

**SECTION 1: Identification of the substance/mixture and of the company/  
undertaking****1.1 Product identifier****Trade name:** Pufferlösung CPY3 +468 mV**Synonym:** Buffer Solution CPY3 +468 mV**Article number:** CPY3-B-5**UFI:** 7520-U010-U00R-CYCT**1.2 Relevant identified uses of the substance or mixture and uses advised against****Product category** PC21 Laboratory chemicals**Application of the substance / the mixture** Laboratory chemicals**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Endress+Hauser

Conducta GmbH+Co. KG

Dieselstraße 24

D-70839 Gerlingen

**Further information obtainable from:**

Phone: +49 (0)7156 209-10117

E-Mail: MSDS.PCC@endress.com

**1.4 Emergency telephone number:**

00353 01 809 2166 (from 8 am to 10 pm, 7 days a week)

00353 01 809 2566 (24h)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

**Hazard pictograms**

GHS05

**Signal word** Danger**Hazard-determining components of labelling:**

sulphuric acid

**Hazard statements**

H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see on this label).

(Contd. on page 2)

**Trade name: Pufferlösung CPY3 +468 mV**

(Contd. of page 1)

P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Additional information:**

Product contains: Reportable explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 9.

**2.3 Other hazards**

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients****3.2 Mixtures**

**Description:** Mixture of substances listed below with nonhazardous additions.

| <b>Dangerous components:</b>   |  |        |
|--|--|--------|
| CAS: 7664-93-9<br>EINECS: 231-639-5<br>Registration number: 01-2119458838-20-XXXX  | sulphuric acid<br>⚠ Skin Corr. 1A, H314<br>Specific concentration limits: Skin Corr. 1A; H314: C ≥ 15 %<br>Skin Irrit. 2; H315: 5 % ≤ C < 15 %<br>Eye Irrit. 2; H319: 5 % ≤ C < 15 % | 2-6%   |
| CAS: 10028-22-5<br>EINECS: 233-072-9<br>Registration number: 01-2119513202-59-0XXX | iron(III) sulfate<br>⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2-6%   |
| CAS: 7720-78-7<br>EINECS: 231-753-5  | iron(II) sulfate<br>⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319  | 1-2.5% |

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

**SECTION 4: First aid measures****4.1 Description of first aid measures**

**General information:** Immediately remove any clothing soiled by the product.

**After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Immediately rinse with water.

**After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing:** Drink plenty of water and provide fresh air. Call for a doctor immediately.

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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

CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**For safety reasons unsuitable extinguishing agents:** no further information

(Contd. on page 3)

Trade name: Pufferlösung CPY3 +468 mV

(Contd. of page 2)

**5.2 Special hazards arising from the substance or mixture***During heating or in case of fire poisonous gases are produced.***5.3 Advice for firefighters** *No further relevant information available.***Protective equipment:** *Mount respiratory protective device.***SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures***Mount respiratory protective device.**Wear protective equipment. Keep unprotected persons away.**Wear protective clothing.***6.2 Environmental precautions:***Dilute with plenty of water.**Do not allow to enter sewers/ surface or ground water.***6.3 Methods and material for containment and cleaning up:***Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Use neutralising agent.**Dispose contaminated material as waste according to item 13.**Ensure adequate ventilation.***6.4 Reference to other sections***See Section 7 for information on safe handling.**See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***SECTION 7: Handling and storage****7.1 Precautions for safe handling***Keep receptacles tightly sealed.**Ensure good ventilation/exhaustion at the workplace.**Prevent formation of aerosols.***Information about fire - and explosion protection:** *Keep respiratory protective device available.***7.2 Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** *No special requirements.***Information about storage in one common storage facility:** *Not required.***Further information about storage conditions:** *Keep container tightly sealed.***Storage class:** *8 B***7.3 Specific end use(s)** *No further relevant information available.***SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Ingredients with limit values that require monitoring at the workplace:****CAS: 7664-93-9 sulphuric acid**OEL (Ireland) *Long-term value: 0.05 mg/m<sup>3</sup>*  
*IOELV*IOELV (EU) *Long-term value: 0.05 mg/m<sup>3</sup>***CAS: 10028-22-5 iron(III) sulfate**OEL (Ireland) *Short-term value: 2 mg/m<sup>3</sup>*  
*Long-term value: 1 mg/m<sup>3</sup>*  
*as Fe***CAS: 7720-78-7 iron(II) sulfate**OEL (Ireland) *Short-term value: 2 mg/m<sup>3</sup>*  
*Long-term value: 1 mg/m<sup>3</sup>*  
*as Fe*

(Contd. on page 4)

