Mixed fatty acid

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1. Product identifier

Trade name/designation:

Mixed fatty acid

Other means of identification:

Fatty matter from Biodiesel production

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture:

- Use as intermediate in order to recover the constituents (closed process)
- Direct conversion to other chemicals including biochemical processes (closed processes)
- Substitute for heating oil (Strictly Controlled Intermediate)
- Use as intermediate in order to recover the constituents (closed process)
- Direct conversion to other chemicals including biochemical processes (closed processes)
- Substitute for heating oil (use under strictly controlled conditions)

Not recommended or not permitted: Consumer uses

Relevant identified uses:

	Sector of uses [SU]
SU 0:	Other
	Product Categories [PC]
PC 19:	Intermediate (precursor)
	Process categories [PROC]
PROC 1:	Chemical production or refinery in closed process without likelihood of exposure or proces ses with equivalent containment conditions
	Environmental release categories [ERC]
ERC 1:	Manufacture of the substance
ERC 6a:	Use of intermediate
	Article categories [AC]
AC 0:	Other

1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor):

German Biofuels GmbH
Am Hünengrab 9
16928 Pritzwalk/Germany
Telephone: +49 33986 5050
Telefax: +49 33986 50599
E-mail: qm@gbfgmbh.de

1.4. Emergency telephone number

Produktion/Production, 24h: +49 172 56 82 831, +49 33986 50582 (Only available during office hours.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]:

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

Additional information:

Classification according to Regulation (EC) No 1272/2008 [CLP]: No (self-assessment)
Additional information: Low hazard when properly handled.

Mixed fatty acid

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

According to EC directives or the corresponding national regulations the product does not have to be labelled.

Hazard components for labelling:

No; No

Precautionary statements Prevention	
P280.3	Wear protective gloves and protective clothing.

Special rules for supplemental label elements for certain mixtures:

No

2.3. Other hazards

Adverse human health effects and symptoms:

May cause minor eye irritation.
Vapors produced by heating the substance, or finely misted materials, may irritate the mucous membranes and cause dizziness, and nausea.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Description:

The substance consists mainly of saturated and unsaturated fatty acids (typical chain length C16-C18), related methyl esters and small concentrations of methanol.

Additional information:

Methanol is the toxicologically most relevant constituent in the mixture. However, due to the low concentration effects are to be expected only after the ingestion of large quantities or with prolonged inhalation exposure.

Hazardous ingredients / Hazardous impurities / Stabilisers:

product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concen-tration
CAS No.: 67-56-1 **EC No.:** 200-659-6	**methanol** Flam. Liq. 2, Acute Tox. 3, STOT SE 1  **Danger** H225-H301-H311-H331-H370	0 – 1 %

Full text of H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Following inhalation:

In case of accident by inhalation: remove casualty to fresh air and keep at rest. Seek medical attention if symptoms persist.

In case of skin contact:

After contact with skin, wash immediately with plenty of water and soap.
IF ON CLOTHING: Change contaminated, saturated clothing.

After eye contact:

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After ingestion:

Do NOT induce vomiting.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person or a person with cramps.

4.2. Most important symptoms and effects, both acute and delayed

May cause minor eye irritation.
Vapors produced by heating the substance, or finely misted materials, may irritate the mucous membranes and cause dizziness, and nausea.

Mixed fatty acid

4.3. Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Carbon dioxide (CO2)
Water mist
alcohol resistant foam
Extinguishing powder

Unsuitable extinguishing media:

Strong water jet Water stream may splash the burning liquid and spread fire.
Consider halon use may not be permissible in some countries.

5.2. Special hazards arising from the substance or mixture

In combustion emits toxic fumes of carbon dioxide / carbon monoxide.
Soaked rags or spill absorbents (i.e. oil dry, sacks, sand) can cause spontaneous combustion if stored near combustibles and not handled properly.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
On danger by contact with substance: Wear a self-contained breathing apparatus and chemical protective clothing.

