PREOL	MATERIAL SAFETY DATA SHEET **FAME**	Revision: 5 Valid from: 1.3.2020 No. of pages: 15

This MSDS is not required by Article 31 of Regulation (EC) 1907/2006 (REACH) as the relevant substance is not classified as hazardous, however, to comply with Article 32 of REACH Regulation and provide customers with relevant information, the format of the MSDS according to Commission Regulation (EU) No. 453/2010 has been used.

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Substance name	*CAS No.*	*EC No.*	*Registration number*
Fatty acids, C16-18 and C18-unsatd., Me esters	67762-38-3	267-015-4	01-2119471664-32

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

Uses	*Substance/mixture/ article*	*Industrial user/professional user/consumer*
Use of Biodiesel	In a mixture	Professional users/consumers
Formulation for Gasoil production	Substance	Industrial user
Use of Gasoil	In a mixture	Professional users/consumers

The substance is not classified as hazardous under Regulation on Classification, Labelling and Packaging (CLP) EC 1272/2008, therefore there are not uses advised against.

1.3 Details of the supplier of the safety data sheet

- **PREOL, a.s.**
  Terezínská 1214 Tel: +420 416 564 913
  410 02 Lovosice Mob: +420 601 395 017
  Czech Republic Contact person (MSDS): ondrej.klir@preol.cz

1.4 Emergency telephone number

- **Toxicological Information Centre** (TIC – Czech Republic)
  Na bojišti 1,
  12808 Praha 2;
  Tel. (24h): +420 224 91 92 93; +420 224 91 54 02; +420 224 91 45 75; +420 224 97 11 11

- **Transport Information and Emergency System (TRINS - Czech Republic)**
  It provides continuous training and practical assistance in dealing with emergencies associated with the transport or storage of hazardous chemicals in the Czech Republic. The assistance is provided via fire operational brigade (HZS) centers or via the national coordination center of Chemopetrol, a.s. in Litvinov.

  Contact telephone TRINS: + 4 2 0 4 7 6 7 0 9 8 2 6

2. Hazards identification

2.1 Classification of the substance or mixture

Classification under Regulation (EC) No 1272/2008 (CLP)
No classification

Most important adverse physicochemical, human health and environmental effects
Substance is not classified as hazardous. See also section 2.3.

2.2 Label elements

Label elements according to Regulation (EC) No. 1272/2008 (CLP)
Not relevant, substance is not classified as hazardous.

2.3 Other hazards

PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative) criteria
Substance does not meet the criteria to be considered PBT neither vPvB

Other hazards
May cause minor eye irritation. Vapors produced by heating, or finely misted materials may irritate the mucous membranes and cause dizziness, and nausea. Thermal burns are possible on contact with material at elevated temperatures.

3. Composition/information on ingredients

3.1 Substances

Chemical identity of the main constituent of the substance

Main constituent	
EC name:	Fatty acids, C16-18 and C18-unsatd., Me esters
EC number:	267-015-4
CAS number (EC inventory):	67762-38-3
CAS name:	UVCB substance, for CAS name information it is possible to refer to the different composition substances.
IUPAC name:	UVCB substance, no IUPAC name available.

Description:	This substance is identified by SDA Substance Name: **C16-C18 and C18 unsaturated alkyl carboxylic acid methyl ester** and SDA Reporting Number: 11-010-00.
	The following other substances may fall within the same description: Fatty acids, rape oil, Me esters - EINECS 287-828-8 - CAS 85586-25-0 Soybean oil, Me esters - EINECS 267-055-2 - CAS 67784-80-9 Fatty acids, soya, Me esters - EINECS 272-898-4 - CAS 68919-53-9 Fatty acids, sunflower-oil, Me esters - EINECS 272-900-3 - CAS 68919-54-0 Fatty acids, palm-oil, Me esters - EINECS 293-086-6 - CAS 91051-34-2
	The substance is synthesized by transesterification of natural oils with methanol to produce methylesters and glycerin. In this description enter all substances generated by natural oils with fatty acid chains lengths focused on C16, C18 and C18 unsatd. above 2%. Examples of such raw materials are rapeseed oil, soya oil, soybean oil, sunflower oil, palm oil and all analogous derivatives.
Molecular formula:	UVCB substance, not univocal molecular formula available
Molecular weight range:	ca. 296.0

Chemical identity of any relevant impurity, stabilizing additive, or individual constituent other than the main constituent
None.