**Trade name: Pufferlösung CPY3 +468 mV**

(Contd. of page 3)

| DNELs                                |                                       |   |
|--------------------------------------|---------------------------------------|---|
| <b>CAS: 7664-93-9 sulphuric acid</b> |                                       |   |
| Inhalative                           | DNEL short-term                       | 0.1 mg/m <sup>3</sup> (worker) (local effects)  |
|                                      | DNEL long-term                        | 0.05 mg/m <sup>3</sup> (worker) (local effects) |
| PNECs                                |                                       |   |
| <b>CAS: 7664-93-9 sulphuric acid</b> |                                       |   |
| PNEC                                 | 8.8 mg/L (Wastewater treatment plant) |   |
|                                      | 0.25 mg/L (sea water)                 |   |
| PNEC                                 | 2.5 µg/L (fresh water)                |   |
| PNEC                                 | 2 µg/kg (marine sediment)             |   |
|                                      | 2 µg/kg (freshwater sediment)         |   |

**Additional information:** *The lists valid during the making were used as basis.*

**8.2 Exposure controls**

**Appropriate engineering controls** *No further data; see item 7.*

**Individual protection measures, such as personal protective equipment****General protective and hygienic measures:**

*Keep away from foodstuffs, beverages and feed.*

*Immediately remove all soiled and contaminated clothing*

*Wash hands before breaks and at the end of work.*

*Avoid contact with the eyes.*

*Avoid contact with the eyes and skin.*

**Respiratory protection:**

*In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.*

**Hand protection**

*Protective gloves*

*To avoid skin problems reduce the wearing of gloves to the required minimum.*

*Only use chemical-protective gloves with CE-labelling of category III.*

*The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.*

**Material of gloves**

*Nitrile rubber, NBR*

*Chloroprene rubber, CR*

*The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.*

**Penetration time of glove material**

*The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.*

**Eyeface protection**

*Tightly sealed goggles*

**Body protection:** *Protective work clothing*

(Contd. on page 5)

Trade name: Pufferlösung CPY3 +468 mV

(Contd. of page 4)

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information**

|  |                       |
|--|-----------------------|
| Physical state   | Fluid                 |
| Colour:  | Dark yellow           |
| Odour:   | Odourless             |
| Odour threshold:   | Not determined.       |
| Melting point/freezing point:                            | Undetermined.         |
| Boiling point or initial boiling point and boiling range | Undetermined.         |
| Flammability   | Not applicable.       |
| Lower and upper explosion limit                          |                       |
| Lower:   | Not determined.       |
| Upper:   | Not determined.       |
| Flash point:   | Not applicable.       |
| Decomposition temperature:                               | Not determined.       |
| pH at 20 °C  | <2                    |
| Viscosity:   |                       |
| Kinematic viscosity                                      | Not determined.       |
| Dynamic:   | Not determined.       |
| Solubility   |                       |
| water:   | Fully miscible.       |
| Partition coefficient n-octanol/water (log value)        | Not determined.       |
| Vapour pressure at 20 °C:                                | 23 hPa                |
| Density and/or relative density                          |                       |
| Density at 20 °C:  | 1.1 g/cm <sup>3</sup> |
| Relative density   | Not determined.       |
| Vapour density   | Not determined.       |

**9.2 Other information**

|   |  |
|---|--|
| Appearance:   |  |
| Form:   | Fluid  |
| Important information on protection of health and environment, and on safety. |  |
| Auto-ignition temperature:  | Product is not selfigniting.                                     |
| Explosive properties:   | Product does not present an explosion hazard.<br>Not determined. |
| Solvent content:  |  |
| Water:  | 90-95 %  |
| Solids content:   | 0.0 %  |
| Change in condition   |  |
| Evaporation rate  | Not determined.  |

**Information with regard to physical hazard classes**

|                                       |      |
|---------------------------------------|------|
| Explosives                            | Void |
| Flammable gases                       | Void |
| Aerosols                              | Void |
| Oxidising gases                       | Void |
| Gases under pressure                  | Void |
| Flammable liquids                     | Void |
| Flammable solids                      | Void |
| Self-reactive substances and mixtures | Void |
| Pyrophoric liquids                    | Void |
| Pyrophoric solids                     | Void |
| Self-heating substances and mixtures  | Void |

(Contd. on page 6)

Trade name: Pufferlösung CPY3 +468 mV

(Contd. of page 5)

|  |      |
|--|------|
| <b>Substances and mixtures, which emit flammable gases in contact with water</b> | Void |
| <b>Oxidising liquids</b>   | Void |
| <b>Oxidising solids</b>  | Void |
| <b>Organic peroxides</b>   | Void |
| <b>Corrosive to metals</b>   | Void |
| <b>Desensitised explosives</b>   | Void |

## SECTION 10: Stability and reactivity

**10.1 Reactivity** No further relevant information available.

**10.2 Chemical stability**

**Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

**10.3 Possibility of hazardous reactions** No dangerous reactions known.

**10.4 Conditions to avoid** No further relevant information available.

**10.5 Incompatible materials:** No further relevant information available.

**10.6 Hazardous decomposition products:** No dangerous decomposition products known.

## SECTION 11: Toxicological information

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Acute toxicity** Based on available data, the classification criteria are not met.

