

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.7

Revision Date 29.12.2023

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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 : Cetrimonium Bromide, United States  
Pharmacopeia (USP) Reference Standard

Product Number : 1102974  
Brand : US Pharmacopeia  
REACH No. : 01-2119989160-35-XXXX  
CAS-No. : 57-09-0

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 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

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| Acute toxicity, (Category 4)     | H302: Harmful if swallowed.             |
| Skin irritation, (Category 2)    | H315: Causes skin irritation.           |
| Serious eye damage, (Category 1) | H318: Causes serious eye damage.        |
| Specific target organ toxicity - | H335: May cause respiratory irritation. |

single exposure, (Category 3),  
Respiratory system

Specific target organ toxicity -  
repeated exposure, (Category 2),  
Gastrointestinal tract

H373: May cause damage to organs  
through prolonged or repeated exposure if  
swallowed.

Short-term (acute) aquatic  
hazard, (Category 1)

H400: Very toxic to aquatic life.

Long-term (chronic) aquatic  
hazard, (Category 1)

H410: Very toxic to aquatic life with long  
lasting effects.

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

#### Pictogram

|                                |                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Signal Word                    | Danger                                                                                                                           |
| Hazard Statements              |                                                                                                                                  |
| H302                           | Harmful if swallowed.                                                                                                            |
| H315                           | Causes skin irritation.                                                                                                          |
| H318                           | Causes serious eye damage.                                                                                                       |
| H335                           | May cause respiratory irritation.                                                                                                |
| H373                           | May cause damage to organs (Gastrointestinal tract) through prolonged or repeated exposure if swallowed.                         |
| H410                           | Very toxic to aquatic life with long lasting effects.                                                                            |
| Precautionary Statements       |                                                                                                                                  |
| P273                           | Avoid release to the environment.                                                                                                |
| P280                           | Wear protective gloves/ eye protection/ face protection.                                                                         |
| P301 + P312                    | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.                                                                   |
| P302 + P352                    | IF ON SKIN: Wash with plenty of 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. |
| P314                           | Get medical advice/ attention if you feel unwell.                                                                                |
| Supplemental Hazard Statements | none                                                                                                                             |

### Reduced Labeling (<= 125 ml)

#### Pictogram

|                          |                                                              |
|--------------------------|--------------------------------------------------------------|
| Signal Word              | Danger                                                       |
| Hazard Statements        |                                                              |
| H318                     | Causes serious eye damage.                                   |
| Precautionary Statements |                                                              |
| 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 Statements none

### 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:

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

### 3.1 Substances

Formula : C<sub>19</sub>H<sub>42</sub>N.Br  
Molecular weight : 364,45 g/mol  
CAS-No. : 57-09-0  
EC-No. : 200-311-3

| Component                                      | Classification                                                                                                                                                                                                    | Concentration |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>N-Cetyl-N'N'N-trimethylammonium bromide</b> |                                                                                                                                                                                                                   |               |
| CAS-No. 57-09-0<br>EC-No. 200-311-3            | Acute Tox. 4; Skin Irrit. 2;<br>Eye Dam. 1; STOT SE 3;<br>STOT RE 2; Aquatic Acute 1;<br>Aquatic Chronic 1;<br>H302, H315, H318, H335,<br>H373, H400, H410<br>M-Factor - Aquatic Acute: 100 - Aquatic Chronic: 10 | <= 100 %      |

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. Call in physician.

#### 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. Immediately call in ophthalmologist.  
Remove contact lenses.

**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

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Hydrogen bromide gas

Combustible.

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

**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**

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

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. 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.

**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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

For precautions see section 2.2.

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

#### **Storage conditions**

Tightly closed. Dry.

#### **Storage class**

Storage class (TRGS 510): 11: Combustible Solids

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **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). Tightly fitting safety goggles

##### **Skin protection**

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)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

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)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

**Body Protection**  
protective clothing

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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**

Do not let product enter drains.

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**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

|                                                 |                                                                                  |
|-------------------------------------------------|----------------------------------------------------------------------------------|
| a) Physical state                               | solid                                                                            |
| b) Color                                        | white                                                                            |
| c) Odor                                         | weak                                                                             |
| d) Melting point/freezing point                 | Melting point: 230 °C                                                            |
| e) Initial boiling point and boiling range      | No data available                                                                |
| f) Flammability (solid, gas)                    | No data available                                                                |
| g) Upper/lower flammability or explosive limits | No data available                                                                |
| h) Flash point                                  | No data available                                                                |
| i) Autoignition temperature                     | 210 °C<br>at 0,3 hPa                                                             |
| j) Decomposition temperature                    | No data available                                                                |
| k) pH                                           | 5,0 - 7 at 36,4 g/l at 25 °C                                                     |
| l) Viscosity                                    | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                             | 36,4 g/l at 20 °C - completely soluble                                           |
| n) Partition coefficient: n-octanol/water       | log Pow: 2,26 - (Lit.), Bioaccumulation is not expected.                         |
| o) Vapor pressure                               | No data available                                                                |
| p) Density                                      | 2,30 g/cm <sup>3</sup>                                                           |
| Relative density                                | No data available                                                                |

