

**MATERIAL SAFETY DATA SHEET** ACCORDING TO 91/155/EU

Trade name: VD90.5001 / VD90.5002 / VD90.5004 / VD00.5005 / VD90.5006 / VD90.5008 /  
VD90.5009 / VD90.5010 / VD90.5011 / VD90.5013 MARTIN Solder Balls  
Issue: July 2013  
Reference: MSDS Lotkugeln SnPb-e.doc

**1. Identification of the substance / preparation and of the company**

**1.1 Identification of the substance / preparation**

MARTIN Solder Balls  
Alloy: SnPb

**1.2 Company/undertaking identification**

MARTIN GmbH  
Argelsrieder Feld 1b  
D-82234 Wessling  
Phone: +49-(0)8153-932 93-0  
Fax: +49-(0)8153-932 93-9  
www.martin-smt.de

**1.3 Emergency telephone**

Please contact the nearest poison emergency center.

**2. Hazards identification**

**2.1 To people**

See point 11 and 15  
Preparation is not classified as hazardous in the sense of directive 1999/45 EC  
In the event of contact with the hot product: Danger of burns  
The following may occur: Hazardous gases are set free when processing product  
Development of: Lead oxide

**2.2 To the environment**

See point 12

**3. Composition and ingredients**

**3.1 Alloy containing:**

Chemical name	Symbol	CAS No.	EINECS	Content %
Tin	Sn	7440-31-5	231-141-8	As per lable
Lead	Pb	7439-92-1	231-100-4	As per lable

**4. First aid procedures**

**4.1 After inhalation**

During processing: Supply person with fresh air. Call doctor immediately.

**4.2 After eye contact**

In the event of contact with the hot product: Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

**4.3 After skin contact**

In the event of contact with the hot product: Wash off with cold water.  
Do not attempt to remove hardened product.

**4.4 After ingestion**

If with consciousness drink much water and let vomiting. Call doctor immediately – have a data sheet available

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**4.5 Notes for the doctor**

With acute admission releasing vomiting and/or gastric lavage with approx. 2.3 % Sodium sulfate solution under additive of plentifully animal charcoal under usual safeguard clauses. Spill Sodium sulfate (1 spoon on 1 glass water) and activated charcoal, with last gastric lavage procedure Antidotum metallorum Sauter, Reducdyn or Metalcaptase or Mosatil. Of crucial importance for a rational treatment of the lead intoxication is the use of CaNa2-EDTA. Further symptomatically. No milk and alcohol. Control of the heart and cycle function. Chronically stored lead can be eliminated with a lengthy treatment with CaNa2-EDTA gradually again. Check ups after BG-principle G2 and after TRGS 505.

**5. Fire fighting measures**

**5.1 Suitable extinguishers**

Adapt to the nature and extent of fire. If liquid lead is present, use dry sand.  
If applicable: Metal fire extinguisher

**5.2 Unsuitable extinguishers**

If liquid lead is present, don't use water.

**5.3 Severe dangers from this material, products of burning or heating**

In case of fire the following can develop:

Fume  
Toxic gases  
Lead oxide  
Lead compounds

**5.4 Special protective equipment**

Protective respirator with independent air supply  
According to size of fire full protection if necessary

**5.5 Further information**

Dispose of contaminated extinction water according to official regulations

**6. Accidental release measures**

Refer to point 13 and for personal protection refer to point 8

**6.1 Personal precautions**

Respiratory protection, at least P2, if while handling, types of dust and smoke are developed. During strong dust and smoke development: Circulating air-independent respirator.

**6.2 Environmental precautions**

Environmental endangerment possible with release of larger quantities of lead dust. For the water-endangering effect so far no classification took place. A penetration in underground and waters should be prevented however in any case. Inform authorities with release.

**6.3 Methods of cleaning up**

Solutions with liquid binding material (sand, universal binder, sawdust) take up and contaminated material duly dispose of.

