

Search query (9): [SP]: process and plant for producing fatty alcohols the present invention relates to a process and a plant for producing fatty alcohols from a reaction mixture containing at least one fatty acid ester and at least one free fatty acid, wherein the at least one fatty acid ester is hydrogenated with hydrogen to at least one fatty alcohol, wherein the hydrogenation is effected on a catalyst at a temperature of 1 50 to 300 degrees centigrade and a pressure of 50 to 250 bar. fatty alcohols chiefly are linear, monofunctional, terminal alcohols with alkyl radicals with a chain length of 8 to 1 8 c atoms. in general, fatty alcohols are obtained from renewable raw materials by hydrogenation of the corresponding esters, in particular of the methyl esters, of fatty acids or fatty acid mixtures. this production process for fatty alcohols is described for example in " ullmanns enzyklopadie der technischen chemie", third edition, vol. 7, page 440 ff. such catalyzed reaction proceeds according to the following reaction scheme: [ftimg=81130682]due to their production, an esterification of the free fatty acids, the fatty acid esters used as educts still contain residual quantities of free fatty acids. the content of free fatty acids can be determined titrimetrically by the consumption of the alkaline titration agent potassium hydroxide (koh). its consumption in mg based on the amount of fatty acid ester used provides the so-called acid number in the unit mg(koh)/g(fatty acid ester). the technical purity of the fatty acid esters lies in the range of an acid number from 0.5 to 1.0 mg(koh)/g(fatty acid ester). us 6,187,974 describes a process for producing fatty alcohols from lauric oils. laurie oils are the vegetable oils coconut oil and palm kernel oil, since they have a high content of lauric acid. the lauric acid derived from the alkane n-dodecane is deacidified and in a basically catalyzed transesterification step subsequently converted with methanol to the corresponding fatty acid methyl ester and purified. the purified fatty acid methyl ester is subjected to a selective hydrogenation, so that the corresponding fatty alcohols are obtained. this and similar hydrogenation processes have in common that the catalyst exhibits a decreasing catalyst activity in the course of the process. such a reduced activity leads to the fact that the residence time of the fatty acid esters in the reactor must be prolonged distinctly to achieve high conversions, or complete conversions no longer are achieved at all. in particular in operation on an industrial scale the problem arises that the catalyst must be replaced frequently, which on the one hand involves high costs for a new catalyst or for the catalyst regeneration and on the other hand results in long shut-down periods of the plant. therefore, it is the object of the present invention to provide a process with which the catalyst for the hydrogenation of the fatty acid esters stably remains active over an extended period. this object is solved by a process with the features of claim 1. in the process, a reaction mixture which contains at least one fatty acid ester and at least one non-esterified free fatty acid is hydrogenated to the corresponding fatty alcohols on a catalyst. the hydrogenation is effected at a temperature of 1 50 to 300 degrees centigrade and a pressure of 50 to 300 bar. according to the invention, the amount of free fatty acids contained in the reaction mixture is lowered before the hydrogenation, whereby longer service lives of the catalyst and an improved yield with respect to the fatty alcohols can be achieved. the invention is based on the finding that free fatty acids contained in the mixture in principle likewise are converted to the corresponding alcohols according to the following reaction [ftimg=81130683] with $r = \text{cnh}2n+i$ with $n = 7 - 17$, but as long as they are contained in the system, they occupy and block free activity centers of the catalyst used. in particular when the hydrogenation is effected at a temperature between 170 and 220 degrees centigrade and/or at a pressure of 50 to 100 bar, this effect is decisive for the resulting conversion figures, as under these conditions the conversion of the free fatty acids is effected at a rate distinctly slowed down and the free fatty acids thus are present in the system for a correspondingly long time. the previously observed effect that in hydrogenation experiments in the medium-pressure range a distinct reduction of the catalytic activity of the catalyst heterogeneously introduced into the reaction mixture and an increased occurrence of the so-called catalyst leaching, i.e. a discharge of the active centers occurs, can be prevented by lowering the amount of free fatty acids contained in the reaction mixture. thus, a medium-pressure synthesis of fatty alcohols also can be carried out without an increased consumption of catalyst and with similar process costs concerning the ongoing operation. this is of economic interest in particular because the investment costs for such a plant are distinctly lower than for high-pressure plants, since not all plant sections must be designed for the high-pressure range. calculations reveal an about 15-20 percent saving on the investment costs for a medium-size plant with a production capacity of 100 kt/a. in particular when the catalyst is present in solid form, an at least partial removal of the free fatty acids contained in the reaction mixture is required, as in the case of a solid catalyst system these fatty acids temporarily occupy the catalytic surfaces for a long time and thus a reduced catalyst activity occurs. preferably, the catalyst used is a metallic catalyst, particularly preferably a copper-based catalyst, preferably on the basis of copper chromite. a copper-containing catalyst has the advantage that it converts the fatty acid esters to fatty alcohols with great selectivity at a high space/time yield. catalysts on the basis of copper and copper chromite with varying dopings of iron or manganese are preferred particularly. the corrosive properties of the free fatty acids are revealed particularly strongly when metallic catalysts are used, in particular when copper-containing catalysts are used. in laboratory experiments it is found that the degradation of the metallic surface proceeds so strongly that when a copper-containing catalyst is used, such degradation even becomes visually visible in the reaction product in the form of a copper-reddish discoloration. in particular when using a metallic catalyst, the free fatty acids therefore must at least partly be removed or neutralized before the actual hydrogenation in the way according to the invention, in order to achieve acceptable conversion figures. furthermore, it was found to be particularly favorable to lower the amount of free fatty acids contained in the reaction mixture to an acid number of 0.1 mg(koh)/g(fatty acid ester). the acid number hence is so low that the described effect, namely the occupation of active catalytic centers, virtually can be excluded completely. lowering the amount of free fatty acids contained in the reaction mixture can be achieved by adding a base. by forming the corresponding salts, the free fatty acids can be removed in the form of their soaps and the amount of acidic groups present in the reaction mixture can be lowered distinctly. as base, naoh or koh preferably are used, since these bases are substances available at low cost, which have such a high basicity that a complete neutralization reaction virtually occurs. such neutralization is followed by a separation of the soaps, a water wash preferably effected in a column, and drying. furthermore, the amount of free fatty acids contained in the reaction mixture can be lowered by using an ion exchanger. this has the advantage that the number of the acidic groups damaging the catalyst is reduced without salts being formed in the reaction mixture. in principle, basic anion exchangers in their oh⁻ form are employed, which is why during the exchange merely an amount of water corresponding to the fatty acid concentration is released to the fatty acid ester to be treated. the fatty acids are retained in the ion exchanger. an advantageous aspect of the invention provides to use fatty acid methyl ester as fatty acid ester, since the resulting short-chain alcohol methanol can be separated easily. on a technical scale, fatty acid methyl esters are produced almost exclusively by transesterification of triglycerides with methanol. beside fatty acid methyl esters the feedstocks for the hydrogenation process according to the invention to the same extent also are fatty acid esters of the fatty alcohols (so-called wax esters). in principle, however, other fatty acid esters, in particular esters of short-chain alcohols such as ethanol or propanol, also are conceivable. when fatty acid methyl esters are used, methanol is obtained during their hydrogenation beside the corresponding fatty alcohol. when the pressure of the reaction product (fatty alcohol) at the outlet of the reactor is lowered to a value below the partial pressure of methanol at the respective temperature existing in the reactor, the residual quantity of methanol remaining in the product stream can evaporate and a product almost free from methanol can be obtained. the invention furthermore also comprises a plant for producing fatty alcohols from a reaction mixture containing at least one fatty acid ester and at least one free fatty acid, preferably according to the described process, with the features of claim 10. such plant provides a reactor for the hydrogenation of fatty acid esters on a catalyst at a temperature of 1 50 t

