



## Safety Data Sheet according to Regulation (EC) No 1907/2006

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LOCTITE LF 318 97SCAGS88.5V BK known as  
97SCLF318AGS88.5V

SDS No. : 180284  
V001.0

Revision: 08.02.2017  
printing date: 25.08.2022  
Replaces version from: -

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

#### 1.1. Product identifier

LOCTITE LF 318 97SCAGS88.5V BK known as 97SCLF318AGS88.5V

#### Contains:

Rosin

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

Intended use:  
Solder Paste

#### 1.3. Details of the supplier of the safety data sheet

Henkel AG & Co. KGaA  
Henkelstr. 67  
40589 Düsseldorf

Germany

Phone: +49 211 797 0

ua-productsafety.de@henkel.com

#### 1.4. Emergency telephone number

The Henkel information service also provides an around-the-clock telephone service on phone no.+49-(0)211-797-3350 for exceptional cases.

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (CLP):

Skin sensitizer  
H317 May cause an allergic skin reaction.

Category 1

#### 2.2. Label elements

##### Label elements (CLP):

##### Hazard pictogram:



##### Signal word:

Warning

##### Hazard statement:

H317 May cause an allergic skin reaction.

**Precautionary statement:** P280 Wear protective gloves.  
**Prevention** P261 Avoid breathing fume.

**Precautionary statement:** P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
**Response**

### 2.3. Other hazards

Avoid breathing fumes given out during soldering.

After handling solder wash hands with soap and water before eating, drinking or smoking.

Keep out of reach of children.

Flux fumes may irritate the nose, throat and lungs and may after prolonged/repeated exposure give an allergic reaction (asthma).

Self classification: product testing according to Classification, Labelling and Packaging Regulation EC/1272/2008, Annex 1, Part 4.

This product contains modified rosin.

Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### Declaration of the ingredients according to CLP (EC) No 1272/2008:

| Hazardous components<br>CAS-No.                     | EC Number<br>REACH-Reg No.                   | content  | Classification   |
|---|--|----------|--|
| Tin<br>7440-31-5                                    | 231-141-8<br>01-2119486474-28                | 80- 90 % |  |
| Rosin<br>8050-09-7                                  | 232-475-7<br>01-2119480418-32                | 1- 5 %   | Skin Sens. 1<br>H317   |
| Modified rosin<br>144413-22-9                       | 434-230-1, 434-<br>230-1<br>01-2120117087-62 | 1- 5 %   | Aquatic Chronic 4<br>H413  |
| Silver >= 99,9 % Ag in powder (< 1 mm)<br>7440-22-4 | 231-131-3<br>01-2119555669-21                | 1- 5 %   | Aquatic Acute 1<br>H400<br>Aquatic Chronic 1<br>H410<br>M factor (Acute Aquat Tox): 1.000 M factor<br>(Chron Aquat Tox): 100 |
| Copper<br>7440-50-8                                 | 231-159-6<br>01-2119480154-42                | 0,1- 1 % | Aquatic Acute 1<br>H400<br>Aquatic Chronic 3<br>H412   |

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Inhalation:

Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:

Rinse with running water and soap.

Obtain medical attention if irritation persists.

Eye contact:

Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

SKIN: Rash, Urticaria.

Prolonged or repeated contact may cause eye irritation.

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

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

See section: Description of first aid measures

## SECTION 5: Firefighting measures

**5.1. Extinguishing media**

**Suitable extinguishing media:**

water, carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

High pressure waterjet

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

High temperatures may produce heavy metal dust, fumes or vapours.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

## SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin and eyes.

Wear protective equipment.

Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not empty into drains / surface water / ground water.

**6.3. Methods and material for containment and cleaning up**

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

**6.4. Reference to other sections**

See advice in section 8

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

Avoid skin and eye contact.

See advice in section 8

Extraction is necessary to remove fumes evolved during reflow.

When using do not eat, drink or smoke.

Wash hands before breaks and immediately after handling the product.

Avoid breathing fumes given out during soldering.

**Hygiene measures:**

Good industrial hygiene practices should be observed.

Do not eat, drink or smoke while working.

After handling solder wash hands with soap and water before eating, drinking or smoking.

