

## C11C

### FATTY ACIDS FROM FATS, OILS OR WAXES; CANDLES; FATS, OILS OR FATTY ACIDS BY CHEMICAL MODIFICATION OF FATS, OILS, OR FATTY ACIDS OBTAINED THEREFROM

#### Definition statement

*This place covers:*

- Methods and apparatus for preparation of fatty acids from fats, fatty oils, or waxes; compositions thereof
- Refining the fatty acids; methods and apparatus thereof
- Fats, oils, or fatty acids by chemical modification of fats, oils, or fatty acids obtained therefrom; methods and apparatus thereof
- Candles; compositions therefor, processes and apparatus for production thereof

#### Relationships with other classification places

The use of fatty acids, fats, oils or waxes for different purposes should be classified in appropriate application places, e.g. using fatty acids esters of higher fatty acids as emulsifiers should relate to [C09K 23/06](#); using fatty acids as active ingredients for mortars, concrete or artificial stone - to [C04B 24/04](#); using oils, fats, or waxes and derivatives thereof in cosmetics or toilet preparations - to [A61K 8/92](#); using fats, fatty oils, ester type waxes, higher fatty acids, oxidized oils or fats as active ingredients for mortars, concrete or artificial stone - to [C04B 24/08](#); using fatty oil as lubricating composition base - to [C10M 101/04](#).

[C07](#) covers production or working up chemically synthesized substances, e.g. synthetic waxes, whereas subclass [C11C](#) covers synthesis of substances from natural materials.

[C11B](#) covers the production, purification/refining, recovery from waste material or working up of oils and fats (e.g. animal or vegetable oils). [C11B](#) does not cover obtaining fatty acid or chemical modification of fats, oils or fatty acid from fat, fatty oils or waxes, which are covered by [C11C](#).

[A23D](#) covers edible oils or fats and compositions thereof, e.g. margarines, shortenings, cooking oils and provides for subject matter relating to working up of finished products. Preservation of edible oils or fats is classified in [A23B 20/00](#).

Obtaining or refining fatty acid or chemically modified fat, oils or fatty acids including edible oils or fats are covered by subclass [C11C](#), e.g. hydrogenating is covered by [C11C 3/12](#).

The various uses of fatty acids for different purposes is classified in corresponding places (see references).

#### References

##### Limiting references

*This place does not cover:*

Preparation of carboxylic acid esters	<a href="#">C07C 67/00</a>
Separation, purification, stabilisation, or use of additives associated with the preparation of carboxylic acid esters	<a href="#">C07C 67/48</a>
Esters of carboxylic acids, e.g. fatty acid esters	<a href="#">C07C 69/00</a>
Sulfonated fats or oils	<a href="#">C07C 309/62</a>
Epoxidised fats	<a href="#">C07D 303/42</a>
Natural vulcanized oils, e.g. factice	<a href="#">C08H 3/00</a>

Compositions of oils, fats or waxes; Compositions of derivatives thereof	<a href="#">C08L 91/00</a>
Production, refining, preservation of fats	<a href="#">C11B</a>
Recovery of fatty acids from waste materials	<a href="#">C11B 13/00</a>
Preparation of fats, fatty oils, ester-type waxes, higher fatty acids or oxidized oils or fats using enzymes or microorganisms	<a href="#">C12P 7/64</a>
Lighting devices	<a href="#">F21</a>

### **Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Fuels from fatty acids (Biodiesel)	<a href="#">C10L</a>
Lubricants from fatty acids	<a href="#">C10M</a>

### **Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

Fat	Esters of glycerol and fatty acids, generally in solid form
Fatty acid	A carboxylic acid consisting of a hydrocarbon chain, which may have unsaturations and a terminal carboxyl group
Oil	Fat which is in liquid form
Esterification	Reaction between acid and alcohol resulting in ester bond
Hydrogenation	Chemical process that adds hydrogen atoms to a molecule
Isomerizing	Process by which one molecule is transformed into another molecule which has exactly the same atoms
Lipid	Organic compounds based on fatty acids, generally hydrophobic
Wax	Any of a group of substances composed of hydrophobic hydrocarbons, alcohols, fatty acids, and esters that are solid at ambient temperatures.