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**7. Handling and storage**

**7.1 Handling**

Tips for safe handling see point 6.1  
Ensure good ventilation.  
Avoid build up of dust.  
Suction measures at the workplace or on the processing machines required.  
Switch on available suction system.  
Do not inhale dust/fume/mist.  
Exposed employees should have regular medical check-ups.  
Separate storage of protective clothing.  
Wash hands before breaks and at end of work.  
Eating, drinking, smoking, as well as food storage, is prohibited in work room.  
General hygiene measures for the handling of chemicals are applicable.  
Observe directions on label and instructions for use.

**7.2 Storage**

**7.2.1 Requirements for storage rooms and containers:**

Store products only unopened in original packing.  
Not to be stored in gangways or stair wells.

**7.2.2 Special storage conditions:**

See point 10.2

**8. Exposure controls / personal protection**

Ensure good ventilation. This can be achieved by local suction or general air extraction.  
If this is insufficient to maintain the concentration under the OES, MEL or MAK values, suitable breathing protection should be worn.

Applies only if maximum permissible values are listed here.

(GB)	Chemical Name:	Lead
	WEL-TWA: 0.15 mg/m <sup>3</sup> (EC)	WEL-STEL: ---
	BGMV: see biological limits for lead (EH40), 70µg Pb/100ml blood (EC)	Other information: ---

(GB)	Chemical Name:	Lead oxide
	WEL-TWA: 0,15 mg/m <sup>3</sup> (Pb, inorganic compounds, EC)	WEL-STEL: ---
	BGMV: see biological limits for lead (EH40), 70µg Pb/100ml blood (Lead and its ionic compounds, EC)	Other information: ---

(GB) WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8h TWA (= time weighted average reference period).

WEL - STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).

BGMV = Biological monitoring guidance value.

Sen = Capable of causing occupational asthma.

Sk = Can be absorbed through the skin.

Carc = Capable of causing cancer and/or heritable genetic damage.

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**8.1 Components with workstation-furnished, to supervising limit values:**

CAS-No.	Substance	Kind	Unity /Value
7439-92-1	Lead		
	Lead (men)	MAK	0,1mg/m <sup>3</sup> G
	Lead (woman)	BAT	700µg/L.blood
	δ-Aminolaevulinsäure (men)	BAT	300µg/L.blood
	δ-Aminolaevulinsäure (women)	BAT	15mg/L.urine 6mg/L.urine
Top-level limit lead: III			

**8.2 Respiratory protection:** Normally not necessary.  
During processing:  
In case of fume and dust use protective respirator with independent air supply. Filter P2 EN 143

**8.3 Hand protection:** Normally not necessary.  
Protective hand cream recommended.  
During processing: Leather gloves

**8.4 Eye protection:** Normally not necessary.  
During processing: Tight fitting protective goggles with side protection (EN166)

**8.5 Skin protection:**  
Protective working garments (e.g. safety shoes EN 344, long-sleeved protective working garments)

**8.6 Hygiene arrangements**  
No eating, drinking or smoking during processing. Wash hands before and after processing.

Additional information on hand protection - No tests has been performed.  
Selection made for preparations according to the best available knowledge and information on the ingredients.  
Selection of materials derived from glove manufacturer's indications.  
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.  
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer.  
In the case of preparations the resistance of glove materials cannot be calculated in advance so it has to be tested before use. The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

**9. Physical and chemical properties**

Physical state:		Solid
Colour:	Grey	
Odour:	Odourless	
Boiling point/range (°C):	1740 (Lead)	
Melting point/range (°C):	>> Depends on composition <<	
Flashpoint:	Not applicable (n.a.)	
Flammability (solid/gas):	n.g.	
Auto flammability:		n.g.
Vapour pressure:		Lead (328°C):3,7x10hPa
Density (g/cm <sup>3</sup> ):		>> Depends on composition <<
Bulk density:	n.g.	
Solubility in water:		insoluble

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**10. Stability and Reactivity**

**10.1 Conditions to avoid**

See point 7.  
Stable when handled and stored correctly.  
Strong heat, PbO / Pb-steam may occur.