5.4. Additional information

No data available

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Personal precautions:

Remove all sources of ignition.
If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point.
Mark out the contaminated area with signs and prevent access to unauthorised personnel.
Turn leaking containers leakside up to prevent the escape of liquid.

Protective equipment:

Refer to section 5

6.1.2. For emergency responders

Personal protection equipment:

Refer to section 5

6.2. Environmental precautions

Make sure spills can be contained, e.g. in sump pallets or kerbed areas.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Delivery to an approved waste disposal company.

6.3. Methods and material for containment and cleaning up

For cleaning up:

Take up with oil-absorbing compound.
Recover large spills for salvage or disposal. Wash hard surfaces with safety solvent or detergent to remove remaining oil film.
Greasy nature will result in a slippery surface.

6.4. Reference to other sections

No data available

6.5. Additional information

If appropriate sections 8 and 13 shall be referred to.

Mixed fatty acid

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Protective measures

Advices on safe handling:

Technical measures to prevent exposure
Avoid direct contact with the substance.
When using do not eat, drink or smoke.
Used working clothes should not be worn outside the work area.
Wash hands and face before breaks and after work and take a shower if necessary.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels:

Keep container tightly closed in a cool, well-ventilated place.
Keep away from sources of ignition - No smoking.
Keep away from: Oxidising agent

Storage class: 10 – Combustible liquids that cannot be assigned to any of the above storage classes

Further information on storage conditions:

Recommended storage temperature 15 °C - 25 °C
Below normal ambient temperatures material can start to solidify.

7.3. Specific end use(s)

Recommendation:

Intermediate - not intended for end use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. Occupational exposure limit values

Limit value type (country of origin)	Substance name	① long-term occupational exposure limit value ② short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
IOELV (EU)	methanol CAS No.: 67-56-1	① 200 ppm (260 mg/m³) ⑤ (May be absorbed through the skin.)
TRGS 900 (DE)	methanol CAS No.: 67-56-1	① 200 ppm (270 mg/m³) ② 800 ppm (1,080 mg/m³) ⑤ (Kann über die Haut aufgenommen werden.)

8.1.2. Biological limit values

Limit value type (country of origin)	Substance name	Limit value	① parameter ② Test material ③ Time of sampling ④ Remark
TRGS 903 (DE)	methanol CAS No.: 67-56-1	30 mg/L	① Methanol ② Urin ③ bei Langzeitexposition, Expositionsende bzw. Schichtende

8.1.3. DNEL-/PNEC-values

No data available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No

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8.2.2. Personal protection equipment

Eye/face protection:
Wear eye/face protection.

Skin protection:
Hand protection: Required properties: liquid-tight Breakthrough times and swelling properties of the material must be taken into consideration.
Suitable material: NBR (Nitrile rubber) FKM (fluoro rubber)

Respiratory protection:
Respiratory protection necessary at: aerosol or mist formation

Other protection measures:
General health and safety measures: Wash hands before breaks and after work.
Wash contaminated clothing before reuse.

8.2.3. Environmental exposure controls
No data available

8.3. Additional information
DNEL and PNECs: See annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance
Physical state: Liquid
Colour: dark brown
Odour: mild

Safety relevant basis data

parameter		at °C	Method	Remark
pH	*not applicable*			Dissolved substance quantity: < 0.023 mg/l
Melting point	-17 – 16 °C		DIN ISO 3016	
Freezing point	*not determined*			
Initial boiling point and boiling range	350 – 535 °C		ASTM D 7169	pressure: 1013 mbar
Decomposition temperature (°C):	*not determined*			
Flash point	> 60 °C		EN ISO 2719	
Evaporation rate	*not determined*			
Ignition temperature in °C	*not determined*			
Upper/lower flammability or explosive limits	*not applicable*			
Vapour pressure	6 – 15 mbar	25 °C	EN 13016-1	
Vapour density	*not determined*			
Relative density	870 – 900 kg/m³	15 °C	EN ISO 3675	
Bulk density	*not determined*			
Water solubility	0.023 mg/l			
Partition coefficient: n-octanol/ water	6.2		OECD 107	
Dynamic viscosity	5.5 – 8 mPa*s	40 °C	EN ISO 3104	
Kinematic viscosity	*not determined*			

9.2. Other information
The statement is derived from products of similar composition.
Oxidising properties: Not oxidising.

