

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 February 2003 (27.02.2003)

PCT

(10) International Publication Number
WO 03/016964 A3

(51) International Patent Classification⁷: **B05D 7/00**,
C09D 5/00, G02B 5/128

(21) International Application Number: PCT/US02/18349

(22) International Filing Date: 20 May 2002 (20.05.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/932,803 17 August 2001 (17.08.2001) US

(71) Applicant (for all designated States except US): **BASF CORPORATION, PLEASE SEE GENERAL APPOINTMENT OF REPRESENTATIVE, ALLMAN, THOMAS Y. SENIOR VICE PRESIDENT, GENERAL COUNSEL** [US/US]; Patent Department, 26701 Telegraph Road, Southfield, MI 48034-2442 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HALL, Jon** [US/US]; 2950 Davison Lake, Oxford, MI 48371 (US). **JAKOBI, Michael** [DE/US]; 35809 Springvale, Farmington Hills, MI 48331 (US).

(74) Agents: **SABOURIN, Anne, Gerry** et al.; BASF Corporation, 26701 Telegraph Road, Southfield, MI 48034-2442 (US).

(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, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, 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, 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).

Declaration under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

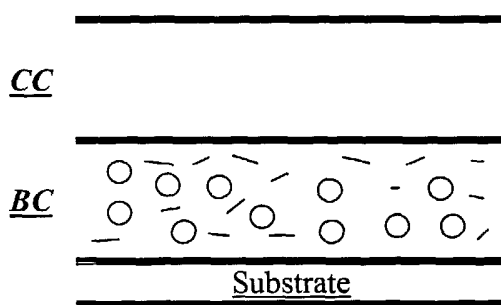
Published:

— with international search report

(88) Date of publication of the international search report:
11 December 2003

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: RETROREFLECTIVE COATING SYSTEM AND METHOD FOR PRODUCING THE SAME



(57) Abstract: A retroreflective coating system and a method of providing the coating system on a substrate are disclosed. The method includes applying a color-providing composition, such as a pigmented basecoat composition, and applying a clearcoat composition. After application and cure, the color-providing composition forms a color-providing film layer, and the clearcoat composition forms a clearcoat film layer. The color-providing composition and the clearcoat composition are cross-linkable. Either one, or both, of the color-providing composition and the clearcoat composition include retroreflective microspheres. The color-providing composition is applied to the substrate to form an uncured film layer of the color-providing composition. Next, the clearcoat composition is applied wet-on-wet to the uncured film layer of the color-providing composition such that an uncured film layer of the clearcoat

composition is formed on the uncured film layer of the color-providing composition.

WO 03/016964 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/18349

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B05D7/00 C09D5/00 G02B5/128

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 B05D C09D G02B

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 242 056 B1 (ANDREWS JOHN W ET AL) 5 June 2001 (2001-06-05) cited in the application	38
Y	column 4, line 59 - line 67	1
A	column 5, line 1 - line 13	2-37, 39-72
Y	--- WO 94 27741 A (KANSAI PAINT CO LTD ;DU PONT (US); KASARI AKIRA (JP); NORDSTROM JO) 8 December 1994 (1994-12-08)	1
A	abstract	2-72
A	--- EP 0 560 732 A (A SCHOCH AG DR) 15 September 1993 (1993-09-15) abstract; figures	1-72
	--- -/--	



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.

& document member of the same patent family

Date of the actual completion of the international search

5 February 2003

Date of mailing of the international search report

11/02/2003

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) 340-3015

Authorized officer

Ward, S

INTERNATIONAL SEARCH REPORT

Internati	cation No
PCT/LJ	18349

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 21937 A (MINNESOTA MINING & MFG) 6 May 1999 (1999-05-06) abstract; figures ---	1-72
A	US 5 736 602 A (BEAM RICKEY L ET AL) 7 April 1998 (1998-04-07) abstract; figures ---	1-72
A	US 5 523 164 A (SHIBATO KISHIO ET AL) 4 June 1996 (1996-06-04) abstract; figures -----	1-72

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 02/18349

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6242056	B1	05-06-2001	AU 5688299 A EP 1115502 A1 JP 2002524614 T WO 0015351 A1	03-04-2000 18-07-2001 06-08-2002 23-03-2000
WO 9427741	A	08-12-1994	BR 9307861 A WO 9427741 A1 AU 4089293 A EP 0705148 A1 JP 2683846 B2 JP 9500819 T US 5641574 A	05-03-1996 08-12-1994 20-12-1994 10-04-1996 03-12-1997 28-01-1997 24-06-1997
EP 0560732	A	15-09-1993	EP 0560732 A1 DE 59300193 D1	15-09-1993 22-06-1995
WO 9921937	A	06-05-1999	US 6001936 A AU 1099999 A BR 9813131 A CA 2305531 A1 CN 1277625 T EP 1025184 A1 JP 2001521054 T US 2002132900 A1 WO 9921937 A1 US 6395844 B1	14-12-1999 17-05-1999 15-08-2000 06-05-1999 20-12-2000 09-08-2000 06-11-2001 19-09-2002 06-05-1999 28-05-2002
US 5736602	A	07-04-1998	NONE	
US 5523164	A	04-06-1996	JP 3106745 B2 JP 6142598 A BR 9307362 A DE 69307723 D1 DE 69307723 T2 EP 0666780 A1 AT 148011 T DK 666780 T3 WO 9409916 A1 ES 2099487 T3	06-11-2000 24-05-1994 01-06-1999 06-03-1997 05-06-1997 16-08-1995 15-02-1997 12-05-1997 11-05-1994 16-05-1997