



- (51) **International Patent Classification:**
A61K 47/12 (2006.01)
- (21) **International Application Number:**
PCT/US2012/051 158
- (22) **International Filing Date:**
16 August 2012 (16.08.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/524,021 16 August 2011 (16.08.2011) US
- (71) **Applicant (for all designated States except US):** KATE SOMERVILLE SKINCARE, LLC. [US/US]; 9012 Beverly Boulevard, West Hollywood, California 90048 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** SOMERVILLE, Kate [US/US]; 9012 Beverly Boulevard, West Hollywood, California 90048 (US). KHOURY, Fred [US/US]; 9520 Owensmouth Avenue, Suite No. 1, Chatsworth, California 91311 (US).
- (74) **Agents:** GOLLIN, Michael A. et al; Venable LLP, P.O. Box 34385, Washington, District of Columbia 20043-9998 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,

BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(in))

Published:

- with international search report (Art. 21(3))

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

6 June 2013

(54) **Title:** DERMAL REJUVENATION COMPOSITIONS AND METHODS

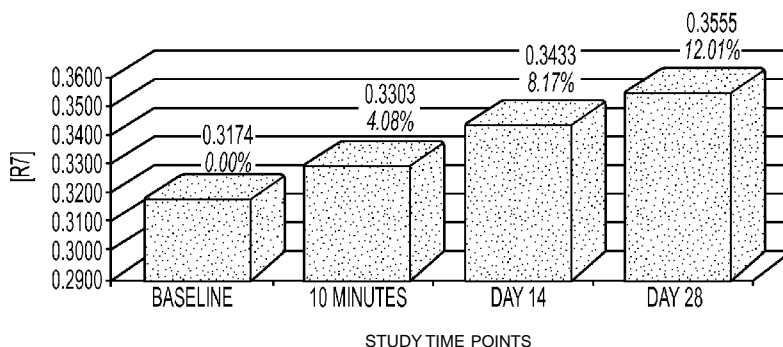


FIG. 3

(57) **Abstract:** The present invention relates, e.g., to a system for treating damaged skin, comprising a cosmeceutical formulation comprising a. an about 1-10% mixture of perfluorocarbons (PFC's) of at least three different molecular weights, and b. about 0.001-5% hyaluronic acid (HA) of molecular weight about 100 kDa or less, packaged in an aerosol spray container. In embodiments of the invention, the cosmeceutical formulation is aqueous, or it comprises an oil and water emulsion, comprising about 80% purified water and about 10% components of an oil phase. Also disclosed are methods of using this system to treat damaged skin, or to prevent the damage of skin from, e.g., wounds or aging.

WO 2013/025916 A3

A. CLASSIFICATION OF SUBJECT MATTER**A61K 47/12(2006.01)i**

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 47/12; A61K 8/04; A61K 7/075; A61K 13/00; A61L 15/16; A61K 9/127; A61K 7/08; A61K 33/40; A61K 8/86; A61K 7/06; A61K 7/00; A61K 7/48

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)
eKOMPASS(KIPO internal) & Keywords: perfluorocarbon, PFC, hyaluronic acid, HA, skin, aerosol spray**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1549281 B1 (BEIERSDORF AG) 17 January 2007 See claims 1, 2, 9, 10, 23, and 31.	1-4,19-21
A	WO 2009-102487 A2 (OXYGEN BIOTHERAPEUTICS, INC. et al.) 20 August 2009 See claims 53, 58, 69, and 70; and page 29.	1-4,19-21
A	US 5733572 A (UNGER, E. C. et al.) 31 March 1998 See claims 1, 5, 7, 34-36, 50, and 51.	1-4,19-21
A	US 2003-0103922 A1 (GARRISON, M. S. et al.) 05 June 2003 See claims 1 and 13; and paragraph [0039].	1-4,19-21
A	JP 62-093211 A (SHISEIDO CO., LTD.) 28 April 1987 See abstract; and claim 1.	1-4,19-21
A	US 2002-0034489 A1 (WIEGLAND, B. et al.) 21 March 2002 See claims 1, 6, 16, and 17.	1-4,19-21
A	US 6649145 B2 (MCGRATH, T. S. et al.) 18 November 2003 See claims 1, 17, and 19.	1-4,19-21

 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

"E" earlier application or patent 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 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

19 FEBRUARY 2013 (19.02.2013)

Date of mailing of the international search report

20 FEBRUARY 2013 (20.02.2013)

Name and mailing address of the ISA/KR

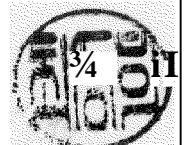


Facsimile No. 82-42-472-7140

Authorized officer

CHOI, Sung Hee

Telephone No. 82-42-481-8740



Box No. 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.: **5-16, 18**
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 5-16 and 18 pertain to methods for treatment of the human body by therapy, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
2. Claims Nos.: **17**
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:
Claim 17 is unclear, since it is concerned with "a system", but claims 5-7, to which claim 17 refers, are directed to "a method".
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 No. 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:

1. IAs all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. IAs all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. IAs 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. INo 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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/051158

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1549281 B1	17.01.2007	DE 10245727 A1 DE 50306327 D1 EP 1549281 A1 ES 2279 186 T3 Wo 2004-030641 A1	15.04.2004 08.03.2007 06.07.2005 16.08.2007 15.04.2004
wo 2009- 102487 A2	20.08.2009	EP 2252333 A2 US 2009-02026 17 A1	24.11.2010 13.08.2009
US 5733572 A	31.03.1998	AU 1995-31465 B2 AU 1996-53755 B2 AU 1996-75947 B2 AU 1997-27490 B2 CA 2069759 A1 CA 2069759 C CA 2110490 C CA 2110491 C CA 2164844 A1 CA 2164844 C CA 2164845 A1 CA 2164845 C CA 2200061 A1 CA 2200061 C CA 2217494 C CA 2218860 C CN 1098068 c CN 1102045 c CN 1119173 c CN 1125389 A CN 1125393 A CN 1125394 A CN 1125654 C CN 1137748 A CN 1158082 A CN 1180304 A CN 1180310 A CN 1186419 A CN 1215986 A CN 1216925 A CN 1221214 C EP 0511273 A1 EP 0511273 B1 EP 0616508 A1 EP 0616508 B1 EP 0616508 B2 EP 0660687 A1 EP 0660687 B1 EP 0660714 A1 EP 0660714 B1	05.08.1999 20.07.2000 01.04.1999 26.07.2001 23.06.1991 16.01.2007 29.07.2008 24.07.2007 22.12.1994 07.01.2003 22.12.1994 29.04.2008 21.03.1996 10.04.2007 05.08.2008 05.12.2006 08.01.2003 26.02.2003 27.08.2003 26.06.1996 26.06.1996 26.06.1996 29.10.2003 11.12.1996 27.08.1997 29.04.1998 29.04.1998 01.07.1998 05.05.1999 19.05.1999 05.10.2005 28.04.1999 19.05.1999 28.09.1994 18.07.2001 29.09.2004 05.07.1995 28.10.1998 05.07.1995 02.07.2003

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/051158

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		EP 0707471 A1	24. 04 , 1996
		EP 0707846 A2	24. 04 , 1996
		EP 0711127 A1	26. 07 , 2000
		EP 07 11127 B1	20. 11 , 2002
		EP 0711127 B2	21. 01 , 2009
		EP 07 12293 A1	25. 09 , 2002
		EP 07 12293 B1	05. 03 , 2003
		EP 0740528 A1	16. 10 , 2002
		EP 0740528 B1	26. 03 , 2003
		EP 0788348 A1	28. 03 , 2001
		EP 0788348 B1	14. 07 , 2004
		EP 0797433 A1	28. 09 , 2005
		EP 0802788 A1	29. 10 , 1997
		EP 08 18989 A1	21. 01 , 1998
		EP 08 18989 B1	14. 07 , 2004
		EP 0840570 A2	13. 05 , 1998
		EP 0840570 B1	13. 08 , 2003
		EP 0852477 A1	30. 05 , 2001
		EP 0923383 A1	23. 06 , 1999
		EP 0935415 A1	31. 03 , 2004
		EP 0935415 B1	22. 11 , 2006
		EP 1252885 A2	30. 10 , 2002
		EP 1588699 A2	26. 10 , 2005
		EP 1588699 B1	14. 10 , 2009
		EP 1593395 A2	09. 11 , 2005
		JP 08-5 11523 A	03. 12 , 1996
		JP 08-5 11526 A	03. 12 , 1996
		JP 09-50 1410 A	10. 02 , 1997
		JP 09-506098 A	17. 06 , 1997
		JP 09-5 10204 A	14. 10 , 1997
		JP 10-505900 A	09. 06 , 1998
		JP 11-50 1839 A	16. 02 , 1999
		JP 11-507873 A	13. 07 , 1999
		JP 11-50887 1 A	03. 08 , 1999
		JP 2000-510 108 A	08. 08 , 2000
		JP 200 1-507207 A	05. 06 , 2001
		JP 2002-510278 A	02. 04 , 2002
		JP 2007-314559 A	06. 12 , 2007
		JP 2008-260775 A	30. 10 , 2008
		JP 30532 17 B2	19. 06 , 2000
		JP 3299745 B2	08. 07 , 2002
		JP 3309356 B2	29. 07 , 2002
		JP 3456584 B2	14. 10 , 2003
		JP 3645909 B2	11. 05 , 2005
		JP 39 10630 B2	25. 04 , 2007
		JP 4004063 B2	07. 11 , 2007
		JP 4274387 B2	03. 06 , 2009
		JP 49 16969 B2	03. 02 , 2012
		us 200 1-0025 144 A1	27. 09 , 2001
		us 200 1-003 1740 A1	18. 10 , 2001