**7.2. Conditions for safe storage, including any incompatibilities**

Refer to Technical Data Sheet

**7.3. Specific end use(s)**

Solder Paste

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational Exposure Limits**Valid for  
Germany

| Ingredient [Regulated substance]                      | ppm | mg/m <sup>3</sup> | Value type                          | Short term exposure limit category / Remarks      | Regulatory list |
|---|-----|-------------------|-------------------------------------|---|-----------------|
| Tin<br>7440-31-5<br>[TIN (INORGANIC COMPOUNDS AS SN)] |     | 2                 | Time Weighted Average (TWA):        | Indicative  | ECLTV           |
| Silver<br>7440-22-4<br>[SILVER, METALLIC]             |     | 0,1               | Time Weighted Average (TWA):        | Indicative  | ECLTV           |
| Silver<br>7440-22-4                                   |     |                   | Short Term Exposure Classification: | Category II: substances with a resorptive effect. | TRGS 900        |
| Silver<br>7440-22-4                                   |     | 0,1               | Exposure limit(s):                  | 8   | TRGS 900        |

**Predicted No-Effect Concentration (PNEC):**

| Name on list        | Environmental Compartment          | Exposure period | Value          |     |            |        | Remarks |
|---------------------|------------------------------------|-----------------|----------------|-----|------------|--------|---------|
|                     |                                    |                 | mg/l           | ppm | mg/kg      | others |         |
| Tin<br>7440-31-5    | aqua<br>(freshwater)               |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | aqua (marine<br>water)             |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | sewage<br>treatment plant<br>(STP) |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | sediment<br>(freshwater)           |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | sediment<br>(marine water)         |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | Air                                |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | soil                               |                 |                |     |            |        |         |
| Tin<br>7440-31-5    | Predator                           |                 |                |     |            |        |         |
| Rosin<br>8050-09-7  | aqua<br>(freshwater)               |                 | 0,005 mg/l     |     |            |        |         |
| Rosin<br>8050-09-7  | aqua (marine<br>water)             |                 | 0,0005<br>mg/l |     |            |        |         |
| Rosin<br>8050-09-7  | sediment<br>(freshwater)           |                 |                |     | 108 mg/kg  |        |         |
| Rosin<br>8050-09-7  | sediment<br>(marine water)         |                 |                |     | 10,8 mg/kg |        |         |
| Rosin<br>8050-09-7  | soil                               |                 |                |     | 21,4 mg/kg |        |         |
| Rosin<br>8050-09-7  | sewage<br>treatment plant<br>(STP) |                 | 1000 mg/l      |     |            |        |         |
| Copper<br>7440-50-8 | soil                               |                 |                |     | 65 mg/kg   |        |         |
| Copper<br>7440-50-8 | sewage<br>treatment plant<br>(STP) |                 | 230 µg/l       |     |            |        |         |
| Copper<br>7440-50-8 | sediment<br>(marine water)         |                 |                |     | 676 mg/kg  |        |         |
| Copper<br>7440-50-8 | aqua<br>(freshwater)               |                 | 7,8 µg/l       |     |            |        |         |
| Copper<br>7440-50-8 | aqua (marine<br>water)             |                 | 5,2 µg/l       |     |            |        |         |
| Copper<br>7440-50-8 | sediment<br>(freshwater)           |                 |                |     | 87 mg/kg   |        |         |

