

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 08.08.2015

Page 1 of 10

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

#### 1.1. Product identifier

Tin-Silver and Tin-Silver-Copper-Alloys

##### **Further trade names**

This SDS covers the following products:

SnAg3.8Cu0.7

SnAg3Cu0.5

SnAg4Cu0.5

SnAg3.5Cu0.7

SN96C; SN96SC; SN97C; SN97SC

SnAg3

SnAg3.5

SnAg3.7

SnAg4

SN96Ce

SN97Ce

Sn > 80% Ag 0.5-10% Cu < 5%

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

##### **Use of the substance/mixture**

soft solder lead free

##### **Uses advised against**

any non-intended use.

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

Company name: Grosvenor Electronic  
Street: Supplies (UK), Priory  
Place: Tec. Park, Saxon Way  
Hessle, East Yorkshire,  
HU13 9PB

Telephone: +44 (0) 1482 627327

Fax: +44 (0) 1482 627328

Responsible Department: [sales@grosvenor-group.com](mailto:sales@grosvenor-group.com)

#### 1.4. Emergency telephone

+44 (0) 1482 627327

##### number:

09.00 - 17.00 Mon - Thurs, 09.00 - 16.00 Fri

### SECTION 2: Hazards identification

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

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

This mixture is not classified as hazardous according to Directive 1999/45/EC.

##### **Classification according to Regulation (EC) No. 1272/2008 [CLP]**

This mixture is not classified as hazardous according to Regulation (EC) No. 1272/2008.

#### 2.2. Label elements

#### 2.3. Other hazards

No risks worthy of mention. Please observe the information on the safety data sheet at all times.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

##### **Chemical characterization**

Revision No: 1,00 solder alloy

Revision date: 08.08.2015

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 08.08.2015

Page 2 of 10

### Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification according to Directive 67/548/EEC	
Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	
REACH No		
231-141-8	tin	> 80 %
7440-31-5		
231-131-3	silver	0,5 - 10 %
7440-22-4		
01-2119555669-21		
231-159-6	copper	0 - 5 %
7440-50-8		

Full text of R-, H- and EUH-phrases: see section 16.

### Further Information

Product does not contain listed SVHC substances.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

In case of accident or illness, seek medical advice immediately (show directions for use or safety data sheet if possible).

#### After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. When in doubt or if symptoms are observed, get medical advice.

#### After contact with skin

No special measures are necessary.

The melted product can cause severe burns. After contact with molten product, cool skin area rapidly with cold water. Burns caused by molten material must be treated clinically.

#### After contact with eyes

No special measures are necessary.

#### After ingestion

No special measures are necessary.

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

No information available.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

Sand  
Extinguishing powder  
D -powder

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 08.08.2015

Page 3 of 10

### Unsuitable extinguishing media

Extinguishing media which must not be used for safety reasons:

Water

Full water jet

Water spray jet

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

Can be released in case of fire: Metal oxide smoke, toxic

### 5.3. Advice for firefighters

In case of fire and/or explosion do not breathe fumes.

Wear a self-contained breathing apparatus and chemical protective clothing.

### Additional information

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

## SECTION 6: Accidental release measures

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

See protective measures under point 7 and 8.

### 6.2. Environmental precautions

No special measures are necessary.

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

Take up mechanically, placing in appropriate containers for disposal.

Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Provide adequate ventilation as well as local exhaustion at critical locations.

Do not breathe smoke. Do not breathe dust.

#### Advice on protection against fire and explosion

No special fire protection measures are necessary.

#### Further information on handling

General protection and hygiene measures: See section 8.

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

#### Requirements for storage rooms and vessels

No special measures are necessary.

#### Advice on storage compatibility

Do not store together with: Explosives. Radioactive substances. Infectious substances.

### 7.3. Specific end use(s)

refer to chapter 1.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 08.08.2015

Page 4 of 10

### Exposure limits (EH40)

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
7440-50-8	Copper, dusts and mists (as Cu)		1		TWA (8 h)	WEL
			2		STEL (15 min)	WEL
7440-50-8	Copper, fume		0.2		TWA (8 h)	WEL
					STEL (15 min)	WEL
7440-22-4	Silver, metallic		0.1		TWA (8 h)	WEL
					STEL (15 min)	WEL

### DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
7440-31-5	tin			
	Worker DNEL, long-term	inhalation	systemic	11,75 mg/m <sup>3</sup>
	Worker DNEL, acute	inhalation	systemic	11,75 mg/m <sup>3</sup>
	Worker DNEL, long-term	dermal	systemic	133,3 mg/kg bw/day
	Worker DNEL, acute	dermal	systemic	133,3 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	3,476 mg/m <sup>3</sup>
	Consumer DNEL, acute	inhalation	systemic	3,476 mg/m <sup>3</sup>
	Consumer DNEL, long-term	dermal	systemic	80 mg/kg bw/day
	Consumer DNEL, acute	dermal	systemic	80 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	80 mg/kg bw/day
	Consumer DNEL, acute	oral	systemic	80 mg/kg bw/day
7440-22-4	silver			
	Worker DNEL, long-term	inhalation	systemic	0,1 mg/m <sup>3</sup>
	Consumer DNEL, long-term	inhalation	systemic	0,04 mg/m <sup>3</sup>
	Consumer DNEL, long-term	oral	systemic	1,2 mg/kg bw/day
7440-50-8	copper			
	Worker DNEL, acute	inhalation	systemic	20 mg/m <sup>3</sup>
	Worker DNEL, long-term	inhalation	local	1 mg/m <sup>3</sup>
	Worker DNEL, long-term	dermal	systemic	137 mg/kg bw/day
	Worker DNEL, acute	dermal	systemic	273 mg/kg bw/day
	Consumer DNEL, acute	inhalation	systemic	20 mg/m <sup>3</sup>
	Consumer DNEL, long-term	inhalation	local	1 mg/m <sup>3</sup>
	Consumer DNEL, long-term	dermal	systemic	137 mg/kg bw/day
	Consumer DNEL, acute	dermal	systemic	273 mg/kg bw/day

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 5 of 10

### PNEC values

CAS No	Substance	
Environmental compartment		Value
7440-22-4	silver	
Freshwater		0,00004 mg/l
Marine water		0,00086 mg/l
Micro organisms in sewage treatment plants (STP)		0,025 mg/l
Freshwater sediment		438,13 mg/kg
Marine sediment		438,13 mg/kg
Soil		1,41 mg/kg
7440-50-8	copper	
Freshwater		0,0078 mg/l
Marine water		0,0052 mg/l
Micro organisms in sewage treatment plants (STP)		0,23 mg/l
Freshwater sediment		87 mg/kg
Marine sediment		678 mg/kg
Soil		65 mg/kg

### 8.2. Exposure controls



#### Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

#### Protective and hygiene measures

Keep away from food, drink and animal feeding. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff. Use protective skin cream before handling the product.

#### Eye/face protection

Wear eye/face protection.

#### Hand protection

Wear suitable gloves.  
for coarse soldering works: heat insulating.

#### Skin protection

Protective clothing (heat-resistant)

#### Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.  
Respiratory protection necessary at:  
exceeding exposure limit values  
Suitable respiratory protection apparatus: Particle filter device (DIN EN 143) Type: P-2/3  
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.  
Provide adequate ventilation as well as local exhaust at critical locations.

#### Environmental exposure controls

No special environmental measures are necessary.

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 6 of 10

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state: solid  
Colour: metallic, silver  
Odour: odourless

#### Test method

pH-Value: not applicable

#### Changes in the physical state

Melting point: SnAg<sub>3,8</sub>Cu<sub>0,7</sub>: 217 °C N/A  
Initial boiling point and boiling range: N/A  
Sublimation point: not determined  
Softening point: not determined  
Flash point: not determined

#### Flammability

Solid: not determined

#### Explosive properties

none

Lower explosion limits: not determined

Upper explosion limits: not determined

Ignition temperature: not determined

#### Auto-ignition temperature

Solid: not determined

Decomposition temperature: not determined

#### Oxidizing properties

none

Vapour pressure: not determined

Density: 7,5 g/cm<sup>3</sup> N/A

Bulk density: not determined

Water solubility: insoluble

#### Solubility in other solvents

insoluble

Viscosity / dynamic: not determined

Viscosity / kinematic: not determined

#### 9.2. Other information

Solid content: not determined

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No information available.

#### 10.2. Chemical stability

Stable under normal storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 7 of 10

No known hazardous reactions.

### 10.4. Conditions to avoid

No information available.

### 10.5. Incompatible materials

No information available.

### 10.6. Hazardous decomposition products

Can be released in case of fire: Metal oxide smoke, toxic

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Toxicokinetics, metabolism and distribution

No information available.