3.2 Mixtures

Not relevant as substance is not a mixture.

4. First aid measures

4.1 Description of first aid measures

First aid instructions
EYES Irrigate eyes with a heavy stream of water for at least 15 to 20 minutes SKIN Wash immediately with plenty of soap and water. Remove all contaminated clothes and footwear immediately unless stuck to skin. INHALATION Remove casualty from exposure ensuring one's own safety whilst doing so; seek medical attention if symptoms persist. INGESTION Do not induce vomiting. Wash out mouth with water. If conscious, give half a liter of water to drink immediately. If gastro-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person)

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects.
Minor eye irritation possible. Vapors produced by heating, or finely misted materials may irritate the mucous membranes and cause dizziness, and nausea. Thermal burns are possible on contact with material at elevated temperatures.

4.3 Indication of any immediate medical attention and special treatment needed

Indication of any immediate medical attention and special treatment needed
Not relevant for this substance.

5. Fire fighting measures

5.1 Extinguishing media

Extinguishing media
5.1.1 Appropriate extinguishing media. Dry chemical powder, alcohol resistant foam, halon (may not be permissible in some countries), CO_2, water spray (fog). 5.1.2 Unsuitable extinguishing media Water stream may splash the burning liquid and spread fire

5.2 Special hazards arising from the substance or mixture

Special hazards
In combustion emits toxic fumes of carbon dioxide / carbon monoxide. Biodiesel soaked rags or spill absorbents (i.e. oil dry, polypropylene socks, sand, etc.) can cause spontaneous combustion if stored near combustibles and not handled properly.

5.3 Advice for firefighters

Advice for firefighters
Fire-fighters should use self-contained breathing apparatus to avoid exposure to smoke and vapour. Wear protective clothing to prevent contact with skin and eyes. Protective equipment Fire-resistant clothing, self-contained breathing apparatus Additional information Flammable Class IV. according to ČSN 65 0201

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions, protective equipment and emergency procedures.
Prevent contamination of clothes and shoes; avoid contact with the skin and eyes. Eliminate all sources of ignition. If outside do not approach from downwind. Evacuate all personnel who do not take part in the cleaning/emergency procedure. Mark out the contaminated area with signs and prevent access to unauthorised personnel.
Advice for firefighters
Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes. Flammable Class IV. according to ČSN 650201

6.2 Environmental precautions

Environmental precautions
Prevent any leakage. Do not discharge into communal sewerage, drains or waters.

6.3 Methods and material for containment and cleaning up

6.3.1 Spill containment
Contain any spillage using bounding.

6.3.2 Spill clean-up
Pick up small spills with absorbent materials and dispose of properly to avoid spontaneous combustion. Disposal must be carried out according to valid legislation on wastes and residues. Recover large spills for appropriate treatment and reutilization or for disposal according to legislation. Wash hard surfaces with safety solvent or detergent to remove remaining oil film. Greasy nature will result in a slippery surface.

6.3.3 Other information
Not relevant for this substance

6.4 Reference to other sections

Reference to other sections
See also sections 8 and 13

7. Handling and storage

7.1 Precautions for safe handling

7.1.1 Recommendations for safe handling.
For safe handling is recommended to avoid direct contact with the substance. Note: Substance **Fatty acids, C16-18 and C18-unsaturated, Methyl esters** is not classified as hazardous according to the criteria of CLP Regulation (EC) No. 1272/2008. Specific Risk Management Measures are therefore not required. Nevertheless, the exposure of workers during and after normal operations should be minimized by the use of good industrial hygiene practice for handling chemical substances and mixtures.

7.1.2 Occupational hygiene advice.
Do not eat, drink or smoke in work areas; wash hands after use; and remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage conditions
Store in cool, well ventilated area. Keep away from sources of ignition, excessive heat and oxidizing agents. Keep container tightly closed. Storage life, ~2 years. Protect from frost. Protect against static electricity. Store at +15°C to +25°C.

7.3 Specific end use(s)

Specific end use
The product is designed especially for use as fuel for diesel engines.

Reference to other sections
See section 1.2

8. Exposure controls/personal protection

8.1 Control parameters

Control parameters
Exposure limits are not established.