**10.2 Materials to avoid**

See point 7.  
Avoid contact with strong oxidizing agents.  
Avoid contact with strong acids.  
Avoid contact with strong alkalis

**10.3 Hazardous decompositions products**

See point 5.3

**11. Toxicological information**

Lead damages blood, nerves and kidneys. Its effect is based on the storage into the cell enzymes. Acute poisonings are very rare, since larger quantities of lead is absorbed by the stomach intestinal mucosa only very slowly and badly. On the other hand the inhalation of larger quantities of finely divided connections can lead possibly after some days or after several weeks to deadly subacute poisonings. Symptoms are: sweet metallic taste, salivation, vomiting, the intestinal-colic attacks, chair and urine behavior, damage of blood is beginning and collapse with blood pressure drop and subnormal temperatures. Symptoms of the chronic poisoning are among other things headache, loss of appetite, tiredness nervousness Tremor and Obstipation. The occurrence of an anemia is differently evaluated. With exposition pregnant one cannot be excluded a fruit damage also on adherence to of the MAK and asking value. For minimizing the risk a particularly evaluated asking value of 30µg/L is valid for women under 45 years. (TRGS 900, remark 29)

**Additional toxicological references:**

Lead colic attacks ( meet or intestine cramps lasting for weeks with persistent chair blockage). Arise from paralyses of the finger and hand musculature. In the blood elimination of special proteins increased and- Aminolaevulinsäure already with beginning of increased exposition and leadδ admission

**12. Ecological information**

Each contamination of ground and waters with lead and its connections is to be avoided strictly.

**13. Disposal considerations**

**13.1 For the material / preparation / residue**

The waste codes are recommendations based on the schedules use of that product. Owing to the user`s specific conditions for use and disposal, other waste codes may be allocated under certain circumstances.

EAK-Nr.: 12 01 04 non-ferrous metal dust and particles ( Germany)  
EAK-Nr.: 06 03 15 Metallic oxids with heavy metals.  
Pay attention to local and national official regulations.  
E.g. dispose at suitable refuse site.  
Implements substance recycling.

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**13.2 For contaminated packing material**

See point 13.1  
Pay attention to local and national official regulations.

EAK = European Waste Catalogue

**14. Transport information**

**Additional information:**

No dangerous material according to Transport Regulations.

**5. Regulatory information**

**15.1 Classification according to Dangerous Product Regulations incl. EC Directives (67/548/EEC and 1999/45/EC)**

Symbols: Not applicable  
Indications of danger: -----

R-phrases:

R20/22 Harmful on inhalation and if swallowed  
R33 danger of cumulative effects  
R50/53 very toxic to aquatic organismus, may cause long-term adverse effects in the aquatic environment  
R63 the child in the mother body can possibly damage

S-phrases: -

**References to the restriction of occupation:**

Restrictions in accordance with § 15 GefStoffV as well as by asking limit values in accordance with TRGS 505/principle according to industrial medicine G2.

**16. Other Information**

These details refer to the product as it is delivered.

Storage class VCI (Germany): 11/13  
BGV D1 (VBG 15)  
TRGS 505

**Legend:**

n.a. = not applicable / n.v. ,k.D.v. = not available / n.g. = not checked  
OES = Occupational exposure standards / MEL = Maximum exposure limits / BMGV = Biological monitoring guidance value  
AG = "Arbeitsplatzgrenzwert" (workplace limit value, Germany) / BG = "Biologischer Grenzwert" (biological limit value, Germany)  
VbF = Regulation for flammable liquids (Austria)  
WGK = water hazard class (Germany)  
VOC = Volatile organic compounds / AOX = Adsorbable organic halogen compounds  
VwVwS = Administrative Order relating to substances hazardous to water ( Germany )

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The statements made here should describe the product with regards to the necessary safety precautions – they are not meant to guarantee definite characteristics – but they are based on our present up-to-date knowledge. No responsibility.

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