

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.6 Revision Date 22.01.2025 Print Date 03.05.2025

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product name : Hydrogen chloride solution

Product Number : 705551 Brand : Aldrich

UFI : JN63-56Y1-H99D-6PD0

REACH No. : 01-2119484862-27-XXXX

CAS-No. : 7647-01-0

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

Identified uses : Laboratory chemicals, Manufacture of substances Uses advised against : This product is not intended for consumer use.

1.3

CHEMIKART

# 1.4 Emergency telephone

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

# **SECTION 2: Hazards identification**

# 2.1 Classification of the substance or mixture

Flammable liquids, (Category 2) H225: Highly flammable liquid and vapor.

Corrosive to Metals, (Category 1) H290: May be corrosive to metals.

Acute toxicity, (Category 4) H302: Harmful if swallowed.

Skin irritation, (Category 2) H315: Causes skin irritation.

Eye irritation, (Category 2) H319: Causes serious eye irritation.

Specific target organ toxicity - H335: May cause respiratory irritation.

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#### 2.2 Label elements

# Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word	Danger
Hazard Statements H225 H290 H302 H315 H319	Highly flammable liquid and vapor. May be corrosive to metals. Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.
Precautionary Statements P210	Keep away from heat, hot surfaces, sparks, open flames and
P233 P234 P301 + P312	other ignition sources. No smoking. Keep container tightly closed. Keep only in original packaging. IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard	none

# Reduced Labeling (<= 125 ml)

Pictogram

Statements

Signal Word Danger
Hazard Statements none
Precautionary Statements none
Supplemental Hazard none
Statements

#### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information:

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The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

# **SECTION 3: Composition/information on ingredients**

### 3.2 Mixtures

Formula : HCl

Molecular weight : 36,46 g/mol

Component		Classification	Concentration			
Cyclopentyl methyl ether						
CAS-No. EC-No.	5614-37-9 445-090-6 *	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; H225, H302, H315, H319	>= 70 - < 90 %			
Hydrochloric Acid						
CAS-No. EC-No. Index-No.	7647-01-0 231-595-7 017-002-00-2 01-2119484862-27- XXXX	Met. Corr. 1; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H290, H314, H318, H335 Concentration limits: >= 0,1 %: Met. Corr. 1, H290; >= 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335;	>= 10 - < 20 %			

<sup>\*</sup>A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, or the annual tonnage does not require a registration.

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**

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

# In case of skin contact

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

# In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

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#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). 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

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 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 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**

No metal containers.

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

**Storage stability**Recommended storage temperature

2 - 8 °C

Handle and store under inert gas. Air and light sensitive.

# **Storage class**

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** 

#### 8.2 Exposure controls

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). Safety glasses

# 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.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,4 mm Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact

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Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 120 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, 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 EC 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**

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.

Recommended Filter type: Filter type ABEK

The entrepeneur 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.

# **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

a) Physical state liquid

b) Color colorlesslight yellowc) Odor No data availabled) Melting No data available

point/freezing point

e) Initial boiling point 106 °C

and boiling range

f) Flammability (solid, No data available gas)

g) Upper/lower No data available flammability or explosive limits

h) Flash point 10 °C

i) Autoignition No data available temperature

j) Decomposition No data available temperature

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k) pH No data available

I) Viscosity Viscosity, kinematic: No data available

Viscosity, dynamic: No data available

m) Water solubilityNo data availablen) Partition coefficient:No data available

n-octanol/water

o) Vapor pressure No data available

p) Density 0,895 g/cm3 at 25 °C

Relative density No data available q) Relative vapor No data available

density

r) Particle No data available

characteristics

s) Explosive properties Not classified as explosive.

t) Oxidizing properties none

# 9.2 Other safety information

No data available

# **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).

# 10.3 Possibility of hazardous reactions

No data available

# 10.4 Conditions to avoid

Warming.

### 10.5 Incompatible materials

Bases, Oxidizing agents, Alkali metals, Strong oxidizing agents, Metals, Amines, Nitric acid, permanganates, for example potassium permanganate, acids, Fluorine, hexalithium disilicide, Hydrogen peroxide, HydrazineMetals

# 10.6 Hazardous decomposition products

In the event of fire: see section 5

# **SECTION 11: Toxicological information**

# 11.1 Information on toxicological effects

#### **Mixture**

### **Acute toxicity**

Oral: No data available

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Acute toxicity estimate Oral - 565,61 mg/kg

(Calculation method)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and

gastrointestinal tract.

Symptoms: Possible symptoms:, mucosal irritations, Cough, Shortness of breath, Possible

damages:, damage of respiratory tract

Dermal: No data available **Skin corrosion/irritation**Remarks: No data available

Remarks: Mixture causes skin irritation.