Results: 10

Search history

Search FT=((fatty w2 alcohol*) and hydrogen* and ((fatty w3 acid) w3 ester)) (Results 12814)

1:

Search 1 and ((free w3 fatty) w3 acid) (Results 714)

2:

Search SFT=((fatty w2 alcohol*) and hydrogen* and ((fatty w3 acid) w3 ester)) (Results 12573)

3:

Search SFT=(3 and ((free w3 fatty) w3 acid)) (Results 699)

4:

Search 4 and PD<20140912 (Results 565)

5:

Search 5 and (reduc* or lower*) (Results 559)

6:

Search 6 and (method or process) (Results 553)

7:

Search PN=(W02016037709) (Results 1)

8:

Search [SP]: process and plant for producing fatty alcohols the present invention relates to a process and a plant for producing fatty alcohols from a reaction mixture containing at least one fatty acid ester and at least one free fatty acid, wherein the at least one fatty acid ester is hydrogenated with hydrogen to at least one fatty alcohol, wherein the hydrogenation is effected on a catalyst at a temperature of 1 50 to 300 degrees centigrade and a pressure of 50 to 250 bar. fatty alcohols chiefly are linear, monofunctional, terminal alcohols with alkyl radicals with a chain length of 8 to 1 8 c atoms. in general, fatty alcohols are obtained from renewable raw materials by hydrogenation of the corresponding esters, in particular of the methyl esters, of fatty acids or fatty acid mixtures. this production process for fatty alcohols is described for example in " ullmanns enzyklopadie der technischen chemie", third edition, vol. 7, page 440 ff. such catalyzed reaction proceeds according to the following reaction scheme: [ftimg=81130682]due to their production, an esterification of the free fatty acids, the

fatty acid esters used as educts still contain residual quantities of free fatty acids. the content of free fatty acids can be determined titrimetrically by the consumption of the alkaline titration agent potassium hydroxide (koh). its consumption in mg based on the amount of fatty acid ester used provides the so-called acid number in the unit mg(koh)/g(fatty acid ester). the technical purity of the fatty acid esters lies in the range of an acid number from 0.5 to 1.0 mg(koh)/g(fatty acid ester). us 6,187,974 describes a process for producing fatty alcohols from lauric oils. lauric oils are the vegetable oils coconut oil and palm kernel oil, since they have a high content of lauric acid. the lauric acid derived from the alkane n-dodecane is deacidified and in a basically catalyzed transesterification step subsequently converted with methanol to the corresponding fatty acid methyl ester and purified. the purified fatty acid methyl ester is subjected to a selective hydrogenation, so that the corresponding fatty alcohols are obtained. this and similar hydrogenation processes have in common that the catalyst exhibits a decreasing catalyst activity in the course of the process. such a reduced activity leads to the fact that the residence time of the fatty acid esters in the reactor must be prolonged distinctly to achieve high conversions, or complete conversions no longer are achieved at all. in particular in operation on an industrial scale the problem arises that the catalyst must be replaced frequently, which on the one hand involves high costs for a new catalyst or for the catalyst regeneration and on the other hand results in long shut-down periods of the plant. therefore, it is the object of the present invention to provide a process with which the catalyst for the hydrogenation of the fatty acid esters stably remains active over an extended period. this object is solved by a process with the features of claim 1. in the process, a reaction mixture which contains at least one fatty acid ester and at least one non-esterified free fatty acid is hydrogenated to the corresponding fatty alcohols on a catalyst. the hydrogenation is effected at a temperature of 150 to 300 degrees centigrade and a pressure of 50 to 300 bar. according to the invention, the amount of free fatty acids contained in the reaction mixture is lowered before the hydrogenation, whereby longer service lives of the catalyst and an improved yield with respect to the fatty alcohols can be achieved. the invention is based on the finding that free fatty acids contained in the mixture in principle likewise are converted to the corresponding alcohols according to the following reaction [ftimg=81130683] with $r = \text{c}_{\text{nh}2\text{n}+\text{i}}$ with $n = 7 - 17$, but as long as they are contained in the system, they occupy and block free activity centers of the catalyst used. in particular when the hydrogenation is effected at a temperature between 170 and 220 degrees centigrade and/or at a pressure of 50 to 100 bar, this effect is decisive for the resulting conversion figures, as under these conditions the conversion of the free fatty acids is effected at a rate distinctly slowed down and the free fatty acids thus are present in the system for a correspondingly long time. the previously observed effect that in hydrogenation experiments in the medium-pressure range a distinct reduction of the catalytic activity of the catalyst heterogeneously introduced into the reaction mixture and an increased occurrence of the so-called catalyst leaching, i.e. a discharge of the active centers occurs, can be prevented by lowering the amount of free fatty acids contained in the reaction mixture. thus, a medium-pressure synthesis of fatty alcohols also can be carried out without an increased consumption of catalyst and with similar process costs concerning the ongoing operation. this is of economic interest in particular because the investment costs for such a plant are distinctly lower than for high-pressure plants, since not all plant sections must be designed for the high-pressure range. calculations reveal an about 15-20 percent saving on the investment costs for a medium-size plant with a production capacity of 100 kt/a. in particular when the catalyst is present in solid form, an at least partial removal of the free fatty acids contained in the reaction mixture is required, as in the case of a solid catalyst system these fatty acids temporarily occupy the catalytic surfaces for a long time and thus a reduced catalyst activity occurs. preferably, the catalyst used is a metallic catalyst, particularly preferably a copper-based catalyst, preferably on the basis of copper chromite. a copper-containing catalyst has the advantage that it converts the fatty acid esters to fatty alcohols with great selectivity at a high space/time yield. catalysts on the basis of copper and copper chromite with varying dopings of iron or manganese are preferred particularly. the corrosive properties of the free fatty acids are revealed particularly strongly when metallic catalysts are used, in particular when copper-containing catalysts are used. in laboratory experiments it is found that the degradation of the metallic surface proceeds so strongly that when a copper-containing catalyst is used, such degradation even becomes visually visible in the reaction product in the form of a copper-reddish discoloration. in particular when using a metallic catalyst, the free fatty acids therefore must at least partly be removed or neutralized before the actual hydrogenation in the way according to the invention, in order to achieve acceptable conversion figures. furthermore, it was found to be particularly favorable to lower the amount of free fatty acids contained in the reaction mixture to an acid number of 0.1 mg(koh)/g(fatty acid ester). the acid number hence is so low that the described effect, namely the occupation of active catalytic centers, virtually can be excluded completely. lowering the amount of free fatty acids contained in the reaction mixture can be achieved by adding a base. by forming the corresponding salts, the free fatty acids can be removed in the form of their soaps and the amount of acidic groups present in the reaction mixture can be lowered distinctly. as base, naoh or koh preferably are used, since these bases are substances available at low cost, which have such a high basicity that a complete neutralization reaction virtually occurs. such neutralization is followed by a separation of the soaps, a water wash preferably effected in a column, and drying. furthermore, the amount of free fatty acids contained in the reaction mixture can be lowered by using an ion exchanger. this has the advantage that the number of the acidic groups damaging the catalyst is reduced without salts being formed in the reaction mixture. in principle, basic anion exchangers in their oh^- form are employed, which is why during the exchange merely an amount of water corresponding to the fatty acid concentration is released to the fatty acid ester to be treated. the fatty acids are retained in the ion exchanger. an advantageous aspect of the invention provides to use fatty acid methyl ester as fatty acid ester, since the resulting short-chain alcohol methanol can be separated easily. on a technical scale, fatty acid methyl esters are produced almost exclusively by transesterification of triglycerides with methanol. beside fatty acid methyl esters the feedstocks for the hydrogenation process according to the invention to the same extent also are fatty acid esters of the fatty alcohols (so-called wax esters). in principle, however, other fatty acid esters, in particular esters of short-chain alcohols such as ethanol or propanol, also are conceivable. when fatty acid methyl esters are used, methanol is obtained during their hydrogenation beside the corresponding fatty alcohol. when the pressure of the reaction product (fatty alcohol) at the outlet of the reactor is lowered to a value below the partial pressure of methanol at the respective temperature existing in the reactor, the residual quantity of methanol remaining in the product stream can evaporate and a product almost free from methanol can be obtained. the invention furthermore also comprises a plant for producing fatty alcohols from a reaction mixture containing at least one fatty acid ester and at least one free fatty acid, preferably according to the described process, with the features of claim 10. such plant provides a reactor for the hydrogenation of fatty acid esters on a catalyst at a temperature of 150 t (Results 10)

