SECTION 1: Identification

1.1. Identification
Product name : ALLYL ACRYLATE
Product code : ENEA0020
Product form : Substance
Physical state : Liquid
Formula : C₆H₈O₂
Synonyms : 3-ACRLOXYPROPENE
           : 2-PROPENYL ACRYLATE
           : ACRYLIC ACID, ALLYL ESTER
           : 2-PROPENOIC ACID, 2-PROPENYL ESTER
Chemical family : ESTER

1.2. Recommended use and restrictions on use
Recommended use : Chemical intermediate

1.3. Supplier
GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Flammable liquids Category 3
Acute toxicity (oral) Category 3
Acute toxicity (dermal) Category 3
Acute toxicity (inhalation/vapor) Category 2
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2
Hazardous to the aquatic environment - Acute Hazard Category 1
Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements
GHS US labeling
Hazard pictograms (GHS US)

Signal word (GHS US) : Danger
Hazard statements (GHS US)
H226 - Flammable liquid and vapor
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H330 - Fatal if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H400 - Very toxic to aquatic life

Precautionary statements (GHS US)
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - [In case of inadequate ventilation] wear respiratory protection.
P310 - Immediately call a doctor
P210 - Keep away from heat, open flames, sparks. - No smoking.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe vapors.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P330 - Rinse mouth.
P301+P310 - If swallowed: Immediately call a doctor
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
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 persists: Get medical advice/attention.
P312 - Call a doctor if you feel unwell
P301+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
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 persists: Get medical advice/attention.
P312 - Call a doctor if you feel unwell
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allyl acrylate</td>
<td>(CAS-No.) 999-55-3</td>
<td>95 - 100</td>
<td>Flm. Liq. 3, H226</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 3 (Oral), H301</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 3 (Dermal), H311</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 2 (Inhalation), H330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact: Wash with plenty of soap and water. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation: Fatal if inhaled. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: Toxic in contact with skin. Causes skin irritation. May cause sensitization. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact: Lachrymator. Causes serious eye irritation.
Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available
SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.2. Specific hazards arising from the chemical
Fire hazard: Flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: Eliminate ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel
Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Avoid release to the environment. Notify authorities if liquid enters sewers or public waters. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Collect spillage. Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-sparking tools.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Additional hazards when processed: Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling: Material should be handled in a laboratory hood whenever possible. Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Storage conditions: Keep container tightly closed. Store < 5°C. Avoid exposure to light. Store locked up.
Incompatible materials: Oxidizing agent.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Handle in an enclosing hood with exhaust ventilation. Provide local exhaust or general room ventilation.
8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear respiratory protection. NIOSH-certified full face organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic 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>Clear liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>112.13 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrid. Mildly lachrymatory</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.436</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>~ 1</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>46 - 47 °C @ 40 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>32 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapor</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 10 mm Hg @ 20 °C</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.935</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&lt; 3 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly. Soluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Unstable.

10.3. Possibility of hazardous reactions
May occur if heated in the presence of radical initiators or exposure to ultraviolet light.
10.4. **Conditions to avoid**
Heat. Open flame. Sparks.

10.5. **Incompatible materials**
Oxidizing agent.

10.6. **Hazardous decomposition products**
Organic acid vapors.

**SECTION 11: Toxicological information**

11.1. **Information on toxicological effects**

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALLYL ACRYLATE (999-55-3)</strong></td>
<td></td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>100 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>300 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>0.5 mg/l/4h</td>
</tr>
<tr>
<td>** Allyl acrylate (999-55-3)**</td>
<td></td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>152 ppm/4h</td>
</tr>
<tr>
<td>LDLo oral rat</td>
<td>500 mg/kg</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>100 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>300 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (gases)</td>
<td>152 ppmV/4h</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>0.5 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>0.05 mg/l/4h</td>
</tr>
</tbody>
</table>

- **Skin corrosion/irritation**: Causes skin irritation.
- **Serious eye damage/irritation**: Causes serious eye irritation.
- **Respiratory or skin sensitization**: Not classified
- **Germ cell mutagenicity**: Not classified
- **Carcinogenicity**: None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
- **Reproductive toxicity**: Not classified
- **Specific target organ toxicity – single exposure**: Not classified
- **Specific target organ toxicity – repeated exposure**: Not classified
- **Aspiration hazard**: Not classified
- **Symptoms/effects after inhalation**: Fatal if inhaled. May cause irritation to the respiratory tract.
- **Symptoms/effects after skin contact**: Toxic in contact with skin. Causes skin irritation. May cause sensitization. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
- **Symptoms/effects after eye contact**: Lachrymator. Causes serious eye irritation.
- **Symptoms/effects after ingestion**: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

**SECTION 12: Ecological information**

12.1. **Toxicity**
Ecology - water: Very toxic to aquatic life.

12.2. **Persistence and degradability**
No additional information available

12.3. **Bioaccumulative potential**
No additional information available

12.4. **Mobility in soil**
No additional information available

12.5. **Other adverse effects**
- **Other adverse effects**: This substance may be hazardous to the environment.
- **Effect on the ozone layer**: No additional information available
SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations: Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information: Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT): 2929
DOT NA no.: UN2929

14.2. UN proper shipping name

Transport document description: UN2929 Toxic liquids, flammable, organic, n.o.s. (ALLYL ACRYLATE), 6.1 (3), II
Proper Shipping Name (DOT): Toxic liquids, flammable, organic, n.o.s. (ALLYL ACRYLATE)
Packing group (DOT): II - Medium Danger
Hazard labels (DOT): 6.1 - Poison, 3 - Flammable liquid

Dangerous for the environment: Yes
Marine pollutant: Yes

DOT Packaging Non Bulk (49 CFR 173.xxx): 202
DOT Packaging Bulk (49 CFR 173.xxx): 243
DOT Packaging Exceptions (49 CFR 173.xxx): 153
DOT Symbols: G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number: 131
Other information: No supplementary information available.

Transport by sea

DOT Vessel Stowage Location: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 60 L

SECTION 15: Regulatory information

15.1. US Federal regulations

Allyl acrylate (999-55-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
ALLYL ACRYLATE
Safety Data Sheet

15.2. International regulations

CANADA

Allyl acrylate (999-55-3)
Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Allyl acrylate (999-55-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Allyl acrylate (999-55-3)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

H226 Flammable liquid and vapor
H301 Toxic if swallowed
H311 Toxic in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation
H330 Fatal if inhaled
H400 Very toxic to aquatic life

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)
Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 08/18/2017 Revision date: 03/05/2019 Version: 1.1

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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