

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 November 2006 (09.11.2006)

PCT

(10) International Publication Number
WO 2006/118835 A3

(51) International Patent Classification:

A61Q 17/04 (2006.01) *G01N 21/64* (2006.01)
A61K 8/49 (2006.01)

(21) International Application Number:

PCT/US2006/015314

(22) International Filing Date: 21 April 2006 (21.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/119,260 29 April 2005 (29.04.2005) US

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(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, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

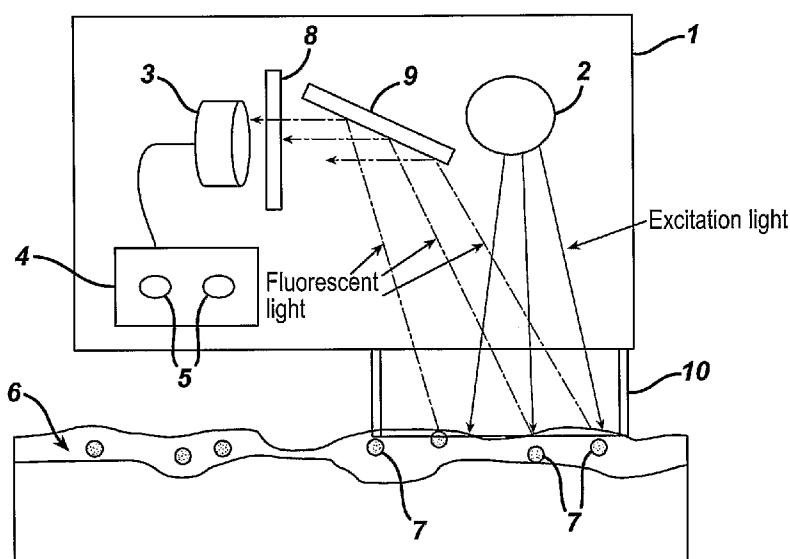
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, 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

[Continued on next page]

(54) Title: TOPICAL COMPOSITION FLUORESCENCE DETECTION



(57) Abstract: Compositions, devices, methods, and kits are provided for determining the presence of topical compositions on surfaces, such as skin. Disclosed is in a first embodiment a composition comprising one or more oil or water soluble ultraviolet sunscreen agents and a fluorescent chromophore, wherein the fluorescent chromophore is oil soluble or water-soluble and has a wavelength of excitation greater than about 400nm (so-called daylight fluorescent compound). Also disclosed is a method of manufacturing a topical composition, comprising mixing a fluorescent chromophore and a sunscreen sufficiently to form a single phase composition. Further, a device for use with the fluorescent composition is described, for determining the presence of the composition on a surface, which device comprises a light emitter, a light detector, an electronic evaluation system to determine the level of fluorescence of the fluorescent chromophore, and a display system.

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

12 April 2007

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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/015314

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61Q17/04 A61K8/49 G01N21/64

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)
A61K A61Q G01N

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, BIOSIS, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	WO 00/46233 A (THE UNIVERSITY OF SYDNEY; HOEGH-GULDBERG, OVE; DOVE, SOPHIE) 10 August 2000 (2000-08-10) example 4; table 3	1,2,4-10
X	EP 1 099 437 A (L'OREAL) 16 May 2001 (2001-05-16) paragraphs [0043] - [0049]; examples 1-4	1,2,4-10
X	WO 2005/009604 A (SOL-GEL TECHNOLOGIES LTD; NAIGERTSIK, OLEG; ROTHCHILD, SOREL; ROTTMAN) 3 February 2005 (2005-02-03) examples 6,8	1,2,4-10
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☒ 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
- *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
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- *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

16 October 2006

Date of mailing of the international search report

25/10/2006

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2006/015314

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	STOKES R P ET AL: "The feasibility of using fluorescence spectroscopy as a rapid, non-invasive method for evaluating sunscreen performance" JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY B BIOLOGY, vol. 50, no. 2-3, June 1999 (1999-06), pages 137-143, XP002395308 ISSN: 1011-1344 cited in the application paragraphs [03.3], [04.3] - [04.8]	1-14
X	US 5 543 137 A (REPPER ET AL) 6 August 1996 (1996-08-06) column 4, lines 36-40; claims 1,9	1,2, 11-13
X	EP 0 913 681 A (BARTLING-DUDZIAK, KARIN) 6 May 1999 (1999-05-06) page 5, line 24; claims 1,29,32	1,2,4-13
P,X	WO 2005/067883 A (BEIERSDORF AG; MANN, TOBIAS; WENDEL, VOLKER; SCHULZ, JENS) 28 July 2005 (2005-07-28) page 35, line 20 - page 36, line 5; claims 1,11,12 page 6, lines 12-16; examples 1-10	1,2,4-13
A	US 5 626 839 A (SCALES-MEDEIROS ET AL) 6 May 1997 (1997-05-06) column 3, lines 24-26; claim 1	11-14
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X	WO 2005/011622 A (OREAL [FR]; DUMOUSSEAUX CHRISTOPHE [JP]; GOTO TATSUNARI [JP]) 10 February 2005 (2005-02-10) claims 1,4	4-10
X	US 6 313 181 B1 (COHEN ISAAC D [US]) 6 November 2001 (2001-11-06) example 1	4-10
X	WO 02/00190 A (E L MANAGEMENT CORP [US]) 3 January 2002 (2002-01-03) page 9, line 2; claim 15	4-10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/015314

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-2,11-13

A composition comprising one or more oil or water soluble ultraviolet sunscreen agents and a fluorescent chromophore, wherein the fluorescent chromophore is oil soluble and has a wavelength of excitation greater than about 400nm, and a kit comprising it with a device.

2. claims: 3, 14

A composition comprising one or more water soluble ultraviolet sunscreen agents and a fluorescent chromophore, wherein the fluorescent chromophore is water soluble and has a wavelength of excitation greater than about 400nm and a kit comprising it with a device.

3. claims: 4-10

A method of manufacturing a topical composition, comprising mixing a fluorescent chromophore and a sunscreen sufficiently to form a single phase composition.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/015314

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