### **Synonyms and Keywords**

*In patent documents, the following abbreviations are often used:*

FA	Fatty acid
DE	Degree of esterification
FAME	Fatty Acid Methyl Ester
PUFA	Polyunsaturated Fatty Acid
HUFA	Highly Unsaturated Fatty Acid
TG	Triglyceride
MG	Monoglyceride
DG	Diglyceride

## C11C 1/00

**Preparation of fatty acids from fats, fatty oils, or waxes; Refining the fatty acids (recovery of fatty acids from waste materials [C11B 13/00](#))**

### **Definition statement**

*This place covers:*

Production of fatty acids in general.

## C11C 1/002

**{Sources of fatty acids, e.g. natural glycerides, characterised by the nature, the quantities or the distribution of said acids}**

### **Definition statement**

*This place covers:*

Sources selected for production of particular types of fatty acids (e.g. HUFA, PUFA, CLA, branched fatty acids, etc.)

## C11C 1/005

**{Splitting up mixtures of fatty acids into their constituents (processes intended for both fats and fatty acids [C11B 7/00](#))}**

### **Definition statement**

*This place covers:*

Processes specifically for separating fatty acids (e.g. stearic from oleic, CLA from C<sub>18</sub> in general)

## C11C 1/007

**{using organic solvents}**

### **Definition statement**

*This place covers:*

Recovery and refining of fatty acids specifically.

## C11C 1/02

**from fats or fatty oils**

### **Definition statement**

*This place covers:*

Recovery and refining of fatty acids specifically from pre-separated oils/fats in general.

## C11C 1/025

**{by saponification and release of fatty acids}**

### Definition statement

*This place covers:*

Recovery and refining of fatty acids specifically from pre-separated oils/fats using base hydrolysis.

## C11C 1/04

**by hydrolysis**

### Definition statement

*This place covers:*

Recovery and refining of fatty acids specifically from pre-separated oils/fats using non-base hydrolysis.

## C11C 1/045

**{using enzymes or microorganisms, living or dead}**

### Definition statement

*This place covers:*

Preparation of fatty acids from fatty acid containing material, e.g. hydrolysis of fats or fatty oils using esterase, lipase to prepare fatty acids

## C11C 1/06

**using solid catalysts**

### Definition statement

*This place covers:*

e.g. clays, resins, etc.

## C11C 1/08

**Refining**

### Definition statement

*This place covers:*

Undefined processes for removing undesired material from fatty acids.

## C11C 1/10

**by distillation**

### Definition statement

*This place covers:*

Processes for removing undesired material from fatty acids where process depends on change to gaseous phase., e.g. distillation, short path, wiped film

## C11C 1/103

{after or with the addition of chemicals}

### Definition statement

*This place covers:*

E.g. steam.

## C11C 1/106

{inert gases or vapors}

### Definition statement

*This place covers:*

Refining of fatty acids by distillation after or with the addition of expandable fluids, either noble type, e.g. inert gases, inert co-solvents or molecules, e.g. CO<sub>2</sub>

## C11C 3/00

**Fats, oils, or fatty acids by chemical modification of fats, oils, or fatty acids obtained therefrom (sulfonated fats or oils [C07C 309/62](#); factice [C08H](#); drying oils [C09F](#))**

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Derivative of natural macromolecular compounds	<a href="#">C08H</a>
Natural resins; French polish; drying oils	<a href="#">C09F</a>

## C11C 3/003

{by esterification of fatty acids with alcohols ([C11C 3/02](#) takes precedence)}

### Definition statement

*This place covers:*

Preparation of fatty acid esters where fatty acid containing material is esterified with an alcohol per se.

