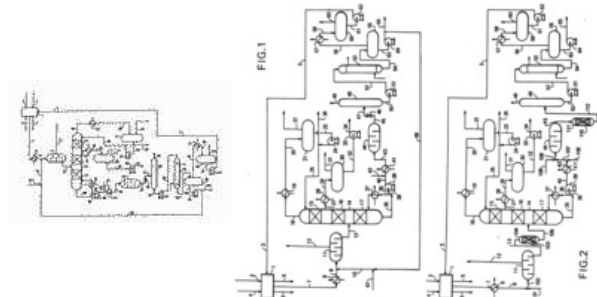
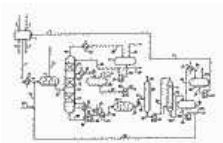


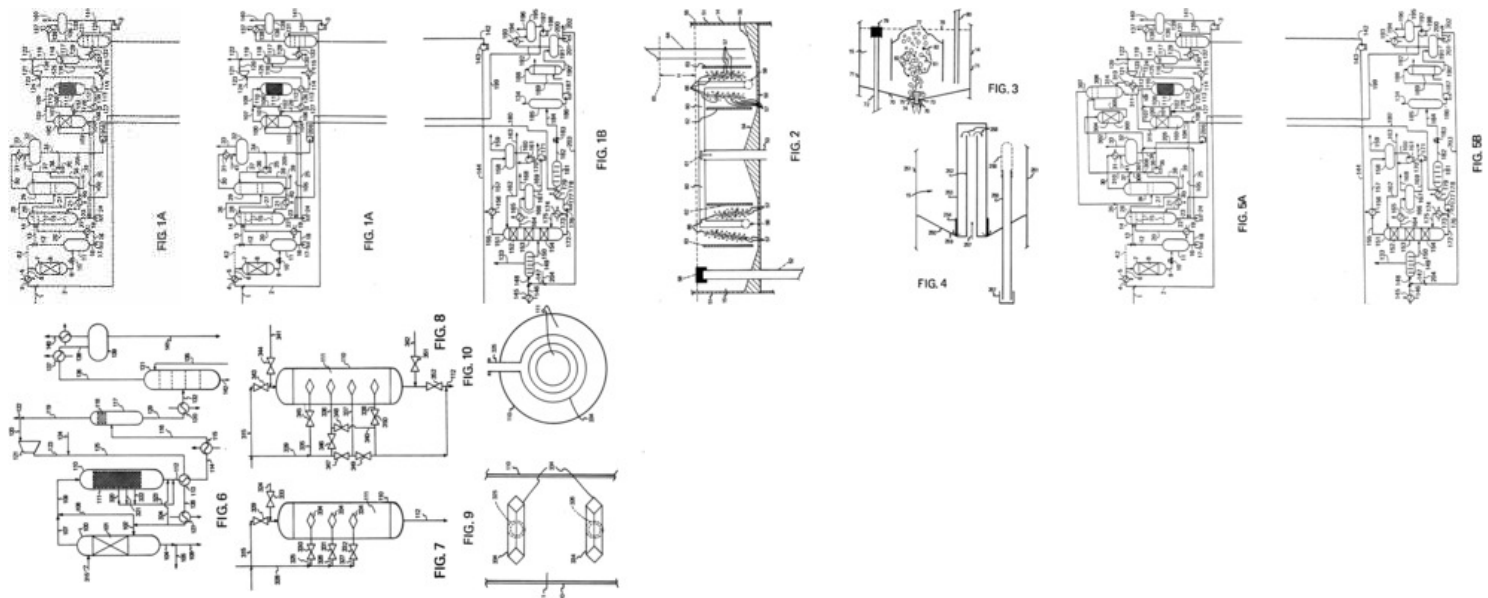
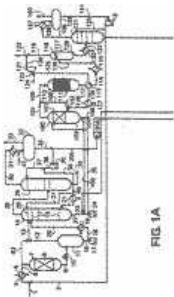
#	Title	Publication number	1st App. date	Applicant/Assignee	1st Publ. date	Publ. date
1.	Process for the recovery of fatty alcohols from a fatty alcohol fraction.	GB8900993	1989-01-17	DAVY MCKEE* DAVY MCKEE LONDON ANGL DAVY PROCESS TECHNOLOGY DAVYMCKEE LONDON HARRISON GEORGE	1989-03-08	1989-03-08