**Skin corrosion/irritation** Causes severe skin burns and eye damage.

**Serious eye damage/irritation** Causes serious eye damage.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT-single exposure** Based on available data, the classification criteria are not met.

**STOT-repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

**11.2 Information on other hazards**

**Endocrine disrupting properties**

None of the ingredients is listed.

## SECTION 12: Ecological information

**12.1 Toxicity**

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

**12.5 Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

**12.7 Other adverse effects**

**Additional ecological information:**

**General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

(Contd. on page 7)



Trade name: Pufferlösung CPY3 +468 mV

(Contd. of page 6)

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation***Must not be disposed together with household garbage. Do not allow product to reach sewage system.***European waste catalogue**

|           |  |
|-----------|--|
| 16 05 06* | laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals |
|-----------|--|

**Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****14.1 UN number or ID number****ADR, IMDG, IATA**

UN2796

**14.2 UN proper shipping name****ADR**

UN2796 SULPHURIC ACID

**IMDG**

SULPHURIC ACID

**IATA**

Sulphuric acid

**14.3 Transport hazard class(es)****ADR****Class**

8 (C1) Corrosive substances.

**Label**

8

**IMDG, IATA****Class**

8 Corrosive substances.

**Label**

8

**14.4 Packing group****ADR, IMDG, IATA**

II

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

Warning: Corrosive substances.

**Hazard identification number (Kemler code):**

80

**EMS Number:**

F-A, S-B

**Segregation groups**

Strong acids

**Stowage Category**

B

**Segregation Code**SG36 Stow "separated from" SGG18-alkalis.  
SG49 Stow "separated from" SGG6-cyanides**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

**Transport/Additional information:****ADR****Limited quantities (LQ)**

1L

**Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

(Contd. on page 8)

Trade name: Pufferlösung CPY3 +468 mV

(Contd. of page 7)

|                         |   |
|-------------------------|---|
| Transport category      | 2 |
| Tunnel restriction code | E |

**IMDG**

|                         |    |
|-------------------------|----|
| Limited quantities (LQ) | 1L |
|-------------------------|----|

|                          |          |
|--------------------------|----------|
| Excepted quantities (EQ) | Code: E2 |
|--------------------------|----------|

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

UN 2796 SULPHURIC ACID, 8, II

UN "Model Regulation":

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

**Hazard pictograms**

GHS05

Signal word *Danger***Hazard-determining components of labelling:***sulphuric acid***Hazard statements***H314 Causes severe skin burns and eye damage.***Precautionary statements***P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].**P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**P310 Immediately call a POISON CENTER/doctor.**P321 Specific treatment (see on this label).**P405 Store locked up.**P501 Dispose of contents/container in accordance with local/regional/national/international regulations.***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *None of the ingredients is listed.***REGULATION (EC) No 1907/2006 ANNEX XVII** *Conditions of restriction: 3***DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II***None of the ingredients is listed.***REGULATION (EU) 2019/1148****Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))***None of the ingredients is listed.***Annex II - REPORTABLE EXPLOSIVES PRECURSORS***None of the ingredients is listed.***Regulation (EC) No 273/2004 on drug precursors**CAS: 7664-93-9 | *sulphuric acid*

3

**Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**CAS: 7664-93-9 | *sulphuric acid*

3

(Contd. on page 9)



**Trade name: Pufferlösung CPY3 +468 mV**

(Contd. of page 8)

**National regulations:****Waterhazard class:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.***15.2 Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**16.1 Relevant phrases***H302 Harmful if swallowed.**H314 Causes severe skin burns and eye damage.**H315 Causes skin irritation.**H319 Causes serious eye irritation.***16.3 Recommended restriction of use****Department issuing SDS:** *PCC-TWR***Contact:** *MSDS.pcc@endress.com***Date of previous version:** *13.04.2021***Version number of previous version:** *10***Abbreviations and acronyms:***RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**ICAO: International Civil Aviation Organisation**ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**DNEL: Derived No-Effect Level (REACH)**PNEC: Predicted No-Effect Concentration (REACH)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 4: Acute toxicity – Category 4**Skin Corr. 1A: Skin corrosion/irritation – Category 1A**Skin Irrit. 2: Skin corrosion/irritation – Category 2**Eye Dam. 1: Serious eye damage/eye irritation – Category 1**Eye Irrit. 2: Serious eye damage/eye irritation – Category 2***\* Data compared to the previous version altered.**