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(54) Title: HYDROGENATION OF CARYOPHYLLENE

(57) Abstract: A process for the hydrogenation of a mixture of caryophyllenes by contact with hydrogen in the presence of a supported catalyst. The resulting products are useful for the application to skin.

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2007/025983

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. C07C5/03

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)  
C07C A61K

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, CHEM ABS Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, A	US 2007/264297 A1 (SCIALDONE MARK A [US] ET AL) 15 November 2007 (2007-11-15) paragraphs [0547], [0574], [0633]	1-15
A	US 6 359 000 B1 (JIANG WEI-DONG [US] ET AL) 19 March 2002 (2002-03-19) paragraph [0004]	1-15
X	NAVES ET PERROTTET: "Etudes sur les matières végétales volatiles. XIV. Sur la structure du caryophyllène" HELVETICA CHIMICA ACTA., vol. 16, no. VI, 1941, pages 789-804, XP008094321 CHVERLAG HELVETICA CHIMICA ACTA. BASEL. page 797, lines 1-10	1-15
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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
- \*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

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07/11/2008

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2007/025983

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT.		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 966 819 A (SCHULTE-ELTE KARL-HEINRICH ET AL) 29 June 1976 (1976-06-29) cited in the application column 4, line 12 - line 24 -----	1-15

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2007/025983

## 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.:  
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 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:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
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.:

1-15

### 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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-15

A process for preparing a reaction product consisting of at least one member of the group consisting of dihydro-beta-caryophyllene, alpha-humulane and beta-caryophyllane according to claims 1-15

2. claims: 16-20

A composition of matter comprising at least one member of the group consisting of dihydro-beta-caryophyllene, alpha-humulane and beta-caryophyllane according to claims 16-19 and a method of imparting fragrance comprising applying a composition comprising at least one member of the group consisting of dihydro-beta-caryophyllene, alpha-humulane and beta-caryophyllane according to claim 20

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/025983

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 2007264297	A1	15-11-2007	WO 2007133683 A2	22-11-2007
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			WO 9800121 A1	08-01-1998
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