**Derived No-Effect Level (DNEL):**

| Name on list        | Application Area   | Route of Exposure | Health Effect                                | Exposure Time | Value        | Remarks |
|---------------------|--------------------|-------------------|--|---------------|--------------|---------|
| Tin<br>7440-31-5    | Workers            | dermal            | Acute/short term exposure - systemic effects |               | 133,3 mg/kg  |         |
| Tin<br>7440-31-5    | Workers            | Inhalation        | Acute/short term exposure - systemic effects |               | 11,75 mg/m3  |         |
| Tin<br>7440-31-5    | Workers            | dermal            | Long term exposure - systemic effects        |               | 133,3 mg/kg  |         |
| Tin<br>7440-31-5    | Workers            | Inhalation        | Long term exposure - systemic effects        |               | 11,75 mg/m3  |         |
| Tin<br>7440-31-5    | General population | dermal            | Acute/short term exposure - systemic effects |               | 80 mg/kg     |         |
| Tin<br>7440-31-5    | General population | Inhalation        | Acute/short term exposure - systemic effects |               | 3,476 mg/m3  |         |
| Tin<br>7440-31-5    | General population | oral              | Acute/short term exposure - systemic effects |               | 80 mg/kg     |         |
| Tin<br>7440-31-5    | General population | dermal            | Long term exposure - systemic effects        |               | 80 mg/kg     |         |
| Tin<br>7440-31-5    | General population | Inhalation        | Long term exposure - systemic effects        |               | 3,476 mg/m3  |         |
| Tin<br>7440-31-5    | General population | oral              | Long term exposure - systemic effects        |               | 80 mg/kg     |         |
| Rosin<br>8050-09-7  | Workers            | Inhalation        | Long term exposure - systemic effects        |               | 176,32 mg/m3 |         |
| Rosin<br>8050-09-7  | Workers            | dermal            | Long term exposure - systemic effects        |               | 25 mg/kg     |         |
| Rosin<br>8050-09-7  | General population | Inhalation        | Long term exposure - systemic effects        |               | 52,174 mg/m3 |         |
| Rosin<br>8050-09-7  | General population | dermal            | Long term exposure - systemic effects        |               | 15 mg/kg     |         |
| Rosin<br>8050-09-7  | General population | oral              | Long term exposure - systemic effects        |               | 15 mg/kg     |         |
| Copper<br>7440-50-8 | Workers            | dermal            | Acute/short term exposure - systemic effects |               | 273 mg/kg    |         |
| Copper<br>7440-50-8 | General population | inhalation        | Acute/short term exposure - systemic effects |               | 20 mg/m3     |         |
| Copper<br>7440-50-8 | General population | inhalation        | Acute/short term exposure - local effects    |               | 1 mg/m3      |         |
| Copper<br>7440-50-8 | General population | inhalation        | Long term exposure - local effects           |               | 1 mg/m3      |         |
| Copper<br>7440-50-8 | General population | dermal            | Acute/short term exposure - systemic effects |               | 273 mg/kg    |         |
| Copper<br>7440-50-8 | Workers            | dermal            | Long term exposure - systemic effects        |               | 137 mg/kg    |         |
| Copper<br>7440-50-8 | General population | dermal            | Long term exposure - systemic effects        |               | 137 mg/kg    |         |
| Copper<br>7440-50-8 | Workers            | inhalation        | Acute/short term exposure - systemic effects |               | 20 mg/m3     |         |
| Copper<br>7440-50-8 | Workers            | inhalation        | Long term exposure - local                   |               | 1 mg/m3      |         |

|                     |         |            |   |  |         |  |
|---------------------|---------|------------|---|--|---------|--|
|                     |         |            | effects   |  |         |  |
| Copper<br>7440-50-8 | Workers | inhalation | Acute/short term<br>exposure - local<br>effects |  | 1 mg/m3 |  |

**Biological Exposure Indices:**

None

**8.2. Exposure controls:**

## Engineering controls:

Ensure adequate ventilation, especially in confined areas.

Extraction is necessary to remove fumes evolved during reflow.

## Respiratory protection:

Ensure adequate ventilation.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area

Filter type: A (EN 14387)

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to &gt; 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to &gt; 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.

Protective eye equipment should conform to EN166.

## Skin protection:

Wear suitable protective clothing.

Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

## Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

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

Appearance

paste

Odor

grey

mild

Odour threshold

No data available / Not applicable

pH

Not applicable

Initial boiling point

Not determined

Flash point

117 °C (242.6 °F)

Decomposition temperature

No data available / Not applicable

Vapour pressure

No data available / Not applicable

Density

4,37 g/cm<sup>3</sup>

|  |                                    |
|--|------------------------------------|
| (20 °C (68 °F))                              |                                    |
| Bulk density                                 | No data available / Not applicable |
| Viscosity                                    | No data available / Not applicable |
| Viscosity (kinematic)                        | No data available / Not applicable |
| Explosive properties                         | No data available / Not applicable |
| Solubility (qualitative)<br>(Solvent: Water) | Insoluble                          |
| Solidification temperature                   | No data available / Not applicable |
| Melting point                                | Not determined                     |
| Flammability                                 | No data available / Not applicable |
| Auto-ignition temperature                    | No data available / Not applicable |
| Explosive limits                             | No data available / Not applicable |
| Partition coefficient: n-octanol/water       | Not determined                     |
| Evaporation rate                             | No data available / Not applicable |
| Vapor density                                | No data available / Not applicable |
| Oxidising properties                         | No data available / Not applicable |

## 9.2. Other information

No data available / Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Solder alloy will react with concentrated nitric acid to produce toxic fumes of nitrogen oxides.  
Reacts with strong oxidants.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

No decomposition if stored and applied as directed.

