1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name VOLEIC™ OA06 Oleic Acid

Other means of identification
Product Code OA06

Recommended use of the chemical and restrictions on use
Recommended Use Commercial product.

Details of the supplier of the safety data sheet
Manufacturer Address Vantage Oleochemicals, Inc.
4650 South Racine Avenue
Chicago, IL 60609 USA
+1-773-376-9000

Emergency Telephone Number
Company Phone Number +1-773-376-9000
Emergency Telephone Number CHEMTREC International: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification
This chemical is not hazardous by the 2012 OSHA Hazard Communication Standard.

This is not a dangerous substance or mixture according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Label Elements

EMERGENCY OVERVIEW

Not Hazardous

Color Light yellow Physical State Liquid Odor Faint

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oleic acid</td>
<td>112-80-1</td>
<td>60-100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

FIRST AID MEASURES
Eye contact: Consult a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin contact: Wash exposed skin with soap and plenty of water. Consult a physician if irritation occurs.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Consult a physician if breathing is difficult or other respiratory symptoms develop.

Ingestion: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Symptoms:

Indication of any immediate medical attention and special treatment needed:

Notes to Physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry powder, Alcohol foam, Carbon dioxide, Water fog.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

Explosion Data:

Sensitivity to Mechanical Impact: None.

Sensitivity to Static Discharge: None.

Protective equipment and precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal Precautions: Use personal protective equipment.

Environmental precautions:

Environmental precautions: Prevent release to surface water.

Methods and material for containment and cleaning up:

Methods for Containment: Dike to collect large liquid spills.

Methods for Cleaning Up: Absorb with an inert material.

7. HANDLING AND STORAGE

Precautions for safe handling:

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid generation of mist/aerosol.

Conditions for safe storage, including any incompatibilities:

Storage: Keep containers tightly closed in a cool, well-ventilated place.

Packaging Materials: Store tightly closed in original container.

Incompatible materials: Strong oxidizing agents.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Measures

Safety Shower
Eyewash station
Ventilation system.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Safety glasses with side-shields.

Skin and Body Protection
Impervious gloves.

Respiratory Protection
Use NIOSH/MSHA approved respirator if ventilation is not sufficient to control mist/aerosol.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Light yellow</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Faint</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>&lt; 10 °C / &lt; 50 °F</td>
<td>Cloud point</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>220 °C / 428 °F</td>
<td>@10 hPa</td>
</tr>
<tr>
<td>Flash Point</td>
<td>180 °C / 356 °F</td>
<td>Open cup</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td></td>
<td>Not determined</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td></td>
<td>May burn if exposed to open flame.</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.000106</td>
<td>hPa at (20 °C)</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>-</td>
<td>Not determined</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>-</td>
<td>Not determined</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td></td>
<td>Soluble in many organic solvents</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>3</td>
<td>Estimated</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>350 °C / 662 °F</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td></td>
<td>Not determined</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td></td>
<td>Not determined</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>25 mPa s</td>
<td>@ 25 °C</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Other Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.9 g/ml @ 20°C</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity

Not reactive
**Chemical stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
Hazardous Reactions: None under normal processing.
Hazardous Polymerization: Hazardous polymerization does not occur.

**Conditions to Avoid**
Extremes of temperature and direct sunlight

**Incompatible materials**
Strong oxidizing agents.

**Hazardous Decomposition Products**
None identified.

### 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

**Product Information**
Product does not present an acute toxicity hazard based on known or supplied information

- **Inhalation**
  There is no data for this product.
- **Eye contact**
  Not irritating to eyes.
- **Skin contact**
  Not irritating to skin.
- **Ingestion**
  No known hazard by swallowing.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oleic acid 112-80-1</td>
<td>&gt; 2000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Information on toxicological effects

**Symptoms**
No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

- **Skin corrosion/irritation**
  Not irritating to skin.
- **Serious eye damage/eye irritation**
  Not irritating to eyes.
- **Sensitization**
  Not a skin sensitizer.
- **Mutagenic Effects**
  Negative in the Ames test.
- **Carcinogenicity**
  This substance is not classified as a carcinogen by IARC, OSHA, ACGIH, or NTP.

**Reproductive Toxicity**
This product does not contain any known or suspected reproductive hazards.

- **Developmental Toxicity**
  No known hazard.
- **Teratogenic**
  No known hazard.
- **STOT - single exposure**
  None under normal use conditions.
- **STOT - repeated exposure**
  No known hazard.
- **Aspiration hazard**
  No known hazard.
- **Numerical measures of toxicity-Product Information**
  Not determined

### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Microtox</th>
<th>Daphnia Magna (Water)</th>
</tr>
</thead>
</table>

---

Page 4 / 6
**Oleic acid**

112-80-1

| **Flea) LC50** | 205 mg/L | **Pimephales promelas 96 h** |

**Persistence and degradability**
(OECD 301B) (28 days) 93%. Readily biodegradable.

**Bioaccumulation/Accumulation**
Not expected to be bioaccumulative.

**Mobility**
substance not classified.

**Other Adverse Effects**

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13. **DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Waste Disposal Method** Dispose of in accordance with applicable regulations.

**Contaminated Packaging** Dispose of in accordance with applicable regulations.

---

14. **TRANSPORT INFORMATION**

**DOT**
Not regulated

**TDG**
Not regulated

**MEX**
Not regulated

**ICAO**
Not regulated

**IATA**
Not regulated

**IMDG / IMO**
Not regulated

**RID**
Not regulated

**ADR**
Not regulated

**ADN**
Not regulated

---

15. **REGULATORY INFORMATION**

**International Inventories**

| **TSCA** | Complies |
| **DSL** | Complies |
| **NDSSL** | Complies |
| **EINECS** | Complies |
| **ELINCS** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL** | Complies |
| **PICCS** | Complies |
| **AICS** | Complies |

**Legend**

*TSCA* - United States Toxic Substances Control Act Section 8(b) Inventory

*DSL/NDSSL* - Canadian Domestic Substances List/Non-Domestic Substances List
U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oleic acid</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>112-80-1</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>n/a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>B</td>
</tr>
</tbody>
</table>

Prepared by          Product Steward
Issuing Date         30-Mar-2018
Revision Date        30-Mar-2018
Revision Note        Updated Section 15. "Proposition 65 Chemicals"
Reason for Revision
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End of Safety Data Sheet