

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 1 of 11

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

Tin-Lead Alloys, potential with additional of other alloying elements

Further trade names

This MSDS covers the following products:

Sn63Pb37

Sn60Pb40

Sn50Pb50

Sn60Pb38Bi2

Sn60Pb39Cu1

Sn62Pb36Ag2

Pb 5-50% Sn > 45% Ag 0-5% Cu 0-5% Bi 0-5%

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

soft solder

Uses advised against

any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name: Balver Zinn Josef Jost GmbH & Co. KG

Street: Blintroper Weg 11

Place: D-58802 Balve

Telephone: +49 2375 915-0

Telefax: +49 2375 915-1700

Responsible Department: sds@balverzinn.com

1.4. Emergency telephone

Chemtrec: +44(0) 870-8200418

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

Hazard categories:

Reproductive toxicity: Repr. 1A

Reproductive toxicity: Lact.

Specific target organ toxicity - repeated exposure: STOT RE 1

Hazard Statements:

May damage fertility. May damage the unborn child.

May cause harm to breast-fed children.

Causes damage to organs through prolonged or repeated exposure.

2.2. Label elements**Additional advice on labelling**

For this product, a hazard label is not required according to section 1.3.4 of the CLP regulation.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

solder alloy

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 2 of 11

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
7440-31-5	tin			> 45 %
	231-141-8		01-2119486474-28	
7439-92-1	lead massive [particle diameter >= 1 mm]			50 - < 55 %
	231-100-4	082-014-00-7	01-2119513221-59	
	Repr. 1A, Lact., STOT RE 1; H360FD H362 H372			
7440-50-8	copper			0 - 5 %
	231-159-6			
7440-69-9	bismuth			0 - 5 %
	231-177-4		01-2119560575-33	
7440-22-4	silver			0 - 5 %
	231-131-3		01-2119555669-21	

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

Further Information

This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: lead massive [particle diameter >= 1 mm] CAS n°: 7439-92-1

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.

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 3 of 11

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, Lead oxide

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**

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 exhaust at critical locations. Process within closed systems.
Do not breathe smoke. Do not breathe dust.
Wear suitable protective clothing. (See section 8.)

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.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 4 of 11

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
			-		STEL (15 min)	WEL
-	Lead other than lead alkyls	-	0.15		TWA (8 h)	CLAW
			-		STEL (15 min)	CLAW
7440-22-4	Silver, metallic	-	0.1		TWA (8 h)	WEL
			-		STEL (15 min)	WEL
-	Tin compounds, inorganic, except SnH ₄ , (as Sn)	-	2		TWA (8 h)	WEL
			4		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
7439-92-1	Lead (woman of reproductive capacity)	lead	20 µg/dl	blood	Random

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
	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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 5 of 11

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
7440-69-9	bismuth		
Worker DNEL, long-term	inhalation	systemic	13,1 mg/m ³
Consumer DNEL, long-term	oral	systemic	13,3 mg/kg bw/day
7440-22-4	silver		
Consumer DNEL, long-term	oral	systemic	1,2 mg/kg bw/day
Worker DNEL, long-term	inhalation	systemic	0,1 mg/m ³
Consumer DNEL, long-term	inhalation	systemic	0,04 mg/m ³

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
7440-69-9	bismuth	
Micro-organisms in sewage treatment plants (STP)		17,5 mg/l
7440-22-4	silver	
Soil		1,41 mg/kg
Freshwater		0,00004 mg/l
Marine sediment		438,13 mg/kg
Freshwater sediment		438,13 mg/kg
Marine water		0,00086 mg/l
Micro-organisms in sewage treatment plants (STP)		0,025 mg/l

8.2. Exposure controls



Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.
Process within closed systems.

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.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 6 of 11

Hand protection

Wear suitable gloves.
for coarse soldering works: heat insulating.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC 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 exhaust 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: P3
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.
Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

Environmental exposure controls

This material and its container must be disposed of in a safe way.

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:		Sn63Pb37: 183 °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	

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 7 of 11

Decomposition temperature: not determined

Oxidizing properties

none

Vapour pressure: not determined

Density: Sn63Pb37: 8,4 g/cm³ 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, Lead oxide

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.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7440-31-5	tin				
	oral	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) aerosol	LC50 (>4,75) mg/l	Rat	ECHA Dossier	
7439-92-1	lead massive [particle diameter >= 1 mm]				

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 8 of 11

	oral	LD50 mg/kg	> 2000	Rat	Study report (2003)	OECD Guideline 423
	dermal	LD50 mg/kg	> 2000	Rat	Study report (2003)	OECD Guideline 402
7440-50-8	copper					
	inhalation (4 h) aerosol	LC50 mg/l	>5,11	Rat	ECHA Dossier	
7440-69-9	bismuth					
	oral	LD50 mg/kg	2000	Rat	ECHA Dossier	
7440-22-4	silver					
	oral	LD50 mg/kg	>2000	Rat	ECHA Dossier	
	dermal	LD50 mg/kg	>2000	Rat	ECHA Dossier	
	inhalation (4 h) aerosol	LC50 mg/l	>5,16	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.

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

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.

BCF

CAS No	Chemical name	BCF	Species	Source
7439-92-1	lead massive [particle diameter >= 1 mm]	40000	Asellus meridianus	Freshwater Biology 7

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 9 of 11

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 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

160303 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes containing hazardous substances; hazardous waste

Waste disposal number of used product

160303 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes containing hazardous substances; hazardous waste

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)**

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 10 of 11

14.6. Special precautions for user

Not restricted

14.7. Transport in bulk according to Annex II of Marpol 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**

Restrictions on use (REACH, annex XVII):

Entry 63: lead massive [particle diameter \geq 1 mm]Information according to 2012/18/EU Not subject to 2012/18/EU (SEVESO III)
(SEVESO III):**Additional information**The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].
REACH 1907/2006 Appendix XVII, No: 63**National regulatory information**

Employment restrictions:

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

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

Rev.1.1; 03.11.2016, Indication of changes - chapter: 1, 2, 3, 16.

Rev.2.0; 17.04.2018, Changes in chapter: 2, 3, 15.

Rev.2.1; 03.07.2018, Changes in chapter: 3.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route

CAS Chemical Abstracts Service

DNEL: Derived No Effect Level

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)

LOAEL: Lowest observed adverse effect level

LOAEC: Lowest observed adverse effect concentration

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tin-Lead Alloys, potential with additional of other alloying elements

Revision date: 03.07.2018

Product code: 950102

Page 11 of 11

NOAEL: No observed adverse effect level
 NOAEC: No observed adverse effect level
 NTP: National Toxicology Program
 N/A: not applicable
 OSHA: Occupational Safety and Health Administration
 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 fuerGefahrstoffe
 TSCA: Toxic Substances Control Act
 VOC: Volatile Organic Compounds
 VwVwS: Verwaltungsvorschrift wassergefaehrdender Stoffe
 WGK: Wassergefaehrdungsklasse

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Repr. 1A; H360FD	Calculation method
Lact.; H362	Calculation method
STOT RE 1; H372	Calculation method

Relevant H and EUH statements (number and full text)

H360FD May damage fertility. May damage the unborn child.
 H362 May cause harm to breast-fed children.

Further Information

Classification according EC regulation 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.)