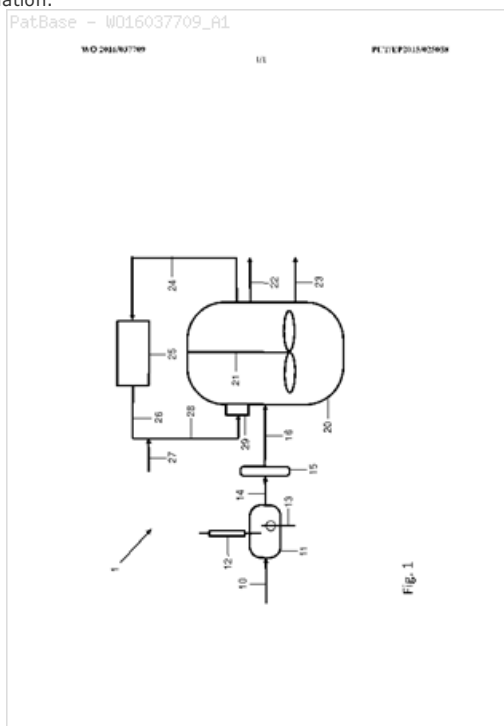
Title: PROCESS AND PLANT FOR PRODUCING FATTY ALCOHOLS

Abstract: The present invention relates to a process and a plant for producing fatty alcohols from a reaction mixture containing at least one fatty acid ester and at least one free fatty acid, wherein the at least one fatty acid ester is hydrogenated with hydrogen to at least one fatty alcohol, wherein the hydrogenation is effected on a catalyst at a temperature of 150 to 300 degrees centigrade and a pressure of 50 to 250 bar, and wherein the content of the at least one free fatty acid in the reaction mixture is lowered before the hydrogenation.

Classifications:

International (IPC 8-9): B01J23/72 B01J41/00 C07C29/149
C07C31/02 C07C31/125 (Advanced/Invention)

CPC: C07C29/149



Family:

Publication number	Publication date	Application number	Application date
BR112017004682 A2	20180130	BR20171104682	20150812
CN105418364 A	20160323	CN201510582697	20150914
CN205241567 U	20160518	CN201520709612U	20150914
CO20170003062 A2	20170630	CO20170003062	20170329
DE102014113197 A1	20160317	DE201410113197	20140912
ID201802511 A	20180316	ID2017P0001964	20150812
IN201717010811 A	20170915	IN201717010811	20170327
WO16037709 A1	20160317	WO2015EP25058	20150812

Priority:

DE201410113197 20140912 WO2015EP25058 20150812

Probable Assignee: AIR LIQUIDE

Assignee(s): (std): L AIR LIQUIDE SOC ANONYME POUR L ETUDE ET L EXPL DES PROCEDES GEORGES CLAUDE ; L AIR LIQUIDE SOC ANONYME POUR L ETUDE ET L EXPLOITATION DES PROCEDES GEORGES CLAUDE ; AIR LIQUIDE

Assignee(s): L AIR LIQUIDE SOC ANONYME POUR I ETUDE ET I EXPLOITATION DES PROCEDES GEORGES CLAUDE ; L AIR LIQUIDE SOC ANONYME POUR L ETUDE ET L EXPLOITATION DES PROCEDES GEORGESCLAUDE ; LAIR LIQUIDE POUR LETUDE ET L EXPLOITATION DES PROCEDES GEORGES CLAUDE SA

Inventor(s): (std): BAUER INGO ; BOENSCH RUDOLF ; BONSCH RUDOLF

Inventor(s): INGO BAUER ; RUDOLF BOENSCH ; B NSCH RUDOLF

Agent(s): CAROLINA MERCEDES DAZA MONTALVO; MAULITTA PRAMULASARI; DROPSCH HOLGER

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: METHOD FOR PREPARING COPPER-CONTAINING HYDROGENATION REACTION CATALYST AND METHOD FOR PRODUCING ALCOHOL

Abstract: A copper-containing hydrogenation reaction catalyst is prepared by reducing a precursor of a copper-containing catalyst usable in hydrogenation reaction with hydrogen gas or a mixture of hydrogen and an inert gas by liquid phase reduction in a stream of a solvent in the temperature range of from 50 DEG to 140 DEG C. An alcohol is produced using the catalyst thus obtained in a fixed bed continuous reaction system.