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/051158

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 200 1-0044583 A1	22. 11. 200 1
		US 2002-0150539 A1	17. 10. 2002
		us 2003-0003055 A1	02. 0 1. 2003
		us 2003-00396 13 A1	27. 02. 2003
		us 2003-0088 176 A1	08. 05. 2003
		us 2004-0176473 A1	09. 09. 2004
		us 2005-0080029 A1	14. 04. 2005
		us 2005-0123482 A1	09. 06. 2005
		us 2005-01637 16 A1	28. 07. 2005
		us 20 10-0254904 A1	07. 10. 2010
		us 5088499 A	18. 02. 1992
		us 5 123414 A	23. 06. 1992
		us 5 1493 19 A	22. 09. 1992
		us 5209720 A	11. 05. 1993
		us 5228446 A	20. 07. 1993
		us 5230882 A	27. 07. 1993
		us 5305757 A	26. 04. 1994
		us 5334381 A	02. 08. 1994
		us 53480 16 A	20. 09. 1994
		us 5352435 A	04. 10. 1994
		us 5456901 A	10. 10. 1995
		us 5469854 A	28. 11. 1995
		us 5542935 A	06. 08. 1996
		us 557 1497 A	05. 11. 1996
		us 5580575 A	03. 12. 1996
		us 5585 112 A	17. 12. 1996
		us 56562 11 A	12. 08. 1997
		us 5705 187 A	06. 0 1. 1998
		us 57 15824 A	10. 02. 1998
		us 5769080 A	23. 06. 1998
		us 5770222 A	23. 06. 1998
		us 5773024 A	30. 06. 1998
		us 5776429 A	07. 07. 1998
		us 5853752 A	29. 12. 1998
		us 5922304 A	13. 07. 1999
		us 5935553 A	10. 08. 1999
		us 5985246 A	16. 11. 1999
		us 600 1335 A	14. 12. 1999
		us 6033646 A	07. 03. 2000
		us 6039557 A	2 1. 03. 2000
		us 607 1495 A	06. 06. 2000
		us 60886 13 A	11. 07. 2000
		us 6 146657 A	14. 11. 2000
		us 63 15981 B1	13. 11. 200 1
		us 6443898 B1	03. 09. 2002
		us 646 1586 B1	08. 10. 2002
		us 6479034 B1	12. 11. 2002
		us 655 1576 B1	22. 04. 2003
		us 6576220 B2	10. 06. 2003
		us 6638767 B2	28. 10. 2003

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/051158

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 70780 15 B2	18.07.2006
		US 7083572 B2	01.08.2006
		us 76 12033 B2	03.11.2009
		Wo 9 1-09629 A1	11.07.1991
		Wo 92-22247 A1	23.12.1992
		wo 92-22249 A1	23.12.1992
		wo 92-22298 A1	23.12.1992
		wo 94-28797 A1	22.12.1994
		wo 94-28873 A1	22.12.1994
		wo 94-28874 A1	22.12.1994
		wo 95- 15 118 A1	08.06.1995
		wo 95-24184 A1	14.09.1995
		wo 96-08234 A1	21.03.1996
		wo 96-28090 A1	19.09.1996
		wo 96-3 1196 A1	10.10.1996
		wo 97-00638 A2	09.01.1997
		wo 97-40679 A1	06.11.1997
		wo 97-40858 A1	06.11.1997
US 2003-0 103922 A1	05.06.2003	AU 2002-348447 A1	10.06.2003
		EP 1458344 A1	22.09.2004
		JP 2005-519 142 A	30.06.2005
		us 2004-01 369 16 A1	15.07.2004
		us 7550 151 B2	23.06.2009
		wo 03-043598 A1	30.05.2003
JP 62-0932 11 A	28.04.1987	None	
US 2002-0034489 A1	21.03.2002	AU 2000-597 16 A1	02.01.2001
		CA 2364350 A1	06.06.2002
		EP 1207839 A2	29.05.2002
		EP 12 13007 A2	12.06.2002
		GB 99 13408 DO	11.08.1999
		wo 00-76460 A2	21.12.2000
US 6649 145 B2	18.11.2003	us 2003-00836 10 A1	01.05.2003
		us 2004-0166 17 1 A1	26.08.2004
		us 2009-0104237 A1	23.04.2009