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SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts with :
Alkali (lye)

10.2. Chemical stability
Substance is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
When hot, product develops flammable vapours.

10.3. Possibility of hazardous reactions
The substance reacts with strong bases to form methanol.

10.4. Conditions to avoid
See incompatible materials.

10.5. Incompatible materials
Oxidising agent, strong
Alkali (lye), concentrated

10.6. Hazardous decomposition products
In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

CAS No.	Substance name	Toxicological information
67-56-1	methanol	**LD_{50} oral:** 5,628 mg/kg (Ratte) OECD **LD_{50} dermal:** 17,100 ml/kg (Kaninchen) OECD **LC_{50} inhalative:** 85.26 mg/l 4 h (Ratte) OECD

Acute oral toxicity:
(FAME)
Acute toxicity (oral): LD50: > 5000 mg/kg (Study is closely comparable to OECD 401; GLP)

Acute toxicity (dermal): Has been tested in a fixed dose test at 2000 mg/kg (C6-C12 ME, Rabbit): No sign of toxicity, Methode: EPA OPPTS 870.1200

Acute dermal toxicity:
(FAME)
Acute toxicity (oral): LD50: > 5000 mg/kg (Study is closely comparable to OECD 401; GLP)

Acute toxicity (dermal): Has been tested in a fixed dose test at 2000 mg/kg (C6-C12 ME, Rabbit): No sign of toxicity, Methode: EPA OPPTS 870.1200

Acute inhalation toxicity:
(FAME)
Acute toxicity (oral): LD50: > 5000 mg/kg (Study is closely comparable to OECD 401; GLP)

Acute toxicity (dermal): Has been tested in a fixed dose test at 2000 mg/kg (C6-C12 ME, Rabbit): No sign of toxicity, Methode: EPA OPPTS 870.1200

Skin corrosion/irritation:
(FAME)
Skin corrosion/irritation: In general, esters of long-chain fatty acid methyl esters are always negative with relation to irritation (from C18 onward), while esters of short-chain fatty acids are always (slightly) positive (up to C10). Methode: OECD 404

Serious eye damage/irritation: Conjunctivae effects were observed 1 hour after exposure. Slight chemosis and slight conjunctivae were observed in two animals and four animals, respectively. Two animals presented conjunctivae with diffuse, crimson colour and individual vessels not easily discernible. These effects were fully reversible within 1 day. Methode: OECD 405

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Respiratory or skin sensitisation:
(FAME)
Respiratory sensitation: No information but no respiratory sensitation is expected.

Skin sensitation: Esterol C in corn oil was tested using the Guinea pig maximisation test.
No clinical signs and no deaths were noted during the study. No cutaneous reactions were observed after the challenge application. Under the experimental conditions of the study, it is concluded that Esterol C does not induce delayed contact hypersensitivity in guinea pig. Methode: OECD 406 (GLP)

Carcinogenicity:
(FAME)
Germ cell mutagenicity (bacteria), Esterol C: Ames test negative. Methode: OECD 471

In vitro cytogenicity test, Esterol C: Investigation in lymphocytes. negative. Methode: OECD 473

In mammalian mutation test: Methyl myristate alone had no mitogenic activity. In combination with phytohemagglutinin, however, a comitogenic activity was found. Methode: EU Method B.17

Carcinogenicity: Methyl oleate and methyl 12-oxo-trans-10-octadecenoate have been tested for carcinogenicity by oral and subcutaneous administration. A positive effect of methyl oleate could not be assessed, while the results pointed to a promoter effect of methyl oxo-octadecenoate. Methode: EU Method B.32

Overall Assessment on CMR properties No CMR properties are expected.

