

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 2 of 12

Chemical characterization
solder alloy**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
7440-31-5	tin			> 90 %
	231-141-8		01-2119486474-28	
7440-50-8	copper			0 - 5 %
	231-159-6		01-2119480154-42	
7440-02-0	nickel			<0,1 %
	231-111-4	028-002-00-7	01-2119438727-29	
	Carc. 2, Skin Sens. 1, STOT RE 1; H351 H317 H372			
7440-56-4	germanium			<0,1 %
	231-164-3		01-2120761271-61	
	Repr. 2, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 2; H361 H373 H400 H411			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7440-31-5	231-141-8	tin	> 90 %
	inhalation: LC50 = (>4,75) mg/l (dusts or mists); dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg		
7440-50-8	231-159-6	copper	0 - 5 %
	inhalation: LC50 = >5,11 mg/l (dusts or mists)		
7440-02-0	231-111-4	nickel	<0,1 %
	inhalation: LC50 = 10,2 mg/l (dusts or mists); oral: LD50 = > 5000 mg/kg		
7440-56-4	231-164-3	germanium	<0,1 %
	oral: LD50 = > 2000 mg/kg		

Further Information

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

In case of accident or unwellness, 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.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 3 of 12

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

Unsuitable extinguishing media

Extinguishing media which must not be used for safety reasons:
Water
High power 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.
In case of fire: Wear self-contained breathing apparatus.

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

General measures

See protective measures under point 7 and 8.

For non-emergency personnel

Personal protection equipment: see section 8

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

No special measures are necessary.

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations.

Other information

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 4 of 12

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.

Hints on joint storage

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

Further information on storage conditions

Keep the packing dry and well sealed to prevent contamination and absorption of humidity.

Recommended storage temperature: 20°C

Protect against: frost. UV-radiation/sunlight. heat. Humidity

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m ³	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
-	Nickel and its inorganic compounds (except nickel tetracarbonyl): nickel and water-insoluble nickel compounds (as Ni)	-	0.5		TWA (8 h)	WEL
-	Tin compounds, inorganic, except SnH ₄ , (as Sn)	-	2		TWA (8 h)	WEL
			4		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
7440-31-5	tin			
Consumer DNEL, long-term		inhalation	systemic	3,476 mg/m ³
Consumer DNEL, acute		inhalation	systemic	3,476 mg/m ³
Worker DNEL, long-term		inhalation	systemic	11,75 mg/m ³
Worker DNEL, acute		inhalation	systemic	11,75 mg/m ³

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 5 of 12

Consumer DNEL, long-term	dermal	systemic	80 mg/kg bw/day
Worker DNEL, acute	dermal	systemic	133,3 mg/kg bw/day
Consumer DNEL, acute	dermal	systemic	80 mg/kg bw/day
Worker DNEL, long-term	dermal	systemic	133,3 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	80 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	80 mg/kg bw/day
7440-50-8	copper		
Worker DNEL, acute	dermal	systemic	273 mg/kg bw/day
Consumer DNEL, acute	dermal	systemic	273 mg/kg bw/day
Consumer DNEL, acute	inhalation	systemic	20 mg/m ³
Worker DNEL, long-term	inhalation	local	1 mg/m ³
Consumer DNEL, long-term	dermal	systemic	137 mg/kg bw/day
Worker DNEL, long-term	dermal	systemic	137 mg/kg bw/day
Worker DNEL, acute	inhalation	systemic	20 mg/m ³
Consumer DNEL, long-term	inhalation	local	1 mg/m ³
7440-02-0	nickel		
Worker DNEL, acute	inhalation	systemic	680 mg/m ³
Worker DNEL, long-term	inhalation	local	0,05 mg/m ³
Worker DNEL, long-term	inhalation	systemic	0,05 mg/m ³
Worker DNEL, acute	inhalation	local	4 mg/m ³
Worker DNEL, long-term	dermal	local	0,035 mg/cm ²
Consumer DNEL, long-term	inhalation	systemic	0,02 mg/m ³
Consumer DNEL, acute	inhalation	systemic	408 mg/m ³
Consumer DNEL, long-term	inhalation	local	0,02 mg/m ³
Consumer DNEL, acute	inhalation	local	2,4 mg/m ³
Consumer DNEL, long-term	dermal	local	0,035 mg/cm ²
Consumer DNEL, long-term	oral	systemic	0,02 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	0,012 mg/kg bw/day
7440-56-4	germanium		
Worker DNEL, long-term	dermal	systemic	0,24 mg/kg bw/day

PNEC values

CAS No	Substance	Value
Environmental compartment		Value
7440-50-8	copper	
Freshwater		0,0078 mg/l
Marine water		0,0052 mg/l
Freshwater sediment		87 mg/kg
Marine sediment		678 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,23 mg/l
Soil		65 mg/kg

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 6 of 12

7440-56-4	germanium	
Freshwater		0,0434 mg/l
Marine water		0,0434 mg/l
Freshwater sediment		599,4 mg/kg
Marine sediment		19,6 mg/kg
Micro-organisms in sewage treatment plants (STP)		7 mg/l
Soil		43,4 mg/kg

8.2. Exposure controls**Appropriate engineering controls**

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

Protective and hygiene measures

Keep away from food, drink and animal feedingstuffs. 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.

The selected protective gloves have to satisfy the specifications of EU Directive EC/2016/425 and the standard EN 374 derived from it.

