



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.3

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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 : Hexadecylpyridinium chloride monohydrate

Product Number : C9002

Brand : Sigma

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 6004-24-6

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3

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### 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.      |
| Acute toxicity, (Category 2)  | H330: Fatal if inhaled.          |
| Skin irritation, (Category 2) | H315: Causes skin irritation.    |
| Serious eye damage, (Category | H318: Causes serious eye damage. |

1)

Specific target organ toxicity -  
single exposure, (Category 3),  
Respiratory system

H335: May cause respiratory irritation.

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

H400: Very toxic to aquatic life.

## 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.

H330

Fatal if inhaled.

H335

May cause respiratory irritation.

H400

Very toxic to aquatic life.

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.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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

### Reduced Labeling (<= 125 ml)

Pictogram

Signal Word

Danger

Hazard Statements

H330

Fatal if inhaled.

H318

Causes serious eye damage.

Precautionary Statements

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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

Synonyms : Cetylpyridinium chloride monohydrate

Formula :  $C_{21}H_{38}ClN \cdot H_2O$

Molecular weight : 358,00 g/mol

CAS-No. : 6004-24-6

EC-No. : 204-593-9

| Component                                   |           | Classification                                                                                                                                         | Concentration |
|---------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Cetylpyridinium chloride monohydrate</b> |           |                                                                                                                                                        |               |
| CAS-No.                                     | 6004-24-6 | Acute Tox. 4; Acute Tox. 2; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; Aquatic Acute 1; H302, H330, H315, H318, H335, H400<br>M-Factor - Aquatic Acute: 100 | <= 100 %      |
| EC-No.                                      | 204-593-9 |                                                                                                                                                        |               |

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.

**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**

Water Foam Carbon dioxide (CO<sub>2</sub>) 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

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

Hydrogen chloride 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 generation and inhalation of dusts in all circumstances. 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 carefully. 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**

### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

### **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**

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

### **Storage class**

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

## **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**

required when dusts 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 P3

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.

### **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                                    | characteristic            |
| d) Melting point/freezing point            | Melting point: 80 - 84 °C |
| e) Initial boiling point and boiling range | 120 - 124 °C at 0,09 hPa  |

|                                                 |                                                                                     |
|-------------------------------------------------|-------------------------------------------------------------------------------------|
| f) Flammability (solid, gas)                    | No data available                                                                   |
| g) Upper/lower flammability or explosive limits | No data available                                                                   |
| h) Flash point                                  | Not applicable                                                                      |
| i) Autoignition temperature                     | No data available                                                                   |
| j) Decomposition temperature                    | No data available                                                                   |
| k) pH                                           | 5,0 - 5,4 at 10 g/l at 20 °C                                                        |
| l) Viscosity                                    | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available    |
| m) Water solubility                             | 111 g/l at 20 °C                                                                    |
| n) Partition coefficient: n-octanol/water       | log Pow: 1,71 at 20 °C - (anhydrous substance),<br>Bioaccumulation is not expected. |
| o) Vapor pressure                               | No data available                                                                   |
| p) Density                                      | No data available                                                                   |
| Relative density                                | No data available                                                                   |
| q) Relative vapor density                       | No data available                                                                   |
| r) Particle characteristics                     | No data available                                                                   |
| s) Explosive properties                         | No data available                                                                   |
| t) Oxidizing properties                         | none                                                                                |

## 9.2 Other safety information

No data available

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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

#### 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 - 560,3 mg/kg  
(OECD Test Guideline 425)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

Acute toxicity estimate Oral - 560,3 mg/kg  
(Calculation method)

LC50 Inhalation - Rat - male and female - 4 h - 0,054 - 0,51 mg/l - dust/mist

(OECD Test Guideline 403)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

LD50 Dermal - Rat - male and female - > 5.000 mg/kg  
(OECD Test Guideline 402)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

##### Skin corrosion/irritation

Skin - Rabbit

Result: Irritations

(OECD Test Guideline 404)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

##### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

##### Respiratory or skin sensitization

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

##### Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride  
Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride  
**Carcinogenicity**

No data available

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

May cause respiratory irritation. - Respiratory system

### **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.

RTECS: UU5075000

Cough, Shortness of breath, Headache, Nausea, Vomiting

After absorption:

We have no description of any toxic symptoms.

Further data:

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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## SECTION 12: Ecological information

### 12.1 Toxicity

|                                                     |                                                                                                                                                                                                                          |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | static test LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 0,16 mg/l - 96 h<br>(OECD Test Guideline 203)<br>Remarks: The value is given in analogy to the following substances:<br>N-Cetylpyridinium chloride       |
| Toxicity to daphnia and other aquatic invertebrates | semi-static test EC50 - <i>Daphnia magna</i> (Water flea) - 0,0041 mg/l - 48 h<br>(OECD Test Guideline 202)<br>Remarks: The value is given in analogy to the following substances:<br>N-Cetylpyridinium chloride         |
| Toxicity to algae                                   | static test EC50 - <i>Pseudokirchneriella subcapitata</i> (algae) - 0,0269 mg/l - 72 h<br>(OECD Test Guideline 201)<br>Remarks: The value is given in analogy to the following substances:<br>N-Cetylpyridinium chloride |
| Toxicity to bacteria                                | static test EC50 - activated sludge - 20,7 mg/l - 3 h<br>(OECD Test Guideline 209)<br>Remarks: The value is given in analogy to the following substances:<br>N-Cetylpyridinium chloride                                  |

### 12.2 Persistence and degradability

|                  |                                                                                                                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 0 % - Not biodegradable<br>(OECD Test Guideline 301D)<br>Remarks: The value is given in analogy to the following substances:<br>N-Cetylpyridinium chloride |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 12.3 Bioaccumulative potential

(External MSDS)

### 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

## 12.7 Other adverse effects

Discharge into the environment must be avoided.

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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: 2811

IMDG: 2811

IATA: 2811

### 14.2 UN proper shipping name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (Cetylpyridinium chloride monohydrate)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (Cetylpyridinium chloride monohydrate)

IATA: Toxic solid, organic, n.o.s. (Cetylpyridinium chloride monohydrate)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

### 14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

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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 H2 ACUTE TOXIC  
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.        |
| H330 | Fatal if inhaled.                 |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life.       |

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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

## 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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