SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Methyl methacrylate

Product Number : 21335

CAS-No. : 80-62-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Ladd Research
83 Holly Court
Williston, VT 05495
UNITED STATES

Telephone : +1 802-658-4961
Fax : +1 802-660-8859

1.4 Emergency telephone number

Emergency Phone # : +1-703-741-5500 (Chemtrec)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Skin sensitisation (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger
Hazard statement(s)
H225  Highly flammable liquid and vapour.
H315  Causes skin irritation.
H317  May cause an allergic skin reaction.
H335  May cause respiratory irritation.
H402  Harmful to aquatic life.

Precautionary statement(s)
P210  Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233  Keep container tightly closed.
P240  Ground/bond container and receiving equipment.
P241  Use explosion-proof electrical/ ventilating/ lighting equipment.
P242  Use only non-sparking tools.
P243  Take precautionary measures against static discharge.
P261  Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264  Wash skin thoroughly after handling.
P271  Use only outdoors or in a well-ventilated area.
P272  Contaminated work clothing must not be allowed out of the workplace.
P273  Avoid release to the environment.
P280  Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312  IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P333 + P313  If skin irritation or rash occurs: Get medical advice/ attention.
P362  Take off contaminated clothing and wash before reuse.
P370 + P378  In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233  Store in a well-ventilated place. Keep container tightly closed.
P403 + P235  Store in a well-ventilated place. Keep cool.
P405  Store locked up.
P501  Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Lachrymator.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl methacrylate</td>
<td>Flam. Liq. 2; Skin Irrit. 2; Skin Sens. 1; STOT SE 3; Aquatic Acute 3; H225,</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>C₅H₈O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>100.12 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>80-62-6</td>
</tr>
<tr>
<td>EC-No.</td>
<td>201-297-1</td>
</tr>
<tr>
<td>Index-No.</td>
<td>607-035-00-6</td>
</tr>
</tbody>
</table>
SECTIOn 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTIOn 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Dry sand

Unsuitable extinguishing media
Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance. Container explosion may occur under fire conditions.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Recommended storage temperature 2 - 8 °C
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl methacrylate</td>
<td>80-62-6</td>
<td>TWA</td>
<td>50 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Dermal Sensitization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye irritation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pulmonary edema</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>body weight effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not classifiable as a human carcinogen</td>
</tr>
<tr>
<td>STEL</td>
<td>100 ppm</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>-----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal Sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>Upper Respiratory Tract irritation</td>
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<td></td>
</tr>
<tr>
<td></td>
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<td>Pulmonary edema</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>body weight effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not classifiable as a human carcinogen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TWA</th>
<th>100 ppm</th>
<th>USA, NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>410 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TWA</th>
<th>100 ppm</th>
<th>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>410 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PEL</th>
<th>50 ppm</th>
<th>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>205 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEL</th>
<th>100 ppm</th>
<th>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>410 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 66 min
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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>a) Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>b) Odour</td>
<td>ether-like</td>
</tr>
<tr>
<td>c) Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: -48 °C (-54 °F) - lit.</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>100 °C 212 °F - lit.</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>10 °C (50 °F) - DIN 51755 Part 1</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>Upper explosion limit: 12.5 %(V)</td>
</tr>
<tr>
<td></td>
<td>Lower explosion limit: 2.1 %(V)</td>
</tr>
<tr>
<td>k) Vapour pressure</td>
<td>37 hPa at 20 °C (68 °F)</td>
</tr>
<tr>
<td>l) Vapour density</td>
<td>ca.3.5 at 20 °C(68 °F)</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>0.936 g/cm3 at 25 °C (77 °F)</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>15.3 g/l at 20 °C (68 °F)</td>
</tr>
<tr>
<td>o) Partition coefficient: n-octanol/water</td>
<td>log Pow: 1.38 - (External MSDS)</td>
</tr>
<tr>
<td>p) Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>
s) Explosive properties  No data available

9.2 Other safety information

Relative vapour density  ca.3.5 at 20 °C (68 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Polymerizes with evolution of heat. Avoid contact with incompatible materials. Unless inhibited, product can polymerize, raising temperature and pressure, possibly rupturing container. Check inhibitor content often adding to bulk liquid if needed. Do not blanket or mix with oxygen-free gas as it renders inhibitor ineffective. Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Polymerises readily unless inhibited. Vapours may form explosive mixture with air.

10.4 Conditions to avoid
May polymerize on exposure to light.
Heat, flames and sparks. Heat Extremes of temperature and direct sunlight.
Heat, flames and sparks.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 7,872 mg/kg
Remarks: (RTECS)
LC50 Inhalation - Rat - 4 h - 78,000 mg/m³
Remarks: (RTECS)
LD50 Dermal - Rabbit - > 5,000 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation

Serious eye damage/eye irritation

Respiratory or skin sensitisation
Human experience
Result: positive
Remarks: (IUCLID)
Sensitisation test (Magnusson and Kligman):
Result: positive
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Ames test
Salmonella typhimurium
Result: negative
Mutagenicity (mammal cell test):
Result: positive

**Carcinogenicity**
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**

**Specific target organ toxicity - single exposure**
May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**

**Additional Information**
RTECS: OZ5075000

Central nervous system depression, Drowsiness, Irritability, Dizziness, Ataxia., narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

**SECTION 12: Ecological information**

**12.1 Toxicity**

Toxicity to fish
LC50 - Lepomis macrochirus (Bluegill sunfish) - 191 mg/l - 96 h
Remarks: (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 69 mg/l - 48 h
Remarks: (IUCLID)

Toxicity to algae
IC50 - Pseudokirchneriella subcapitata (green algae) - 170 mg/l - 4 days
(OECD Test Guideline 201)

Toxicity to bacteria
EC5 - Pseudomonas putida - 100 mg/l - 16 h
Remarks: (IUCLID)

**12.2 Persistence and degradability**

Biodegradability Result: > 95 % - Readily biodegradable.
Biochemical Oxygen Demand (BOD)

12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number: 1247  Class: 3  Packing group: II
Proper shipping name: Methyl methacrylate monomer, stabilized
Reportable Quantity (RQ): 1000 lbs
 Poison Inhalation Hazard: No

IMDG

UN number: 1247  Class: 3  Packing group: II  EMS-No: F-E, S-D
Proper shipping name: METHYL METHACRYLATE MONOMER, STABILIZED

IATA

UN number: 1247  Class: 3  Packing group: II
Proper shipping name: Methyl methacrylate monomer, stabilized

SECTION 15: Regulatory information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl methacrylate</td>
<td>80-62-6</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl methacrylate</td>
<td>80-62-6</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

**SECTION 16: Other information**

**Further information**
The information presented is believed to be correct and is the most accurate information available to us at this time. However, Ladd Research makes no warranty, express or implied, and assumes no liability for this information and the product described herein.

Revision Date: 04-14-2020