



Code: SN-PB
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WOLVERINE JOINING TECHNOLOGIES, INC.

MATERIAL SAFETY DATA SHEET

Product: PB/SN 95/5, 40/60, 45/55, 50/50, 60/40, 30478, 30486, 30494,
 34727, 35445

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name : TIN/LEAD SOLDER ALLOY
 Chemical Name : TIN/LEAD ALLOY
 Formula : Sn-Pb
 Product CAS No.: CHEMICAL MIXTURE
 Product Use : Welding/Brazing/Soldering

Supplier : WOLVERINE JOINING TECHNOLOGIES, INC.
 Address : 235 KILVERT STREET
 City, St, Zip : WARWICK, RI 02886
 Phone : 1-401-739-9550

FOR CHEMICAL EMERGENCY CALL CHEMTREC (24 HOURS):
 1-800-424-9300 (US, Canada, Puerto Rico, Virgin Islands)
 1-703-527-3887 (Outside Above Area)

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% Wt.
TIN	7440-31-5	5-95
LEAD	7439-92-1	5-95

INGREDIENT NOTES

NOTE: The percentage by weight values reported for the ingredients in this product represent approximate formulation values.

NOTE: See Section 8 for Exposure Limits and Section 11 for Toxicological Information.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Silver to grey metallic solid

Odorless

Flash Point: Not Applicable

Contains SUSPECT CANCER HAZARD - Risk of cancer depends on route, duration and level of exposure. Overexposure by ingestion or inhalation may cause headache, dizziness, hypertension, and kidney, blood, nervous and reproductive system disorders (LEAD poisoning). Prolonged or repeated inhalation of dust or fume may cause lung injury. May cause eye, skin and respiratory tract irritation. Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions. Toxic metal fumes may be released in a fire situation.

ROUTES OF ENTRY

Eyes? YES Skin? YES Inhalation? YES Ingestion? YES

POTENTIAL HEALTH EFFECTS

EYE CONTACT may cause irritation.

SKIN CONTACT may cause irritation.

INHALATION may cause upper respiratory tract irritation. Prolonged or repeated exposure to LEAD fumes may cause LEAD poisoning. Early symptoms are abdominal pain, vomiting, diarrhea, fatigue, disturbance of sleep, and constipation, with more severe exposures followed by colic, anemia and neuritis (nerve inflammation). Prolonged overexposure can severely damage red blood cell formation, kidneys and nervous system. Other symptoms include loss of appetite, metallic taste in mouth, anxiety, pallor, headache, dizziness, and hypertension. The OSHA LEAD Standard reports that LEAD may impair the reproductive system of both men and women. Damage may also be caused to the unborn fetus.

INGESTION: May cause the same effects as detailed under inhalation.

NOTE: The potential health effects described above only apply if dust or fume is formed.

CARCINOGENICITY

NTP? NO

IARC? YES

OSHA? NO

In evaluating LEAD and INORGANIC LEAD COMPOUNDS, the International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence of carcinogenicity to experimental animals and inadequate evidence of carcinogenicity to humans (Group 2B). However, the National Toxicology Program (NTP) does not concur with the IARC

assessment and lists only lead acetate and lead phosphate as substances which may reasonably be anticipated to be carcinogenic. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified lead and inorganic lead compounds as animal carcinogens (A3). The lead compound in this product has not been specifically identified as a possible carcinogen.

CHRONIC HEALTH HAZARDS

Refer to Potential Health Effects and Carcinogenicity.

Prolonged or repeated inhalation may cause a benign pneumoconiosis.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

May adversely affect pre-existing medical conditions such as respiratory, diseases of the blood forming organs, kidneys, nervous system and possibly reproductive system disorders.

NOTE: See Section 8 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Flush eyes with plenty of water. If irritation develops, call a physician.

SKIN CONTACT: Flush with plenty of water. If irritation persists, call a physician.

INHALATION: If exposed to excessive levels of metal fumes, remove to fresh air and seek medical attention.

INGESTION: If a person is conscious, give plenty of water. Do not induce vomiting. Obtain medical attention immediately for treatment of possible LEAD poisoning.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: Not Applicable
Auto-Ignition: Not Applicable
LEL: Not Applicable
UEL: Not Applicable

NFPA HAZARD CLASSIFICATION

Health: 2 Flammable: 0 Reactivity: 0

HMIS HAZARD CLASSIFICATION

Health: 2* Flammable: 0 Reactivity: 0 Special: B

* Indicates the possibility of chronic health effects. See Chronic Health Hazards in Section 3 for more information.

EXTINGUISHING MEDIA

Use carbon dioxide, chemical foam or dry chemical. Use any means for extinguishing surrounding fire.

Do NOT use water on metal fires.

SPECIAL FIRE FIGHTING PROCEDURES

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and protective clothing as specified in 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions. Toxic metal fumes may be released in a fire situation.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Contain spillage and scoop up or vacuum. Avoid dusting. Notification of the National Response Center (800/424-8802) may be required. Refer to EPA, DOT and applicable state and local regulations for current response information.

It is recommended that each user establish a spill prevention, control and countermeasure plan (SPCC). Such plan should include procedures applicable to proper storage, control and clean-up of spills, including reuse or disposal as appropriate (see Section 13: Disposal Considerations).

****NOTE**** In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 8: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

Wash thoroughly after handling.
Store in a cool, dry location away from incompatible materials.

NOTE: Consult the most recent OSHA LEAD Standard (1910.1025) and its attachments, appendices, etc., for full requirements, some of which are not covered in this Material Safety Data Sheet.

Avoid contact with any dusts, mists or fumes resulting from the use of

this product.

Do not eat, drink, or smoke in work area.