Classifications:

International (ipc 8-9): B01J23/72 B01J23/745 B01J23/80 B01J23/86 B01J37/18 C07B61/00 C07C29/149 C07C31/02 (Advanced/Invention); B01J23/745 (Core/Invention)

International (ipc 1-7): B01J23/72 B01J23/745 B01J23/80 B01J23/86 B01J37/16 B01J37/18 C07B61/00 C07C29/149 C07C29/36 C07C31/02 C07C31/125

CPC: C07C29/149 B01J23/72 B01J23/80

European: B01J23/72 B01J23/80 C07C29/149

US: 502/345 568/814 568/864 568/865 568/884 568/885

例		組成 (重量%)	圧力 (kg/cm ²)	温度 (℃)	溶媒種	還元時間 (時間)	触媒活性 (相対値)	選択性 (相対値)
実施例 1		CuO : ZnO : BaO : TiO ₂ 33.9 : 3.1 : 3.5 : 60	20	130	PPA733-4	24	1.14	0.55
実施例 2		同上	同上	100	同上	6	1.15	0.53
実施例 3		同上	同上	80	同上	24	1.02	0.58
実施例 4		同上	同上	100℃一定	同上	24	1.10	0.56
比較例 1		同上	15	130	気相	157	1	1
比較例 2		同上	20	200	PPA733-4	6	1.24	0.54
実施例 5		同上	3	130	PPA734	6	1.05	0.55
実施例 6		同上	200	同上	同上	6	1.07	0.89
比較例 3		同上	3	200	同上	6	1.29	0.83
実施例 7		CuO : ZnO : BaO : TiO ₂ 43.6 : 2.3 : 4.1 : 50.0	20	130	PPA733-6	24	1.44	0.54
比較例 4		同上	15	同上	気相	160	1	1

触媒活性及び選択性：実施例 1～6、比較例 2～3 は比較例 1 の銅担持量と触媒の活性を基準とした相対値。
実施例 7 は比較例 4 の初期還元触媒の活性を基準とした相対値。

Family:

Publication number	Publication date	Application number	Application date
CN1094793 C	20021127	CN19941019605	19941213
CN1107756 A	19950906	CN19941019605	19941213
CN1213009 C	20050803	CN20021019948	20020513
CN1434011 A	20030806	CN20021019948	20020513
DE69416955 D1	19990415	DE19946016955	19941208
DE69416955 T2	19990805	DE19946016955T	19941208
EP0657214 A1	19950614	EP19940119443	19941208
EP0657214 B1	19990310	EP19940119443	19941208
JP2990568 B2	19991213	JP19930342536	19931213
JP7163880 A2	19950627	JP19930342536	19931213
PH31322 A	19980706	PH19940049452	19941125
US5481048 A	19960102	US19940357173	19941213
US554574 A	19960910	US19950451056	19950525

Priority:

JP19930342536 19931213 US19940357173 19941213 US19950451056 19950525

Probable Assignee: KAO CORP

Assignee(s): (std): KAO CORP

Assignee(s): KAO CORP TOKIO TOKYO JP ; KAO KK

Inventor(s): (std): KIYOSHI TSUKADA ; MIMURA HIROSHI ; MIMURA TAKU ; TAKU MIMURA ; TSUKADA KIYOSHI ; HATTORI YASUYUKI ; YASUYUKI HATTORI

Inventor(s): HATSUTORI YASUYUKI ; HATTORI YASUYUKI WAKAYAMA SHI WAKAYAMA KEN JP ; TSUKADA KIYOSHI WAKAYAMA SHI WAKAYAMA KEN JP ; TSUKADA KYOSHI ; MIMURA TAKU WAKAYAMA SHI WAKAYAMA KEN JP

Designated states: DE FR GB

Title: PROCESS FOR THE PRODUCTION OF UNSATURATED FATTY ALCOHOLS

Abstract: PCT No. PCT/EP92/01985 Sec. 371 Date May 6, 1994 Sec. 102(e) Date May 6, 1994 PCT Filed Aug. 28, 1992 PCT Pub. No. WO93/05003 PCT Pub. Date Mar. 18, 1993. Unsaturated fatty alcohols with 6 to 22 C atoms can be produced by directly hydrating deacidified and/or non-deacidified glyceride oils containing monounsaturated and/or polyunsaturated, straight chain and/or branched-chain fatty acids having 6 to 22 C atoms in the fatty acid residue, by applying a 30 to 100-fold excess of hydrogen in a pressure range from 50 to 300 bars, at temperatures from 200 DEG to 400 DEG C., to zinc-chrome-catalysts of the spinel type, while largely preserving the olefinic double bonds and with formation of propane and 1,2-propylene glycol.

Classifications:

International (IPC 8-9): C07C29/149 C07C31/20 C07C33/02 (Advanced/Invention);
C07C29/00 C07C31/00 C07C33/00 (Core/Invention)

International (IPC 1-7): B01J21/04 B01J23/02 B01J23/06 B01J23/22 B01J23/26 B01J23/34 B01J37/18 C07C29/149
C07C31/20 C07C33/02 C07C33/025 C07C9/08

CPC: C07C29/149

European: C07C29/149

US: 568/864 568/885

Family:

Publication number	Publication date	Application number	Application date
DE4129622 A1	19930311	DE19914129622	19910906
DE59205125 D1	19960229	DE19925005125	19920828
EP0602108 A1	19940622	EP19920918426	19920828
EP0602108 B1	19960117	EP19920918426	19920828
US5399792 A	19950321	US19940204251	19940506
WO9305003 A1	19930318	WO1992EP01985	19920828

Priority:

DE19914129622 19910906 DE19925005125 19920828 WO1992EP01985 19920828

Probable Assignee: HENKEL AUF AKTIEN HENKEL KGAA KG

Assignee(s): (std): HENKEL KGAA

Assignee(s): HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; HENKEL KGAA 4000 DUESSELDORF DE ; HENKEL KGAA 40589 DUESSELDORF DE ; HENKEL AUF AKTIEN (HENKEL KGAA) KG ; HENKEL AUF AKTIEN HENKEL KGAA KG ; HENKEL AUF AKTIEN KG ; HENKEL KG

Inventor(s): (std): DEMMERING GUENTHER ; DEMMERING GUENTHER DR

Inventor(s): DEMMERING GUENTHER D 5650 SOLINGEN DE ; DEMMERING GUENTHER DR 5650 SOLINGEN DE

Designated states: AT BE CH DE DK ES FR GB GR IE IT JP LU MC NL SE US

Title: Unsaturated fatty compounds with improved low-temperature behavior

Abstract: PCT No. PCT/EP95/02646 Sec. 371 Date Jun. 10, 1997 Sec. 102(e) Date Jun. 10, 1997 PCT Filed Jul. 7, 1995 PCT Pub. No. WO96/02619 PCT Pub. Date Feb. 1, 1996A process for producing unsaturated fatty compounds having improved low-temperature properties by a) splitting lauric oils into fatty acids and glycerol, b) subjecting the fatty acids to fractional crystallization to obtain a fraction of unsaturated fatty acids, and c) hydrogenating the unsaturated fatty acids, optionally after converting the unsaturated fatty acids into their lower alkyl esters, to form unsaturated fatty alcohols having an iodine value of from about 85 to about 100.