### 10.5. Incompatible materials

See section reactivity.

### 10.6. Hazardous decomposition products

Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### General toxicological information:

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation (EC) No 1272/2008. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Oral toxicity:

Swallowing may cause irritation of mouth, throat and digestive tract, diarrhea and vomiting

#### Inhalative toxicity:

Fumes evolved at soldering temperatures will irritate the nose, throat and lungs. Prolonged or repeated exposure to flux fumes may result in sensitisation in sensitive workers.

#### Dermal toxicity:

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

#### Skin irritation:

Prolonged or repeated contact may cause skin irritation.



**Eye irritation:**

Solder pastes may be abrasive to the eyes and the fumes are irritating.  
Prolonged or repeated contact may cause eye irritation.

**Sensitizing:**

May cause an allergic skin reaction.

**Acute oral toxicity:**

| Hazardous components<br>CAS-No.                        | Value<br>type | Value         | Route of<br>application | Exposure<br>time | Species | Method  |
|--|---------------|---------------|-------------------------|------------------|---------|---|
| Tin<br>7440-31-5                                       | LD50          | > 2.000 mg/kg | oral                    |                  | rat     | OECD Guideline 423 (Acute Oral toxicity)<br>not specified |
| Rosin<br>8050-09-7                                     | LD50          | 2.800 mg/kg   | oral                    |                  | rat     |   |
| Modified rosin<br>144413-22-9                          | LD50          | > 2.000 mg/kg | oral                    |                  | rat     | OECD Guideline 423 (Acute Oral toxicity)                  |
| Silver >= 99,9 % Ag in<br>powder (< 1 mm)<br>7440-22-4 | LD50          | > 2.000 mg/kg | oral                    |                  | rat     | OECD Guideline 401 (Acute Oral Toxicity)                  |

**Acute inhalative toxicity:**

| Hazardous components<br>CAS-No. | Value<br>type | Value       | Route of<br>application | Exposure<br>time | Species | Method   |
|---------------------------------|---------------|-------------|-------------------------|------------------|---------|--|
| Copper<br>7440-50-8             | LC50          | > 5,11 mg/l |                         | 4 h              | rat     | OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class (ATC) Method) |

**Acute dermal toxicity:**

| Hazardous components<br>CAS-No.                        | Value<br>type | Value         | Route of<br>application | Exposure<br>time | Species | Method                                     |
|--|---------------|---------------|-------------------------|------------------|---------|--|
| Tin<br>7440-31-5                                       | LD50          | > 2.000 mg/kg | dermal                  |                  | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| Rosin<br>8050-09-7                                     | LD50          | > 2.000 mg/kg | dermal                  |                  | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| Modified rosin<br>144413-22-9                          | LD50          | > 2.000 mg/kg | dermal                  |                  | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| Silver >= 99,9 % Ag in<br>powder (< 1 mm)<br>7440-22-4 | LD50          | > 2.000 mg/kg | dermal                  |                  | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |

**Skin corrosion/irritation:**

| Hazardous components<br>CAS-No. | Result         | Exposure<br>time | Species | Method   |
|---------------------------------|----------------|------------------|---------|--|
| Rosin<br>8050-09-7              | not irritating | 4 h              | rabbit  | OECD Guideline 404 (Acute Dermal Irritation / Corrosion) |
| Modified rosin<br>144413-22-9   | not irritating | 4 h              | rabbit  | OECD Guideline 404 (Acute Dermal Irritation / Corrosion) |

**Serious eye damage/irritation:**

| Hazardous components<br>CAS-No. | Result                | Exposure<br>time | Species | Method  |
|---------------------------------|-----------------------|------------------|---------|---|
| Rosin<br>8050-09-7              | not irritating        |                  | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |
| Modified rosin<br>144413-22-9   | moderately irritating | 24 h             | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |

**Respiratory or skin sensitization:**

| Hazardous components<br>CAS-No. | Result          | Test type                    | Species    | Method                                  |
|---------------------------------|-----------------|------------------------------|------------|---|
| Modified rosin<br>144413-22-9   | not sensitising | Guinea pig maximisation test | guinea pig | OECD Guideline 406 (Skin Sensitisation) |

**Germ cell mutagenicity:**

| Hazardous components<br>CAS-No. | Result   | Type of study /<br>Route of<br>administration          | Metabolic<br>activation /<br>Exposure time | Species | Method  |
|---------------------------------|----------|--|--|---------|---|
| Rosin<br>8050-09-7              | negative | bacterial reverse<br>mutation assay (e.g<br>Ames test) | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
| Modified rosin<br>144413-22-9   | negative | bacterial reverse<br>mutation assay (e.g<br>Ames test) | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
|                                 | negative | in vitro mammalian<br>chromosome<br>aberration test    | with and without                           |         | OECD Guideline 473 (In vitro<br>Mammalian Chromosome<br>Aberration Test)                              |
| Copper<br>7440-50-8             | negative | bacterial reverse<br>mutation assay (e.g<br>Ames test) | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
| Copper<br>7440-50-8             | negative | oral: gavage   |  | mouse   | EU Method B.12<br>(Mutagenicity)  |
|                                 | negative |  |  | rat     | OECD Guideline 486<br>(Unscheduled DNA Synthesis<br>(UDS) Test with Mammalian<br>Liver Cells in vivo) |

**Repeated dose toxicity**

| Hazardous components<br>CAS-No. | Result             | Route of<br>application | Exposure time /<br>Frequency of<br>treatment | Species | Method   |
|---------------------------------|--------------------|-------------------------|--|---------|--|
| Modified rosin<br>144413-22-9   | NOAEL=150<br>mg/kg | oral: gavage            | 28 ddaily                                    | rat     | OECD Guideline 407<br>(Repeated Dose 28-Day Oral<br>Toxicity in Rodents) |

**SECTION 12: Ecological information****General ecological information:**

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation (EC) No 1272/2008. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**12.1. Toxicity****Ecotoxicity:**

Self classification: product testing according to Classification, Labelling and Packaging Regulation EC/1272/2008, Annex 1, Part 4.

Do not empty into drains / surface water / ground water.

| Hazardous components<br>CAS-No.                        | Value<br>type | Value          | Acute<br>Toxicity<br>Study | Exposure<br>time | Species   | Method  |
|--|---------------|----------------|----------------------------|------------------|---|---|
| Rosin<br>8050-09-7                                     | LC50          | > 1.000 mg/l   | Fish                       | 96 h             | Pimephales promelas   | OECD Guideline<br>203 (Fish, Acute<br>Toxicity Test)                        |
| Rosin<br>8050-09-7                                     | EC50          | 911 mg/l       | Daphnia                    | 48 h             | Daphnia magna   | OECD Guideline<br>202 (Daphnia sp.<br>Acute<br>Immobilisation<br>Test)      |
| Rosin<br>8050-09-7                                     | EC50          | > 100 mg/l     | Algae                      | 72 h             | Scenedesmus subspicatus (new<br>name: Desmodesmus<br>subspicatus) | DIN 38412-09  |
| Silver >= 99,9 % Ag in<br>powder (< 1 mm)<br>7440-22-4 | EC50          | 0,00022 mg/l   | Daphnia                    | 48 h             | Daphnia magna   | other guideline:  |
| Silver >= 99,9 % Ag in<br>powder (< 1 mm)<br>7440-22-4 | NOEC          | 0.32 µg/l      | chronic<br>Daphnia         | 21 d             | Daphnia magna   | EPA OPPTS<br>850.1300 (Daphnid<br>Chronic Toxicity<br>Test)                 |
| Copper<br>7440-50-8                                    | LC 50         | > 0,1 - 1 mg/l | Fish                       | 96 h             | not specified   | OECD Guideline<br>203 (Fish, Acute<br>Toxicity Test)                        |
|  | NOEC          | > 0,1 - 1 mg/l | Fish                       | 28 d             | not specified   | OECD Guideline<br>210 (fish early lite<br>stage toxicity test)              |
| Copper<br>7440-50-8                                    | EC50          | > 0,1 - 1 mg/l | Daphnia                    | 48 h             | Daphnia magna   | OECD Guideline<br>202 (Daphnia sp.<br>Acute<br>Immobilisation<br>Test)      |
| Copper<br>7440-50-8                                    | EC50          | > 0,1 - 1 mg/l | Algae                      | 72 h             | not specified   | OECD Guideline<br>201 (Alga, Growth<br>Inhibition Test)                     |
|  | NOEC          | > 0,1 - 1 mg/l | Algae                      | 72 h             | not specified   | OECD Guideline<br>201 (Alga, Growth<br>Inhibition Test)                     |
| Copper<br>7440-50-8                                    | EC50          | > 0,1 - 1 mg/l | Bacteria                   | 3 h              | activated sludge  | OECD Guideline<br>209 (Activated<br>Sludge, Respiration<br>Inhibition Test) |
| Copper<br>7440-50-8                                    | NOEC          | > 0,1 - 1 mg/l | chronic<br>Daphnia         | 21 d             | Daphnia magna   | OECD 211<br>(Daphnia magna,<br>Reproduction Test)                           |