A process is described for separating fatty alcohols from a **fatty alcohol** fraction which contains a minor amount of a lower alkyl (e.g. methyl) **fatty acid ester** or esters. The **fatty alcohol** fraction is subjected to transesterification to convert substantially all of any lower alkyl ester present to wax ester or esters. The resulting lower alkanol (e.g. methanol) is evaporated. Then the intermediate transesterification mixture is distilled to recover fatty alcohols. The residue from this distillation step is mixed with excess lower alkanol and again transesterified to reconvert wax ester or esters to lower alkyl esters. This mixture is re-distilled and the recovered mixture of lower alkanol and **fatty alcohol** or alcohols can be recycled. If an alkyl titanate is used as transesterification catalyst then both distillation steps can be effected without prior separation of the catalyst and the non volatile residue from the second distillation step can be recycled to the first transesterification step.

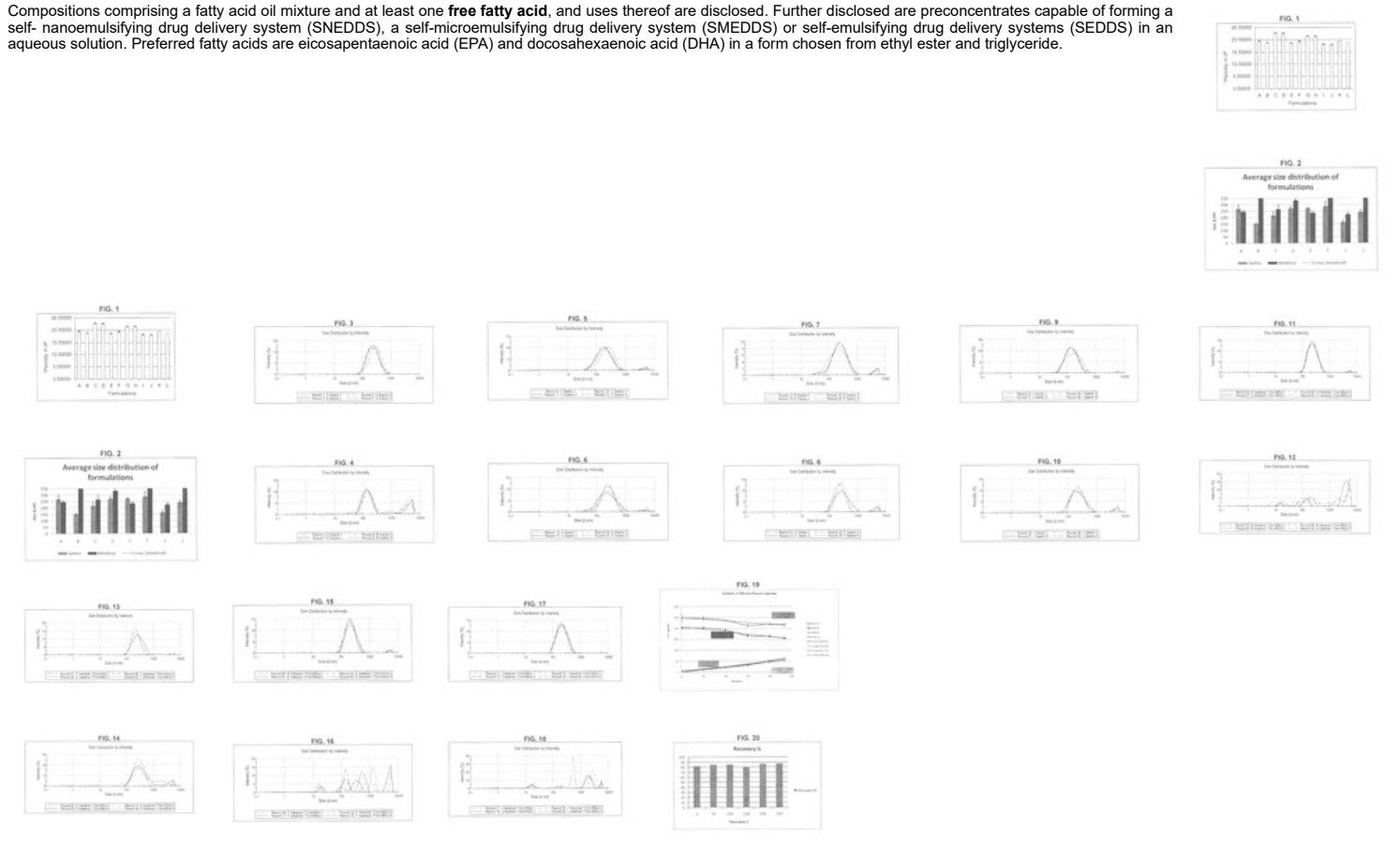


2.	Process for the production of fatty alcohols.	GB8900997	1989-01-17	DAVY MCKEE* DAVY MCKEE A BRITISH DAVY MCKEE LONDON ANGL DAVY PROCESS TECHNOLOGY	1989-03-08	1989-03-08
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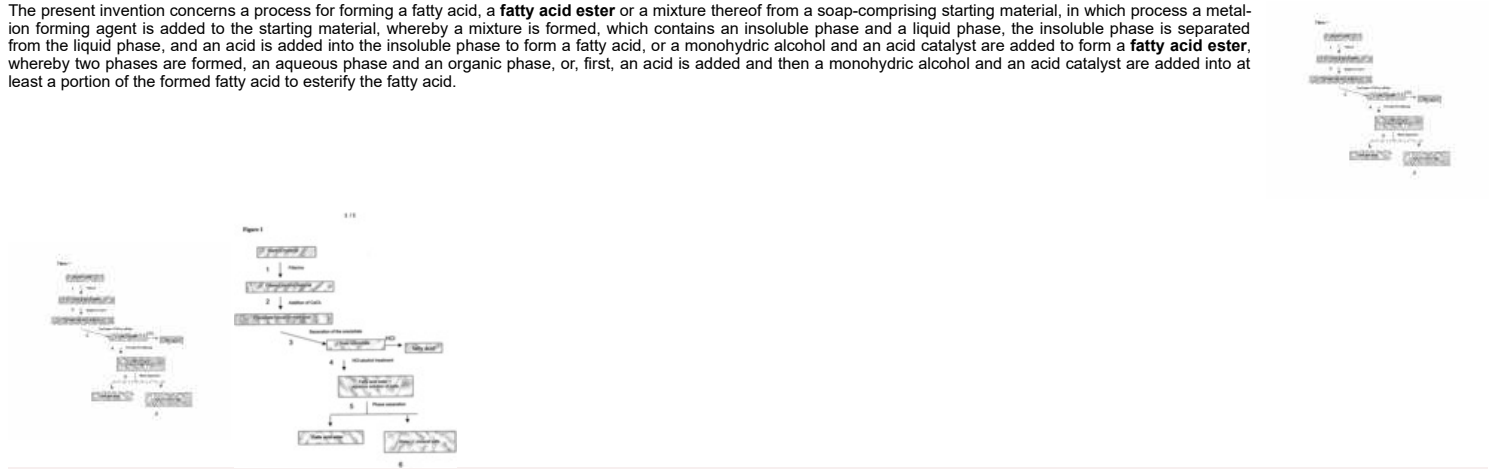
A process is described for producing fatty alcohols. A fatty acid or fatty acid mixture is esterified in a column reactor in which there is a plurality of esterification trays each having a predetermined liquid hold-up and containing a charge of a solid esterification catalyst thereon, e.g. an ion exchange resin containing -SO₃H and/or -COOH groups. A liquid phase containing the fatty acid or fatty acid mixture flows down the column reactor from one esterification tray to the next downward one against an upflowing lower alkanol vapour stream, e.g. methanol vapour. Relatively dry lower