

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

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

1.1 Product identifier

Trade name: **Aluminium-Weichlötlösungsmittel**

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

No further relevant information available.

Application of the substance / the preparation Soldering flux

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Felder GmbH
Im Lipperfeld 11
D-46047 Oberhausen

Tel.: +49 (0)208/ 85035-0

Fax.: +49 (0)208/ 26080

http://www.felder.de

e-mail: info@felder.de

Further information obtainable from:

Labor

(Mo-Do. 8:00-16:00/ Fr. 8:00-13:00)

Tel.: +49(0)208/ 8 50 35-0

e-mail: mprobst@felder.de

1.4 Emergency telephone number:

24 hr. emergency information:

Poison emergency call Berlin

"Giftnotruf Berlin"

Tel.: 0049-30-30686 790

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS08 health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 corrosion

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



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



C; Corrosive

R34: Causes burns.



Xn; Harmful

R20/21/22-48/22: Harmful by inhalation, in contact with skin and if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed.



Xi; Irritant

R37: Irritating to respiratory system.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

(Contd. on page 2)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlösungsmittel

(Contd. of page 1)

2.2 Label elements**Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

Code letter and hazard designation of product:

C Corrosive

Hazard-determining components of labelling:

2,2'-iminodiethanol

2-aminoethanol

fluoroboric acid

Risk phrases:

20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

34 Causes burns.

37 Irritating to respiratory system.

48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Safety phrases:

3 Keep in a cool place.

9 Keep container in a well-ventilated place.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

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 characterization: Mixtures****Description:** Mixture: consisting of the following components.**Dangerous components:**

CAS: 141-43-5 EINECS: 205-483-3 Reg.nr.: 01-2119486455-28	2-aminoethanol C R34; Xn R20/21/22 Met. Corr. 1, H290; Skin Corr. 1B, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	<50%
CAS: 111-42-2 EINECS: 203-868-0	2,2'-iminodiethanol Xn R22-48/22; Xi R38-41 STOT RE 2, H373; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315	<20%
CAS: 16872-11-0 EINECS: 240-898-3	fluoroboric acid C R34 Skin Corr. 1B, H314	<25%
CAS: 13826-88-5 EINECS: 237-534-0	zinc bis(tetrafluoroborate) Xi R36/38 Skin Irrit. 2, H315; Eye Irrit. 2, H319	<10%
CAS: 7783-49-5 EINECS: 232-001-9	zinc fluoride Xn R22 Acute Tox. 3, H301	<10%

Additional information: For the wording of the listed risk 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.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

(Contd. on page 3)

EU

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlötlösungsmittel

(Contd. of page 2)

After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.

After skin contact:

Seek medical treatment.

Immediately wash with water and soap and rinse thoroughly.

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.

A person vomiting while laying on their back should be turned onto their side.

Call for a doctor immediately.

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:**

CO₂, powder or water spray. Fight larger fires with water spray.

Use fire extinguishing methods suitable to surrounding conditions.

5.2 Special hazards arising from the substance or mixture No further relevant information available.

5.3 Advice for firefighters**Protective equipment:**

Do not inhale explosion gases or combustion gases.

Mouth respiratory protective device.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions: 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 neutralizing 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

Extractors are required on all machines used for thermal processing or splinter removal processes.

Store in cool, dry place in tightly closed receptacles.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Information about fire - and explosion protection: No special measures required.

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: Store away from foodstuffs.

Further information about storage conditions:

Store under lock and key and with access restricted to technical experts or their assistants only.

Keep container tightly sealed.

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

(Contd. on page 4)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlösungsmittel

(Contd. of page 3)

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

141-43-5 2-aminoethanol

AGW (Germany)	5,1 mg/m ³ , 2 ppm 2(I);DFG, EU, H, Y, Sh
IOELV (EU)	Short-term value: 7,6 mg/m ³ , 3 ppm Long-term value: 2,5 mg/m ³ , 1 ppm Skin

111-42-2 2,2'-iminodiethanol

MAK (Germany)	1E mg/m ³
---------------	----------------------

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

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Pregnant women should strictly avoid inhalation or skin contact.

Do not eat, drink, smoke or sniff while working.

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 and skin.

Respiratory protection:

Filter A/P2

Suitable respiratory protective device recommended.

Protection of hands:



Protective gloves

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

Material of gloves

Butyl rubber, BR

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.

Recommended thickness of the material: $\geq 0,4$ mm

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.

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.

Value for the permeation: Level ≤ 6

Eye protection:

Safety glasses



Tightly sealed goggles

Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:

Solid

Colour:

Amber coloured

Odour:

Characteristic

Odour threshold:

Not determined.

pH-value:

Not determined.

