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10 April 2008

(54) Title: PROCESS FOR DECARBOXYLATION OF FATTY ACIDS AND OILS TO PRODUCE PARAFFINS OR OLEFINS

(57) Abstract: The invention is directed to a process of decarboxylation of natural fats and oils comprising the use of an activated acidic catalyst essentially free of Group VIII metals. Embodiments of the present process comprise the steps of supplying a feedstock comprising of natural fats, oils and mixtures thereof to a reaction vessel, subjecting the feedstock to an activated acidic catalyst essentially free of Group VIII metals, purging the reaction vessel with an inert gas; and subjecting the feedstock and catalyst to a temperature of from about 250°C to about 500°C.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/012226

A. CLASSIFICATION OF SUBJECT MATTER

INV. C10G3/00

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)

C10G

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 233 109 A (CHOW PENG W [SG]) 3 August 1993 (1993-08-03) claims 1,4,5,7,10,12-14; examples 1-9 -----	1-11
X	US 4 300 009 A (HAAG WERNER O ET AL) 10 November 1981 (1981-11-10) column 5, line 54 - column 7, line 41; claims 1-6,12; examples 14-17 -----	1-11
X	US 2004/074760 A1 (PORTNOFF MARC A [US] ET AL) 22 April 2004 (2004-04-22) paragraphs [0037], [0038]; claims 1,9,10,15; example 4 ----- -/--	1-11

☒ 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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INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 489 157 A (FRAUNHOFER GES ZURFOERDERUNG D [DE]) 22 December 2004 (2004-12-22) paragraphs [0008], [0012], [0016], [0017], [0021], [0024]; claims 1,5,12 -----	1-11
X	GB 485 123 A (EDOUARD GEORGES MARIE ROMAIN L) 16 May 1938 (1938-05-16) page 1, line 70 - page 2, line 9; claim 1 -----	1-11
X	SU 427 728 A1 (DYSHLOVOI) 15 May 1974 (1974-05-15) abstract -----	1-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/012226

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.:

1-11

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: 1-11

a process of decarboxylation of fats and oils

2. claim: 12

a process for producing olefins

3. claims: 13-15

a process of making a cleaning surfactant and a detergent
composition

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/012226

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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			CA	2542309 A1	29-04-2004
			WO	2004035714 A1	29-04-2004
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GB 485123	A	16-05-1938	NONE		
SU 427728	A1	15-05-1974	NONE		