alkanol vapour (water content not more than 5 mole %) is injected into the bottom of the column reactor. Water of esterification is removed from the top of the column reactor in the vapour stream, whilst ester product is recovered from the sump of the reactor. As the liquid flows down the trays it encounters progressively drier lower alkanol. The ester product recovered from the bottom of the reactor has an ester content of at least 99 mole % (calculated on a lower alkanol free basis). This ester product is then subjected to vapour phase **hydrogenation**, using typically a reduced copper oxide-zinc oxide catalyst. The resulting mixture contains, in addition to at least about 0.5 mole % up to about 5 mole % of unreacted ester, product **fatty alcohol** or alcohols and lower alkanol, there being no need to separate the lower alkanol from the ester if the lower alkanol is methanol. This is distilled to yield a **fatty alcohol** fraction which contains a minor amount of a lower alkyl (e.g. methyl) **fatty acid ester** or esters. The **fatty alcohol** fraction is subjected to transesterification to convert substantially all of any lower alkyl ester present to wax ester or esters. The resulting lower alkanol (e.g. methanol) is partially evaporated. Then the intermediate transesterification mixture is distilled to recover fatty alcohols. The residue from this distillation step is mixed with excess lower alkanol and again transesterified to reconvert wax ester or esters to lower alkyl esters. This mixture is re-distilled and the recovered mixture of lower alkanol, methyl fatty acid esters, and **fatty alcohol** or alcohols can be recycled. If an alkyl titanate is used as transesterification catalyst then both distillation steps can be effected without prior separation of the catalyst and the non volatile residue from the second distillation step can be recycled to the first transesterification step.