(Contd. on page 5)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlösungsmittel

(Contd. of page 4)

Change in condition	
Boiling point/Boiling range:	0 °C
Flash point:	129 °C
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	370 °C
Decomposition temperature:	Not determined.
Self-igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	2,1 Vol %
Upper:	10,6 Vol %
Vapour pressure at 20 °C:	0,3 hPa
Density at 20 °C:	1,61 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	Partly miscible.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	61,9 %
VOC (EC)	61,90 %
Solids content:	19,4 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

10.2 Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions Develops toxic gases/fumes.

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products: Ammonia

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

141-43-5 2-aminoethanol

Oral	LD50	2050 mg/kg (rat)
Dermal	LD50	1000 mg/kg (rabbit)

111-42-2 2,2'-iminodiethanol

Oral	LD50	1600 mg/kg (rat)
Dermal	LD50	12200 mg/kg (rabbit)

Primary irritant effect:

on the skin: Caustic effect on skin and mucous membranes.

on the eye: Strong caustic effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Harmful
Corrosive
Irritant

(Contd. on page 6)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlötlussmittel

(Contd. of page 5)

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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.

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 unneutralized.

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

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue

07 07 99 | wastes not otherwise specified

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number

ADR, IMDG, IATA

UN1760

14.2 UN proper shipping name

ADR

1760 CORROSIVE LIQUID, N.O.S. (FLUOBORIC ACID, ETHANOLAMINE)

IMDG, IATA

CORROSIVE LIQUID, N.O.S. (2-(2-aminoethylamino)ethanol, FLUOBORIC ACID)

14.3 Transport hazard class(es)

ADR, IMDG, IATA



Class

8 Corrosive substances.

Label

8

14.4 Packing group

ADR, IMDG, IATA

II

14.5 Environmental hazards:

Marine pollutant:

No

14.6 Special precautions for user

Warning: Corrosive substances.

Danger code (Kemler):

80

EMS Number:

F-A, S-B

Segregation groups

Alkalis, acids

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

Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ)

1L

Transport category

2

(Contd. on page 7)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 24.09.2013

Revision: 24.09.2013

Trade name: Aluminium-Weichlötlötlösungsmittel

(Contd. of page 6)

Tunnel restriction code
UN "Model Regulation":

E
 UN1760, CORROSIVE LIQUID, N.O.S. (FLUOBORIC ACID,
 ETHANOLAMINE), 8, III

SECTION 15: Regulatory information

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

National regulations:

Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning women of child-bearing age must be observed.

Employment restrictions concerning juveniles must be observed.

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.

Relevant phrases

H290 May be corrosive to metals.
 H301 Toxic if swallowed.
 H302 Harmful if swallowed.
 H312 Harmful in contact with skin.
 H314 Causes severe skin burns and eye damage.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H373 May cause damage to organs through prolonged or repeated exposure.
 R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
 R22 Harmful if swallowed.
 R34 Causes burns.
 R36/38 Irritating to eyes and skin.
 R38 Irritating to skin.
 R41 Risk of serious damage to eyes.
 R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Recommended restriction of use For commercial use only.

Contact: Dr. M. Probst

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 Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (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 Harmonized 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)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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

Safety data sheet SD3016

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

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

1.1 Product identifier**Trade name:** Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu**Soft solder lead-free****Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%****Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)****Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)****Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)****Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)****Sn90Ag10, Sn92Cu8****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** *Brazing alloy***1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:***Felder GmbH**Im Lipperfeld 11**D-46047 Oberhausen**Tel.: +49 (0)208/ 85035-0**Fax.: +49 (0)208/ 26080**http://www.felder.de**e-mail: info@felder.de***Further information obtainable from:***Labor**(Mo-Do. 8:00-16:00/ Fr. 8:00-13:00)**Tel.: +49(0)208/ 8 50 35-0**e-mail: mprobst@felder.de***1.4 Emergency telephone number:** *Not necessary, due to the fact that the product does not need to be labelled.*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008***The product is not classified according to the CLP regulation.***Classification according to Directive 67/548/EEC or Directive 1999/45/EC** *Not applicable.***Information concerning particular hazards for human and environment:***The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.***Classification system:***The classification is according to the latest editions of the EU-lists, and extended by company and literature data.***2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008** *Void***Hazard pictograms** *Void***Signal word** *Void***Hazard statements** *Void***Additional information:***Safety data sheet available on request.***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 characterization: Mixtures**Description:** *Mixture: consisting of the following components.*

(Contd. on page 2)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

Trade name: Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu
Soft solder lead-free
Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%
Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)
Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)
Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)
Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)
Sn90Ag10, Sn92Cu8

(Contd. of page 1)

Dangerous components:			
CAS: 7440-50-8 EINECS: 231-159-6 Reg.nr.: 01-2119480154-42	copper	substance with a Community workplace exposure limit	0-8,5%
CAS: 7440-22-4 EINECS: 231-131-3 Reg.nr.: 01-2119555669-21	silver	substance with a Community workplace exposure limit	0-10,5%

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

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:

Take affected persons out into the fresh air.

No special measures required.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact:

Do not pull solidified product off the skin.

