SAFETY DATA SHEET

Revision Date  19-Feb-2020

1. Identification

Product Name  (R)-(-)-Glycidyl butyrate

Cat No. :  L18557

CAS-No  60456-26-0

Synonyms  No information available

Recommended Use Laboratory chemicals.

Uses advised against  Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Label Elements</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Respiratory system.</td>
<td></td>
</tr>
</tbody>
</table>

Signal Word

Warning

Hazard Statements

Combustible liquid
May cause respiratory irritation
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butanoic acid, oxiranylmethyl ester, (R)-</td>
<td>60456-26-0</td>
<td>&lt;=100</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects
Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media
No information available

Flash Point
85 °C / 185 °F

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available
Lower
No data available

Specific Hazards Arising from the Chemical
Combustible material. Containers may explode when heated.

Hazardous Combustion Products
None known.

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
Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
See Section 12 for additional Ecological Information. Should not be released into the environment.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

7. Handling and storage

Handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.
8. Exposure controls / personal protection

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

Engineering Measures
Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

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

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>90 °C / 194 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>85 °C / 185 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>Upper: No data available, Lower: No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.018 g/cm³</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
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<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
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<tr>
<td>Molecular Formula</td>
<td>C7 H12 O3</td>
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<tr>
<td>Molecular Weight</td>
<td>144.17</td>
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</tbody>
</table>

10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials
Strong oxidizing agents
Hazardous Decomposition Products
None under normal use conditions

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products
Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation
No information available

Sensitization
No information available

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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</thead>
<tbody>
<tr>
<td>Butanoic acid, oxiranylmethyl ester, (R)-</td>
<td>60456-26-0</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
No information available

Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
Respiratory system

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
Immiscible with water. Persistence is unlikely based on information available.

Bioaccumulation/Accumulation
No information available.

Mobility
Is not likely mobile in the environment due to its low water solubility. Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and
national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

| DOT | Not regulated |
| TDG | Not regulated |
| IATA | Not regulated |
| IMDG/IMO | Not regulated |

### 15. Regulatory information

#### United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active/Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butanoic acid, oxiranylmethyl ester, (R)-</td>
<td>60456-26-0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export: Not applicable

#### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
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<td>-</td>
<td>2006-2-20</td>
</tr>
</tbody>
</table>

#### U.S. Federal Regulations

| SARA 313 | Not applicable |
| SARA 311/312 Hazard Categories | See section 2 for more information |
| CWA (Clean Water Act) | Not applicable |
| Clean Air Act | Not applicable |
| OSHA - Occupational Safety and Health Administration | Not applicable |
| CERCLA | Not applicable |
| California Proposition 65 | This product does not contain any Proposition 65 chemicals. |
| U.S. State Right-to-Know Regulations | Not applicable |

#### U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

#### U.S. Department of Homeland Security

This product does not contain any DHS chemicals.
16. Other information

Prepared By
Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Revision Date 19-Feb-2020
Print Date 19-Feb-2020
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 60456-26-0.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS