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

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>Methacryloyl chloride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>523216</td>
</tr>
<tr>
<td>Brand</td>
<td>Aldrich</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>920-46-7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Company</th>
<th>Sigma-Aldrich Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3050 SPRUCE ST</td>
</tr>
<tr>
<td></td>
<td>ST. LOUIS MO 63103</td>
</tr>
<tr>
<td></td>
<td>UNITED STATES</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 314 771-5765</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800 325-5052</td>
</tr>
</tbody>
</table>

1.4 Emergency telephone

| Emergency Phone #                | 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week |

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
- Acute toxicity, Oral (Category 4), H302
- Acute toxicity, Inhalation (Category 1), H330
- Skin corrosion (Category 1B), H314
- Serious eye damage (Category 1), H318
- Skin sensitization (Category 1), H317
- Short-term (acute) aquatic hazard (Category 3), H402
- Long-term (chronic) aquatic hazard (Category 3), H412

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

2.2 GHS Label elements, including precautionary statements
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

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

Lachrymator.

Aldrich - 523216
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>Methacryloyl chloride</td>
<td>Flam. Liq. 2; Acute Tox. 4; Acute Tox. 1; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Aquatic Acute 3; Aquatic Chronic 3; H225, H302, H330, H314, H318, H317, H402, H412</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

Molecular weight: 104.53 g/mol
CAS-No.: 920-46-7
EC-No.: 213-058-9
Formula: C₄H₅ClO

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

SECTION 4: First aid measures

4.1 Description of first-aid measures

**General advice**
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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
- Water
- Foam
- Carbon dioxide (CO2)
- Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

- Carbon oxides
- Hydrogen chloride gas
- Combustible.
- Pay attention to flashback.
- Vapors are heavier than air and may spread along floors.
- Development of hazardous combustion gases or vapours possible in the event of fire.
- Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
- Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

#### Storage stability
Recommended storage temperature
-20 °C
Moisture sensitive.
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

**Ingredients with workplace control parameters**
Contains no substances with occupational exposure limit values.

#### 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Body Protection**
Flame retardant antistatic protective clothing.

**Respiratory protection**
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.
## 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><strong>a) Appearance</strong></td>
<td>Form: liquid</td>
</tr>
<tr>
<td></td>
<td>Color: colorless</td>
</tr>
<tr>
<td><strong>b) Odor</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>c) Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>d) pH</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>e) Melting point/freezing point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>f) Initial boiling point and boiling range</strong></td>
<td>95 - 96 °C 203 - 205 °F - lit.</td>
</tr>
<tr>
<td><strong>g) Flash point</strong></td>
<td>12.8 °C (55.0 °F) - closed cup</td>
</tr>
<tr>
<td><strong>h) Evaporation rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>i) Flammability (solid, gas)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>j) Upper/lower flammability or explosive limits</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>k) Vapor pressure</strong></td>
<td>1,013 hPa at 94 °C (201 °F)</td>
</tr>
<tr>
<td><strong>l) Vapor density</strong></td>
<td>3.61 - (Air = 1.0)</td>
</tr>
<tr>
<td><strong>m) Relative density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>n) Water solubility</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>o) Partition coefficient: n-octanol/water</strong></td>
<td>log Pow: 69.6</td>
</tr>
<tr>
<td><strong>p) Autoignition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>q) Decomposition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>r) Viscosity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>s) Explosive properties</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>t) Oxidizing properties</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2 Other safety information

- Relative vapor density: 3.61 - (Air = 1.0)

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapors may form explosive mixture with air.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).
Contains the following stabilizer(s):
hydroquinone monomethyl ether (>=0.018 - <=0.022 %)

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Unstable upon depletion of inhibitor. Avoid moisture. Warming.

10.5 Incompatible materials
Water, Alcohols, Oxidizing agents, Strong bases

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 mg/kg
Acute toxicity estimate Inhalation - 4 h - 0.05 mg/l
(Calculation method)
LC50 Inhalation - Rat - 4 h - 60 mg/m3
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: No ingredient 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 ingredient 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
No data available
No data available

Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
RTECS: OZ5791000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 69.9 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

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
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3488  Class: 6.1I (3, 8)  Packing group: I
Proper shipping name: Toxic by inhalation liquid, flammable, corrosive, n.o.s. (Methacyroyl chloride)
Reportable Quantity (RQ):
Poison Inhalation Hazard: Hazard Zone A

IMDG
UN number: 3488  Class: 6.1 (3, 8)  Packing group: I  EMS-No: F-E, S-D

Aldrich - 523216
Proper shipping name: TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. (Methacryloyl chloride)

**IATA**
UN number: 3488 Class: 6.1 (3, 8)
Proper shipping name: Toxic by inhalation liquid, flammable, corrosive, n.o.s. (Methacryloyl chloride)
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

---

**SECTION 15: Regulatory information**

**SARA 302 Components**
Methacryloyl chloride
CAS-No. 920-46-7 Revision Date 2007-03-01

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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

**Massachusetts Right To Know Components**
Methacryloyl chloride
CAS-No. 920-46-7 Revision Date 2007-03-01

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**
Methacryloyl chloride
CAS-No. 920-46-7 Revision Date 2007-03-01

**New Jersey Right To Know Components**
Methacryloyl chloride
CAS-No. 920-46-7 Revision Date 2007-03-01
SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.2 Revision Date: 05/11/2021 Print Date: 08/12/2023