Serious eye damage/eye irritation

Remarks: No data available

Remarks: Mixture causes serious eye irritation.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Remarks: No data available

Mixture may cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

# 11.2 Additional Information

# **Endocrine disrupting properties**

#### **Product:**

Assessment The substance/mixture does not contain

components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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#### **Components**

# Cyclopentyl methyl ether

# **Acute toxicity**

LD50 Oral - Rat - male and female - 200 - 2.000 mg/kg

(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - > 21,5 mg/l - vapor

(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 402)

### Skin corrosion/irritation

Skin - Rabbit

Result: irritating - 4 h (OECD Test Guideline 404)

# Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

(OECD Test Guideline 405)

# Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

# Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster fibroblasts

Result: negative

Method: OECD Test Guideline 474 Species: Mouse - male and female

Result: negative

# Carcinogenicity

No data available

# Reproductive toxicity

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

# **Hydrochloric Acid**

### **Acute toxicity**

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

of perforation of the esophagus and the stomach.

Inhalation: Cough Difficulty in breathing

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Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of

respiratory tract, tissue damage Dermal: No data available

Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)

Result: Corrosive

(OECD Test Guideline 431)

# Serious eye damage/eye irritation

Eyes - Bovine cornea

Result: Causes serious eye damage. - 10 min

(OECD Test Guideline 437)

# Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

# Germ cell mutagenicity

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Result: Positive results were obtained in some in vitro tests.

Remarks: (ECHA)

Test Type: mitotic recombination assay Test system: Saccharomyces cerevisiae

Result: negative Remarks: (ECHA) Test Type: Ames test

Test system: mouse lymphoma cells

Result: positive Remarks: (ECHA)

# Carcinogenicity

No data available

#### Reproductive toxicity

No data available

# Specific target organ toxicity - single exposure

May cause respiratory irritation. - Respiratory system

Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of respiratory tract, tissue damage

# Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

# **Aspiration hazard**

No aspiration toxicity classification

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# **SECTION 12: Ecological information**

# 12.1 Toxicity

#### **Mixture**

No data available

# 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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

# 12.6 Endocrine disrupting properties

### **Product:**

Assessment : The substance/mixture does not contain components

considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### 12.7 Other adverse effects

No data available

#### Components

# Cyclopentyl methyl ether

Toxicity to fish semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) -

> 220 mg/l - 96 h

(OECD Test Guideline 203)

Toxicity to daphnia

and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 35 mg/l - 48 h

(OECD Test Guideline 202)

static test NOEC - Daphnia magna (Water flea) - 20 mg/l - 48

h

(OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata (green

algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)

static test NOEC - Pseudokirchneriella subcapitata (green algae)

- 2,2 mg/l - 72 h

(OECD Test Guideline 201)

static test EbC50 - Pseudokirchneriella subcapitata (green

algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - activated sludge - > 100 mg/l - 3 h

(OECD Test Guideline 209)

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static test NOEC - activated sludge - 100 mg/l - 3 h

(OECD Test Guideline 209)

Toxicity to daphnia

semi-static test NOEC - Daphnia magna (Water flea) - 1,24

and other aquatic

mg/l - 21 dinvertebrates(Chronic (OECD Test Guideline 211)

toxicity)

**Hydrochloric Acid** 

Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h

Remarks: (IUCLID)

# **SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

No data available

# **SECTION 14: Transport information**

14.1 UN number

IMDG: 2924 IATA: 2924 ADR/RID: 2924

14.2 UN proper shipping name

ADR/RID: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Cyclopentyl methyl ether,

Hydrochloric Acid)

FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Cyclopentyl methyl ether, IMDG:

Hydrochloric Acid)

IATA: Flammable liquid, corrosive, n.o.s. (Cyclopentyl methyl ether, Hydrochloric Acid)

14.3 Transport hazard class(es)

ADR/RID: 3 (8) IMDG: 3 (8) IATA: 3 (8)

14.4 Packaging group

IATA: II ADR/RID: II IMDG: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

### **SECTION 15: Regulatory information**

# 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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### **National legislation**

Seveso III: Directive 2012/18/EU of the P5c FLAMMABLE LIQUIDS European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

# Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

# 15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

### **SECTION 16: Other information**

# **Full text of H-Statements**

H225	Highly flammable liquid and vapor.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

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#### Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM -American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. -Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; 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

Classification of th	ne mixture	Classification procedure:	
Flam. Liq.2	H225	Based on product data or assessment	
Met. Corr.1	H290	Calculation method	
Acute Tox.4	H302	Calculation method	
Skin Irrit.2	H315	Calculation method	
Eye Irrit.2	H319	Calculation method	
STOT SE3	H335	Calculation method	

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#### **Further information**

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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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