In the case of wanting to use the gloves again, clean them before taking off and air them well. Before using check leak tightness / impermeability.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Protective clothing (heat-resistant)

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

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

Respiratory protection necessary at:

Insufficient ventilation

Exceeding exposure limit values

smoke generation

Suitable respiratory protective equipment: Particle filter device (DIN EN 143) Type: P1-3

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.

Environmental exposure controls

No special environmental measures are necessary.

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

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 7 of 12

	Test method
pH-Value:	not applicable
Changes in the physical state	
Melting point:	227 °C N/A
Boiling point or initial boiling point and boiling range:	not determined
Sublimation point:	not determined
Softening point:	not determined
Flash point:	not determined
Flammability	
Solid/liquid:	not determined
Explosive properties	
none	
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	not determined
Self-ignition temperature	
Solid:	not determined
Decomposition temperature:	not determined
Oxidizing properties	
none	
Vapour pressure:	not determined
Density:	7,26 g/cm ³ 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

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 8 of 12

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Toxicokinetics, metabolism and distribution**

No information available.

Acute toxicity

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

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7440-31-5	tin				
	oral	LD50 mg/kg >2000	Rat	ECHA Dossier	
	dermal	LD50 mg/kg >2000	Rat	ECHA Dossier	
	inhalation (4 h) aerosol	LC50 mg/l (>4,75)	Rat	ECHA Dossier	
7440-50-8	copper				
	inhalation (4 h) aerosol	LC50 mg/l >5,11	Rat	ECHA Dossier	
7440-02-0	nickel				
	oral	LD50 mg/kg > 5000	Rat	ECHA Dossier	
	inhalation aerosol	LC50 10,2 mg/l	Rat	ECHA Dossier	
7440-56-4	germanium				
	oral	LD50 mg/kg > 2000	Rat	Study report (2012)	OECD Guideline 425

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

Contains nickel. May produce an allergic reaction.

Respiratory or skin sensitisation: not sensitising.

Carcinogenic/mutagenic/toxic effects for reproduction

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.

Specific effects in experiment on an animal

No data available

SECTION 12: Ecological information**12.1. Toxicity**

No data available

CAS No	Chemical name
--------	---------------

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 9 of 12

	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7440-02-0	nickel					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Danio rerio	ECHA Dossier	
	Acute algae toxicity	ErC50 > 100 mg/l	72 h	Selenastrum capricornutum	ECHA Dossier	
	Acute crustacea toxicity	EC50 > 100 mg/l	48 h	Daphnia magna	ECHA Dossier	
7440-56-4	germanium					
	Acute fish toxicity	LC50 > 96 mg/l	96 h	Danio rerio	Study report (2001)	OECD Guideline 203
	Acute algae toxicity	ErC50 0,20674 mg/l	72 h	Navicula pelliculosa	(2018)	OECD Guideline 201
	Acute crustacea toxicity	EC50 67,5 mg/l	48 h	Daphnia magna	Study report (2001)	OECD Guideline 202
	Algae toxicity	NOEC 1,1 mg/l	6 d	Ulva lactuca	Phycologia 21(2):125-130 (1982)	Macro-algae were tested in a continuous
	Acute bacteria toxicity	(> 1000 mg/l)	3 h	activated sludge of a predominantly domestic sewage	Study report	OECD Guideline 209

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.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. According to (EWC) European Waste Catalogue, 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 (EWC) European Waste Catalogue:

List of Wastes Code - 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

List of Wastes Code - 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

List of Wastes Code - 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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 10 of 12

Contaminated packaging

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

SECTION 14: Transport information**Land transport (ADR/RID)**

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

Inland waterways transport (ADN)

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

Marine transport (IMDG)

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

Air transport (ICAO-TI/IATA-DGR)

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

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not restricted

14.7. Maritime transport in bulk according to IMO instruments

Not restricted

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 27

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (amended by Regulation (EU) No 2020/878)

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

REACH 1907/2006 Appendix XVII, No (mixture): 27

National regulatory information

Water hazard class (D): -- non-hazardous to water

Additional information

Observe technical data sheet.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 11 of 12

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
- Rev. 1.01; 30.10.2015, Indication of changes: chapter: 1, 16.
- Rev.1.1; 22.09.2016, Indication of changes - chapter: 1, 16.
- Rev.2.0; 16.04.2018, Changes in chapter: 15
- Rev. 2.1; 27.04.2021, Changes in chapter: 1-16

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)
- AGW: Arbeitsplatzgrenzwert
- CAS: Chemical Abstracts Service
- CLP: Classification, Labelling and Packaging of substances and mixtures
- DNEL: Derived No Effect Level
- d: day(s)
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- ECHA: European Chemicals Agency
- EWC: European Waste Catalogue
- IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
- 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)
- h: hour
- 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 concentration
- NLP: No-Longer Polymers
- N/A: not applicable
- OECD: Organisation for Economic Co-operation and Development
- PNEC: predicted no effect concentration
- PBT: Persistent bioaccumulative toxic
- RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- REACH: Registration, Evaluation, Authorisation of Chemicals
- SVHC: substance of very high concern
- TRGS: Technische Regeln für Gefahrstoffe
- UN: United Nations
- VOC: Volatile Organic Compounds

Relevant H and EUH statements (number and full text)

- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SN100C - SnCu0,7Ni - Alloys ** Tin-Copper-Nickel-Alloys doped with Germanium

Revision date: 27.04.2021

Product code: 950002

Page 12 of 12

H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
EUH208	Contains nickel. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

Further Information

Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data and / or calculated and / or estimated.

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.

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