

**\* 1 Identification****Product identifier****Trade name:** Pufferlösung CPY3 +468 mV**Synonym:** *Buffer Solution CPY3 +468 mV***Article number:** *CPY3-B-5***Application of the substance / the mixture** *Laboratory chemicals***Details of the supplier of the safety data sheet****Manufacturer/Supplier:***Endress+Hauser Conducta Inc.  
4123 E. La Palma Ave., Suite 200  
Anaheim  
CA 92807-1813  
USA***Information department:***Phone: +49 (0)7156 209-10117  
E-Mail: MSDS.PCC@endress.com***Emergency telephone number:** *001 18000 222 1222***2 Hazard(s) identification****Classification of the substance or mixture***GHS05 Corrosion**Skin Corrosion 1A H314 Causes severe skin burns and eye damage.**Eye Damage 1 H318 Causes serious eye damage.***Label elements****GHS label elements***The product is classified and labeled according to the Globally Harmonized System (GHS).***Hazard pictograms***GHS05***Signal word** *Danger***Hazard-determining components of labeling:***sulphuric acid***Hazard statements***Causes severe skin burns and eye damage.***Precautionary statements***If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Immediately call a poison center/doctor.**Specific treatment (see on this label).**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 3**Fire = 0**Reactivity = 0*

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**HMIS-ratings (scale 0 - 4)**

|            |   |                |
|------------|---|----------------|
| HEALTH     | 3 | Health = 3     |
| FIRE       | 0 | Fire = 0       |
| REACTIVITY | 0 | Reactivity = 0 |

**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.

**3 Composition/information on ingredients****Chemical characterization: Mixtures**

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

| <b>Dangerous components:</b> |                                                                                                        |        |
|------------------------------|--------------------------------------------------------------------------------------------------------|--------|
| CAS: 7664-93-9               | sulphuric acid<br>⚠ Skin Corrosion 1A, H314                                                            | 2-6%   |
| CAS: 10028-22-5              | iron(III) sulfate<br>⚠ Acute Toxicity - Oral 4, H302; Skin Irritation 2, H315; Eye Irritation 2A, H319 | 2-6%   |
| CAS: 7720-78-7               | iron(II) sulfate<br>⚠ Acute Toxicity - Oral 4, H302; Skin Irritation 2, H315; Eye Irritation 2A, H319  | 1-2.5% |

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

**4 First-aid measures****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 copious amounts of water and provide fresh air. Immediately call a doctor.

**Information for doctor:****Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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

No further relevant information available.

**5 Fire-fighting measures****Extinguishing media****Suitable extinguishing agents:**

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

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

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

During heating or in case of fire poisonous gases are produced.

**Advice for firefighters** No further relevant information available.

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Protective equipment: Mount respiratory protective device.

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

Wear protective clothing.

### Environmental precautions:

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

### Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

### 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.

### Protective Action Criteria for Chemicals

|                 |                   |                        |
|-----------------|-------------------|------------------------|
| <b>PAC-1:</b>   |                   |                        |
| CAS: 7664-93-9  | sulphuric acid    | 0.20 mg/m <sup>3</sup> |
| CAS: 10028-22-5 | iron(III) sulfate | 11 mg/m <sup>3</sup>   |
| CAS: 7720-78-7  | iron(II) sulfate  | 8.2 mg/m <sup>3</sup>  |
| <b>PAC-2:</b>   |                   |                        |
| CAS: 7664-93-9  | sulphuric acid    | 8.7 mg/m <sup>3</sup>  |
| CAS: 10028-22-5 | iron(III) sulfate | 120 mg/m <sup>3</sup>  |
| CAS: 7720-78-7  | iron(II) sulfate  | 41 mg/m <sup>3</sup>   |
| <b>PAC-3:</b>   |                   |                        |
| CAS: 7664-93-9  | sulphuric acid    | 160 mg/m <sup>3</sup>  |
| CAS: 10028-22-5 | iron(III) sulfate | 710 mg/m <sup>3</sup>  |
| CAS: 7720-78-7  | iron(II) sulfate  | 250 mg/m <sup>3</sup>  |

## 7 Handling and storage

### Precautions for safe handling

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

### Information about protection against explosions and fires:

Keep respiratory protective device available.

### 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 receptacle tightly sealed.

Storage class: 8 B

Specific end use(s) No further relevant information available.

## 8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

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**Control parameters****Components with limit values that require monitoring at the workplace:****CAS: 7664-93-9 sulphuric acid**

|     |                                                                      |
|-----|----------------------------------------------------------------------|
| PEL | Long-term value: 1 mg/m <sup>3</sup>                                 |
| REL | Long-term value: 1 mg/m <sup>3</sup>                                 |
| TLV | Long-term value: 0.2* mg/m <sup>3</sup><br>*as thoracic fraction, A2 |

**CAS: 10028-22-5 iron(III) sulfate**

|     |                                               |
|-----|-----------------------------------------------|
| REL | Long-term value: 1 mg/m <sup>3</sup><br>as Fe |
| TLV | Long-term value: 1 mg/m <sup>3</sup><br>as Fe |

**CAS: 7720-78-7 iron(II) sulfate**

|     |                                               |
|-----|-----------------------------------------------|
| REL | Long-term value: 1 mg/m <sup>3</sup><br>as Fe |
| TLV | Long-term value: 1 mg/m <sup>3</sup><br>as Fe |

**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****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.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:**

Protective gloves

To avoid skin problems reduce the wearing of gloves to the required minimum.  
 Only use chemical-protective gloves with CE-labeling 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.