Classifications:

International (IPC 8-9): C07C27/02 C07C29/149 C07C33/025 C07C57/12 C07C67/08 C07C69/30 C11C1/04 C11C1/08 C11C3/12 C11D1/66 (Advanced/Invention)

International (IPC 1-7): C07C27/02 C07C27/04 C07C27/26 C07C27/28 C07C29/136 C07C29/149 C07C303/02 C07C303/32 C07C305/06 C07C33/02 C07C33/025 C07C41/02 C07C43/03 C07C51/43 C07C67/08 C07C69/007 C07C69/30 C07C69/587 C11C1/04 C11C1/08 C11C3/12 C11D1/66

CPC: C07C29/149 C07C57/12

European: C07C29/149 C07C57/12

US: 568/840 568/876 568/884

Family:

Publication number	Publication date	Application number	Application date
CN1105094 C	20030409	CN19951093525	19950707
CN1150448 A	19970521	CN19951093525	19950707
DE4425180 A1	19960118	DE19944425180	19940716
DE4425180 C2	19970507	DE19944425180	19940716
DE59508959 D1	20010215	DE19955008959	19950707
EP0771345 A1	19970507	EP19950943545	19950707
EP0771345 B1	20010110	EP19950943545	19950707
ES2153505 T3	20010301	ES19950943545T	19950707
JP10502654 T2	19980310	JP19960504655T	19950707
JP10502654 T2	19980310	JP19950504655T	19950707
JP3881010 B2	20070214	JP19960504655T	19950707
US5917097 A	19990629	US19970776036	19970610
WO9602619 A1	19960201	WO1995EP02646	19950707

Priority:

DE19944425180 19940716 DE19955008959 19950707 WO1995EP02646 19950707

Probable Assignee: COGNIS DEUTSCHLAND GMBH AND CO KG

Assignee(s): (std): DEMMERING GUENTHER ; HENKEL KGAA ; KOEHLER MICHAEL ; KOMP HORST DIETER ; STEINBERNER UDO ; MENKEL KOMMANDITGESELLSCHAFT ; ANSMANN ACHIM ; BOEHR CHRISTIANE ; COGNIS DEUTSCHLAND GMBH ; WESTFECHTEL ALFRED

Assignee(s): COGNIS DEUTSCHLAND GMBH AND CO KG ; HENKEL KG ; HENKEL KGAA 40589 DUESSELDORF DE ; HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; MENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; HENKEL AUF AKTIEN (HENKEL KGAA) KG

Inventor(s): (std): ANSMANN ACHIM ; ANSMANN ACHIM DR ; BOEHR CHRISTIANE ; BOHR CHRISTIANE ; DEMMERING GUENTHER ; DEMMERING GUENTHER DR ; DEMMERING GUNTHER ; KOEHLER MICHAEL ; KOEHLER MICHAEL DR ; KOHLER MICHAEL ; KOMP HORST DIETER ; STEINBERNER UDO ; STEINBERNER UDO DR ; WESTFECHTEL ALFRED ; WESTFECHTEL ALFRED DR ; MICHAEL KOEHLER ; GUENTHER DEMMERING ; DEMMERING GUENTER ; ALFRED WESTFECHTEL

Inventor(s): BOEHR CHRISTIANE 51379 LEVERKUSEN DE ; KOMP HORST DIETER 40764 LANGENFELD DE

Designated states: AT BE CH CN DE DK ES FR GB GR IE IT JP LI LU MC NL PT SE US

Title: METHOD FOR THE PRODUCTION OF NON-SATURATED FATTY ALCOHOLS WITH IMPROVED LOW-TEMPERATURE BEHAVIOUR

Abstract: The invention relates to a method for the production of non-saturated fatty alcohols with improved low-temperature behaviour. In accordance with the invention, primary alcohols of formula (I): $R<1>OH$, in which $R<1>$ stands for a non-saturated or predominantly non-saturated hydrocarbon radical with 6-22 carbon atoms, are subjected to fractional crystallization. This method makes it possible to obtain products having higher iodine value and lower turbidity point, and is not technically complex.

Classifications:

International (IPC 8-9): C07C27/02 C07C29/09 C07C29/149 C07C29/78 C07C67/02 C07C67/03
C07C69/52 (Advanced/Invention);

C07C27/00 C07C29/00 C07C67/00 C07C69/00 (Core/Invention)

International (IPC 1-7): C07C27/02 C07C29/149 C07C29/78 C07C33/02 C07C67/02 C07C67/03 C07C69/52

CPC: C07C29/78 C07C29/095 C07C29/149

European: C07C29/09A C07C29/149 C07C29/78

Family:

Publication number	Publication date	Application number	Application date
AT240920 E	20030615	AT19980912480T	19980316
DE19712506 A1	19981001	DE19971012506	19970325
DE19712506 C2	20020801	DE19971012506	19970325
DE59808496 D1	20030626	DE19985008496	19980316
EP1042261 A1	20001011	EP19980912480	19980316
EP1042261 B1	20030521	EP19980912480	19980316
ES2200327 T3	20040301	ES19980912480T	19980316
WO9842646 A1	19981001	WO1998EP01512	19980316

Priority:

DE19971012506 19970325 DE19985008496 19980316 WO1998EP01512 19980316

Probable Assignee: COGNIS DEUTSCHLAND GMBH

Assignee(s): (std): BRENDLER LUTZ ; COGNIS DEUTSCHLAND GMBH ; HECK STEPHAN ; NITSCHKE MICHAEL ; LINDEMANN MANFRED ; JOHANNISBAUER WILHELM ; KLEIN NORBERT ; HENKEL KGAA

Assignee(s): HENKEL KGAA 40589 DUESSELDORF DE ; HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; HENKEL AUF AKTIEN KG ; COGNIS DEUTSCHLAND GMBH AND CO KG

Inventor(s): (std): BRENDLER LUTZ ; BRENDLER LUTZ DR ING ; HECK STEPHAN ; HECK STEPHAN DR ; JOHANNISBAUER WILHELM ; JOHANNISBAUER WILHELM DR ; KLEIN NORBERT ; KLEIN NORBERT DR ; LINDEMANN MANFRED ; LINDEMANN MANFRED DR ; NITSCHKE MICHAEL ; NITSCHKE MICHAEL DR

Inventor(s): NITSCHKE MICHAEL DR 42655 SOLINGEN DE ; LINDEMANN MANFRED DR 42719 SOLINGEN DE ; KLEIN NORBERT DR 40822 METTMANN DE ; JOHANNISBAUER WILHELM DR 40699 ERKRATH DE ; HECK STEPHAN DR 50259 PULHEIM DE ; BRENDLER LUTZ DR ING HABIL ; BRENDLER LUTZ DR ING HABIL 06217 MERSEBURG DE ; BRENDLER LUTZ DR INGHABIL

Designated states: AT BE CH CN DE DK ES FI FR GB GR IE IT JP LU MC NL PT SE US

Title: LIQUID VEGETABLE UNSATURATED ALCOHOL AND PROCESS FOR PRODUCING THE SAME

Abstract: The invention is directed to liquid vegetable unsaturated alcohol mixture having an iodine value of 88 to 100 and a cloud point less than 7 degrees centigrade, the unsaturated alcohol mixture being prepared by reduction of a vegetable unsaturated fatty acid mixture and/or an alkyl ester thereof in the presence of a zinc-type catalyst having a copper content of 30 ppm or less, the vegetable unsaturated fatty acid mixture being prepared from at least one vegetable oil selected from the group consisting of palm oil, coconut oil and palm kernel oil. The invention also concerns a liquid vegetable unsaturated alcohol mixture having an iodine value of 88 to 100, a cloud point less than 7 degrees centigrade or lower and a conjugated diene content of 1 weight percent or less.

