



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/EP93/02878 (22) International Filing Date: 14 October 1993 (14.10.93) (30) Priority data: 961,241 15 October 1992 (15.10.92) US (71) Applicant: SHELL OIL COMPANY [US/US]; 910 Louisiana Street, Houston, TX 77002 (US). (72) Inventors: BESHOURI, Sharon, Marie ; 1638 Branard, Houston, TX 77006 (US). ADAMSKI, Robert, Paul ; 2718 Double Lake Drive, Missouri City, TX 77459 (US). (74) Agent: J.A. KEMP & CO.; 14 South Square, Gray's Inn, London WC1R 6LX (GB).		(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 18 August 1994 (18.08.94)
(54) Title: COMPOSITIONS OF FATTY ACID ESTERS OF HEXITANS (57) Abstract The invention relates to a composition composed of fatty acid esters of hexitans (sorbitans) and non-esterified polyols, having a content of non-esterified polyols in the range of 6.59 wt. % to 0.05 wt. %, and to a process for purification by removing non-esterified polyols from a composition composed of fatty acid esters of hexitans and non-esterified polyols, which process comprises the steps of: a) dissolving said composition in a solution comprising at least one hydrocarbon and at least one polar organic solvent to produce an organic solution of said composition; b) mixing or contacting said organic solution with an aqueous solution of at least one metal salt under conditions effective to extract said non-esterified polyols; and c) separating said organic solution from the aqueous solution, optionally followed by the recovery of the purified fatty acid esters of hexitans.		

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 5 B01F17/00 C07D309/10 C07D307/20 C07D493/04

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 5 B01F C07D

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DD,A,287 254 (VEB DEUTSCHES HYDRIERWERK RODLEBEN) 21 February 1991 see page 2, last paragraph; claims ---	1-3
A	DATABASE WPI Week 8731, Derwent Publications Ltd., London, GB; AN 87-216863 & JP,A,62 142 141 (NIPPON OILS & FATS) 25 June 1987 see abstract ---	1-3
A	US,A,2 322 820 (BROWNE) 29 June 1943 cited in the application ---	
A	US,A,4 065 488 (CHOU) 27 December 1977 see column 3, line 32 - column 3, line 47 ---	4-23
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

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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
- "&" document member of the same patent family

Date of the actual completion of the international search

1 June 1994

Date of mailing of the international search report

19.07.94

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 93/02878

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,2 997 492 (MARTIN) 22 August 1961 ---	4-23
A	EP,A,0 092 998 (ICI AMERICAS) 2 November 1983 -----	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP 93/02878

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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

1. Claims 1-3 Independent claim 1 and its dependent claims 2-3 describe a composition composed of fatty acid esters of hexitans, having a content of non-esterified polyols in the range of 6.59%wt to 0.05%wt.
2. Independent claim 4 and its dependent claims 5-23 describe a process for obtaining such a composition by removing non-esterified polyols from a composition containing fatty acid esters of hexitans and non-esterified polyols. claims 4-23

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern. Application No

PCT/EP 93/02878

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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