

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 September 2002 (19.09.2002)

PCT

(10) International Publication Number
WO 02/073250 A3

(51) International Patent Classification⁷: G02B 5/22,
C09C 1/00, B42D 15/00

CH-1030 Bussigny (CH). **MÜLLER, Edgar** [CH/CH];
Rue P.-A. de Faucigny 7, CH-1700 Fribourg (CH). **DESP-**
LAND, Claude-Alain [CH/CH]; Avenue Gratta-Paille 7,
CH-1018 Lausanne (CH).

(21) International Application Number: PCT/EP02/01586

(22) International Filing Date: 14 February 2002 (14.02.2002)

(74) Agents: **HEPP, Dieter** et al.; Hepp, Wenger & Ryffel AG,
Friedtalweg 5, CH-9500 Wil (CH).

(25) Filing Language: English

(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.

(26) Publication Language: English

(30) Priority Data:
01105952.4 9 March 2001 (09.03.2001) EP

(71) Applicant (*for all designated States except US*): **SICPA**
HOLDING S.A. [CH/CH]; Avenue de Florissant 41,
CH-1008 Prilly (CH).

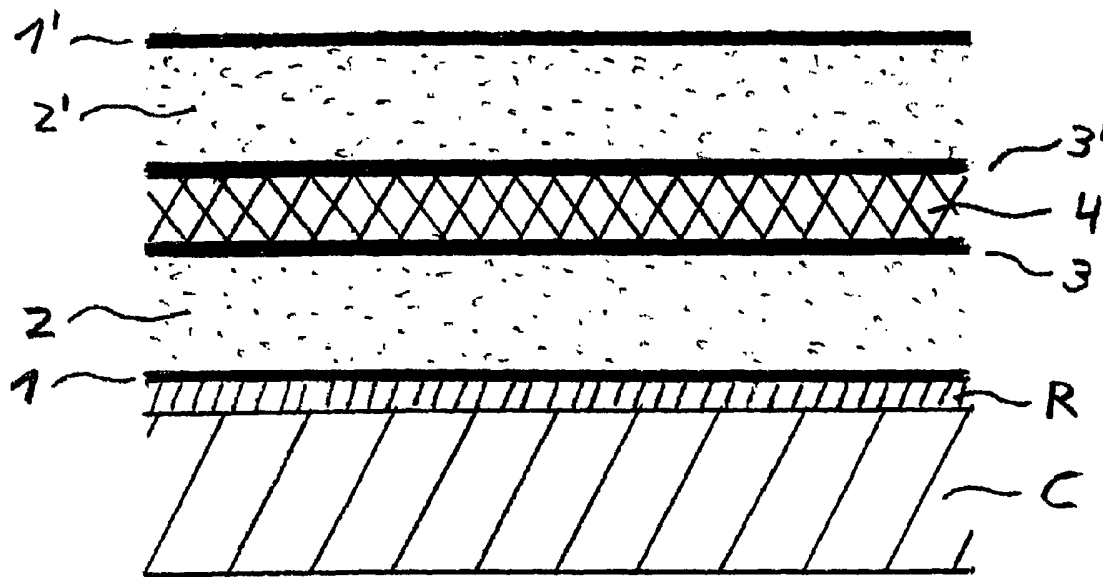
(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ,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

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SETO, Myron**
[US/CH]; Avenue de Grey 76, CH-1018 Lausanne (CH).
TILLER, Thomas [DE/CH]; Chemin du Cèdre 21,

[Continued on next page]

(54) Title: MAGNETIC THIN FILM INTERFERENCE DEVICE OR PIGMENT AND METHOD OF MAKING IT, PRINTING INK OR COATING COMPOSITION, SECURITY DOCUMENT AND USE OF SUCH A MAGNETIC THIN FILM INTERFERENCE DEVICE



(57) Abstract: The invention discloses magnetic OVP, said pigment consisting of thin-layer flakes having a basic metal-dielectric-metal structure to result in a viewing-angle dependent color appearance, and having, in addition to said viewing-angle dependent color appearance, incorporated magnetic properties, to make them distinguishable from OVP of similar appearance but not having said magnetic properties. The invention discloses as well methods for obtaining such pigments and the use of such pigments as security elements in inks, coatings and articles.



WO 02/073250 A3



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.