Classifications:

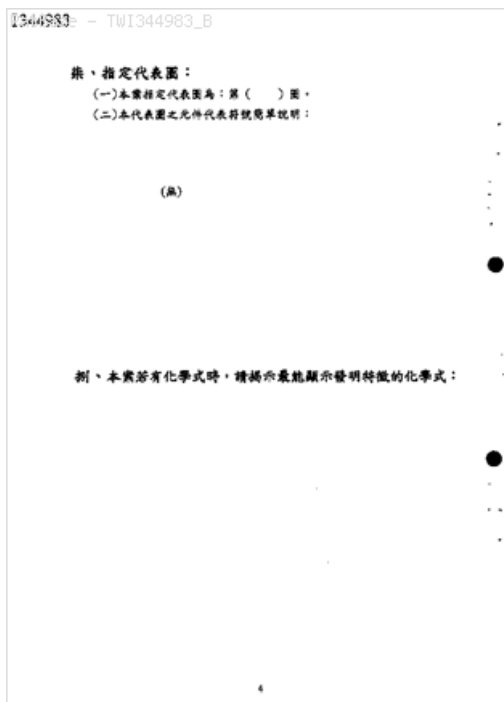
International (IPC 8-9): A61K8/00 A61K8/30 A61K8/34 A61K8/37 A61K8/39 A61K8/72 A61Q19/10 A61Q5/00 A61Q5/02 A61Q5/12 C07B61/00 C07C27/04 C07C29/149 C07C29/153 C07C303/24 C07C305/14 C07C33/02 C07C33/025 C07C41/03 C07C43/178 C07C51/04 C07C59/60 C07C67/08 C07C69/02 C07C69/533 C07C69/58 C07C69/587 C07C69/68 C07F9/09 C07F9/113 C08G65/28 C11C3/08 (Advanced/Invention); A61K8/34 C07B61/00 C07C29/149 C07C305/14 C07C33/02 C07C43/178 C07C59/60 C07C69/533 C07C69/58 C07C69/587 C07C69/68 C07F9/09 C08G65/28 (Advanced/Non-invention); A61K8/00 A61K8/30 A61K8/72 A61Q19/10 A61Q5/02 A61Q5/12 C07B61/00 C07C27/00 C07C29/00 C07C303/00 C07C305/00 C07C33/00 C07C41/00 C07C43/00 C07C51/04 C07C59/00 C07C67/00 C07C69/00 C07F9/00 C08G65/00 (Core/Invention); C07B61/00 (Core/Non-invention)

International (IPC 1-7): A61K7/00 A61K7/06 A61K7/075 A61K7/08 A61K7/50 C07B61/00 C07C27/04 C07C29/149 C07C29/153 C07C303/24 C07C305/14 C07C33/02 C07C33/025 C07C41/03 C07C43/178 C07C51/04 C07C59/60 C07C67/08 C07C69/533 C07C69/58 C07C69/587 C07C69/68 C07F9/09 C07F9/113 C08G65/28 C11C3/08

CPC: C07B2200/09 A61Q5/12 A61K8/342 C07C33/025 C07C43/178 C07C59/60 C07C67/08 C07C29/149

European: A61K8/34C A61Q5/12 C07C29/149 C07C33/025 C07C43/178 C07C59/60 C07C67/08

US: 424/401 424/401P 554/174 554/230 568/876 568/881 568/884 568/884S 568/885



Family:

Publication number	Publication date	Application number	Application date
AT476404 E	20100815	AT20030717617T	20030417
AU2003227406 AA	20031103	AU20030227406	20030417
CN1290811 C	20061220	CN20038008789	20030417
CN1646457 A	20050727	CN20038008789	20030417
DE60333626 D1	20100916	DE20036033626	20030417
EP1498405 A1	20050119	EP20030717617	20030417
EP1498405 A4	20060607	EP20030717617	20030417
EP1498405 B1	20100804	EP20030717617	20030417
HK1078306 A3	20060310	HK20050110214	20051115
JP2004315399 A2	20041111	JP20030109726	20030415
JP2005104989 A2	20050421	JP20050008312	20050114
JP3680948 B2	20050810	JP20030109726	20030415
JP4569756 B2	20101027	JP20050008312	20050114
KR100919929 B1	20091007	KR20047016684	20030417
KR20040111531 A	20041231	KR20047016684	20030417
MY143754 A	20110715	MY20030001456	20030418
TW200307038 A	20031201	TW20030109095	20030418
TWI344983 B	20110711	TW20030109095	20030418
US2005152929 AA	20050714	US20040508956	20041005
US7518022 BB	20090414	US20040508956	20041005
WO03089393 A1	20031030	WO2003JP04878	20030417

Priority:

JP20020118189 20020419 JP20030050903 20030227 JP20030109726 20030415
 WO2003JP04878 20030417 WO2003JP04878 20041018 JP20050008312 20050114

Probable Assignee: NEW JAPAN CHEMICAL CO LTD

Assignee(s): (std): MOTOTANI MAMORU ; NAKAOKA HISAO ; NEW JAPAN CHEM CO LTD ; NEW JAPAN CHEMICAL CO LTD

Assignee(s): NEW JAPAN CHEMICAL CO ; NEW JAPAN CHEM CO

Inventor(s): (std): NAKAOKA HISAO ; MOTOTANI MAMORU ; MAMORU MOTOTANI ; HISAO NAKAOKA ; MAMORU NAKAOKA HISAO MOTOTANI

Inventor(s): MOTOTANI MAMORU NEVERLAND FUSHIMI MOMOYAMA 509 ; NAKAOKA HISAO MOTOTANI MAMORU

Agent(s): BARZ PETER; SAEGUSA EIJI; KAKEHI HIROMICHI; ARMSTRONG KRATZ QUINTOS HANSON AND BROOKS LLP; KRATZ QUINTOS AND HANSON LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: PROCESS FOR THE PRODUCTION OF FATTY ALCOHOLS BASED ON VEGETABLE FATS AND OILS BY FRACTIONATION

Abstract: PCT No. PCT/EP94/03348 Sec. 371 Date May 9, 1996 Sec. 102(e) Date May 9, 1996 PCT Filed Oct. 12, 1994 PCT Pub. No. WO95/11210 PCT Pub. Date Apr. 27, 1995 Fatty alcohols of the formula I R¹OH (I) wherein R¹ is a saturated or unsaturated, linear or branched aliphatic radical having from about 8 to about 22 carbon atoms are made by an improvement in the process which comprises hydrogenating a fatty acid, a fatty acid methyl ester or a combination thereof to form a fatty alcohol. The improvement comprises removing a head fraction from the fatty acid, the fatty acid methyl ester or the fatty alcohol in such a quantity that the fatty alcohol has an iodine value of from about 20 to about 110 and less than about 4.5 percent by weight of conjugated compounds.

