

## SAFETY DATA SHEET

Version 6.21  
Revision Date 05/20/2025  
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## SECTION 1. IDENTIFICATION

## 1.1 Product identifiers

Product name : Oxalyl chloride

Product Number : 08801  
Brand : Aldrich  
CAS-No. : 79-37-8

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

## 1.4 Emergency telephone number

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

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Chemicals which, in contact with water, emit flammable gases : Category 1

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Acute toxicity (Oral) : Category 3  
Acute toxicity (Inhalation) : Category 3  
Skin corrosion : Sub-category 1B  
Serious eye damage : Category 1

### Other hazards

Reacts violently with water.  
Contact with water liberates toxic gas.  
Reacts violently with water.  
Contact with water liberates toxic gas.  
Corrosive to the respiratory tract.

### GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H260 In contact with water releases flammable gases which may ignite spontaneously.  
H301 + H331 Toxic if swallowed or if inhaled.  
H314 Causes severe skin burns and eye damage.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**  
P223 Do not allow contact with water.  
P231 + P232 Handle and store contents under inert gas. Protect from moisture.  
P261 Avoid breathing mist or vapours.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.

#### Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302 + P335 + P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

P402 + P404 Store in a dry place. Store in a closed container.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

**Components**

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
oxalyl chloride	79-37-8*	>= 80 - <= 100	TSC
carbonyl chloride	75-44-5*	>= 0.1 - <= 1	TSC

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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### SECTION 4. FIRST AID MEASURES

General advice : First aiders need to protect themselves.  
Show this 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	: If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.
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
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

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## SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Carbon dioxide (CO <sub>2</sub> ) Dry powder
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Unsuitable extinguishing media	: Water Foam
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Specific hazards during fire fighting	: Combustible.
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May not get in touch with: Water

Development of hazardous combustion gases or vapours possible in the event of fire.

Hazardous combustion products	: Carbon oxides
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Hydrogen chloride gas

	Phosgene gas
Hazardous combustion products	Carbon oxides
	Hydrogen chloride gas
Specific extinguishing methods	: No data available
Further information	: Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	: Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	: Do not let product enter drains. Risk of explosion.
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.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on safe handling	: Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
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Keep workplace dry. Do not allow product to come into contact with water.

- Further information on storage conditions : Tightly closed.  
Keep away from heat and sources of ignition.  
Keep locked up or in an area accessible only to qualified or authorised persons.
- Materials to avoid : Never allow product to get in contact with water during storage.
- Storage class : 4.3, Hazardous materials, which set free flammable gases upon contact with water
- Recommended storage temperature : Recommended storage temperature see product label.
- Further information on storage stability : Handle and store under inert gas.
- Packaging material : Suitable material: Poly Drum, Amber Glass Bottle/Jar

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
carbonyl chloride	75-44-5	TWA	0.1 ppm 0.4 mg/m <sup>3</sup>	OSHA P0
		TWA	0.1 ppm 0.4 mg/m <sup>3</sup>	OSHA Z-1
		C	0.02 ppm	ACGIH
		C	0.2 ppm 0.8 mg/m <sup>3</sup>	NIOSH REL
		TWA	0.1 ppm 0.4 mg/m <sup>3</sup>	NIOSH REL

**Engineering measures** : No data available

### Personal protective equipment

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.

Recommended Filter : Filter type B

type:

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### Hand protection

Material : butyl-rubber  
Break through time : 30 min  
Glove thickness : 0.7 mm  
Protective index : Splash contact  
Manufacturer : Butoject® (KCL 898)

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Eye 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

Skin and body protection : protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid, clear

Color : colourless

Odor : No data available

Odor Threshold : No data available  
pH : No data available

Melting point/ range : 14 - 18 °F / -10 - -8 °C

Boiling point/boiling range : 144 - 149 °F / 62 - 65 °C

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit /  
Upper flammability limit : No data available

Lower explosion limit /  
Lower flammability limit : No data available

Vapor pressure : 200 hPa (68 °F / 20 °C)

Relative vapour density : 4.38  
(Air = 1.0)

Relative density : No data available

Density : 1.5 g/mL (68 °F / 20 °C)