## C11C 3/006

{by oxidation}

### Definition statement

*This place covers:*

Fats, oils, or fatty acids obtained by combination with oxidation, e.g. epoxidation, peroxidation, lactones,

**C11C 3/02****by esterification of fatty acids with glycerol****Definition statement**

*This place covers:*

Preparation of fatty acid esters where fatty acids which are not esterified are esterified with glycerol.

**C11C 3/04****by esterification of fats or fatty oils****Definition statement**

*This place covers:*

Preparation of fatty acid esters where non-free fatty acid containing material is esterified.

**Special rules of classification**

General esterification reactions (i.e. transesterification, interesterification)

**C11C 3/06****with glycerol****Definition statement**

*This place covers:*

Preparation of fatty acid esters where non-free fatty acid containing material is esterified with glycerol (e.g. triglyceride reaction with glycerol)

**C11C 3/08****with fatty acids****Definition statement**

*This place covers:*

Preparation of fatty acid esters where non-free carboxylic acid with a long unbranched aliphatic tail (fatty acid) containing material is esterified with a free carboxylic acid with a long unbranched aliphatic tail (fatty acid), for example triglyceride reacted with oleic acid

**C11C 3/10****Ester interchange****Definition statement**

*This place covers:*

Preparation of fatty acid esters where non-free fatty acid containing material is esterified with esterified material by swapping one type of acid-alcohol with another acid-alcohol type, for example triglyceride with ethyl stearate, triglyceride with diglyceride, interesterification.

## C11C 3/123

**{using catalysts based principally on nickel or derivatives}**

### Definition statement

*This place covers:*

Preparation of fats, oils or fatty acids by hydrogenation using catalysts based principally on nickel or derivatives, i.e. any compounds derived from a nickel based compound , e.g. nickel based organometallic

## C11C 3/126

**{using catalysts based principally on other metals or derivatives}**

### Definition statement

*This place covers:*

Preparation of fats, oils or fatty acids by hydrogenation using catalysts based principally on other metals or derivatives, i.e. any compounds derived from a other metal based compound , e.g. other metal based organometallic

## C11C 5/00

### Candles

### Definition statement

*This place covers:*

Wick containing products and processes to prepare.

## C11C 5/002

**{Ingredients}**

### Definition statement

*This place covers:*

E.g. fuel components, blends, additives, etc.

## C11C 5/006

**{wicks, related accessories}**

### Definition statement

*This place covers:*

Material, usually a fiber bundle, that draws, usually by capillary action, the combustible substance to be burned, wick components, and related apparatus, wicks, wicks related accessories of a candle, eg. wick holders, wick clips, etc.

## **C11C 5/008**

**{Candles characterised by their form; Composite candles, e.g. candles containing zones of different composition, inclusions, or the like}**

### **Definition statement**

*This place covers:*

E.g. decorative, aesthetic, novelty, segmented, etc.

## **C11C 5/02**

**Apparatus for preparation thereof**

### **Definition statement**

*This place covers:*

Methods and apparatus for candle making

## **C11C 5/021**

**{by compressing solid materials in a mould without heating}**

### **Definition statement**

*This place covers:*

Processes using pressure and no external heat

## **C11C 5/023**

**{by casting or melting in a mould}**

### **Definition statement**

*This place covers:*

Processes whereby candle material is poured

## **C11C 5/025**

**{by dipping a wick in a melt}**

### **Definition statement**

*This place covers:*

Processes involving repetitive dipping of wick into molten candle material

## **C11C 5/026**

**{by a continuous process, e.g. by extrusion by conveying a melt together with the wick through a solidification zone}**

### **Definition statement**

*This place covers:*

Processes whereby candle material is continuously injection molded or extruded



## **C11C 5/028**

**{by shaping a preform, e.g. forming the butts, trimming}**

### **Definition statement**

*This place covers:*

Processes whereby the candle is carved or compressed into shape from preformed candle.