

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- Trade name: **Vorversilberung mit 5g Ag/l**
Pre silver plating bath with 5g Ag/l

- Article number: 3090300402

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

- No further relevant information available.
- Application of the substance / the mixture Galvanic bath

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Wieland Edelmetalle GmbH
Schwenninger Str. 13
75179 Pforzheim
Telefon +49 (07231)-1393-0, Telefax +49 (07231)-1393-100

Further information obtainable from:

Wieland Edelmetalle GmbH
www.wieland-edelmetalle.de
msds@wieland-edelmetalle.de

1.4 Emergency telephone number:

Emergency CONTACT (24-Hour-Number):GBK GmbH +49 (0)6132-84463

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

GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 2 H310 Fatal in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

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

GHS06 GHS09

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

potassium cyanide
potassium carbonate
silver cyanide

Hazard statements

H301+H331 Toxic if swallowed or if inhaled.
H310 Fatal in contact with skin.
H411 Toxic to aquatic life with long lasting effects.

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 1)

· **Precautionary statements**

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

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

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:**

EUH031 Contact with acids liberates toxic gas.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**

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

· **Dangerous components:**

CAS: 151-50-8 EINECS: 205-792-3	potassium cyanide Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	5-10%
CAS: 584-08-7 EINECS: 209-529-3	potassium carbonate Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	1-5%
CAS: 506-64-9 EINECS: 208-048-6	silver cyanide Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Met. Corr.1, H290; Eye Dam. 1, H318; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Irrit. 2, H315	< 1%

· **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.

Remove breathing equipment only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

If skin irritation continues, consult a doctor.

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:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

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

No further relevant information available.

(Contd. on page 3)

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 2)

- **Hazards** Danger of circulatory collapse.
- **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:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Hydrogen cyanide (HCN)
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Mount respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
- **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
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).
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**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
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:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Do not store together with acids.
- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Keep receptacle tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

(Contd. on page 4)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 3)

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**

506-64-9 silver cyanide

Oral	DNEL(Comm.)akut	4.5 mg/kg (-) (CN)
	DNEL(Com.)longterm	0.05 mg/kg (-) (CN)
	DNEL(Industrie) akut	4.5 mg/kg (-) (CN)
	DNEL(Indust.)longt.	0.05 mg/kg (-) (CN)

· **PNECs**

506-64-9 silver cyanide

PNEC (Industrie)	0.03 µg/l (H2O) (CN)
PNEC (Commercial)	0.03 µg/l (H2O) (CN)

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

· **8.2 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.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

· **Respiratory protection:**

Filter B

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.

· **Protection of hands:**



Protective gloves

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

- Chloroprene rubber, CR
- Butyl rubber, BR
- Fluorocarbon rubber (Viton)
- Nitrile rubber, NBR

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 determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

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

· **Not suitable are gloves made of the following materials:**

Leather gloves

(Contd. on page 5)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 4)

- Strong material gloves
- **Eye protection:** Goggles recommended during refilling
- **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Fluid
· Colour:	Colourless
· Odour:	Characteristic
· Odour threshold:	Not determined.

· **pH-value:** Not determined.

· Change in condition

· Melting point/freezing point:	Undetermined.
· Initial boiling point and boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Not applicable.

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Product is not selfigniting.

· **Explosive properties:** Product does not present an explosion hazard.

· Explosion limits:

· Lower:	Not determined.
· Upper:	Not determined.

· **Oxidising properties:** None

· **Vapour pressure:** Not determined.

· Density at 20 °C:	1.06 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

· **Partition coefficient: n-octanol/water:** Not determined.

· Viscosity:

· Dynamic:	Not determined.
· Kinematic:	Not determined.

· Solvent content:

· **Water:** 89.9 %

· **Solids content:** 8.1 %

· **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

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

(Contd. on page 6)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 5)

- **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:** Hydrogen cyanide (prussic acid)

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

· Acute toxicity

Toxic if swallowed or if inhaled.

Fatal in contact with skin.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	66.3 mg/kg
Dermal	LD50	66.4 mg/kg
Inhalative	LC50/4 h	6.17 mg/l

151-50-8 potassium cyanide

Oral	LD50	5 mg/kg (rat)
	LDLO	2.86 mg/kg (human) (RTECS)
Dermal	LD50	5 mg/kg (ATE)
Inhalative	LC50/4 h	0.5 mg/l (ATE)

506-64-9 silver cyanide

Oral	LD50	123 mg/kg (rat)
Dermal	LD50	100 mg/kg (human)
Inhalative	LC50/4 h	0.5 mg/l (ATE)
	LC50	524 mg/kg (10min) (human)

· Primary irritant effect:

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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.

