

# Material Safety Data Sheet

## SECTION 1 - PRODUCT IDENTIFICATION AND USE

**SOLDER ALLOYS WITHOUT LEAD**

Product Identifier As Used On Label

MSDS Number: Lead-Free Solder

Date Prepared: 01-Mar-99

Product Use: Used with flux to bond most common metals.

Manufacturer's Name and Address

Supplier's Name and Address (if different from manufacturer)

**KESTER SOLDER  
DIVISION OF LITTON SYSTEMS, INC.  
515 E. TOUHY AVENUE  
DES PLAINES, IL 60018 USA**

Telephone Number For Information: (847) 297-1600

CHEMTREC 24-Hour Emergency Telephone Number: (800) 424-9300

NFPA Rating:	Health: 0	Flammability: 0	Reactivity: 0	Special:
HMIS Rating:	Health: 0	Flammability: 0	Reactivity: 0	Personal Protection: X

DOT: Not Regulated.

WHMIS: Class D, Division 2, Subdivision B.

TDG: Not Regulated.

*NA = Not Applicable    NE = Not Established    UN = Unknown*

## SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS 1 % or greater CARCINOGENS 0.1 % or greater	C.A.S. Number	Weight Percent	OSHA PEL mg/m <sup>3</sup>	ACGIH TLV TWA mg/m <sup>3</sup>	LD 50 injected g / Kg	LC 50 inhaled g / m <sup>3</sup>
Indium	7440-74-6	**	NE	0.1	NE	NE
Tin	7440-31-5	**	2	2	NE	NE
Silver	7440-22-4 *	**	0.01	0.1	NE	NE
Bismuth	7440-69-9	**	NE	NE	NE	NE
Antimony	7440-36-0 *	**	0.5	0.5	7.0 Rat	NE
Copper	7440-50-8	**	NE	0.2	NE	NE

NON-HAZARDOUS INGREDIENTS						

**NOTES:** \* This Chemical is subject to the reporting requirements of Section 313 of Title III of the U.S.A. Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

\*\* Composition and weight % of solder alloys varies widely and can be determined by product label.

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**SECTION 3 - PHYSICAL DATA**

Physical State at 20 °C: Solid  
Boiling Point (760 mm Hg): NA °F NA °C  
Vapor Pressure (mm Hg at 20 °C): NA  
Vapor Density (air = 1): NA  
Solubility in Water (% by weight): 0  
pH: NA  
Freezing Point (760 mm Hg): NE °F NE °C  
Appearance and Odor: Silver-gray metal in bar, wire, ribbon, or preformed shapes, no odor.

Specific Gravity (water = 1 at 25 °C): >1  
Melting Point: NA °F NA  
Evaporation Rate (butyl acetate = 1): NA  
Percent Volatile (by volume): NA %  
Volatile Organic Compound (VOC): NA g / Liter  
Odor Threshold: NE  
Coefficient of Water / Oil Distribution: NE

**SECTION 4 - FIRE AND EXPLOSION HAZARDS**

Flammability:  No  Yes Conditions to avoid: NE  
Flash Point (T.O.C): NA °F NA °C Auto-Ignition Temperature: NA °F NA °C  
Flammability Limits percent by volume in air LEL: NA UEL: NA  
Extinguishing Means:  Water  Carbon Dioxide  Alcohol Foam  Dry Chemical  
Hazardous Combustion Products: Solder containing antimony may liberate antimony oxide if heated above 1000 °F (538 °C).  
Explosion Sensitivity: Impact - None Identified Static Discharge Sensitivity -  Yes  No  
Special Firefighting Procedures: None.

Unusual Fire and Explosion Hazards: Flux in cored solder may ignite when the solder melts in a fire.

**SECTION 5 - REACTIVITY DATA**

Chemical Stability:  Stable  Unstable Conditions to avoid: None

Incompatibility (materials to avoid): Strong acids, strong oxidizers.

Hazardous Decomposition Products:  
None.

**HAZARDOUS POLYMERIZATION:**

- May Occur  
 Will Not Occur

Conditions to avoid: NE

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**SECTION 6 - HEALTH HAZARD DATA / TOXICOLOGICAL PROPERTIES****EXPOSURE LIMITS:** Not determined for the product. See Section 2 for ingredients.

Primary exposure during soldering is to flux fumes. See appropriate Material Safety Data Sheet.

**PRIMARY ROUTES OF ENTRY:**  Skin  Eyes  Inhalation  Ingestion**TARGET ORGANS:** NE**EFFECTS OF ACUTE (severe short-term) EXPOSURE:****INHALATION:** NA**SKIN CONTACT:** None.**SKIN ABSORPTION:** None.**EYE CONTACT:** None.**INGESTION:** NA**EFFECTS OF CHRONIC (prolonged) EXPOSURE:**

NA

**Medical Conditions Generally Aggravated by Exposure:**

NA

**CARCINOGENICITY/**  NTP  OSHA  IARC  Not Listed**TERATOGENICITY / MUTAGENICITY:** See Section 9 for additional information.**SECTION 7 - FIRST AID MEASURES****Seek medical assistance for further treatment, observation and support if needed.****EYE CONTACT:** For burns flush immediately with cool water.**SKIN CONTACT:** For burns flush immediately with cool water.**INHALATION:** NA**INGESTION:** NA

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**SECTION 8 - PREVENTIVE MEASURES****PROCEDURES FOR MATERIAL CONTROL:****Steps to be Taken if Material is Spilled or Released:**

Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

**Precautions to be taken in Handling and Storage:**

Store away from sources of sulfur. Avoid breathing fumes during soldering. Do not place flux cored solder into a hot solder pot because the flux may ignite.

**Waste Disposal Methods:**

Solder can be reclaimed.

**CAUTION:** Empty containers may contain product residue. Observe all label precautions.

**PERSONAL PROTECTIVE EQUIPMENT:****VENTILATION  
TO BE USED:**

Provide adequate exhaust ventilation (general and / or local) if necessary to meet exposure requirements. Local exhaust ventilation is preferred to minimize dispersion of smoke and fumes into the work area.

**Respiratory Protection:** When ventilation is not sufficient to remove fumes from the breathing zone, a NIOSH approved respirator should be worn.

**Protective Gloves:** Usually not required.

**Eye Protection:** When soldering, use goggles or face shield.

**Other Protective Clothing and Equipment:** None.

**Hygienic Work Practices:** None.

**SECTION 9 - ADDITIONAL INFORMATION****SECTION 10 - PREPARATION INFORMATION**

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Date Prepared: 01-Mar-99

Telephone Number: (847) 297-1600

Supersedes: 15-Oct-96

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