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

Product identifier
Product Name VOLEIC™ OA05 Oleic Acid

Other means of identification
Product Code OA05

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>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<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>Specific Gravity</td>
<td>-</td>
<td>Not determined</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble</td>
<td>Soluble in many organic solvents</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td></td>
<td>Estimated</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>Not determined</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td></td>
<td>Not determined</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td></td>
<td>@ 25 °C</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>25 mPa s</td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity

Not reactive
Chemical stability

Stable under recommended storage conditions.

Possibility of 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.

Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50
--- | --- | --- | ---
Oleic acid 112-80-1 | > 2000 mg/kg (Rat) | - | -

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

| Chemical Name | Toxicity to Algae | Toxicity to Fish | Microtox | Daphnia Magna (Water) |
--- | --- | --- | --- | --- |

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

Bioaccumulation/Accumulation
Not expected to be bioaccumulative.

Mobility
substance not classified.

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

NDNL 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/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
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>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</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></td>
</tr>
<tr>
<td>112-80-1</td>
<td></td>
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16. OTHER INFORMATION

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

Prepared by Product Steward
Issuing Date 07-Mar-2018
Revision Date 07-Mar-2018
Revision Note Updated Section 15. "Proposition 65 Chemicals"

Disclaimer
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End of Safety Data Sheet