Compositions comprising a fatty acid oil mixture and at least one **free fatty acid**, and uses thereof are disclosed. Further disclosed are pre-concentrates capable of forming a self- nanoemulsifying drug delivery system (SNEDDS), a self-microemulsifying drug delivery system (SMEDDS) or self-emulsifying drug delivery systems (SEDDS) in an aqueous solution. Preferred fatty acids are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in a form chosen from ethyl ester and triglyceride.



The present invention concerns a process for forming a fatty acid, a **fatty acid ester** or a mixture thereof from a soap-comprising starting material, in which process a metal-ion forming agent is added to the starting material, whereby a mixture is formed, which contains an insoluble phase and a liquid phase, the insoluble phase is separated from the liquid phase, and an acid is added into the insoluble phase to form a fatty acid, or a monohydric alcohol and an acid catalyst are added to form a **fatty acid ester**, whereby two phases are formed, an aqueous phase and an organic phase, or, first, an acid is added and then a monohydric alcohol and an acid catalyst are added into at least a portion of the formed fatty acid to esterify the fatty acid.



Methods are provided for producing fuel compositions. The methods comprise reacting a feedstock in the presence of a metathesis catalyst under conditions sufficient to form a metathesized product comprising olefins and esters. The methods further comprise hydrogenating the metathesized product form a fuel composition.

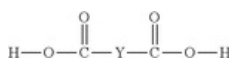
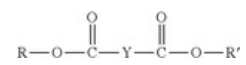
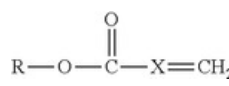
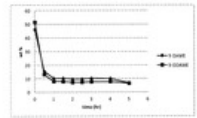
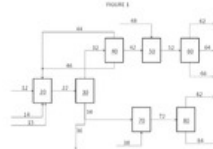
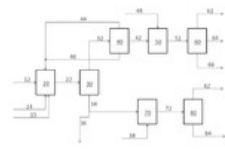


Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

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Figure 78

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Figure 80

Figure 81

Figure 82

Figure 83

Figure 84

Figure 85

Figure 86

Figure 87

Figure 88

Figure 89

Figure 90

Figure 91

Figure 92

Figure 93

Figure 94

Figure 95

Figure 96

Figure 97

Figure 98

Figure 99

Figure 100

6. Process for the pre-esterification of free fatty acids in raw fats and/or oils

GB8600478

1985-01-21

COGNIS* HENKEL

1986-02-12

1986-02-12

Abstract in publication language, translation not available

Zur Senkung des Gehaltes an freien Säuren in Fetten und Ölen durch deren Behandlung mit einem niederen Monoalkohol in Gegenwart saurer Veresterungskatalysatoren setzt man als Katalysator feste Kationenaustauscherharze in saurer Form ein.

REPLACEMENT

SECTION is not Present

Cette Section est Absente

REPLACEMENT

SECTION is not Present

Cette Section est Absente

7. Process for producing desulfurized fats and oils or fatty acid esters and process for producing alcohols by using said desulfurized fats and oils or fatty acid esters

FR2677034

1991-09-25

KAO*

1992-12-04

1992-12-04

A process for producing desulfurized fats and oils or fatty acid esters, which are highly suitable as a starting material for producing alcohols via **hydrogenation**, at a high yield is disclosed. Desulfurized fats and oils or fatty acid esters are obtained by contacting fats and oils or fatty acid esters with a catalyst represented by the following formula (I) under a hydrogen atmosphere or a mixture of hydrogen with an inert gas: Ni_{1-x}Cu_xO_y (I) wherein x represents an atomic ratio of Cu determined by referring Ni as 1 and a value of from 0.02 to 8; and y is an atomic ratio of oxygen satisfying the valence requirements of Ni and Cu. A process for producing alcohols using the desulfurized fats and oils or fatty acid esters is also disclosed. A process for producing an alcohols using desulfurized fats and oils or fatty acid esters is also disclosed. According to the process for producing an alcohol of the present invention, an alcohol of a high purity and good qualities can efficiently and effectively be produced.