Classifications:

International (IPC 8-9): A61K8/34 A61K8/97 A61Q19/00 A61Q5/00

C07C27/02 C07C29/149 C07C29/80 C07C31/125 C07C33/02

C07C33/025 C11D1/68 C11D3/20 (Advanced/Invention);

A61K8/30 A61K8/96 A61Q19/00 A61Q5/00 C07C27/00 C07C29/00 C07C31/00 C07C33/00 C11D1/68

C11D3/20 (Core/Invention)

International (IPC 1-7): A61K7/00 A61K8/34 A61Q19/00 A61Q5/00 B01J23/86 C07C27/02 C07C29/149 C07C29/80

C07C31/125 C07C33/02 C07C33/025 C07C69/02 C07C69/08 C07C69/22 C07C69/30 C11B3/12 C11D1/68

CPC: A61Q19/10 A61Q5/02 C11D3/2031 A61K8/342 A61K8/97 A61Q5/00 A61Q19/00 C07C29/149 C07C31/125 C07C33/025

C11D3/2013 C11D3/202

European: A61K7/06C4D2 A61K7/48C4D2 A61K8/34C A61K8/97 A61Q19/00 A61Q19/10 A61Q5/00 A61Q5/02 C07C29/149

C07C31/125 C07C33/025 C11D3/20B1A2 C11D3/20B1B2 C11D3/20B1D2 M11D3/20B1A2 M11D3/20B1D2

US: 568/885

PatBase - US5672781_A

R¹OH

(I)

Family:

Publication number	Publication date	Application number	Application date
AT165805 E	19980515	AT19940929532T	19941012
AU199478552 A1	19950508	AU19940078552	19941012
AU688387 B2	19980312	AU19940078552	19941012
CA2174723 AA	19960422	CA19942174723	19941012
CA2174723 C	20061003	CA19942174723	19941012
CN1133032 A	19961009	CN19941093707	19941012
DE4335781 A1	19950427	DE19934335781	19931020
DE4335781 C2	19980219	DE19934335781	19931020
DE59405918 D1	19980610	DE19945005918	19941012
DE9422265 U1	19990909	DE19940022265U	19941012
EP0724555 A1	19960807	EP19940929532	19941012
EP0724555 B1	19980506	EP19940929532	19941012
ES2115261 T3	19980616	ES19940929532T	19941012
JP9504013 T2	19970422	JP19950511277T	19941012
NZ274498 A	19961028	NZ19940274498	19941012
US5672781 A	19970930	US19960633733	19960509
WO9511210 A1	19950427	WO1994EP03348	19941012

Priority:

DE19934335781 19931020

DE19940022265U 19941012

DE19945005918 19941012

EP19940929532 19941012

WO1994EP03348 19941012

Probable Assignee: HENKEL KGAA

Assignee(s): (std): DEMMERING GUENTHER ; HENKEL AUF AKTIEN KG ; HENKEL KGAA ; KOEHLER MICHAEL ; SCHMID KARL HEINZ ; KOMP HORST DIETER ; KUBERSKY HANS PETER

Assignee(s): HENKEL KGAA 40589 DUESSELDORF DE ; HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; HENKEL KG ; HENKEL AUF AKTIEN (HENKEL KGAA) KG ; HENKEL AUF AKTIEN HENKEL KGAA KG ; COGNIS DEUTSCHLAND GMBH ; COGNIS DEUTSCHLAND GMBH (COGNIS) ; COGNIS DEUTSCHLAND GMBH AND CO KG ; COGNIS DEUTSCHLAND GMBH COGNIS ; COGNIS IP MANAGEMENT GMBH

Inventor(s): (std): DEMMERING GUENTHER DR ; DEMMERING GUNTHER ; GUENTHER DEMMERING ; GUNTHER DEMMERING ; HANS PETER KUBERSKY ; HORST DIETER KOMP ; KARL HEINZ SCHMID ; KOEHLER MICHAEL ; KOEHLER MICHAEL DR ; KOHLER MICHAEL ; KOMP HORST DIETER ; DEMMERING GUENTHER ; KUBERSKY HANS PETER ; KUBERSKY HANS PETER DR ; MICHAEL KOHLER ; SCHMID KARL HEINZ ; SCHMID KARL HEINZ DR

Inventor(s): SCHMID KARL HEINZ D 40822 METTMANN DE ; KUBERSKY HANS PETER D 42651 SOLINGEN DE ; DEMMERING GUENTHER D 42653 SOLINGEN DE ; KOMP HORST DIETER 40764 LANGENFELD DE ; KOMP HORST DIETER D 40764 LANGENFELD DE ; KOEHLER MICHAEL D 40822 METTMANN DE

Agent(s): ASPEN PHARMA PTY LTD; SPRUSON AND FERGUSON; BORDEN LADNER GERVAIS LLP

Designated states: AT AU BE CA CH CN DE DK ES FR GB GR IE IT JP LI LU MC NL NZ PT SE US

Title: Process for producing unsaturated fatty alcohols from lauric oils

Abstract: A process is provided for producing unsaturated fatty alcohols from lauric oils, and includes (a) ester interchange of the deacidified lauric oils with methanol to obtain the overall fatty acid methyl ester mixture; (b) fractionation of the fatty acid methyl ester mixture into a C12-C16-methyl ester (ME) fraction to be used for saturated fatty alcohols, and a C18-ME fraction containing the nearly complete proportion of the unsaturated methyl esters (ME); (c) winterization of the C18-ME fraction in order to separate out the saturated C18-ME component; (d) selective hydrogenation of the unsaturated winterized C18-ME fraction to unsaturated fatty alcohols with an iodine number between 90 and 100; and (e) purifying the crude unsaturated fatty alcohols by distillation.

Classifications:

International (IPC 8-9): B01J23/26 C07B61/00 C07C29/149 C07C29/78 C07C29/80 C07C33/02 (Advanced/Invention); B01J23/16 C07B61/00 C07C29/00 C07C33/00 (Core/Invention)

International (IPC 1-7): B01J23/26 C07B61/00 C07C27/04 C07C29/149 C07C29/74 C07C29/78 C07C29/80 C07C33/00 C07C33/02 C07C67/52

CPC: C07C29/149

European: C07C29/149

US: 568/884 568/885

PatBase - JP11322648		
	パーム油C ₁₈ -MEから	ヤシC ₁₈ -MEから
C ₁₈ : 0	2-3%	3-5%
シス C ₁₈ : 1	87-93%	80-90%
トランスC ₁₈ : 1	3-6%	4-8%
C ₁₈ : 2	2-3%	4-8%
C ₁₈ : 0		
C ₁₈ : 1	0-2%	0-2%

Family:

Publication number	Publication date	Application number	Application date
DE19810440 C1	19990923	DE19981010440	19980311
DE59901583 D1	20020711	DE19995001583	19990304
EP0943596 A2	19990922	EP19990104350	19990304
EP0943596 A3	19991229	EP19990104350	19990304
EP0943596 B1	20020605	EP19990104350	19990304
ES2177158 T3	20021201	ES19990104350T	19990304
IN192081 A	20040221	IN1999BO00108	19990211
JP11322648 A2	19991124	JP19990063961	19990310
JP4554735 B2	20100929	JP19990063961	19990310
US6187974 BA	20010213	US19990262802	19990304

Priority:

DE19981010440 19980311 DE19995001583 19990304

Probable Assignee: DHW DEUTSCHE HYDRIERWERKE GMBH RODLEBEN

Assignee(s): (std): DHW DEUTSCHE HYDRIERWERKE GMBH

Assignee(s): DHW DEUTSCHE HYDRIERWERKE GMBH RODLEBEN

Inventor(s): (std): WIECZOREK FRANK DR RER NAT DIP ; WIECZOREK FRANK ; WIECZOREK DR RER NAT ; SEIFERT EKKEHARD ; SEIFERT DIPL CHEM ; KONETZKE GERHARD ; KONETZKE DR RER NAT ; KONETZKE GERHARD DR RER NAT DI ; SEIFERT EKKEHARD DIPL CHEM

Inventor(s): WIECZOREK FRANK DR RER NAT ; KONETZKE GERHARD DR RER NAT

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Title: PROCESS FOR THE PREPARATION OF MIXTURES OF ALCOHOLS FROM EPOXIDISED FATTY ALCOHOLS.