(88) Date of publication of the international search report:

24 April 2003

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 02/01586

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02B5/22 C09C1/00 B42D15/00

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 G02B C09C B42D

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.
A	US 4 838 648 A (PHILLIPS ROGER W ET AL) 13 June 1989 (1989-06-13) cited in the application the whole document ---	1,8, 12-14
A	WO 99 67093 A (AMES CHRISTOPHER JOHN ; RUE DE INT LTD (GB)) 29 December 1999 (1999-12-29) page 11, line 17 - line 19 page 12, line 13 - line 20 figures 2,6 ---	1,8, 12-14
A	EP 0 927 749 A (SICPA HOLDING SA) 7 July 1999 (1999-07-07) column 6, line 2 - line 11 --- -/--	1,8



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

14 January 2003

Date of mailing of the international search report

22/01/2003

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) 340-3016

Authorized officer

Mollenhauer, R

INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/EP 02/01586

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 568 510 A (RACAL ZONAL LTD) 29 May 1980 (1980-05-29) page 2, line 74 - line 78 ---	1,8
A	US 6 150 022 A (COULTER KENT E ET AL) 21 November 2000 (2000-11-21) figure 6 ---	1,8
A	US 5 510 163 A (SULLIVAN BRIAN T ET AL) 23 April 1996 (1996-04-23) column 9, line 15 - line 47 ---	1,8
A	US 4 629 647 A (SANDER HELFRIED) 16 December 1986 (1986-12-16) column 8, line 29 - line 62 ---	1,8
A	WO 98 25236 A (SCHMITZ CHRISTIAN ;BOEHM MICHAEL (DE); BURCHARD THEO (DE); GIESECK) 11 June 1998 (1998-06-11) abstract -----	1,8

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/EP 02/01586

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4838648	A	13-06-1989	AT 123888 T	15-06-1995
			CA 1319052 A1	15-06-1993
			DE 68923036 D1	20-07-1995
			DE 68923036 T2	19-10-1995
			EP 0341002 A2	08-11-1989
			ES 2072901 T3	01-08-1995
			GR 3017135 T3	30-11-1995
			GR 3029733 T3	30-06-1999
			HK 1005756 A1	22-01-1999
			JP 2016044 A	19-01-1990
			JP 2960434 B2	06-10-1999
WO 9967093	A	29-12-1999	GB 2338680 A	29-12-1999
			AU 741706 B2	06-12-2001
			AU 4521399 A	10-01-2000
			BR 9911330 A	03-04-2001
			CA 2333417 A1	29-12-1999
			EP 1094943 A1	02-05-2001
			WO 9967093 A1	29-12-1999
EP 0927749	A	07-07-1999	EP 0927749 A1	07-07-1999
			AU 749608 B2	27-06-2002
			AU 2276199 A	19-07-1999
			CA 2315064 A1	08-07-1999
			CN 1283216 T	07-02-2001
			WO 9934315 A2	08-07-1999
			EP 0927750 A1	07-07-1999
			HU 0100329 A2	28-06-2001
			JP 2002500244 T	08-01-2002
			NO 20003385 A	17-08-2000
			PL 342101 A1	21-05-2001
			TR 200001875 T2	22-01-2001
			US 6200628 B1	13-03-2001
GB 1568510	A	29-05-1980	BE 852532 A1	16-09-1977
			DE 2710202 A1	29-09-1977
			FR 2344919 A1	14-10-1977
US 6150022	A	21-11-2000	EP 1141143 A1	10-10-2001
			WO 0034395 A1	15-06-2000
			US 6387498 B1	14-05-2002
			US 6383638 B1	07-05-2002
US 5510163	A	23-04-1996	CA 2190246 A1	23-11-1995
			WO 9531807 A1	23-11-1995
			EP 0760152 A1	05-03-1997
US 4629647	A	16-12-1986	DE 3422908 A1	02-01-1986
			AT 46052 T	15-09-1989
			EP 0170832 A1	12-02-1986
			JP 6030983 B	27-04-1994
			JP 61092896 A	10-05-1986
WO 9825236	A	11-06-1998	DE 19650759 A1	10-06-1998
			AU 5660098 A	29-06-1998
			WO 9825236 A1	11-06-1998
			EP 0961996 A1	08-12-1999
			US 6343745 B1	05-02-2002