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

1.1 Product identifiers
- Product name: Cetylpyridinium chloride
- Product Number: C0732
- Brand: Sigma-Aldrich
- 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 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
- Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
- Acute toxicity, Oral (Category 4), H302
- Acute toxicity, Inhalation (Category 2), H330
- Skin irritation (Category 2), H315
- Serious eye damage (Category 1), H318
- Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
- Short-term (acute) aquatic hazard (Category 1), H400

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

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word | Danger
---|---
Hazard statement(s)
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 statement(s)
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

Reduced Labeling (<= 125 ml)

Pictogram

Signal word | Danger
---|---
Hazard statement(s)
H330 | Fatal if inhaled.
H318 | Causes serious eye damage.

Precautionary statement(s)
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

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.
SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: Hexadecylpyridinium chloride
Cetylpyridinium chloride

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetylpyridinium chloride monohydrate</td>
<td>Acute Tox. 4; Acute Tox. 2; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; Aquatic Acute 1; H302, H330, H315, H318, H335, H400 M-Factor - Aquatic Acute: 10</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>6004-24-6</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>204-593-9</td>
<td></td>
</tr>
</tbody>
</table>

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
SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**
- Water
- Foam
- Carbon dioxide (CO2)
- Dry powder

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

5.2 Special hazards arising from the substance or mixture

Carbon oxides
- Nitrogen oxides (NOx)
- 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.

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.

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.

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). 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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: 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

- **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) **Appearance**
   - Form: solid
   - Color: white

b) **Odor**
   - characteristic

c) **Odor Threshold**
   - No data available

d) **pH**
   - 5.0 - 5.4 at 10 g/l at 20 °C

e) **Melting point/freezing point**
   - Melting point: 80 - 84 °C

f) **Initial boiling point and boiling range**
   - 120 - 124 °C at 0.09 hPa

g) **Flash point**
   - Not applicable

h) **Evaporation rate**
   - No data available

i) **Flammability (solid, gas)**
   - No data available

j) **Upper/lower flammability or explosive limits**
   - No data available

k) **Vapor pressure**
   - No data available

l) **Vapor density**
   - No data available

m) **Relative density**
   - No data available

n) **Water solubility**
   - 111 g/l at 20 °C

o) **Partition coefficient:**
   - \( \log \text{Pow: } 1.71 \text{ at } 20 ^\circ \text{C} - \text{(anhydrous substance),} \)
   - Bioaccumulation is not expected.

p) **Autoignition temperature**
   - No data available

q) **Decomposition temperature**
   - No data available

r) **Viscosity**
   - Viscosity, kinematic: No data available
   - Viscosity, dynamic: No data available

s) **Explosive properties**
   - No data available

t) **Oxidizing properties**
   - No data available

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**9.2 Other safety information**

No data available
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

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-Cetylpuridinium chloride

LC50 Inhalation - Rat - male and female - 4 h - 0,054 - 0,51 mg/l
(OECD Test Guideline 403)
Remarks: The value is given in analogy to the following substances: N-Cetylpuridinium 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-Cetylpuridinium chloride

Skin corrosion/irritation
Skin - Rabbit
Result: Irritations
(OECD Test Guideline 404)
Remarks: The value is given in analogy to the following substances: N-Cetylpuridinium 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**

**Specific target organ toxicity - single exposure**
May cause respiratory irritation. - Respiratory system

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**

11.2 **Additional Information**
RTECS: UU5075000

Cough, Shortness of breath, Headache, Nausea, Vomiting

After absorption:

We have no description of any toxic symptoms.
Further data:
Other dangerous properties cannot be excluded.
This substance should be handled with particular care.

**SECTION 12: Ecological information**

12.1 Toxicity

Toxicity to fish  
static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0,16 mg/l - 96 h  
(OECD Test Guideline 203)  
Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

Toxicity to daphnia and other aquatic invertebrates  
semi-static test - Daphnia magna (Water flea) - 0,0041 mg/l - 48 h  
(OECD Test Guideline 202)  
Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

Toxicity to algae  
static test EC50 - Pseudokirchneriella subcapitata (algae) - 0,0269 mg/l - 72 h  
(OECD Test Guideline 201)  
Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

Toxicity to bacteria  
static test EC50 - activated sludge - 20,7 mg/l - 3 h  
(OECD Test Guideline 209)  
Remarks: The value is given in analogy to the following substances: N-Cetylpyridinium chloride

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential  
(External MSDS)

12.4 Mobility in soil

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 Other adverse effects  
Discharge into the environment must be avoided.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

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
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.

National legislation

: ENVIRONMENTAL HAZARDS

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
SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

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.

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

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