DNEL and PNEC
Methyl esters of C16-C18 and C18 fatty acids - unsaturated: **DNEL**: Workers / Inhalation / Systemic effects / Long-term - 6.96 mg / m^3 Workers / Dermal / Systemic effects / Long-term - 10 mg / kg bw / day Consumers / Inhalation / Systemic effects / Long term - 23 mg / m^3 Consumers / Dermal / Systemic effects / Long-term - 5 mg / kg / day Consumers / Oral / Systemic effects / Long-term - 5 mg / kg / day **PNEC**: Fresh water – 2,504 mg/l Sea water – 0,25 mg/l Intermittent release – 25,04 mg/l Wastewater treatment plants (STP) - 520 mg/l Freshwater sediment - no sediment exposure is expected Marine sediment - no sediment exposure is expected Soil - no soil exposure is expected Food chain - no potential for bioaccumulation

8.2 Exposure controls

8.2.1 Appropriate engineering controls
No relevant engineering controls.

8.2.2 Individual protection measures
RESPIRATORY PROTECTION: If vapours or mists are generated, wear a NIOSH approved organic vapour/mist respirator. PROTECTIVE CLOTHING: Safety glasses, goggles, or face shield recommended to protect eyes from mists or splashing. PVC coated gloves recommended to prevent skin contact. OTHER PROTECTIVE MEASURES: Employees must practice good personal hygiene, washing exposed areas of skin several times daily and laundering contaminated clothing before re-use.

8.2.3 Environmental exposure controls
Prevent product from entering sewerages. Is not allowed to pour any amount of the product to the sewerage or water pipes. See also 6.2

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Overview of physicochemical properties	
Appearance	Green/yellow liquid oil

Overview of physicochemical properties	
Odour	Mild
Odour threshold	N/A
pH	N/A
Melting point/freezing point	6.29°C at 1 atm The range of melting temperature goes from -16.92°C to +15.59°C.
Initial boiling point and boiling range	354.3°C at 1 atm
Flash point	173°C +/- 1°C
Evaporation rate	N/A
Flammability (solid, gas)	According to Regulation (EC) No 1272/2008 (CLP): Not flammable According to ČSN 650201: Flammable Class IV.
Upper/lower flammability or explosive limits	N/A
Vapour pressure	4.2 m Bar at 25°C 420 Pa, at 25°C 3.6 m Bar at 20°C
Vapour density	N/A
Relative density	0.8881 g/cm3 at 20°C
Solubility(ies)	< 0,023 mg/l Instrumental detection limit
Partition coefficient: n-octanol/water	Log Kow = 6.2 at 25°C
Auto-ignition temperature	261°C +/- 5°C The ignition delay observed at this temperature was 60 seconds and a Temperature increase at middle of the flask was 14°C.
Decomposition temperature	N/A
Viscosity	6.1 mPa*s at 20°C
Explosive properties	Not explosive. In accordance with column 2 of REACH Annex VII, the study does not need to be conducted since there are no chemical groups associated with explosive proprieties present in the molecule.
Oxidising properties	Not oxidizing. In accordance with column 2 of REACH Annex VII, the study does not need to be conducted since the substance is incapable of reacting exothermically with combustible materials based on the chemical structure

9.2 Other information

Other information
Chemical characteristics: It is a complex mixture of fatty acid methyl C16-18 and C18 unsaturated fatty acids. To improve certain properties may contain appropriate additives as depressants when used at low temperatures, corrosion inhibitors, etc. in different concentrations of the order to 0.1%.

10. Stability and reactivity

10.1 Reactivity

Reactivity hazards
This product is stable and hazardous reaction will not occur under appropriate handling and storage.

10.2 Chemical stability

Chemical stability
The substance is stable under normal ambient and hazardous reaction will not occur under appropriate handling and storage. Store in cool, well ventilated area. Storage life, ~2 years. Protect from frost. Store at +15°C to +25°C. Keep away from oxidizing agents, excessive heat, and ignition sources.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

Conditions to avoid
See 10.5.

10.5 Incompatible materials

Incompatible materials
Strong oxidizing agents. Strong bases.

10.6 Hazardous decomposition products

Hazardous decomposition products
Combustion produces carbon monoxide, carbon dioxide along with thick smoke.

