

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 September 2002 (26.09.2002)

PCT

(10) International Publication Number
WO 02/074448 A3

(51) International Patent Classification⁷: **C09D 1/00**,
5/00, 7/12, C11D 3/12

(21) International Application Number: PCT/US01/48905

(22) International Filing Date:
13 December 2001 (13.12.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/265,059 30 January 2001 (30.01.2001) US
09/828,014 6 April 2001 (06.04.2001) US
09/876,363 7 June 2001 (07.06.2001) US
09/950,757 11 September 2001 (11.09.2001) US
09/972,090 5 October 2001 (05.10.2001) US

(71) Applicant: **THE PROCTER & GAMBLE COMPANY**
[US/US]; One Procter & Gamble Plaza, Cincinnati, OH
45202 (US).

(72) Inventors: **ROHRBAUGH, Robert, Henry**; 3913 Jo-
celyn Drive, Hamilton, OH 45011 (US). **MCDONALD,**
Michael, Ray; 6514 Countryside Lane, Middletown,
OH 45044 (US). **CARTER, John, David**; 6 Princess
Mary Court, Jesmond, Newcastle-upon-Tyne NE2 3BG
(GB). **GOSSELINK, Eugene, Paul**; 3754 Susanna
Drive, Cincinnati, OH 45241 (US). **GHOSH, Chanchal,**
Kumar; 7005 Pinemill Drive, West Chester, OH 45069
(US). **O'CONNOR, Helen, Frances**; 2588 Daisy Drive,
Loveland, OH 45140 (US). **LIDDLE, Heather, Anne**;
11810 Passage Way, Apt. 183, Cincinnati, OH 45240
(US). **EVERS, Marc, Francois**; Lakenestraat 37, B-1853
Strombeek-Bever (BE). **LEAHY, Morgan, Thomas**;

3610 Burch Avenue, Cincinnati, OH 45208 (US). **GOLD-**
STEIN, Alan, Scott; 4329 Berryhill Lane, Blue Ash, OH
45242 (US). **LOUGHNANE, Brian, Joseph**; 5516 Lake
Michigan Drive, Fairfield, OH 45014 (US).

(74) Agents: **REED, T., David** et al.; The Procter & Gam-
ble Company, 5299 Spring Grove Avenue, Cincinnati, OH
45217-1087 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT (util-
ity model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (util-
ity model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, ES, FI (utility model), 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, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK (utility model), 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, ZM, 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, GQ, GW, ML, MR,
NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
16 January 2003

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: COATINGS FOR MODIFYING HARD SURFACES AND PROCESSES FOR APPLYING THE SAME

(57) Abstract: Materials for coating, coating compositions, methods and articles of manufacture comprising a nanoparticle system or employing the same to impart surface modifying benefits for all types of hard surfaces are disclosed. In some embodiments, dispersement of nanoparticles in a suitable carrier medium allows for the creation of coating compositions, methods and articles of manufacture that create multi-use benefits to modified hard surfaces. In some embodiments, actively curing the coating composition on the hard surfaces, including, but not limited to by radiative heating the air surrounding the hard surface with the coating thereon can be used to increase the durability of the hard surface coating.



WO 02/074448 A3

INTERNATIONAL SEARCH REPORT

In ☐ International Application No
PCT/US 01/48905

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C09D1/00 C09D5/00 C09D7/12 C11D3/12

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)

IPC 7 C09D C11D

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 01 96511 A (PROCTER & GAMBLE) 20 December 2001 (2001-12-20) page 12, line 34 -page 13, line 20 page 18, paragraph 4 page 22, paragraph 1 page 32, paragraph 3 page 44, line 30 -page 45, line 15 page 47, line 5-13; claim 20 ---	1-6, 8, 11, 13-15
E	EP 1 215 276 A (CLARIANT GMBH) 19 June 2002 (2002-06-19) claims --- -/--	1-3, 11



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *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
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

9 October 2002

Date of mailing of the international search report

16/10/2002

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,
Fax: (+31-70) 340-3016

Authorized officer

Girard, Y

INTERNATIONAL SEARCH REPORT

Int al Application No
PCT/US 01/48905

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DE 199 52 383 A (HENKEL KGAA) 17 May 2001 (2001-05-17) page 10, line 36-46; claims 1-4 & WO 01 32820 A (HENKEL) 10 May 2001 (2001-05-10) cited in the application -----	1-3,11
X	EP 0 139 187 A (PPG INDUSTRIES INC) 2 May 1985 (1985-05-02) claims 1-5 -----	1,3,11
X	EP 0 832 947 A (BASF CORP) 1 April 1998 (1998-04-01) page 7, line 17-39; claims 1,12-14 -----	1
X	DATABASE WPI Week 9633 Derwent Publications Ltd., London, GB; AN 1996-329653 XP002184436 & JP 08 151597 A (LION CORP.), 11 June 1996 (1996-06-11) abstract -----	1-3

INTERNATIONAL SEARCH REPORT

Information on patent family members

In International Application No

PCT/US 01/48905

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0196511	A	20-12-2001	WO 0196516 A1	20-12-2001
			US 2002028288 A1	07-03-2002
			AU 5487900 A	24-12-2001
			AU 6840301 A	24-12-2001
			AU 6840401 A	24-12-2001
			WO 0196511 A2	20-12-2001
			WO 0196512 A2	20-12-2001
			US 2002108640 A1	15-08-2002
			US 2002045010 A1	18-04-2002
			WO 02070612 A1	12-09-2002
			WO 02074448 A2	26-09-2002
			WO 02060998 A2	08-08-2002
			US 2002102359 A1	01-08-2002
EP 1215276	A	19-06-2002	DE 10061897 A1	13-06-2002
			EP 1215276 A1	19-06-2002
			US 2002111287 A1	15-08-2002
DE 19952383	A	17-05-2001	DE 19952383 A1	17-05-2001
			AU 1646401 A	14-05-2001
			WO 0132820 A1	10-05-2001
			EP 1224256 A1	24-07-2002
EP 0139187	A	02-05-1985	AU 556491 B2	06-11-1986
			AU 3246084 A	14-03-1985
			BR 8404460 A	30-07-1985
			CA 1246943 A1	20-12-1988
			DE 3470670 D1	01-06-1988
			EP 0139187 A1	02-05-1985
			JP 5001242 A	08-01-1993
			JP 2017224 B	19-04-1990
			JP 60084183 A	13-05-1985
			US 4677004 A	30-06-1987
			US 4652470 A	24-03-1987
			US 4680204 A	14-07-1987
			ZA 8406805 A	30-04-1986
EP 0832947	A	01-04-1998	US 5853809 A	29-12-1998
			AU 730795 B2	15-03-2001
			AU 3929697 A	02-04-1998
			BR 9704916 A	03-11-1998
			CA 2215425 A1	30-03-1998
			EP 0832947 A2	01-04-1998
			JP 10120948 A	12-05-1998
JP 8151597	A	11-06-1996	NONE	