1. Identification

<table>
<thead>
<tr>
<th>Chemical Name.</th>
<th>Linseed oil fatty acid methyl esters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Number.</td>
<td>85085-45-6</td>
</tr>
</tbody>
</table>

**Recommendation for the chemical and restrictions on use**

**Applications**
Research and development/Performance chemical/Industrial Solvent.

**Restrictions**
No specific uses advised against are identified.

**Supplier's Details**
InKemia Green Chemicals, Inc.
1213 West Loop North Suite 140, Houston, TX 77005
+1 (713) 909-7717
web@inkemiagreenchemicals.com

**Emergency contact number**
InKemia Green Chemicals, Inc.
Tel: +1 (713) 909-7717
For emergency calls only.

2. Hazards

**Classification of the substance or mixture**

**Classification**
Causes mild skin irritation (Category 3), H316. Causes eye irritation (Category 2B), H320.

**Label elements**

**Pictogram**
None.

**Signal word**
Warning

**Hazard Statements**

- H316 - Causes mild skin irritation.
- H320 - Causes eye irritation

**Precautionary Statements**

- P264 - Wash skin thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing Rinse skin with water [or shower].
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 - If eye irritation persist: Get medical advice/attention.
- P362 - Take off contaminated clothing.
- P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P403 + P235 - Store in a well-ventilated place. Keep cool.
3 - Composition/information on ingredients

Substances

Chemical Name. Linseed oil fatty acid methyl esters
Synonyms. Fatty acid methyl esters derived from linseed oil.
CAS Number. 85085-45-6
Molecular Formula. C18.9H34.3O2
Molecular Weight. (g/mol) 292.60

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linseed oil fatty acid methyl esters.</td>
<td>Skin Irrit. 3; Eye Irrit. 2B; H316, H320.</td>
<td>&lt;=100 wt.%</td>
</tr>
</tbody>
</table>

Note: For the full text of the H-Statements mentioned in this Section, see Section 16.

Impurities and stabilizing additives
Additivised with 1000 ppm of butylated hydroxytoluene (BHT).

Mixtures
This product is a mixture of fatty acid methyl esters with an average composition of:
- Palmitic acid methyl ester 4 wt.%
- Stearic acid methyl ester 3 wt.%
- Oleic acid methyl ester 19 wt.%
- Linoleic methyl ester 17 wt.%
- Linolenic acid methyl esters 53 wt.%
- Other components 4 wt%

4 - First-aid measures

Description of first aid measures

General information
Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.

Inhalation
Remove from exposure, moving to fresh air. Artificial respiration and oxygen are necessary if not breathing. Consult a physician.
Ingestion
Wash out mouth with water if the person is conscious. Do not induce vomiting. Consult a physician.

Skin contact
Immediately wash skin with soap and copious amounts of water.

Eye contact
Immediately irrigate with copious amounts of water for 15 minutes. Consult a physician.

Protection of first-aiders
First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information
The severity of the symptoms described might vary depending on the concentration and length of exposure.

Inhalation
None known.

Ingestion
Slightly dangerous.

Skin contact
May cause irritation.

Eye contact
May cause irritation.

Indication of immediate medical attention and special treatment need

Notes for the doctor
Treat symptomatically.

5 - Fire-fighting measure

Extinguishing media

Suitable extinguisher media
Dry chemical, carbon dioxide or water fog.

Unsuitable extinguisher media
Do not apply a direct stream of water onto hot, burning liquids.

Special hazards arising from the substance of mixture

Specific hazards
Oils in contact with porous materials, including rags, trash, vessel and piping insulation, when stored in confined space may spontaneously combust. Rags soaked with any solvent present a fire hazard and should always be stored in UL listed or Factory Mutual approved covered containers.

Hazardous combustion products
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

Advice for firefighters

Protective actions during firefighting
Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them.
from the fire area if it can be done without risk. Avoid discharge to the aquatic environment. Control runoff water by containing and keeping it out of sewers and watercourses. If the risk of water pollution occurs, notify appropriate authorities.

**Special protective equipment for firefighting**
Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-Approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Do not apply a direct stream of water onto hot, burning liquids; this may cause frothing or violent steam generation.

### 6 – Accidental release measures

**Personal precautions, protective equipment, and emergency procedures**

**Personal Precautions**
Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into the spilled material.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleanup**

**Methods for cleaning**
Contain and remove the spillage, soaking up the residue with non-flammable absorbent. Place in an adequate container for immediate disposal. Eliminate sources of ignition. For waste disposal see Section 13.

