

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

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

Revision date: 03.11.2016

Product code: 950102

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**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 &gt; 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 &amp; 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 number:** Chemtrec: +44(0) 870-8200418**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:

Acute toxicity: Acute Tox. 4

Acute toxicity: Acute Tox. 4

Reproductive toxicity: Repr. 1A

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazardous to the aquatic environment: Aquatic Acute 1

Hazardous to the aquatic environment: Aquatic Chronic 1

**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

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## 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			
7439-92-1	lead			50 - < 55 %
	231-100-4	082-001-00-6		
	Repr. 1A, Acute Tox. 4, Acute Tox. 4, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H360Df H302 H332 H373 H400 H410			
7440-50-8	copper			0 - 5 %
	231-159-6			
7440-69-9	bismuth			0 - 5 %
	231-177-4			
7440-22-4	silver			0 - 5 %
	231-131-3		01-2119555669-21	

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

## 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.

**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.

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**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, Lead oxide

**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 articles and floor according to the environmental legislation.

**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.  
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)**

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refer to chapter 1.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**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
-	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

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**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
7440-31-5	tin			
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>
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>
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 <sup>3</sup>
Worker DNEL, long-term		inhalation	local	1 mg/m <sup>3</sup>
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 <sup>3</sup>
Consumer DNEL, long-term		inhalation	local	1 mg/m <sup>3</sup>
7440-69-9	bismuth			
Worker DNEL, long-term		inhalation	systemic	13,1 mg/m <sup>3</sup>
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 <sup>3</sup>
Consumer DNEL, long-term		inhalation	systemic	0,04 mg/m <sup>3</sup>

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## PNEC values

CAS No	Substance	Value
Environmental compartment		
7440-50-8	copper	
Freshwater sediment		87 mg/kg
Marine water		0,0052 mg/l
Freshwater		0,0078 mg/l
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.

**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.

**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**

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

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## 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

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**

Stable under normal storage and handling conditions.

**10.3. Possibility of hazardous reactions**

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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.

**ATEmix calculated**

ATE (oral) 975,6 mg/kg; ATE (inhalative aerosol) 3,000 mg/l

CAS No	Chemical name			
	Exposure route	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
7439-92-1	lead			
	oral	ATE 500 mg/kg		
	inhalative vapour	ATE 11 mg/l		
	inhalative aerosol	ATE 1,5 mg/l		
7440-50-8	copper			
	inhalative (4 h) aerosol	LC50 >5,11 mg/l	Rat	ECHA Dossier
7440-69-9	bismuth			
	oral	LD50 2000 mg/kg	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

**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.



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**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.

**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**

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

<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

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**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. 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

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

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**Changes**

This data sheet contains changes from the previous version in section(s): 16.

Rev. 1.00; 06.05.2015, Initial release

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

**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

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)

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

**Relevant H and EUH statements (number and full text)**

H302 Harmful if swallowed.

H332 Harmful if inhaled.

H360Df May damage the unborn child. Suspected of damaging fertility.

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

H400 Very toxic to aquatic life.

**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.

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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.)*