After contact with the molten product, cool rapidly with cold water.

Seek medical treatment.

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.

Seek medical treatment.

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:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture No further relevant information available.

5.3 Advice for firefighters

Protective equipment: Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Wear protective clothing.

6.2 Environmental precautions: No special measures required.

6.3 Methods and material for containment and cleaning up: Allow to solidify. Pick up mechanically.

6.4 Reference to other sections

No dangerous substances are released.

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 that suitable extractors are available on processing machines

Extractors are required on all machines used for thermal processing or splinter removal processes.

No special measures required.

Information about fire - and explosion protection: No special measures required.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

Trade name: Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu

Soft solder lead-free

Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%

Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)

Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)

Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)

Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)

Sn90Ag10, Sn92Cu8

(Contd. of page 2)

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:** Store away from foodstuffs.**Further information about storage conditions:** Store in dry conditions.**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.**8.1 Control parameters**

Ingredients with limit values that require monitoring at the workplace:	
7440-31-5 tin	
MAK (Germany)	vgl. Abschn. IIb
7440-50-8 copper	
MAK (Germany)	Long-term value: 0,01 A mg/m ³ II(2); als Cu
7440-22-4 silver	
AGW (Germany)	Long-term value: 0,1 E mg/m ³ II(8); DFG, EU
IOELV (EU)	Long-term value: 0,1 mg/m ³

recommended monitoring procedures in accordance with 453/2010/EU no. 8.1.2:

7440-50-8 Kupfer: BIA 7755 (D), NIOSH 7301(E), MétroPol Fiche 003(F), MTA/MA-025/A92(ESP)

7440-22-4 Silber: ISO 15202(F, E), BIA 8600(D), NIOSH 7301(E)

Additional information: The lists valid during the making were used as basis.**8.2 Exposure controls****Personal protective equipment:****General protective and hygienic measures:** Do not eat, drink, smoke or sniff while working.**Respiratory protection:** Filter P2**Protection of hands:**

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

Material of gloves

Nitrile rubber, NBR

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

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.

Recommended thickness of the material: $\geq 0,3$ mm**Penetration time of glove material**Value for the permeation: Level ≤ 6

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

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.

Eye protection: Safety glasses**Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties**General Information****Appearance:****Form:**

Solid

Colour:

Silver-coloured

Odour:

Odourless

(Contd. on page 4)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

Trade name: Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu
 Soft solder lead-free
 Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%
 Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)
 Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)
 Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)
 Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)
 Sn90Ag10, Sn92Cu8

(Contd. of page 3)

Odour threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/Melting range:	217-250 °C
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not determined.
Ignition temperature:	
Decomposition temperature:	Not determined.
Self-igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapour pressure:	Not applicable.
Density:	Not determined.
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with water:	Insoluble.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
Solvent content:	
Organic solvents:	0,0 %
VOC (EC)	0,00 %
Solids content:	100,0 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

Stable up to melting point.

10.3 Possibility of hazardous reactions Reacts with acids, alkalis and oxidizing agents.

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 toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin: No irritant effect.

on the eye: No irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

(Contd. on page 5)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

Trade name: Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu
 Soft solder lead-free
 Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%
 Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)
 Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)
 Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)
 Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)
 Sn90Ag10, Sn92Cu8

(Contd. of page 4)

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

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.

Additional ecological information:

General notes: Generally not hazardous for water

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.

European waste catalogue

17 04 07 mixed metals

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number

ADR, ADN, IMDG, IATA Void

14.2 UN proper shipping name

ADR Void

ADN, IMDG, IATA Void

14.3 Transport hazard class(es)

ADR, ADN, IMDG, IATA

Class Void

14.4 Packing group

ADR, IMDG, IATA Void

14.5 Environmental hazards:

Marine pollutant: No

14.6 Special precautions for user Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

UN "Model Regulation": -

SECTION 15: Regulatory information

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

National regulations:

Information about limitation of use: Employment restrictions concerning juveniles must be observed.

Waterhazard class: Generally not hazardous for water.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 31.01.2014

Revision: 06.01.2014

Trade name: Weichlotlegierung bleifrei, SnAg, SnCu, SnAgCu
 Soft solder lead-free
 Sn 89,5 - 99,5%, Ag 0 - 10,5%, Cu 0 - 8,5%
 Sn95,5Ag3,8Cu0,7 (DIN EN ISO 9453: S-Sn95Ag4Cu1)
 Sn97Ag3 (DIN EN ISO 9453: S-Sn97Ag3)
 Sn97Cu3 (DIN EN ISO 9453: S-Sn97Cu3)
 Sn99,3Cu07 (DIN EN ISO 9453: S-Sn99Cu1)
 Sn90Ag10, Sn92Cu8

(Contd. of page 5)

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.

Contact: Dr. M. Probst

Abbreviations and acronyms:

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 Harmonized 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)

VOC: Volatile Organic Compounds (USA, EU)

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

Safety data sheet SD3119

— EU —