Ni_{1-x}Cu_xO_y

8. Process for producing fatty alcohols by hydrogenation of fatty acid triglycerides on a copper-containing heterogeneous catalyst

WO2010133619

2010-05-19

BASF*

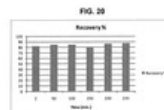
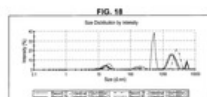
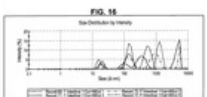
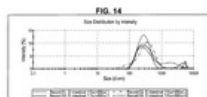
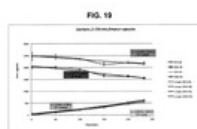
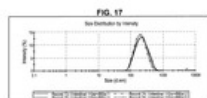
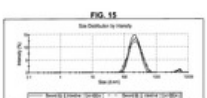
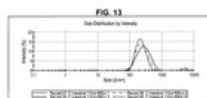
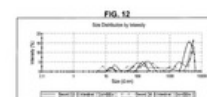
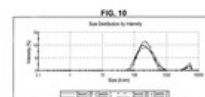
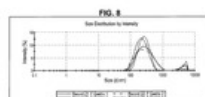
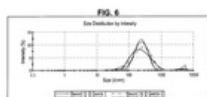
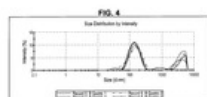
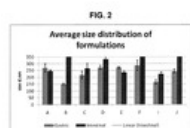
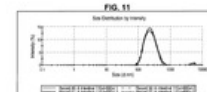
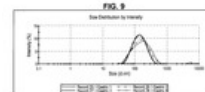
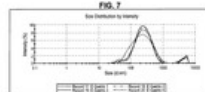
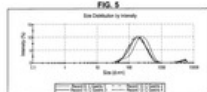
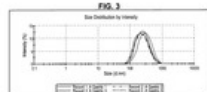
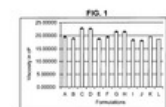
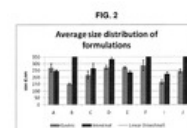
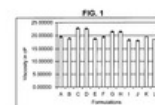
2010-11-25

2010-11-25

The present invention relates to a process for producing fatty alcohols in which a stream comprising at least one fatty acid triglyceride is provided and this stream is subjected to a **hydrogenation** process in the presence of a copper-containing, heterogeneous catalyst.

Römp, Römp, 嘿嘿

Compositions comprising a fatty acid oil mixture and at least one **free fatty acid** in a coated capsule or a coated tablet form suitable for oral administration, and methods of use thereof, are disclosed. Further disclosed are preconcentrates comprising a fatty acid oil mixture, at least one surfactant, and optionally at least one **free fatty acid**, in a coated capsule or a coated tablet form, and methods of use thereof. The preconcentrates are capable of forming a self-nanoemulsifying drug delivery system (SNEDDS), a self-microemulsifying drug delivery system (SMEDDS), or self-emulsifying drug delivery systems (SEDDS) in an aqueous solution.



10.	Downstream processing of fatty alcohol compositions produced by recombinant host cells	CA2904406	2014-03-07	EARL EASY LIFE SCIENCES LIABILITY LIAO PERRY LS9	2014-09-12	2014-09-12
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The disclosure relates to downstream processing of **fatty alcohol** (FALC) and provides a novel purification method that provides FALC at high purity and yield.

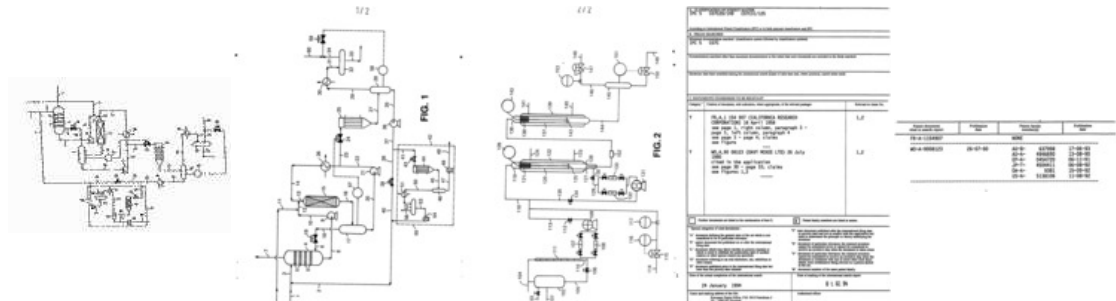
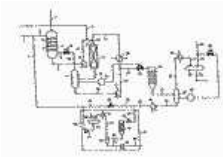
	cell	Grade 2-4 LC	BE/CAF	Mid-esop squamous	Comments
Multistars	yes	55/000	~ 600	1000	
Goldil	yes	6.7	1.3	0.1	
LoP	yes	18.1	6.5	0.5	
Carbonyls	yes	34/2	< 1/100	1/2	FAID & Intense Discoloration
Antibiotics	yes	100	120-210	1/2	
Metals					
Si	yes	3/10	50-100	< 1	Identify from analyzer
Se	yes	200	7-20	< 1	Identify negative in analyzer
Na	yes	24/1	< 1	20/1	
Indium Vapor (IV)		0.1	0.1	< 0.1	(10%) target IV
Hydrocarbons	N	500	500	< 1	
		Dark	30	30	

