



Code: GPL-FLUX
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WOLVERINE JOINING TECHNOLOGIES, LLC.

MATERIAL SAFETY DATA SHEET

Product: GENERAL PURPOSE PASTE SOLDERING FLUX

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name : GENERAL PURPOSE PASTE SOLDERING FLUX
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.
PETROLATUM	8009-03-8	70-75%
ZINC CHLORIDE	7646-85-7	25-30%

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

Reddish Brown Paste

Slight petroleum odor

Flash Point: 360-430°F C.C.

NORMAL HANDLING OR PROCESSING OF THIS MATERIAL MAY RESULT IN THE GENERATION OF ZINC DUSTS AND/OR FUMES WHICH MAY PRESENT A POTENTIAL HEALTH HAZARD.

Overexposure may cause lung and kidney damage.

May cause burns.

Harmful if swallowed. Causes severe irritation and may cause burns, abdominal pain, vomiting and diarrhea.

Causes eye, skin and respiratory tract irritation.

May cause allergic skin and respiratory reaction.

Toxic emissions are possible in a fire situation.

ROUTES OF ENTRY

Eyes? YES

Skin? YES

Inhalation? YES

Ingestion? YES

POTENTIAL HEALTH EFFECTS

EYE CONTACT causes irritation and may cause burns.

SKIN CONTACT causes irritation and may cause burns. Sensitization and allergic reactions are possible.

INHALATION of vapors or mists is severely irritating to the respiratory tract and can cause burning sensation, coughing, wheezing, bronchitis, pneumonitis and pulmonary edema. May cause allergic respiratory reactions.

INGESTION is harmful. Can cause severe irritation and possible burns to mucous membranes. May cause severe abdominal pain, vomiting and diarrhea.

CARCINOGENICITY

NTP? NO

IARC? NO

OSHA? NO

CHRONIC HEALTH HAZARDS

Prolonged or repeated overexposure may cause lung damage.

Overexposure may cause delayed kidney injury.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

May aggravate existing respiratory and/or skin ailments.

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 eyes with plenty of water for at least 30 minutes. Hold eyelids open during this flushing with water. Call a physician immediately.

SKIN CONTACT: Flush area with water while removing contaminated clothing and shoes. Follow by washing with soap and water. Do not reuse clothing or shoes until cleaned. If irritation persists, get medical attention. Do not apply oils or ointments unless ordered by the physician.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician.

INGESTION: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: 360-430°F C.C.
Auto-Ignition: Not Determined
LEL: Not Determined
UEL: Not Determined

NFPA HAZARD CLASSIFICATION

Health: 2 Flammable: 1 Reactivity: 2

HMIS HAZARD CLASSIFICATION

Health: 2* Flammable: 1 Reactivity: 2 Special: C

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

EXTINGUISHING MEDIA

Use water, carbon dioxide or foam.

SPECIAL FIRE FIGHTING PROCEDURES

Water may be ineffective but can be used to cool container exposed to heat or flame. Caution should be used when using water or foam as frothing may occur, especially if sprayed into containers of hot burning liquid. 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

Dense smoke generated while burning. Closed containers may explode. Carbon monoxide, carbon dioxide may be generated.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Contain spillage, soak up with inert absorbent and scoop into container for disposal. 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

Keep away from food and feed products.
Wash thoroughly after handling.
Store in tightly closed container.
Store in a cool, dry location away from incompatible materials.

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

Wash contaminated clothing before reuse.

Provide a safety shower and eye wash close to where this material is being used.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

INGREDIENT	PEL-OSHA	TLV-ACGIH
PETROLATUM		
CAS NO.: 8009-03-8	5 mg/m ³ (as Oil mist, mineral)	2 mg/m ³ (as Paraffin Wax, fume) 5 mg/m ³ 10 mg/m ³ (as Oil mist, mineral) STEL

ZINC CHLORIDE

CAS NO.: 7646-85-7

1 mg/m3 (Fume)

1 mg/m3 (Fume)

2 mg/m3 (Fume)

STEL

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

Use NIOSH/MSHA-approved respirator as necessary, (when PEL is exceeded).

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

Chemical goggles.

Rubber or neoprene gloves.

Body protection as necessary to prevent skin contact.

PERSONNEL SAMPLING PROCEDURE

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

For OIL MISTS (MINERAL): Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 5026.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Reddish Brown Paste

Odor: Slight petroleum

Boiling Point: N/A

Specific Gravity (H₂O=1): 0.87

Melting Point: 100°F

Vapor Pressure (mm Hg): N/A

Vapor Density (Air=1): Not Determined

Evaporation Rate: Not Determined

% Solubility In Water: Not Determined

pH: 1.8

SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.

Avoid: None expected.

INCOMPATIBILITY (Materials to Avoid)

Strong oxidizers, chlorine, turpentine, potassium, cyanide, sulfides, powdered zinc.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Hydrogen chloride, zinc oxide and oxides of carbon.

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

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt.	LD50	LC50
PETROLATUM			
CAS NO.: 8009-03-8	70.8	Not Available	Not Available
ZINC CHLORIDE			
CAS NO.: 7646-85-7	25.3	350 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: D002

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: UN1840

UNITED STATES

EPA Waste Number: D002

DOT Classification: 8 Corrosive material

DOT Proper Shipping Name: Zinc chloride, solution, Class 8, UN #1840,
PG III

Packing Group: III

CANADA

PIN Number: UN1840

TDG Class: 8 Corrosive material

EC

DGL: Corrosive substance

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.
ZINC CHLORIDE	7646-85-7	25.3

OZONE DEPLETING SUBSTANCES (ODS)

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

VOLATILE ORGANIC COMPOUNDS (VOC)

None

US STATE REGULATIONS

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 E

EUROPEAN REGULATIONS

EINECS: Yes

OTHER REGULATIONS

MITI (Japan): No

AICS (Australia): Yes

SECTION 16: OTHER INFORMATION

REVISIONS

Revision Number: 9

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.