Additional information:
Repeated dose toxicity (subacute, subchronic, chronic): (FAME)
Reproductive toxicity Developmental effects:/Fertility effects: The tested substance revealed no effect in Screening for reproduction for a dose of until 1000 mg/kg. Methode: OECD 422

STOT-single exposure: No information available.

STOT- repeated exposure: The tested substance revealed no effect in Screening for reproduction for a dose of until 1000 mg/kg. Methode: OECD 422

Other information: Methanol is the toxicologically most relevant constituent in the mixture. However, due to the low concentration effects are to be expected only after the ingestion of large quantities or with prolonged inhalation exposure.

SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity:
Methanol:
EC50 Entisiphon sulcatum (72 h): 10000 mg/l
EC50 Daphnia magna (48 h): 10000 mg/l

Methyl ester:
EC50 (48 h): 2504 mg/l Methode: OECD 202
EC50 (72 h): 73729 mg/l Methode: OECD 201

Terrestrial toxicity:
Methanol:
LC50: (freshwater fish) 10000 mg/l
LC50: Pseudokirchneriella subcapitana 22000 mg/l
Methyl ester:
LC50: (freshwater fish) 100000 mg/l

Effects in sewage plants:
Separation into skimmer fraction.

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Additional ecotoxicological information:

In environmental toxicity the properties are dominated by the content of fatty acid methyl esters. The properties of methanol have only secondary impact due to the low concentration.

12.2. Persistence and degradability

Additional information:

Further ecological information: Fatty acids, methyl esters of fatty acids and methanol are readily biodegradable in water, soil and sediments. They pass the 10 days windows with 62% of degradation. Half life in the three compartment is less than 2 -3 days. In some case even less than 1 day. Methode: ISO 10712

12.3. Bioaccumulative potential

Partition coefficient: n-octanol/water:

6.2; Method: OECD 107

Accumulation / Evaluation:

Fatty acids, methyl esters of fatty acids and methanol are readily biodegradable in water, soil and sediments. They pass the 10 days windows with 62% of degradation. Half life in the three compartment is less than 2 -3 days. In some case even less than 1 day. Methode: ISO 10712

12.4. Mobility in soil

The substance is very poorly soluble in water and readily biodegradable. The equilibrium partitioning method, following a fugacity model III indicate a partition of the substance on sediments of 85.5%, based on log Koc > 5.63 at 22°C.
According to equilibrium partitioning Fugacity model III, the soil % is 1.61%, FAME have a soil primary biodegradation of less than 2 days.
The statement is derived from products of similar composition.

12.5. Results of PBT and vPvB assessment

CAS No.	Substance name	Results of PBT and vPvB assessment
67-56-1	methanol	—

Fatty acids, C16-18 and C18-unsatd., its methyl esters and methanol are not regarded as PBT or vPvB based on physicochemical, environmental and toxicological properties. Fatty acids, C16-18 and C18-unsatd., its methyl esters and methanol are not regarded as P or vP based on readily biodegradability. Fatty acids, C16-18 and C18-unsatd., its methyl esters and methanol are not regarded as bioaccumulative based on the measured BCF of 3. The long-term no-observed effect concentration (Noec) for marine or freshwater organisms is not available because of the high biodegradation rate in environmental conditions. The substance is not classified as carcinogenic (category 1A or 1B), mutagenic (category 1A or 1B), or toxic for reproduction (category 1A, 1B or 2).

12.6. Other adverse effects

Further ecological information: The substance is considered as stable in the environmental range of pH. Hydrolysis happens with the presence of strong acids or basis, with release of methanol and fatty acids or its salts.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Incineration is recommended.

13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV

Waste code product:

07 06 08 *	other still bottoms and reaction residues

*: Evidence for disposal must be provided.