Abstract: The invention relates to novel, largely oleochemical raw materials having numerous hydroxyl groups. The reaction products of epoxidised fatty alcohols containing polyfunctional alcohols and/or phenols and a process for obtaining these substances are described, which, depending on the starting molar ratio, yields alcohol mixtures containing largely primary or largely secondary hydroxyl groups respectively. The reaction products of the alcohol mixtures with cyclic ethers such as ethylene oxide or propylene oxide are additionally described.

Classifications:

International (IPC 8-9): B01J23/00 C07B61/00 C07C41/00 C07C41/02 C07C41/03 C07C43/10 C07C43/11 C07C43/13 C07C43/178 C07C43/23 C07C67/00 C07D303/24 C08G63/00 C08G63/46 C08G63/66 C08G63/78 C09D167/08 (Advanced/Invention);

B01J23/00 C07B61/00 C07C41/00 C07C43/00 C07C67/00 C07D303/00 C08G63/00 C09D167/08 (Core/Invention)

International (IPC 1-7): B01J23/02 C07C31/18 C07C39/11 C07C39/12 C07C41/03 C07C43/10 C07C43/11 C07C43/13 C07C43/178 C07C43/23 C07D303/24 C08G63/12 C08G63/20 C08G63/46

CPC: C08G63/66 C07C41/03 C08G63/46 C09D167/08

European: C07C41/03 C07C43/11 C07C43/13D C07C43/23 C08G63/46 C08G63/66 C09D167/08

Family:

Publication number	Publication date	Application number	Application date
DE3246611 A1	19840620	DE19823246611	19821216
EP0113798 A1	19840725	EP19830107190	19830722
JP59130231 A2	19840726	JP19830238719	19831216

Priority:

DE19823246611 19821216

Probable Assignee: HENKEL KGAA

Assignee(s): (std): HENKEL KGAA

Assignee(s): HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN ; HENKERU AUFU AKUCHIEN KG ; HENKERU KG AUFU AKUCHIEN ; HENKEL AUF AKTIEN KG

Inventor(s): (std): ARUFUREETO MEFUERUTO ; HANSUUKURISUTOFU BUIRUKU ; MEFFERT ALFRED DR ; WILK HANS CHRISTOPH DR

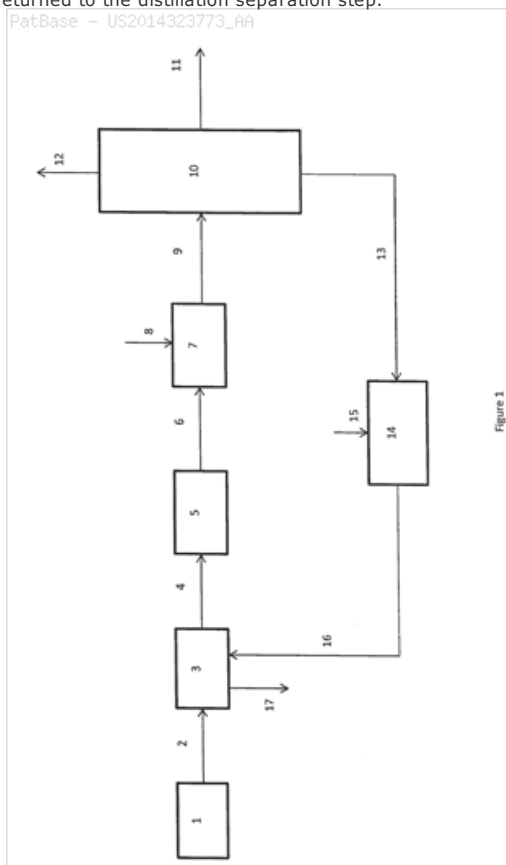
Designated states: AT BE CH DE FR GB IT LI NL SE

Title: PROCESS FOR PRODUCING FATTY ALCOHOLS FROM FATTY ACIDS

Abstract: In a process for the production of fatty alcohol(s) a fatty acid or fatty acid mixture is subjected to esterification with a lower alkanol to form a stream comprising the corresponding lower alkyl ester or esters. The stream is vaporised and subjected to hydrogenation to form a stream comprising fatty alcohol(s) and an amount of unconverted lower alkyl ester(s). This stream is subjected to transesterification in a wax ester reactor in the presence of a solid transesterification catalyst. Fatty alcohol(s) and wax ester(s) are then separated by distillation to yield a fatty alcohol(s) product and a stream comprising wax ester(s). The stream of wax ester(s) is passed to a second hydrogenation zone to effect hydrogenation in the liquid phase to revert the wax ester(s) to fatty alcohol(s), which are returned to the distillation separation step.

Classifications:

International (IPC 8-9): C07C28/149 C07C29/128 C07C29/149 C07C29/80 C07C31/125 C07C67/03 C07C67/08 C07C69/24 C07C69/26 C11C3/00 C11C3/10 C11C3/12 (Advanced/Invention)
CPC: C07C67/03 C07C67/08 C07C31/125 C11C3/00 C11C3/003 C11C3/10 C11C3/12 C07C29/1285 C07C29/128 C07C29/149
US: 568/877 568/885

**Family:**

Publication number	Publication date	Application number	Application date
BR112013025627 A2	20161227	BR20131125627	20121101
CN103282335 A	20130904	CN201280003718	20121101
CN103282335 B	20160427	CN201280003718	20121101
CO6852059 A2	20140130	CO20140004783	20140113
DE602012032024 D1	20170614	DE201260032024T	20121101
EA024091 B1	20160831	EA20130000537	20121101
EA201300537 A1	20140430	EA20130000537	20121101
EP2614043 A1	20130717	EP20120784656	20121101
EP2614043 B1	20170503	EP20120784656	20121101
ES2626328 T3	20170724	ES20120784656T	20121101
GB201119871 A0	20111228	GB20110019871	20111117
GB201402408 A0	20140326	GB20140002408	20121101
GB2507687 A1	20140507	GB20140002408	20121101
GC5457 A	20170425	GC2012P022799	20121114
IN02098KN2013 A	20131122	IN2013KN02098	20130627
MY161764 A	20170515	MY20130002673	20121101
SG189442 A1	20130531	SG20130028865	20121101
TW201321343 A	20130601	TW20120142948	20121116
TWI541223 B	20160711	TW20120142948	20121116
US2014323773 AA	20141030	US20120884815	20121101
US8884078 BA	20141111	US20120884815	20121101
WO13072664 A1	20130523	WO2012GB52726	20121101

Priority:

GB20110001987 20111117 GB20110019871 20111117 EP20120784656 20121101
 WO2012GB52726 20121101

Probable Assignee: JOHNSON MATTHEY DAVY TECHNOLOGIES LTD

Assignee(s): (std): DAVY PROCESS TECHN LTD ; JOHNSON MATTHEY DAVY TECHNOLOGIES LTD

Assignee(s): DAVY PROCESS TECHNOLOGY LIMITED ; DAVY PROCESS TECHNOLOGY LTD

Inventor(s): (std): APPLETON PAUL ; WILD ROBERT ; WOOD MICHAEL ANTHONY

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