- q) Relative vapor density No data available
- r) Particle characteristics No data available
- s) Explosive properties Not classified as explosive.
- t) Oxidizing properties none

## 9.2 Other safety information

Surface tension 39 mN/m at 25 °C

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

No data available

### 10.6 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

LD50 Oral - Rat - female - 1.550 mg/kg  
(OECD Test Guideline 401)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Hexadecyltrimethylammonium chloride

Acute toxicity estimate Oral - 1.550 mg/kg  
(ATE value derived from LD50/LC50 value)

Inhalation: No data available

LD50 Dermal - Rabbit - male and female - 2.150 mg/kg

Remarks: (in analogy to similar products)

(ECHA)

The value is given in analogy to the following substances: Hexadecyltrimethylammonium chloride

**Skin corrosion/irritation**

Skin - Rabbit

Result: Irritating to skin. - 24 h

Remarks: (ECHA)

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

Remarks: (in analogy to similar products)

**Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: Aqueous solution

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation. - Respiratory system

**Specific target organ toxicity - repeated exposure**

Oral - May cause damage to organs through prolonged or repeated exposure.

- Gastrointestinal tract

**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.

Repeated dose toxicity - Rabbit - male and female - Dermal - 28 d - LOAEL (Lowest observed adverse effect level) - 10 mg/kg

Remarks: (in analogy to similar products)

Repeated dose toxicity - Rat - male and female - Oral - 28 d - NOAEL (No observed adverse effect level) - 100 mg/kg

Remarks: (as aqueous solution)  
(ECHA)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

|                                                                       |                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                                      | semi-static test LC50 - Danio rerio (zebra fish) - 0,2 mg/l - 96 h<br>(OECD Test Guideline 203)                                                                                                                                       |
| Toxicity to daphnia and other aquatic invertebrates                   | semi-static test EC50 - Daphnia magna (Water flea) - 0,037 mg/l - 48 h<br>(OECD Test Guideline 202)                                                                                                                                   |
| Toxicity to algae                                                     | static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0,00411 mg/l - 72 h<br>(OECD Test Guideline 201)<br><br>static test NOEC - Desmodesmus subspicatus (green algae) - 0,001 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria                                                  | EC50 - activated sludge - 19 mg/l<br>Remarks: (ECHA)                                                                                                                                                                                  |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | NOEC - Daphnia magna (Water flea) - 0,023 mg/l - 21 d<br>(OECD Test Guideline 211)                                                                                                                                                    |

### 12.2 Persistence and degradability

|                  |                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic Chemical oxygen demand - Exposure time 11 d<br>Result: 100 % - Readily biodegradable.<br>(OECD Test Guideline 301E) |
|------------------|-----------------------------------------------------------------------------------------------------------------------------|

### 12.3 Bioaccumulative potential

|                 |                                                                                            |
|-----------------|--------------------------------------------------------------------------------------------|
| Bioaccumulation | Cyprinus carpio (Carp) - 8 Weeks<br>- 0,05 mg/l(N-Cetyl-N'-N'-N-trimethylammonium bromide) |
|-----------------|--------------------------------------------------------------------------------------------|

Bioconcentration factor (BCF): 407 - 741

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

### 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

Very toxic to aquatic life.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

No data available

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 3077

IMDG: 3077

IATA: 3077

### 14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-Cetyl-N'N'N'-trimethylammonium bromide)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-Cetyl-N'N'N'-trimethylammonium bromide)

IATA: Environmentally hazardous substance, solid, n.o.s. (N-Cetyl-N'N'N'-trimethylammonium bromide)

### 14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

### 14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

### 14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: yes

### 14.6 Special precautions for user

Tunnel restriction code : (-)

#### Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

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## 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.

#### National legislation

Seveso III: Directive 2012/18/EU of the E1 ENVIRONMENTAL HAZARDS  
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

For this product a chemical safety assessment was not carried out

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## SECTION 16: Other information

### Full text of H-Statements

|      |                                                                                 |
|------|---------------------------------------------------------------------------------|
| H302 | Harmful if swallowed.                                                           |
| H315 | Causes skin irritation.                                                         |
| H318 | Causes serious eye damage.                                                      |
| H335 | May cause respiratory irritation.                                               |
| H373 | May cause damage to organs through prolonged or repeated exposure if swallowed. |
| H400 | Very toxic to aquatic life.                                                     |
| H410 | Very toxic to aquatic life with long lasting effects.                           |

## 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

## 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](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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