**Reference to other sections**
For personal protection see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For disposal see section 13.

### 7 – Handling and storage

**Precautions for safe handling**

**Usage precautions**
Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink, and animal feeding stuff. Keep container tightly sealed when not in use. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers. For precautions see Section 2.

**Advice on general occupational hygiene**

Promptly wash if in contact with skin. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

**Conditions for safe storage, including any Incompatibilities**

**Storage precautions**

Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well-ventilated place. Keep containers upright. Protect containers from damage. Keep in a fresh and dry place, avoiding direct sunlight. Keep container tightly sealed, in a fireproof place.

**Storage class**

Miscellaneous hazardous material storage. Preferably in a well-ventilated solvent cabinet.

**Specific end uses**

The identified uses for this product are in Section 1.

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### 8 - Exposure controls/personal protection

**Control parameters**

**Occupational exposure limits:**

Mixture containing no substances with occupational exposure limit values.

**Protective equipment**

[Icon of protective glasses and gloves]

**Engineering control measures**
Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Eye/face protection**

Wear safety glasses with side-shields.

**Hand protection**

Avoid skin contact. Wear protective clothes and solvent resistant gloves (nitrile).

**Other skin and body protection**

Use engineering controls to reduce air contamination to permissible exposure level. Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact.

**Hygiene measures**

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with a multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Environmental exposure**

Avoid discharging to drains.

### 9 - Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear yellow to brown liquid.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available.</td>
</tr>
<tr>
<td>Melting point/Freezing point, °C</td>
<td>-7</td>
</tr>
<tr>
<td>Boiling point, °C</td>
<td>150-390 (96 wt.% of the mixture distilled, computational estimation)</td>
</tr>
<tr>
<td>Initial boiling point and range, °C</td>
<td>150-390</td>
</tr>
<tr>
<td>Water miscibility @ 20 °C, g/L</td>
<td>Immiscible.</td>
</tr>
<tr>
<td>Solubility (other)</td>
<td>Miscible with hydrocarbons, ethers and acetone.</td>
</tr>
<tr>
<td>Partition coefficient, log Pow @ 25 °C</td>
<td>6.29 (Estimation as linolenic acid methyl ester, EPI Suite)</td>
</tr>
<tr>
<td>Autoignition temperature, °C</td>
<td>260</td>
</tr>
<tr>
<td>Decomposition</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
10 – Stability and reactivity

Reactivity
Sensitivity to light. Air sensitive.

Chemical stability
Stable under normal storage conditions.

Possibility of hazardous reactions
Hazardous polymerization do not occur under normal conditions.

Incompatible materials

Conditions to avoid
Excess heat. Ignition sources.

Hazardous decomposition products
No data available.

11 – Toxicological information

Acute toxicity – oral

Acute toxicity – oral (LD50,mg/kg) >5,000
Species Rat
Notes (oral LD50) Based on available data the classification criteria are not met.

Acute toxicity – dermal

Acute toxicity – dermal (LD50,mg/kg) >2,000
Species Rabbit
Notes (Dermal LD50) Based on available data the classification criteria are not met.

Acute toxicity – inhalation

Acute toxicity – inhalation (LC50,dust/mist mg/l) No data available.
Notes (Inhalation LD50) Based on available data the classification criteria are not met.
SDS: Linseed oil fatty acid methyl esters

Skin corrosion/irritation
Result
May cause mild skin irritation.

Serious eye damage/irritation
Result
May cause mild eye irritation.

Respiratory sensitization
Result
Based on available data the classification criteria are not met.

Skin sensitization
Result
May cause an allergic skin reaction.

Germ cell mutagenicity
Genotoxicity – in vitro
Based on available data the classification criteria are not met.

Carcinogenicity
IARC
This product does not contain 0.1% or more of the known or potential carcinogens listed in IARC.

ACGIH
This product does not contain 0.1% or more of the known or potential carcinogens listed in ACGIH.

NTP
This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP.

OSHA
This product does not contain 0.1% or more of the known or potential carcinogens listed in OSHA.

Reproductive toxicity
Fertility
Based on available data the classification criteria are not met.

Development
Based on available data the classification criteria are not met.

Specific target organ toxicity
STOT-single exposure
No data available.

STOT-repeated exposure
No data available.

Additional information
General information
This product is not classified as hazardous.

