

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.3

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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 : Pentetic Acid, United States Pharmacopeia (USP) Reference Standard

Product Number : 1505506  
Brand : US Pharmacopeia  
Index-No. : 607-735-00-1  
REACH No. : 01-2119497281-34-XXXX  
CAS-No. : 67-43-6

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3

### 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)         | H332: Harmful if inhaled.            |
| Eye irritation, (Category 2)         | H319: Causes serious eye irritation. |
| Reproductive toxicity, (Category 1B) | H360D: May damage the unborn child.  |

Specific target organ toxicity -  
repeated exposure, (Category 2),  
Respiratory Tract

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

## 2.2 Label elements

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

Pictogram

|                                |                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Signal Word                    | Danger                                                                                                                           |
| Hazard Statements              |                                                                                                                                  |
| H319                           | Causes serious eye irritation.                                                                                                   |
| H332                           | Harmful if inhaled.                                                                                                              |
| H360D                          | May damage the unborn child.                                                                                                     |
| H373                           | May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.                                |
| Precautionary Statements       |                                                                                                                                  |
| P202                           | Do not handle until all safety precautions have been read and understood.                                                        |
| P260                           | Do not breathe dust.                                                                                                             |
| P264                           | Wash skin thoroughly after handling.                                                                                             |
| P304 + P340 + P312             | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.      |
| P305 + P351 + P338             | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308 + P313                    | IF exposed or concerned: Get medical advice/ attention.                                                                          |
| Supplemental Hazard Statements | none                                                                                                                             |
|                                | Restricted to professional users.                                                                                                |

### Reduced Labeling (<= 125 ml)

Pictogram

|                                |                                                                           |
|--------------------------------|---------------------------------------------------------------------------|
| Signal Word                    | Danger                                                                    |
| Hazard Statements              |                                                                           |
| H360D                          | May damage the unborn child.                                              |
| Precautionary Statements       |                                                                           |
| P202                           | Do not handle until all safety precautions have been read and understood. |
| P308 + P313                    | IF exposed or concerned: Get medical advice/ attention.                   |
| 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>14</sub>H<sub>23</sub>N<sub>3</sub>O<sub>10</sub>  
Molecular weight : 393,35 g/mol  
CAS-No. : 67-43-6  
EC-No. : 200-652-8  
Index-No. : 607-735-00-1

| Component                                               |              | Classification                                                                                                                                                                                     | Concentration |
|---------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycine</b> |              |                                                                                                                                                                                                    |               |
| CAS-No.                                                 | 67-43-6      | Acute Tox. 4; Eye Irrit. 2;<br>Repr. 1B; STOT RE 2;<br>H332, H319, H360D, H373<br>Concentration limits:<br>>= 3 %: Repr. 1B,<br>H360D;<br><br>Acute inhalation<br>toxicity(dust/mist): 1,5<br>mg/l | <= 100 %      |
| EC-No.                                                  | 200-652-8    |                                                                                                                                                                                                    |               |
| Index-No.                                               | 607-735-00-1 |                                                                                                                                                                                                    |               |

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. 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. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. 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>)

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

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 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): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

### 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). Safety glasses

##### 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                               | powder                                                                       |
| b) Color                                        | white                                                                        |
| c) Odor                                         | odorless                                                                     |
| d) Melting point/freezing point                 | Melting point/range: 219 - 220 °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                                  | 200 °C - closed cup                                                          |
| i) Autoignition temperature                     | 387 - 397 °C<br>at 1.013 hPa - Relative self-ignition temperature for solids |
| j) Decomposition temperature                    | No data available                                                            |
| k) pH                                           | 2,5 at 10 g/l at 23 °C                                                       |
| l) Viscosity                                    | Viscosity, kinematic: No data available                                      |

- Viscosity, dynamic: No data available
- m) Water solubility 4,8 g/l at 25 °C
- n) Partition coefficient: log Pow: -4,91 - (Lit.), Bioaccumulation is not expected.  
n-octanol/water
- o) Vapor pressure No data available
- p) Density 1,56 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 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

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.  
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  
Strong acids  
Strong bases

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

Strong oxidizing agents

### 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 - male and female - > 5.000 mg/kg

(OECD Test Guideline 401)

Remarks: (in analogy to similar compounds)

The value is given in analogy to the following substances: N,N-Bis[2-bis(carboxymethyl)amino]ethyl]-glycine potassium salt (1:5)

LC50 Inhalation - Rat - male - 4 h - 1,5 mg/l - dust/mist

Remarks: (in analogy to similar products)

(ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Acute toxicity estimate Inhalation - 1,5 mg/l - dust/mist

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

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

(OECD Test Guideline 402)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: N,N-Bis[2-bis(carboxymethyl)amino]ethyl]-glycine potassium salt (1:5)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Pentasodium (carboxylatomethyl)iminobis(ethylenenitrilo)tetraacetate

#### Serious eye damage/eye irritation

Remarks: Causes serious eye irritation.

(ECHA)

#### Respiratory or skin sensitization

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Remarks: (in analogy to similar products)

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Remarks: (in analogy to similar products)

**Carcinogenicity**

No data available

**Reproductive toxicity**

May damage the unborn child.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

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

- Respiratory 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 - Rat - male and female - Oral - 4 Weeks - NOAEL (No observed adverse effect level) - 75 mg/kg

Remarks: (in analogy to similar products)

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                                    | flow-through test LC50 - Leuciscus idus (Golden orfe) - > 100 mg/l - 96 h<br>Remarks: (External MSDS)                                                                                                                                                                                                                         |
| Toxicity to daphnia and other aquatic invertebrates | static test LC50 - Daphnia magna (Water flea) - 245 mg/l - 48 h (OECD Test Guideline 202)                                                                                                                                                                                                                                     |
| Toxicity to algae                                   | static test NOEC - Scenedesmus quadricauda (Green algae) - 400 mg/l - 23 d<br>Remarks: (in analogy to similar products) (ECHA)<br>The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt<br>The value is given in analogy to the following substances: Sodium ferredetate |

|                                                                       |                                                                                                  |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Toxicity to bacteria                                                  | static test EC50 - activated sludge - > 1.000 mg/l - 3 h<br>(OECD Test Guideline 209)            |
| Toxicity to fish(Chronic toxicity)                                    | semi-static test NOEC - <i>Melanotaenia fluviatilis</i> - 100 mg/l - 28 d<br>Remarks: (ECHA)     |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | static test NOEC - <i>Daphnia</i> sp. (Water flea) - 67 mg/l - 18 d<br>(OECD Test Guideline 211) |

## 12.2 Persistence and degradability

Biodegradability      aerobic - Exposure time 28 d  
Result: 9,3 % - Not readily biodegradable.  
(OECD Test Guideline 301F)

Ratio BOD/ThBOD      1 %  
Remarks: (Lit.)

## 12.3 Bioaccumulative potential

Indication of bioaccumulation.

## 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

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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: -

IMDG: -

IATA: -

### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

No data available

#### Further information

Not classified as dangerous in the meaning of transport regulations.

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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.

#### Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

: N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycine

#### 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

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H360D May damage the unborn child.

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

## 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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