Waste code packaging:

07 06 99	Wastes not otherwise specified

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Waste treatment options

Appropriate disposal / Package:

Contaminated packages must be completely emptied and can be re-used following proper cleaning. Water with tenside additive / Alkali (lye), diluted (Wear suitable protective clothing, gloves and eye/face protection.)

13.2. Additional information

No data available

SECTION 14: Transport information

No dangerous good in sense of these transport regulations.

14.1. UN-No.
not relevant
14.2. UN proper shipping name
not relevant
14.3. Transport hazard class(es)
not relevant
14.4. Packing group
not relevant
14.5. Environmental hazards
not relevant
14.6. Special precautions for user
not relevant

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not yet classified.
Default (without application to IMO): Pollution Category X

Additional information:

Low hazard when properly handled.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU legislation

No data available

15.1.2. National regulations

[DE] National regulations

Restrictions of occupation

No

Water hazard class (WGK)

WGK:

1 - schwach wassergefährdend

Source:

Self-classification according to AwSV (substance).

Other regulations, restrictions and prohibition regulations

No

15.2. Chemical Safety Assessment

has been carried out.

Mixed fatty acid

15.3. Additional information
No data available

SECTION 16: Other information

16.1. Indication of changes
No data available

16.2. Abbreviations and acronyms
Abbreviations:
CSA: Chemical Safety Assessment
PBT: Substance with persistent, bioaccumulative and toxic properties.
vPvB: Substance with very persistent and very bioaccumulative properties.
MFSU: Manufacture, formulation, supply and use
IMO: International Maritime Organisation/London

16.3. Key literature references and sources for data
See annex

16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]
Classification according to Regulation (EC) No 1272/2008 [CLP]:
The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs. (...)

16.6. Training advice
No data available

16.7. Additional information
This SDS is not required by Article 31 of Regulation 1907/2006/EU as the substance is not classified as hazardous, however, to comply with Article 32 of REACH and provide customers with relevant information the format of the SDS (according to Regulation 453/2010/EU) has been used.
Given data sheets are based on our present experiences, however they are no assurance of product properties and do not justify a contractual legal relationship.

Extension to section 8.1

DNELs and PNECs for the substance			
Fatty acids, C16-18 and C18-unsatd., methyl esters			
DNELs			
Population/route		*Exposure pattern*	*Value*
Workers	Inhalation	Long-term systemic effects	6.96 mg/m^3
	Dermal	Long-term systemic effects	10 mg/kg bw/day
Consumers	Inhalation	Long-term systemic effects	23 mg/m^3
	Dermal	Long-term - systemic effects	5 mg/kg bw/day
	Oral	Long-term - systemic effects	5 mg/kg bw/day
PNECs			
Compartment			*Value*
Water	Freshwater		2.504 mg/l
	Marine water		0.2504 mg/l
	Intermittent releases		25.04 mg/l
Sediment			Not relevant
Soil			Not relevant
Sewage treatment			520 mg/l
Secondary poisoning			Not relevant

DNELs and PNECs for the substance			
Methanol			
DNELs			
Population/route		*Exposure pattern*	*Value*
Workers	Inhalation	Long-term systemic effects / acute/short-term exposure - local effects	260 mg/m^3
	Dermal	Long-term systemic effects / acute/short-term exposure - local effects	40 mg/kg bw/day
Consumers	Inhalation	Long-term systemic effects / acute/short-term exposure - local effects	50 mg/m^3
	Dermal	Long-term - systemic effects/acute/short-term exposure - local effects	8 mg/kg bw/day
	Oral	Long-term - systemic effects/acute/short-term exposure - local effects	8 mg/kg bw/day
PNECs			
Compartment			*Value*
Water	Freshwater		154 mg/l
	Marine water		15.4 mg/l
	Intermittent releases		1540 mg/l
Sediment			570.4 mg/kg dw
Soil			23.5mg/kg dw
Sewage treatment			100 mg/L
Secondary poisoning			Not relevant

Extension to section 16. (Literature)

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