



Code: SN-PB-PASTE
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WOLVERINE JOINING TECHNOLOGIES, LLC.

MATERIAL SAFETY DATA SHEET

Product: 50/50 PASTE

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name : TIN/LEAD SOLDER PASTE
Chemical Name : CHEMICAL MIXTURE
Formula : CHEMICAL MIXTURE
Product CAS No.: CHEMICAL MIXTURE
Product Use : Welding/Brazing/Soldering

Supplier : WOLVERINE JOINING TECHNOLOGIES, LLC.
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
POLYPROPYLENE GLYCOL	25322-69-4	70-90
ZINC CHLORIDE	7646-85-7	5-15
SUCCINIC ACID	110-15-6	5-10

INGREDIENT NOTES

NOTE: The percentage by weight values reported for the ingredients in this product represent approximate formulation values. See Section 8 for Exposure Limits and Section 11 for Toxicological Information.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

White paste

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.
Harmful if swallowed. May cause irritation, nausea, vomiting and diarrhea. Large amounts may cause systemic toxicity.
Causes eye, skin and respiratory tract irritation.
May cause eye and skin burns.
Not a fire or explosion hazard when moist. If allowed to dry, dust may cause an explosion hazard.
Toxic gases and fumes are generated during thermal decomposition.

ROUTES OF ENTRY

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

POTENTIAL HEALTH EFFECTS

EYE CONTACT causes irritation and may cause burns and corneal injury.

SKIN CONTACT causes irritation. Prolonged contact may cause dermatitis or burns. Allergic reactions are possible.

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 causes irritation, abdominal pain, nausea, vomiting and diarrhea. Large amounts may cause systemic toxicity, shock and convulsions. May also cause the same effects as Inhalation.

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 lung injury.

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: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids open while flushing. If irritation persists, call a physician.

SKIN CONTACT: Immediately wash skin with soap and plenty of water. If irritation persists, get medical attention. Launder contaminated clothing before reuse.

INHALATION: Remove to fresh air. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician.

INGESTION: Contact the local poison control center or a physician immediately. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

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: 3* Flammable: 0 Reactivity: 0 Special: C

* 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 when moist. If allowed to dry, dust may cause an explosion hazard.

Toxic gases and fumes are generated during thermal decomposition.

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.

Keep away from food and feed products.

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/m ³	2 mg/m ³
LEAD		
CAS NO.: 7439-92-1	0.05 mg/m ³ 0.03 mg/m ³ ACTION LEVEL	0.05 mg/m ³
POLYPROPYLENE GLYCOL		
CAS NO.: 25322-69-4	None Established	None Established
ZINC CHLORIDE		
CAS NO.: 7646-85-7	1 mg/m ³ (Fume)	1 mg/m ³ (Fume) 2 mg/m ³ (Fume) STEL
SUCCINIC ACID		
CAS NO.: 110-15-6	None Established	None Established

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.

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.

For ZINC CHLORIDE: Refer to OSHA Analytical Method ID 121.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White paste

Odor: Odorless

Boiling Point: Not Determined

Specific Gravity (H₂O=1): Not Determined

Melting Point: Not Determined

Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air=1): Not Applicable

Evaporation Rate: Not Applicable

% Solubility In Water: Partially

pH: 3 to 4

SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.

Avoid: None expected.

INCOMPATIBILITY (Materials to Avoid)

Strong acids, strong oxidizing agents, strong alkali.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Thermal decomposition will produce oxides of carbon, hydrogen chloride, and metal oxide fumes.

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
POLYPROPYLENE GLYCOL			
CAS NO.: 25322-69-4	70-90	700 mg/kg RAT, oral	Not Available
ZINC CHLORIDE			
CAS NO.: 7646-85-7	5-15	350 mg/kg RAT, oral	Not Available
SUCCINIC ACID			
CAS NO.: 110-15-6	5-10	2,260 mg/kg RAT, oral	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
ZINC CHLORIDE	7646-85-7	5-15

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)

Not Determined

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

"This product has been classified in accordance with the hazard criteria of the **Controlled Products Regulations** and the MSDS contains all the information required by the **Controlled Products Regulations**."

DSL/NDSL: DSL

WHMIS Classification: Class D Division 2 Subdivision A
Class E

EUROPEAN REGULATIONS

EINECS: No

OTHER REGULATIONS

MITI (Japan): No

AICS (Australia): Yes

SECTION 16: OTHER INFORMATION

REVISIONS

Revision Number: 3

PREPARATION INFORMATION

Prepared By: Wolverine Joining Technologies, and Wolverine Tube Inc.
Corporate Environmental, Health and Safety Group.

Phone Number/Address: See Section 1

This Material Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products. 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 these products. 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 the most current. Copyright Wolverine Joining Technologies, LLC. License granted to make unlimited copies for internal use only.