[illegible]

Fig. 3. Cumulative amount of EPZ released from EPZ-Eudragit® EC PD. The graph shows a linear release profile over 42 hours, starting from 0 and reaching approximately 4000 µg/cm².

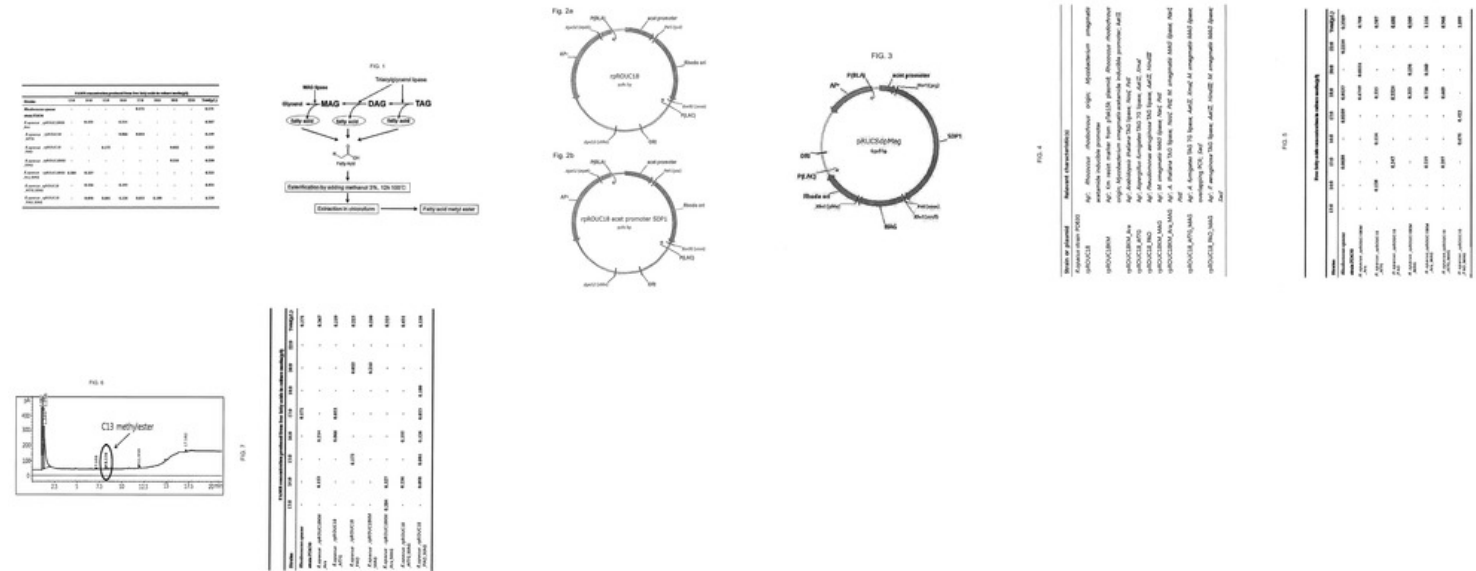
2010-09-02 2010-09-02

A continuous process for the production of a **fatty alcohol** from a fatty acid comprises: (a) providing an esterification zone maintained under esterification conditions; (b) supplying to the esterification zone (i) a fatty acid feed comprising at least one fatty acid and (ii) a **fatty alcohol** feed comprising at least one **fatty alcohol**; (c) reacting fatty acid and **fatty alcohol** in the esterification zone to form at least one high boiling ester of a fatty acid and of a **fatty alcohol** and to provide an esterification product mixture that is substantially free from fatty acid; (d) providing at least one **hydrogenation** zone containing a fixed bed of an ester **hydrogenation** catalyst and maintained under ester **hydrogenation** conditions; (e) subjecting said at least one high boiling ester of said esterification product mixture to liquid phase **hydrogenation** in said at least one **hydrogenation** zone thereby to form an exit stream comprising **fatty alcohol**; (f) recycling a part of the **fatty alcohol** of the exit stream from the **hydrogenation** zone to the esterification zone to form further high boiling ester; and (g) recovering another part of the exit stream as a product stream comprising **fatty alcohol**.