Use only with adequate ventilation.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

INGREDIENT	PEL-OSHA	TLV-ACGIH
TIN		
CAS NO.: 7440-31-5	2 mg/m3	2 mg/m3
LEAD		
CAS NO.: 7439-92-1	0.05 mg/m3 0.03 mg/m3 ACTION LEVEL	0.05 mg/m3

NOTE: Both OSHA and the ACGIH list welding fumes as having an exposure limit of 5 mg/m3 (total particulate not otherwise classified). However, the ACGIH states that welding fumes must be tested frequently for individual components which are likely to be present to determine whether specific exposure limits are exceeded.

NOTE: The permissible exposure limits (PELs), threshold limit values (TLVs), potential health effects statements and SARA hazard categories may not be applicable as the hazardous ingredients listed are in the solid form. If dust, powder or fume is generated then these statements will be applicable.

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 1998 Standards. All OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

RESPIRATORY PROTECTION

If dust or fume is generated, a NIOSH/MSHA approved respirator may be necessary. Follow all requirements for respiratory programs and selection set forth in the OSHA regulations (29 CFR 1910.139).

VENTILATION

General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

PROTECTIVE EQUIPMENT

Refer to ANSI/ASC Z49.1-94 (Safety in Welding, Cutting and Allied Processes), published by the American Welding Society, for further information on the selection of personal protective equipment. Safety glasses (with side shields). Body protection as necessary to prevent skin contact.

PERSONNEL SAMPLING PROCEDURE

For METALLIC COMPONENTS: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7300.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Silver to grey metallic solid
 Odor: Odorless
 Boiling Point: 1744 to 2260 °C
 Specific Gravity (H₂O=1): 8 to 10.5
 Melting Point: 183 °C
 Vapor Pressure (mm Hg): Not Applicable
 Vapor Density (Air=1): Not Applicable
 Evaporation Rate: Not Applicable
 % Solubility In Water: Insoluble
 pH: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.
 Avoid: None expected.

INCOMPATIBILITY (Materials to Avoid)

Strong oxidizers, hydrogen peroxide, chlorine, turpentine, active metals. Powdered lead fused with ammonium nitrate may cause a violent reaction.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Toxic metal oxides are emitted when heated above the melting point. The amount of fume evolved increases as the temperature rises.

Polymerization: Polymerization is not expected to occur.
 Avoid: Not applicable.

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt. LD50	LC50
TIN		
CAS NO.: 7440-31-5	5-95 Not Available	Not Available
LEAD		
CAS NO.: 7439-92-1	5-95 Not Available	Not Available

NOTE: See Sections 3, 8 and 12 for additional information.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY

No data available.

ENVIRONMENTAL FATE

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

US EPA Waste Number: D008

This product may be a hazardous waste under EPA waste regulations (see EPA WASTE above). Before disposal, this product or mixture containing this product should be tested for toxicity characteristics (TC) under the current EPA Hazardous Waste Regulations TCLP testing procedures, 40 CFR Part 261 et seq. Disposal/recycling/reclamation requirements will vary by location and type of disposal selected. Consult with state and local regulatory authorities.

****NOTE**** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with federal, state, and local environmental control regulations.

SECTION 14: TRANSPORT INFORMATION

INTERNATIONAL

UN Number: Not Regulated

UNITED STATES

EPA Waste Number: D008

DOT Classification: Not Regulated

CANADA

PIN Number: Not Regulated

TDG Class: Not Regulated

EC

DGL: Not Determined

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

TSCA: IN TSCA

SARA 311 AND 312 HAZARD CATEGORIES

IMMEDIATE (Acute) Health Hazard: YES
DELAYED (Chronic) Health Hazard: YES
FIRE Hazard: NO
REACTIVITY Hazard: NO
Sudden Release of PRESSURE: NO

SARA SECTION 313 NOTIFICATION

This product contains a toxic chemical (or chemicals) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CHEMICAL NAME	CAS Number	% Wt.
LEAD	7439-92-1	5-95

OZONE DEPLETING SUBSTANCES (ODS)

This product neither contains nor is manufactured with an ozone depleting substance subject to the labelling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

VOLATILE ORGANIC COMPOUNDS (VOC)

None

US STATE REGULATIONS

CALIFORNIA: The State of California has a regulation (Proposition 65) which identifies specific chemicals known to the State of California to cause cancer or birth defects. Proposition 65 requires a disclosure for products sold within the State of California containing an identified chemical. The following information is required by the State of California for this product:

*WARNING: This product contains chemicals known to the State of California to cause cancer.

*WARNING: This product contains chemicals known to the State of California to cause birth defects or other reproductive harm.

VOLATILE ORGANIC COMPOUND (CARB): Not Determined

CANADIAN REGULATIONS

DSL/NDSL: DSL
WHMIS Classification: Class D Division 2 Subdivision A

EUROPEAN REGULATIONS

EINECS: Yes

OTHER REGULATIONS

MITI (Japan): Yes

AICS (Australia): Yes

SECTION 16: OTHER INFORMATION

REVISIONS

Revision Number: 3

This MSDS has been revised in the following section(s):

PRODUCT NAME

LABEL COPY

PREPARATION INFORMATION

Prepared By: Corporate Environment, Health & Safety Group

Phone Number: See Section 1

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations, and management and for persons working with or handling this product. The information presented in the MSDS is premised upon proper handling and anticipated uses and is for the material without chemical additions/alterations. We believe this information to be reliable and up-to-date as of the date of publication, but make no warranty that it is. Additionally, if this Material Safety Data Sheet is more than three years old, please contact the supplier at the phone number listed in Section 1 to make certain that this sheet is current. Copyright Wolverine Joining Technologies, Inc. License granted to make unlimited copies for internal use only. End of MSDS.....