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**Eye protection:***Tightly sealed goggles***Body protection:** *Protective work clothing*

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

**Appearance:**

|                        |                        |
|------------------------|------------------------|
| <b>Form:</b>           | <i>Fluid</i>           |
| <b>Color:</b>          | <i>Dark yellow</i>     |
| <b>Odor:</b>           | <i>Odorless</i>        |
| <b>Odor threshold:</b> | <i>Not determined.</i> |

**pH-value at 20 °C (68 °F):** *<2***Change in condition**

|                                     |                      |
|-------------------------------------|----------------------|
| <b>Melting point/Melting range:</b> | <i>Undetermined.</i> |
| <b>Boiling point/Boiling range:</b> | <i>Undetermined.</i> |

**Flash point:** *Not applicable.***Flammability (solid, gaseous):** *Not applicable.***Decomposition temperature:** *Not determined.***Auto igniting:** *Product is not selfigniting.***Danger of explosion:** *Product does not present an explosion hazard.  
Not determined.***Explosion limits:**

|               |                        |
|---------------|------------------------|
| <b>Lower:</b> | <i>Not determined.</i> |
| <b>Upper:</b> | <i>Not determined.</i> |

**Vapor pressure at 20 °C (68 °F):** *23 hPa (17.3 mm Hg)***Density at 20 °C (68 °F):** *1.1 g/cm<sup>3</sup> (9.18 lbs/gal)***Relative density** *Not determined.***Vapor density** *Not determined.***Evaporation rate** *Not determined.***Solubility in / Miscibility with****Water:** *Fully miscible.***Partition coefficient (n-octanol/water):** *Not determined.***Viscosity:**

|                   |                        |
|-------------------|------------------------|
| <b>Dynamic:</b>   | <i>Not determined.</i> |
| <b>Kinematic:</b> | <i>Not determined.</i> |

**Solvent content:****Water:** *90-95 %***Solids content:** *0.0 %***Other information** *No further relevant information available.*

## 10 Stability and reactivity

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

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**Chemical stability****Thermal decomposition / conditions to be avoided:***No decomposition if used according to specifications.***Possibility of hazardous reactions** *No dangerous reactions known.***Conditions to avoid** *No further relevant information available.***Incompatible materials:** *No further relevant information available.***Hazardous decomposition products:** *No dangerous decomposition products known.*

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## 11 Toxicological information

**Information on toxicological effects****Acute toxicity:****Primary irritant effect:****on the skin:** *Strong caustic effect on skin and mucous membranes.***on the eye:***Strong caustic effect.**Strong irritant with the danger of severe eye injury.***Sensitization:** *No sensitizing effects known.***Additional toxicological information:***The product shows the following dangers according to internally approved calculation methods for preparations:**Corrosive**Irritant**Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.*

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## 12 Ecological information

**Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.***Behavior in environmental systems:****Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Additional ecological information:****General notes:***Water hazard class 1 (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 bodies of water or drainage ditch undiluted or unneutralized.**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.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***Other adverse effects** *No further relevant information available.*

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## 13 Disposal considerations

**Waste treatment methods****Recommendation:***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agent:** *Water, if necessary with cleansing agents.*

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## 14 Transport information

UN-Number  
 DOT, IMDG, IATA  
 UN proper shipping name  
 DOT, IMDG  
 IATA  
 Transport hazard class(es)

UN2796  
 SULPHURIC ACID  
 Sulphuric acid

DOT



Class  
 Label

8 Corrosive substances  
 8

IMDG, IATA



Class  
 Label

8 Corrosive substances  
 8

Packing group

DOT, IMDG, IATA

II

Environmental hazards:

Not applicable.

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

Transport in bulk according to Annex II of  
 MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information:

DOT

Quantity limitations

On passenger aircraft/rail: 1 L  
 On cargo aircraft only: 30 L

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 "Model Regulation":

UN 2796 SULPHURIC ACID, 8, II

## 15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture  
 Sara

Section 355 (extremely hazardous substances):

CAS: 7664-93-9 sulphuric acid

CAS: 7720-78-7 iron(II) sulfate

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**Section 313 (Specific toxic chemical listings):**

CAS: 7664-93-9 | sulphuric acid

**TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

**Hazardous Air Pollutants**

None of the ingredients is listed.

**Proposition 65****Chemicals known to cause cancer:**

None of the ingredients is listed.

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

**Carcinogenicity categories****EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**TLV (Threshold Limit Value)**

CAS: 7664-93-9 | sulphuric acid

A2

**MAK (German Maximum Workplace Concentration)**

CAS: 7664-93-9 | sulphuric acid

4

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

**GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms**

GHS05

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

sulphuric acid

**Hazard statements**

Causes severe skin burns and eye damage.

**Precautionary statements**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

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## 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.*

**Department issuing SDS:** PCC - TWR

**Contact:** MSDS.pcc@endress.com

**Date of preparation / last revision** 05/13/2022 / 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*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*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)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*Acute Toxicity - Oral 4: Acute toxicity – Category 4*

*Skin Corrosion 1A: Skin corrosion/irritation – Category 1A*

*Skin Irritation 2: Skin corrosion/irritation – Category 2*

*Eye Damage 1: Serious eye damage/eye irritation – Category 1*

*Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A*

**\* Data compared to the previous version altered.**

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USA

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