## 12.2. Persistence and degradability

### Persistence and Biodegradability:

The product is not biodegradable.

| Hazardous components<br>CAS-No. | Result                | Route of<br>application | Degradability | Method  |
|---------------------------------|-----------------------|-------------------------|---------------|---|
| Rosin<br>8050-09-7              |                       | aerobic                 | 36 - 46 %     | OECD Guideline 301 F (Ready<br>Biodegradability: Manometric<br>Respirometry Test) |
| Modified rosin<br>144413-22-9   | Not<br>biodegradable. | readily<br>aerobic      | 25 %          | OECD Guideline 301 B (Ready<br>Biodegradability: CO2 Evolution<br>Test)           |
| Copper<br>7440-50-8             | Rapidly degradable    | not specified           | > 60 %        | OECD 301 A - F  |

## 12.3. Bioaccumulative potential / 12.4. Mobility in soil

### Mobility:

The product is insoluble and sinks in water.

### Bioaccumulative potential:

Octanol/Water distribution coefficient: Not determined

| Hazardous components<br>CAS-No. | LogPow | Bioconcentration<br>factor (BCF) | Exposure<br>time | Species | Temperature | Method |
|---------------------------------|--------|----------------------------------|------------------|---------|-------------|--------|
|---------------------------------|--------|----------------------------------|------------------|---------|-------------|--------|

|                               |         |  |  |  |  |   |
|-------------------------------|---------|--|--|--|--|---|
| Rosin<br>8050-09-7            | 3 - 6,2 |  |  |  |  | OECD Guideline 117<br>(Partition Coefficient (n-<br>octanol / water), HPLC<br>Method) |
| Modified rosin<br>144413-22-9 | > 6     |  |  |  |  | EU Method A.8 (Partition<br>Coefficient)  |

### 12.5. Results of PBT and vPvB assessment

| Hazardous components<br>CAS-No.                     | PBT/vPvB  |
|---|---|
| Tin<br>7440-31-5                                    | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| Rosin<br>8050-09-7                                  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| Silver >= 99,9 % Ag in powder (< 1 mm)<br>7440-22-4 | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| Copper<br>7440-50-8                                 | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |

### 12.6. Other adverse effects

No data available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product disposal:

Wherever possible unwanted solder pastes should be recycled for recovery of metal.

Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:

Dispose of as unused product.

Waste code

06 04 05 - wastes containing other heavy metals

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

## SECTION 14: Transport information

- 14.1. UN number**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.2. UN proper shipping name**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.3. Transport hazard class(es)**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.4. Packing group**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.5. Environmental hazards**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.6. Special precautions for user**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**  
not applicable

## SECTION 15: Regulatory information

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

VOC content < 5,0 %  
(2010/75/EC)

**15.2. Chemical safety assessment**

A chemical safety assessment has not been carried out.

**National regulations/information (Germany):**

WGK: WGK = 2, water endangering product. Classification according to the mixture rules in German VwVwS regulation annex 4 from 27.July 2005.

Storage class according to TRGS 510: 10

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- H317 May cause an allergic skin reaction.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.
- H413 May cause long lasting harmful effects to aquatic life.

### **Further information:**

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

**Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.**