Inhalation
Vapors or mists may irritate: mucous membranes. May cause: dizziness, nausea.

Ingestion
Slightly dangerous.

Skin contact
Mild skin irritant.

Eye contact
Mild eye irritant.

Route of entry
Ingestion, Inhalation, skin and/or eye contact.

Target organs
Not specific target organ known.
## 12 – Ecological information

### Toxicity

**Ecotoxicity**

Not regarded as hazardous, however large or frequent spills may have dangerous effects on the environment. Do not empty into drains.

### Acute toxicity

**Toxicity to fish**

LC50 (96h) >100 mg/L (Fathead minnow)

**Aquatic invertebrates**

EC50 (48h) >100 mg/L (Daphnia magna)

**Aquatic plants**

No data available.

### Chronic toxicity

**Toxicity to fish**

No data available.

**Aquatic invertebrates**

No data available.

**Aquatic plants**

No data available.

### Persistency and biodegradability

**Persistency and biodegradability**

Expected to biodegrade under both aerobic and anaerobic conditions.

Result: -

Readily biodegradable. (EPI Suite estimation).

**Biodegradation**

Insoluble in water. It may persist in the environment.

**Biological oxygen demand (mg/g)**

No data available.

**Chemical oxygen demand (mg/g)**

No data available.

**BOD/COD ratio**

No data available.
Bioaccumulative potential
Unlikely to bioaccumulate (BCF<500).

Mobility in soil
Is not likely mobile due its low water solubility.

Results of PBT and vPvB
No data available.

Other adverse effects
No data available.

13 – Disposal considerations

Waste treatment methods

General information
The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of safely. When handling waste, the safety precautions applying to the handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues.

Disposal methods
Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration and landfill should only be considered when recycling is not feasible.

14 – Transport information

DOT (US)
Not regulated by the DOT.

IMDG
Not regulated.

IATA
Not regulated.

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

Not applicable.

15 – Regulatory information

US Federal Regulations and state regulations
Components of the product are listed in the quoted regulations. For details, please refer to the regulations directly. This list is not exhaustive; please check for other applicable regulations.

This product has been classified by hazard criteria of the Controlled Products Regulations, and the SDS contains all the information required by the Controlled Products Regulations.

US Federal Regulations
SARA 302 Section 302 (Specific toxic chemical listings)
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA Section 311/312 (Specific toxic chemical listings)
Acute Health Hazard.

SARA Section 313 (Specific toxic chemical listings)
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

RCRA (hazardous waste code)
None of the ingredients are listed.

TSCA (Toxic Substances Control Act)
This product and its components are listed on the TSCA inventory as CAS: 68990-52-3 .

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
None of the ingredients are listed.

US State Regulations

Proposition 65 (California)
Methanol: may be present in trace amounts.

Chemicals are known to cause cancer
None of the chemicals in this product are listed.

Chemicals are known to cause reproductive toxicity for females
None of the chemicals in this product are listed.

Chemicals are known to cause reproductive toxicity for males
None of the chemicals in this product are listed.

Massachusetts Right to Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components
No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right to Know Components
No components are subject to the New Jersey Right to Know Act.

Canada

Canadian Domestic Substances List (DSL)
This product its components are listed on Canada's DSL List as CAS: 68990-52-3 .

Canadian NPRI Ingredient Disclosure list (limit 0.1%)
The substance is not specified on any list. There is no control measure imposed to this substance.

Canadian NPRI Ingredient Disclosure list (limit 1%)
The substance is not specified on any list. There is no control measure imposed to this substance.

16 – Other information

Full text of H-Statements referred to under sections 2 and 3
H316 Causes mild skin irritation.
H320 Causes eye irritation.
Skin Irrit. Skin Irritant.
Eye Irrit. Eye Irritant.

**GHS Column Model 2017 Classification**

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazards (single exp)</td>
<td>Low</td>
</tr>
<tr>
<td>Chronic health hazards (repeated exp.)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Negligible</td>
</tr>
<tr>
<td>Physical-chemical hazards</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

**Further Information**

The information above is believed to be accurate and represents the best information available. However, we make no warranty of merchantability or any other warranty, express or implied, on such information and we assume no liability resulting from its use. Users should make their investigations to determine the suitability of the information for their purposes. In no event shall the InKemia Green Chemicals, Inc. be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages arising, even if the InKemia Green Chemicals, Inc. has been advised of the possibility of such damages.

**Issued by**

LHD