11. Toxicological information

11.1 Information on toxicological effects

Information on the following hazard classes: Fatty acids, C_{16}-C_{18} and C_{18} unsaturated methyl ether			
Hazard class		*Result*	*Test method*
Acute toxicity There are 2 mains studies related to acute toxicity.	Oral:	LD50 > 5000 mg/kg/bw (male/female)	Study is closely comparable to OECD guideline 401 and is GLP).
	Dermal :	LD50 has been tested in a fixed dose test at 2000 mg/kg/bw on rabbit with fatty acids C6 -C12 methyl esters with no sigh of toxicity	EPA OPPTS 870.1200
Skin corrosion/irritation;		In general, esters of long-chain fatty acids are always negative with relation to irritation (from C18 onward), while esters of short-chain fatty acids are always (slightly) positive (up to C10). There are 2 relevant tests, for C16-C18 and C18 unsaturated me esters and fatty acids, rape oil, me esters, showing no irritation that support this conclusion. Eye irritation tests are negative too and it is unlikely that a substance would be less irritating to eyes than the skin.	OECD Guideline 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.	OECD guideline 405
Sensitisation;	Respiratory sensitisation	No information but no respiratory sensitisation is expected.	
	Skin sensitisation;	In a dermal sensitization study, Sterol C in corn oil was tested using the Guinea pig maximization 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 Sterol C does not induce delayed contact hypersensitivity in guinea pig.	The study was performed according to OECD guideline 406 and GLP
Germ cell mutagenicity;	Reverse gene mutation assay	Strains of Salmonellatyphimurium were exposed to Sterol C in the presence and absence of mammalian metabolic activation. The positive controls induced the appropriate responses in the corresponding strains. No noteworthy increase in the number of revertants was induced in all tested strains with and without metabolic activation.	This study satisfies the requirement for Test Guideline OECD 471 for in vitro mutagenicity (bacterial reverse gene mutation) data.

Information on the following hazard classes: Fatty acids, C_{16}-C_{18} and C_{18} unsaturated methyl ether			
Hazard class		*Result*	*Test method*
	In vitro cytogenicity test	Primary lymphocyte cultures were exposed to Sterol C with and without metabolic activation. Positive controls induced the appropriate response. There was no evidence of chromosome aberration was induced over background.	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
	In vitro mammalian cell mutation test.	Methyl myristate alone had no mitogenic activity. In combination with phytohemagglutinin, however, a comitogenic activity was found.	EU Method B.17 (Mutagenicity - In Vitro Mammalian Cell Gene Mutation Test).
Carcinogenicity;		Two fatty acid methyl esters, methyl oleate and methyl 12-oxo-trans-10-octadecenoate, have been tested for carcinogenicity by oral and subcutaneous administration in ST/a mice of both sexes. A positive effect of methyl oleate could not be assessed, while the results pointed to a promoter effect of methyl oxo-octadecenoate. Given in the diet, this compound increased the incidence and number of forestomach papillomas within 83 weeks after initiation by 4-nitroguinoline 1-oxide.	EU Method B.32 (Carcinogenicity Test)
Reproductive toxicity;	Developmental effects	The tested substance revealed no effect in Screening for reproduction for a dose of until 1000 mg/kg/bw	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
	Fertility effects		
STOT-single exposure;		No information	No information
STOT-repeated exposure;		The tested substance revealed no effect in Repeated dose oral toxicity for a dose of until 1000 mg/kg/bw	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Aspiration hazard.		No information	No information

CMR (Carcinogenic, Mutagenic and Repro-toxic) properties assessment
An assessment of the above information leads to a conclusion that no CMR properties are expected.

Effects of the substance/mixture via each possible route of exposure
See section 2.

Potential adverse health effects and symptoms
See section 2.

Information on whether delayed or immediate effects
See section 2.

Interactions
None expected.

Other information
See section 2 for effects of the substance

12. Ecological information

12.1 Toxicity

Fatty acids, C16-C18 and C18 unsaturated methyl ether	
OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)	EC50 (48 hour): 2504 mg/l
OECD Guideline 201 (Alga, Growth Inhibition Test)	ErC50 (72 hour): > 0.131 mg/L or 72h-ErLR50>100mg/L (expressed as loading rate).
OECD Guideline 203 (Fish, Acute Toxicity Test)	Visible abnormalities (loss of equilibrium, changes in swimming behaviour, respiratory function, pigmentation, etc.) were not observed in Fish exposed to an average measured loading rate of 0.26 mg/L (limit test),
Other aquatic/terrestrial toxicological end points	No information.