The present invention relates to a method of producing a fatty acid alkyl ester using microorganisms having the ability to produce oil, and more particularly to a method of producing a fatty acid alkyl ester, the method comprising culturing microorganisms having the ability to produce oil, thus accumulating a large amount of oil in the microorganisms, inducing the autolysis of the produced oil in the microorganisms to produce a **free fatty acid**, and converting the **free fatty acid** into an alkyl ester. According to the method of the present invention, oil accumulated in microorganisms, such as triacylglycerol that is typical oil produced by microorganisms, can be converted into a fatty acid alkyl ester with high efficiency using a metabolic engineering approach. Thus, the method of the present invention is useful for the industrial production of a fatty acid alkyl ester which has been recently found to be effective as biodiesel.

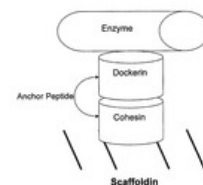
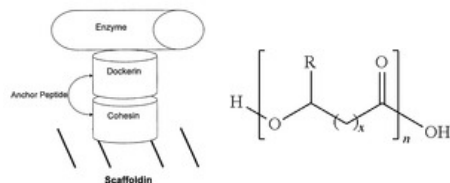
Strain	Oil content (%)	Oil yield (g/L)	Oil yield (g/g)	Oil yield (g/g)
Strain 1	10.0	1.0	1.0	1.0
Strain 2	15.0	1.5	1.5	1.5
Strain 3	20.0	2.0	2.0	2.0
Strain 4	25.0	2.5	2.5	2.5
Strain 5	30.0	3.0	3.0	3.0
Strain 6	35.0	3.5	3.5	3.5
Strain 7	40.0	4.0	4.0	4.0
Strain 8	45.0	4.5	4.5	4.5
Strain 9	50.0	5.0	5.0	5.0
Strain 10	55.0	5.5	5.5	5.5
Strain 11	60.0	6.0	6.0	6.0
Strain 12	65.0	6.5	6.5	6.5
Strain 13	70.0	7.0	7.0	7.0
Strain 14	75.0	7.5	7.5	7.5
Strain 15	80.0	8.0	8.0	8.0
Strain 16	85.0	8.5	8.5	8.5
Strain 17	90.0	9.0	9.0	9.0
Strain 18	95.0	9.5	9.5	9.5
Strain 19	100.0	10.0	10.0	10.0



The invention concerns a formulation comprising non-fat softeners based on wax-esters, whereof the constituents have a molecular weight less than 600 Dalton, preferably less than 450, comprising: fatty acid and **fatty alcohol** esters derived from interesterification by said one **fatty alcohol** of triglycerides of an oil of natural origin, preferably a vegetable oil; and residual triglycerides, diglycerides and monoglycerides derived from said interesterification. The invention is characterised in that it comprises at least two said wax-esters whereof at least one said wax-ester is a hydrogenated wax-ester including: fatty acid hydrogenated esters derived from the interesterification by one said **fatty alcohol**, triglycerides of a natural oil, preferably of vegetable origin followed by **hydrogenation** of said esters; and residual hydrogenated triglycerides, diglycerides and monoglycerides derived from said interesterification, followed by said **hydrogenation**.

Abstract in publication language, translation not available
Gegenstand der Erfindung ist ein Verfahren zur Herstellung eines neuen Kupfer-II-chromit-Spinellkatalysators unter Verwendung von kolloidalem Kieselgel und dessen Verwendung zur direkten Festbththydrierung von Fettsäuren zu Fettalkoholen entsprechender Kettenlänge.

Genetically engineered microorganisms are provided that produce products from the fatty acid biosynthetic pathway (fatty acid derivatives), as well as methods of their use.



