, Robert, B.; E. I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, DE 19805 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, 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, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 23 September 2004

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.

(54) Title: CONDUCTIVE THERMOPLASTIC COMPOSITIONS AND ANTENNAS THEREOF

(57) Abstract: Disclosed are conductive polymeric materials comprising a resin-based structural material loaded with micron conductive fibers and/or micron conductive powders or to provide a conductive thermoplastic composition rather than an insulator. Also disclosed are antennas comprising the conductive thermoplastic compositions and methods for their fabrication.

# INTERNATIONAL SEARCH REPORT



CLASSIFICATION OF SUBJECT MATTER PC 7 H01B1/22 H01E ÎPC 7 H01Q1/00 H01B1/20 According to International Patent Classification (IPC) or to both national classification and IPC Minimum documentation searched (classification system followed by classification symbols) H01B H01Q IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, CHEM ABS Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No WO 00/33418 A (HOUDEAU DETLEF; INFINEON χ 1-4.13-19. TECHNOLOGIES AG (DE)) 30 - 368 June 2000 (2000-06-08) cited in the application page 3, line 10 - page 4, line 21; claims 1,3,5,8 WO 93/26013 A (MATTHEWS ROBERT LENES) Υ 1-4, 13 - 19. 23 December 1993 (1993-12-23) cited in the application 30 - 36page 3, line 1 - page 4, line 9; claims 7,8 1-4, FR 2 660 116 A (FACON) Υ 27 September 1991 (1991-09-27) 13 - 19. cited in the application 30 - 36claims 1-5 Further documents are listed in the continuation of box C. Patent family members are listed in annex. ° Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not considered to be of particular relevance cited to understand the principle or theory underlying the invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 13/08/2004 6 August 2004 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Marsitzky, D Fax: (+31-70) 340-3016

## INTERNATIONAL SEARCH REPORT



Information on patent family members

Imernational Application No	
T/US2004/004172	

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0033418	A	08-06-2000	DE WO	19855450 A1 0033418 A1	21-06-2000 08-06-2000
WO 9326013	Α	23-12-1993	AU AU WO CN EP JP	676838 B2 4297193 A 9326013 A1 1083976 A 0646274 A1 7509818 T	27-03-1997 04-01-1994 23-12-1993 16-03-1994 05-04-1995 26-10-1995
FR 2660116	Α .	27-09-1991	FR	2660116 A1	27-09-1991