#### Acute toxicity

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

#### Acute toxicity

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
7440-31-5	tin				
	oral	LD50	>2000 mg/kg	Rat	ECHA Dossier
	dermal	LD50	>2000 mg/kg	Rat	ECHA Dossier
	inhalative (4 h) aerosol	LC50	(>4,75) mg/l	Rat	ECHA Dossier
7440-22-4	silver				
	oral	LD50	>2000 mg/kg	Rat	ECHA Dossier
	dermal	LD50	>2000 mg/kg	Rat	ECHA Dossier
	inhalative (4 h) aerosol	LC50	>5,16 mg/l	Rat	ECHA Dossier
7440-50-8	copper				
	inhalative (4 h) aerosol	LC50	>5,11 mg/l	Rat	ECHA Dossier

#### Irritation and corrosivity

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

Skin corrosion/irritation: Not an irritant.

Serious eye damage/eye irritation: Not an irritant.

#### Sensitising effects

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

Respiratory or skin sensitisation: not sensitising.

#### STOT-single exposure

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

#### Severe effects after repeated or prolonged exposure

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

#### Carcinogenic/mutagenic/toxic effects for reproduction

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

#### Aspiration hazard

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

#### Specific effects in experiment on an animal

No data available

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 8 of 10

### SECTION 12: Ecological information

#### 12.1. Toxicity

No data available

#### 12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

#### 12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

#### 12.4. Mobility in soil

No data available

#### 12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

#### 12.6. Other adverse effects

No data available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

##### Advice on disposal

Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Control report for waste code/ waste marking according to EAKV:

##### Waste disposal number of waste from residues/unused products

160304 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes other than those mentioned in 16 03 03

##### Waste disposal number of used product

160304 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes other than those mentioned in 16 03 03

##### Waste disposal number of contaminated packaging

150106 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); mixed packaging

##### Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

### SECTION 14: Transport information

#### Land transport (ADR/RID)

<u>14.1. UN number:</u>	Not restricted
<u>14.2. UN proper shipping name:</u>	Not restricted
<u>14.3. Transport hazard class(es):</u>	Not restricted
<u>14.4. Packing group:</u>	Not restricted

#### Inland waterways transport (ADN)

<u>14.1. UN number:</u>	Not restricted
<u>14.2. UN proper shipping name:</u>	Not restricted
<u>14.3. Transport hazard class(es):</u>	Not restricted
<u>14.4. Packing group:</u>	Not restricted



# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 9 of 10

### Marine transport (IMDG)

<b>14.1. UN number:</b>	Not restricted
<b>14.2. UN proper shipping name:</b>	Not restricted
<b>14.3. Transport hazard class(es):</b>	Not restricted
<b>14.4. Packing group:</b>	Not restricted

### Air transport (ICAO)

<b>14.1. UN number:</b>	Not restricted
<b>14.2. UN proper shipping name:</b>	Not restricted
<b>14.3. Transport hazard class(es):</b>	Not restricted
<b>14.4. Packing group:</b>	Not restricted

### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

### 14.6. Special precautions for user

Not restricted

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

Not restricted

## SECTION 15: Regulatory information

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

#### EU regulatory information

#### Additional information

This preparation is hazardous in the sense of regulation (EC) No 1272/2008 [GHS].  
Not subject to 96/82/EC

#### National regulatory information

Water contaminating class (D): - - not water contaminating

#### Additional information

Observe technical data sheet.

### 15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information

### Changes

Rev. 1.00; 06.05.2015, Initial release

### Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
CAS Chemical Abstracts Service  
DNEL: Derived No Effect Level  
IARC: AINTERNATIONAL AGENCY FOR RESEARCH ON CANCER  
International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
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)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Tin-Silver and Tin-Silver-Copper-Alloys

Print date: 18.05.2015

Page 10 of 10

LOAEL: Lowest observed adverse effect level  
LOAEC: Lowest observed adverse effect concentration  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
NOAEL: No observed adverse effect level  
NOAEC: No observed adverse effect level  
NTP: National Toxicology Program  
N/A: not applicable  
OSHA: Concerning the International Transport of Dangerous Goods by Rail)  
PNEC: predicted no effect concentration  
PBT: Persistent bioaccumulative toxic  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail )  
SARA: Superfund Amendments and Reauthorization Act  
SVHC: substance of very high concern  
TRGS Technische Regeln für Gefahrstoffe  
TSCA: Toxic Substances Control Act  
VOC: Volatile Organic Compounds  
VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe  
WGK: Wassergefährdungsklasse

### Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)