22. Process for direct hydrogenation of glyceric oils

EP0254189

1987-07-15

COGNIS*
HENKEL

1988-01-27 1988-01-27

Glyceride oils are hydrogenated catalytically by reacting them together with hydrogen at pressures of 20 to 300 bar and temperatures of 160 to 250 DEG C and molar ratios of hydrogen : fatty acid radicals in the glyceride oil used of 10 : 1 to 500 : 1 continuously over catalysts, which contain 30 to 40 % by weight of copper, 23 to 30 % by weight of chromium, 1 to 7 % by weight of barium, the % by weight in each case relative to the oxidic catalyst composition, and, if desired, further transition metals in the form of their oxides and have been converted, after calcining the components forming the catalyst composition, with 1 to 10 % by weight, relative to the oxidic catalyst, of at least one binder into pelletised and/or granulated shaped bodies and activated with hydrogen or a gas mixture containing hydrogen.

Catalyst composition (wt %)	Catalyst composition (wt %)				Catalyst composition (wt %)			
	Cu	Cr	Ba	Other	Cu	Cr	Ba	Other
100	100	0	0	0	100	0	0	0
90	90	10	0	0	90	10	0	0
80	80	20	0	0	80	20	0	0
70	70	30	0	0	70	30	0	0
60	60	40	0	0	60	40	0	0
50	50	50	0	0	50	50	0	0
40	40	60	0	0	40	60	0	0
30	30	70	0	0	30	70	0	0
20	20	80	0	0	20	80	0	0
10	10	90	0	0	10	90	0	0
0	0	100	0	0	0	100	0	0

Catalyst composition (wt %)	Catalyst composition (wt %)				Catalyst composition (wt %)			
	Cu	Cr	Ba	Other	Cu	Cr	Ba	Other
100	100	0	0	0	100	0	0	0
90	90	10	0	0	90	10	0	0
80	80	20	0	0	80	20	0	0
70	70	30	0	0	70	30	0	0
60	60	40	0	0	60	40	0	0
50	50	50	0	0	50	50	0	0
40	40	60	0	0	40	60	0	0
30	30	70	0	0	30	70	0	0
20	20	80	0	0	20	80	0	0
10	10	90	0	0	10	90	0	0
0	0	100	0	0	0	100	0	0

23. Process for making high moisture content soap bars

WO9603487

1994-09-22

COGNIS*
HENKEL

1996-02-08 1996-02-08

Personal cleansing bars having a relatively high moisture content are made by forming a soap composition comprised of a neutralized tallow-free fatty acid mixture having an iodine value of less than about 7 and an alkyl polyglycoside of the formula (I): $R_1O(Z)a$, wherein R_1 is a monovalent organic radical having from about 6 to about 30 carbon atoms; Z is saccharide residue having 5 or 6 carbon atoms; a is a number having a value from 1 to about 6. The soap composition is then finished to produce a bar having from about 15 % to about 30 % by weight of water.

24. Process for the direct hydrogenation of butter fat

DK141188

1987-03-16

HENKEL*

1988-03-15 1988-03-15

In the catalytic direct hydrogenation of butter fat, this is reacted continuously with hydrogen at pressures from 20 to 300 bar and temperatures from 180 to 250 DEG C at molar ratios of hydrogen : fatty acid radical in the butter fat of 10 : 1 to 500 : 1 over catalysts which contain 30 to 40 % by weight of copper, 23 to 30 % by weight of chromium, 1 to 10 % by weight of manganese, 1 to 10 % by weight of silicon and 1 to 7 % by weight of barium - % by weight in each case relative to oxidic catalyst material - and, if desired, other transition metals in the form of their oxides and, after calcining the components forming the catalyst material with 1 to 10 % by weight - relative to oxidic catalyst - of at least one binder in addition to 1 to 10 % by weight of graphite, have been converted to give particulate and/or granular moulded articles and activated with hydrogen or a hydrogen-containing gas mixture. <??>The fatty alcohols, oxo and hydroxy fatty alcohols corresponding to the natural fatty acid composition and the desired useful product propylene glycol are formed in this process without prior removal of the shorter-chain fatty acids.

25. Chromium-free catalyst for the selective hydrogenation of organic compounds

DE4141199

1991-12-13

CLARIANT*

1993-06-17 1993-06-17

Chromium-free catalyst for the hydrogenation of organic compounds which contain the carbonyl function, e.g. of aldehydes, ketones and of carboxylic acids and their esters, to give the corresponding alcohols, where: a) its oxidic form corresponds to the composition $Cu_aAl_bZr_cMn_dO_x$ where $c \geq 0$ b) the weight of metal which is dissolved as a result of stirring 10g of the oxidic catalyst for 2 minutes in 100 ml of 10% by weight of acetic acid at 200 DEG C, is at most 400 mg, c) the BET area in one embodiment is between 10 and 150 m^2/g and in a second embodiment between 5 and 100 m^2/g .

