

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Tin	7440-31-5	80 - 90
Silver	7440-22-4	1 - 5
Rosin	8050-09-7	1 - 5
Polyethylene glycol dibutyl ether	31885-97-9	1 - 5
Triethylene glycol monobutyl ether	143-22-6	1 - 5
Copper	7440-50-8	0.1 - 1
Dodecane-1-thiol	112-55-0	0.1 - 1

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.
Skin contact:	Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). If symptoms develop and persist, get medical attention. Wash clothing before reuse.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms develop and persist, get medical attention.
Ingestion:	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If symptoms develop and persist, get medical attention.
Symptoms:	See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of Metals in Section 3. Formaldehyde. High temperatures may produce heavy metal dust, fumes or vapors. The flux will give rise to irritating fumes.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Ensure adequate ventilation. Wear protective clothing, gloves and safety glasses. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Wear suitable protective clothing, gloves and eye/face protection. Avoid contact with eyes, skin and clothing. Avoid skin contact with molten resins. Do not wear contact lenses. Wash thoroughly after handling.

Storage: For safe storage, store between 5 °C (41°F) and 25 °C (77°F)
Store in original container until ready to use. Store in a cool, dry, well-ventilated area.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Tin	2 mg/m3 TWA	2 mg/m3 PEL (as Sn)	None	None
Silver	0.1 mg/m3 TWA Dust and fume.	0.01 mg/m3 PEL (as Ag)	None	None
Rosin	Exposure by all routes should be carefully controlled to levels as low as possible. Included in the regulation but with no data values. See regulation for further details (Respiratory sensitization) (Dermal sensitization)	None	None	None
Polyethylene glycol dibutyl ether	None	None	None	None
Triethylene glycol monobutyl ether	None	None	None	None
Copper	0.2 mg/m3 TWA (as Cu) Fume. 1 mg/m3 TWA (as Cu) Dust and mist.	1 mg/m3 PEL (as Cu) Dust and mist. 0.1 mg/m3 PEL (as Cu) Fume.	None	None
Dodecane-1-thiol	0.1 ppm TWA (Dermal sensitization)	None	None	None

Engineering controls: Heat only in areas with appropriate exhaust ventilation. Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields. Safety showers and eye wash stations should be available.

Skin protection: Heat and chemical resistant gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid, Paste
Color: Gray
Odor: Mild
Odor threshold: Not available.
pH: Not available.
Vapor pressure: 0.83 Pa (50 °C (122°F))
Boiling point/range: Not available.

Melting point/ range:	217 °C (422.6 °F)
Specific gravity:	4.3
Vapor density:	Not available.
Flash point:	> 131 °C (> 267.8 °F) ; Estimated
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Insoluble
Partition coefficient (n-octanol/water):	Not available.
VOC content:	3.62 %
Viscosity:	> 0 mPa.s
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage conditions.
Hazardous reactions:	Will not occur.
Hazardous decomposition products:	Oxides of carbon. Oxides of Metals in Section 3. Formaldehyde. Thermal decomposition can lead to release of irritating gases and vapors.
Incompatible materials:	Strong oxidizing agents. Strong acids and strong bases.
Reactivity:	Not available.
Conditions to avoid:	Solder alloy will react with concentrated nitric acid to produce toxic fumes of nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects/Symptoms

Inhalation: Inhalation of processing fumes may be harmful. May cause allergic respiratory reaction. Excessive exposure to tin fumes or dust may cause Stannosis, a chronic respiratory disease resulting in reduced lung capacity and benign tumors. Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures. Fumes and/or dust produced by this product may be hazardous in case of ingestion or inhalation. Rosin thermal decomposition product (as formaldehyde) is classified by NIOSH as a potential occupational carcinogen.

Skin contact: Causes skin irritation. May cause allergic skin reaction. Argyria (a non-toxic, cosmetic blue-gray discoloration of the skin and mucous membranes that is irreversible).

Eye contact: Causes serious eye irritation.

Ingestion: May cause gastrointestinal tract irritation if swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Tin	None	Gastrointestinal, Irritant, Kidney, Liver, Lung, Nervous System
Silver	Oral LD50 (Rat) = > 5,000 mg/kg Dermal LD50 (Rat) = > 2,000 mg/kg	Allergen, Eyes, Irritant, Respiratory, Skin
Rosin	None	Allergen, Irritant, Respiratory
Polyethylene glycol dibutyl ether	None	No Records
Triethylene glycol monobutyl ether	Oral LD50 (Rat) = 5,300 mg/kg	Central nervous system, Irritant
Copper	None	Allergen, Blood, Central nervous system, Developmental, Gastrointestinal, Immune system, Irritant, Kidney, Liver, Mutagen, Sensory, Skin
Dodecane-1-thiol	Oral LD50 (Mouse) = 4,225 mg/kg	Allergen, Central nervous system, Irritant, Reproductive

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Tin	No	No	No
Silver	No	No	No
Rosin	No	No	No
Polyethylene glycol dibutyl ether	No	No	No
Triethylene glycol monobutyl ether	No	No	No
Copper	No	No	No
Dodecane-1-thiol	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.
Hazardous waste number: D011. Silver.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: Glycol Ether (CAS# 31885-97-9).
CERCLA/SARA Section 302 EHS: None above reporting de minimis.
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Silver (CAS# 7440-22-4). Triethylene glycol monobutyl ether (CAS# 143-22-6).
California Proposition 65: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status: One or more components are not listed on, and are not exempt from listing on either the Domestic Substances List or the Non-Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet format.

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