Water solubility : No data available

Partition coefficient: n-  
octanol/water : No data available

Autoignition temperature : No data available

Decomposition  
temperature : No data available

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : none

Molecular weight : 126.93 g/mol

Particle characteristics  
Particle size : No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No data available
Reactivity	: Reacts violently with water.  Contact with water liberates toxic gas.
Chemical stability	: sensitive to moisture
Possibility of hazardous reactions	: A risk of explosion and/or of toxic gas formation exists with the following substances: Water Exothermic reaction with: Alcohols alkalines Oxidizing agents Risk of explosion with: Alkali metals dimethyl sulfoxide
Conditions to avoid	: Do not allow water to enter container. Light.  Moisture.
Incompatible materials	: Bases Oxidizing agents Alcohols
Hazardous decomposition products	: In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 100.1 mg/kg

(Calculation method)

Acute toxicity estimate Oral - 100.1 mg/kg

(Expert judgement)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute toxicity estimate Inhalation - 4 h - 2.22 mg/l - vapour (Calculation method)

LC50 Inhalation - Rat - 4 h - 2.43 mg/l - vapour

Remarks: (ECHA)

Inhalation: Irritating to respiratory system.

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Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.  
Dermal: No data available

**Skin corrosion/irritation**

Remarks: Causes skin burns.  
(ECHA)

**Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**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**

No data available

**Specific target organ toxicity - single exposure**

Corrosive to the respiratory tract.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Decomposition of the substance with tissue moisture.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

No data available

## Persistence and degradability

### Components:

#### carbonyl chloride:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

## Bioaccumulative potential

### Components:

#### carbonyl chloride:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

## Mobility in soil

No data available

## Other adverse effects

### Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

### Components:

#### oxalyl chloride:

Additional ecological information : Reacts with water to form toxic decomposition products.

The following may develop after reaction of the product with water:

hydrochloric acid

Discharge into the environment must be avoided.

#### carbonyl chloride:

Additional ecological information : Harmful effect due to pH shift.

Possible decomposition products in case of hydrolysis are:

Hydrogen chloride gas

carbon dioxide

Discharge into the environment must be avoided.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : 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.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 3129  
Proper shipping name : Water-reactive liquid, corrosive, n.o.s. (oxalyl chloride)  
Class : 4.3  
Subsidiary risk : 8  
Packing group : I  
Labels : Division 4.3 - Substances which in contact with water emit flammable gases, Class 8 - Corrosive substances  
Packing instruction (cargo aircraft) : 480  
Packing instruction (passenger aircraft) : Not permitted for transport

#### IMDG-Code

UN number : UN 3129  
Proper shipping name : WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (oxalyl chloride)  
Class : 4.3  
Subsidiary risk : 8  
Packing group : I  
Labels : 4.3 (8)  
EmS Code : F-G, S-N  
Marine pollutant : no

### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### National Regulations

#### 49 CFR Road

UN/ID/NA number : UN 3129  
Proper shipping name : Water-reactive liquid, corrosive, n.o.s. (oxalyl chloride)

Class : 4.3  
 Subsidiary risk : 8  
 Packing group : I  
 Labels : Division 4.3 - Substances which in contact with water emit flammable gases, Class 8 - Corrosive substances  
 ERG Code : 138  
 Marine pollutant : no

Poison Inhalation Hazard : No

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
carbonyl chloride	75-44-5	10	5000

### SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
carbonyl chloride	75-44-5	10	5000

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Acute Health Hazard

**SARA 313** : 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.

### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

carbonyl chloride	75-44-5	$\geq 0.1 - < 1 \%$
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

carbonyl chloride	75-44-5	$\geq 0.1 - < 1 \%$
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This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

## US State Regulations

### Massachusetts Right To Know

trichloroacetyl chloride	76-02-8
carbonyl chloride	75-44-5

### Pennsylvania Right To Know

trichloroacetyl chloride	76-02-8
carbonyl chloride	75-44-5

### Maine Chemicals of High Concern

Product does not contain any listed chemicals

### Vermont Chemicals of High Concern

Product does not contain any listed chemicals

### Washington Chemicals of High Concern

Product does not contain any listed chemicals

### The components of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

### TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	: USA. NIOSH Recommended Exposure Limits
OSHA P0	: USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / C	: Ceiling limit
NIOSH REL / TWA	: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / C	: Ceiling value not be exceeded at any time.

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**MILLIPORE  
SIGMA**

OSHA P0 / TWA : 8-hour time weighted average  
OSHA Z-1 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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