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

Product identifier
Product Name VOLEIC™ OA33 Oleic Acid

Other means of identification
Product Code OA33

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; 20 °C / &lt; 68 °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></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td></td>
<td></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>
</tbody>
</table>

Other Information

Density
0.9 g/ml @ 20°C

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.

<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</td>
<td>&gt; 2000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>112-80-1</td>
<td></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>

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OLIC™ OA33 Oleic Acid

**Revision Date** 14-May-2018

| Oleic acid | 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**
No data available.

**Other Adverse Effects**

### 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**

<table>
<thead>
<tr>
<th>TSCA</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>Complies</td>
</tr>
<tr>
<td>NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS</td>
<td>Complies</td>
</tr>
<tr>
<td>ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

**Legend**

- **TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- **DSL/NDSL** - 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
- Acute health hazard: No
- Chronic Health Hazard: No
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

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>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

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

Prepared by: Product Steward
Issuing Date: 14-May-2018
Revision Date: 14-May-2018
Revision Note: Updated Section 15. "Proposition 65 Chemicals"

Disclaimer
The information in this safety data sheet (SDS) is believed to be accurate and is given in good faith but no representation or warranty as to its completeness or accuracy is made. Suggestions for uses or applications are only opinions. Users are responsible for determining the suitability of these products for their own particular purpose. No representation or warranty, express or implied, is made with respect to information or products including without limitation warranties of merchantability or fitness for a particular purpose or non-infringement of any third party patent or other intellectual property rights including without limit copyright, trademark and designs. Any trademarks identified herein are trademarks of Vantage Oleochemicals, Inc.

End of Safety Data Sheet