

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 December 2003 (24.12.2003)

PCT

(10) International Publication Number
WO 2003/106540 A3

(51) International Patent Classification⁷: **B29B 9/00**

(21) International Application Number:
PCT/US2003/007978

(22) International Filing Date: 14 March 2003 (14.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/364,565 14 March 2002 (14.03.2002) 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, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (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 patent (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:
13 May 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: METHODS FOR PRODUCING SUBMICRON POLYTETRAFLUOROETHYLENE POWDER AND PRODUCTS THEREOF

(57) Abstract: A method for producing submicron polytetrafluoroethylene ("PTFE") powder in a free-flowing, readily dispersible form. The irradiated PTFE starting material is placed in a desired solvent and undergoes grinding until the PTFE particles reach submicron size. The submicron particles are subsequently recovered from the solvent and dried to form a powder that may have particles less than 1.00 [µm] in size. The dry PTFE powder may then be readily dispersed to submicron size into a desired application system. The submicron PTFE powder of this method is free-flowing, readily dispersible in various application systems, tends not to "dust" or selfagglomerate. Improved aqueous and organic dispersions of submicron PTFE particles may also be formed that display increased stability and require much less agitation than other processes of forming such dispersions. Such improved PTFE dispersions may be formed with or without the addition of surfactants, wetting agents, rheology modifiers, pH-adjusting agents, and the like.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/07978

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B29B 9/00

US CL : 264/118

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 264/118

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 practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,766,031 A (DILLON) 16 October 1973 (16.10.1973), column 1, lines 37-38 and 55-58 and Column 2, line 44	16-20
X	US 5,263,256 A (TRANKIEM) 23 November 1993 (23.11.1993), column 2, lines 64-66; column 4, line 2.	16-20
A	US 4,220,511 A (DERBYSHIRE) 02 September 1980 (02.09.1980).	1-21
A	US 5,916,929 A (KNOBEL et al.) 29 June 1999 (29.06.1999).	1-21

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

24 February 2004 (24.02.2004)

Date of mailing of the international search report

24 MAR 2004

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

PCT/US03/07978

Continuation of B. FIELDS SEARCHED Item 3:
USPAT, USPGPUB, DERWENT, JPO, EPO

search terms: ptfe, or teflon or polytetrafluoroethylene; irrad\$8; solvent; dispers\$6; polmer, moner, wax, resin, submicron;
comminut\$5 or grind\$6 or deagglomer\$6; megarads