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

151-50-8 potassium cyanide

LC50	0.45 mg/l (96h) (Lepomis macrochirus (bluegrill))
EC50	2 mg/l (48h) (Daphnia magna (water flea))
EC50	1.8-1.9 mg/l (72h) (Eutosiphon sulcatum) (CN)

(Contd. on page 7)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 6)

IC50	0.03 mg/l (8d) (Sc.quadricauda)
506-64-9 silver cyanide	
LC50	0.0049 mg/l (96h) (Pimephales promelas (fathead minnow)) (Ag)
	0.083 mg/l (96h) (Lepomis macrochirus (bluegrill)) (CN)
	0.057 mg/l (96h) (Onchorhynchus mykiss (rainbow trout)) (CN)
LC50	0.12 mg/l (96h) (Pimephales promelas (fathead minnow)) (CN)
EC50	0.0015 mg/l (48h) (Daphnia magna (water flea)) (Ag)
EC50	0.41 mg/l (48h) (Daphnia magna (water flea)) (CN)
EC50	0.001 mg/l (16h) (Ps.putida) (CN)
EC50	1.8 mg/l (72h) (Eutosiphon sulcatum) (CN)
IC50	0.03 mg/l (8d) (Sc.quadricauda) (CN)

- **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.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Contact manufacturer for recycling information.
Must be specially treated adhering to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:**
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

- | | |
|---------------------------------------|--|
| · 14.1 UN-Number | |
| · ADR, IMDG, IATA | UN2206 |
| · 14.2 UN proper shipping name | |
| · ADR | 2206 ISOCYANATES, TOXIC, N.O.S. (POTASSIUM CYANIDE), ENVIRONMENTALLY HAZARDOUS |

(Contd. on page 8)

Safety data sheet according to 1907/2006/EC, Article 31






Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 7)

<ul style="list-style-type: none"> · IMDG · IATA 	<p>ISOCYANATES, TOXIC, N.O.S. (POTASSIUM CYANIDE, SILVER CYANIDE), MARINE POLLUTANT</p> <p>ISOCYANATES, TOXIC, N.O.S. (POTASSIUM CYANIDE)</p>
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR <div style="display: flex; align-items: center; gap: 10px;">   </div> <ul style="list-style-type: none"> · Class · Label 	<p>6.1 (T1) Toxic substances.</p> <p>6.1</p>
<ul style="list-style-type: none"> · IMDG <div style="display: flex; align-items: center; gap: 10px;">   </div> <ul style="list-style-type: none"> · Class · Label 	<p>6.1 Toxic substances.</p> <p>6.1</p>
<ul style="list-style-type: none"> · IATA <div style="display: flex; align-items: center; gap: 10px;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p>6.1 Toxic substances.</p> <p>6.1</p>
<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	<p>II</p>
<ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR): 	<p>Product contains environmentally hazardous substances: potassium cyanide</p> <p>No</p> <p>Symbol (fish and tree)</p> <p>Symbol (fish and tree)</p>
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups · Stowage Category · Stowage Code 	<p>Warning: Toxic substances.</p> <p>60</p> <p>F-A,S-A</p> <p>Cyanides</p> <p>E</p> <p>SW1 Protected from sources of heat.</p> <p>SW2 Clear of living quarters.</p>
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>100 ml</p> <p>Code: E4</p> <p>Maximum net quantity per inner packaging: 1 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p>

(Contd. on page 9)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 8)

· Transport category	2
· Tunnel restriction code	D/E

· IMDG	
· Limited quantities (LQ)	100 ml
· Excepted quantities (EQ)	Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 2206 ISOCYANATES, TOXIC, N.O.S. (POTASSIUM CYANIDE), 6.1, II, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category**
H2 ACUTE TOXIC
E2 Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **National regulations:**
- **Waterhazard class:** Water danger class 3 (Self-assessment): extremely 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.

- **Relevant phrases**
H290 May be corrosive to metals.
H300 Fatal if swallowed.
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
- **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)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
ADR: Accord européen sur le transport 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

(Contd. on page 10)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 13.08.2018

Version number 1

Revision: 13.08.2018

Trade name: Vorversilberung mit 5g Ag/l
Pre silver plating bath with 5g Ag/l

(Contd. of page 9)

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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
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
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

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

GB