12.2 Persistence and degradability

N/A

12.3 Bioaccumulative potential

Fatty acids, C16-C18 and C18 unsaturated methyl ether	
ISO 10712	All methyl esters of fatty acids 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.

12.4 Mobility in soil

N/A

12.5 Results of PBT and vPvB assessment

Substance is not considered PBT either vPvB.

12.6 Other adverse effects

N/A

13. Disposal considerations

13.1 Waste treatment methods

Waste treatment methods
Disposal of waste and unused residues must be in accordance with the applicable legislation (Act no. 185/2001 Coll. on Wastes). Unusable product residues usually are disposed of by combustion in incinerators. Due to biodegradability, contaminated absorbent material may be stored on approved landfills. Wastes can be disposed of only by authorized personnel.

Transport information for Fatty acids, C16-18 and C18-unsaturated, Methyl esters	
Land transport (ADR/RID/)	
UN number	Not classified
Class	Not classified
Classification code	Not classified
Packaging group	Not classified
Labels	Not classified
Inland waterway transport (AND(R))	
UN number	Not classified
Class	Not classified
Classification code	Not classified
Packaging group	Not classified
Labels	Not classified
Marine transport (IMDG)	
UN number	Not classified
Proper shipping name and description	Not classified
Chemical name	Not classified

Class	Not classified
Packaging group	Not classified
EmS number	Not classified
Labels	Not classified
Marine pollutant	no
Air transport ICAO/IATA	
UN number	Not classified
Proper shipping name and description	Not classified
Chemical name	Not classified
Class	Not classified
Packaging group	Not classified
Labels	Not classified

15. Regulatory information

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

Specific safety, health and environmental regulations/legislation for the substance.

IATA - International Air Transport Association

RID - Regulations for international rail transport of dangerous goods.

ADR - European Agreement concerning international carriage of dangerous goods by road.

ČSN 650201 - Flammable liquids. Plants and warehouses.

Gov. Regulation no. 361/2007 Coll., laying down conditions for the protection of health of workers at work as amended.

Act no. 201/2012 Coll. on Air Protection, as amended.

Act no. 350/2011 Coll. on chemical substances and mixtures, and amending certain laws (Chemical Law)

Decree no. 93/2016 Coll. on waste catalogue

Act no. 111/1994 Coll. on road transport, as amended

Act no. 185/2001 Coll. on wastes, as amended

Act no. 254/2001 Coll. on waters, as amended

EC Regulation no. 1907/2006 Registration, evaluation, authorization and restriction of chemicals, establishing a European Chemicals Agency (REACH)

EC Regulation no. 453/2010. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH - MSDS)

EC Regulation no. 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)

15.2 Chemical safety assessment

Chemical Safety Assessment (CSA)
Chemical Safety Assessment is available for the substance ES No. 267-015-4 (the substance is not classified as hazardous and is not a PBT/vPvB).

16. Other information

ATTENTION: This safety data sheet reflects our present knowledge and describes the product as to its safety requirements. It does not assure any characteristics but gives recommendations for safe storage and handling measures. Receivers have to observe any legal regulation in their own responsibility.

SDS revision information
First edition of the document: revision 0 from 1. 1. 2011 - document edition in MSDS version
Second edition of the document: revision 1 from 31. 1. 2013 - document edition in MSDS version
Third edition of the document: revision 2 from 31. 5. 2015 - document edition in MSDS version
Fourth edition of the document: revision 3 from 26. 8. 2016 - document edition in MSDS version
Fifth edition of the document: revision 4 from 1. 5. 2018 - document edition in MSDS version
Sixth edition of the document: revision 5 from 1. 3. 2020 - document edition in MSDS version

Key/Abbreviations
CSA: Chemical Safety Assessment
PBT: Substance with Persistent, Bioaccumulative and Toxic properties.
vPvB: Substance with very Persistent and very Bioaccumulative properties.

Key References
ECHA - European Chemical Agency - Information on chemicals http://echa.europa.eu/information-on-chemicals

Classification information for mixtures
Not relevant

List of relevant hazard statements and/or precautionary statements.
Not relevant. Described in Sections 2 to 15.

Advice on appropriate training for employees
Regular training in the scope safety handling, health and environment.