

MATERIAL SAFETY DATA SHEET

KappZapp™ Tin-Silver Solders

Trade Name: KappZapp™ Tin Silver Solders for Electronics/Electrical Applications	Ref. Kapp ID No. 137 - 143
Composition: 93 – 96.5% Tin / 7 – 3.5% Silver	
Manufacturer: Kapp Alloy & Wire, Inc.	
Address: One Klein Street PO Box 1188 Oil City, PA 16301 USA	
Telephone: 814 676 0613	FAX: 814 676 5565
	E-mail: info@kappalloy.com

Please retain this sheet for your files. Kapp Alloy maintains a file of Material Safety Data Sheets (MSDS) for each alloy produced in compliance with Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) & various right-to-know laws.

The information and recommendations contained within this publication have been compiled from sources believed to be reliable and to represent the best information available to Kapp Alloy and Wire, Inc. at the time of issue. It is our policy to include an MSDS with initial orders for each product. This submission is to become a matter of record and need not accompany subsequent shipments for the same product to the same customer. The information contained on this sheet is intended solely for employee health and safety education and not for contract specification purposes. No warranty, guarantee, or representation is made by Kapp Alloy and Wire, Inc., nor does Kapp Alloy and Wire, Inc. assume any responsibility in connection therewithin; nor can it be assumed that all acceptable safety measures or other safety measures may not be required under particular or exceptional conditions or circumstances. Should you need additional information, contact us.

I - MATERIAL IDENTIFICATION / COMPONENTS

*(Hazardous components 1% or greater; Carcinogens 0.1% or greater)

Component	CAS No.	OSHA PEL	ACGIH TLV	Density (lbs./in ³): % (optional)
Tin (Sn)	7440-31-5	2 mg/m ³	2 mg/m ³	.264
Silver (Ag)	7440-22-4	.01 mg/m ³ (Dust&Fume)	.01 mg/m ³ (Dust&Fume)	.3787

No other hazardous material is present in concentrations greater than 1% (0.1% for Carcinogens)

II - PHYSICAL / CHEMICAL CHARACTERISTICS

NA = Not Applicable NE = Not Established NAIF = No Applicable Information Found

Boiling Point: Sn@ 4120 °F / 2270 °C - Ag@ 4010 °F / 2210 °C

Vapor Pressure (mm Hg.): N/A

Specific Gravity: .2672 lbs./in.³

Evaporation Rate (Butyl Acetate = 1): N/A

Appearance and Odor: Lustrous, silver metal; odorless / various shapes and sizes.

Melting Point: Sn @ 450 °F / 232 °C - Ag @ 1761.5 °F / 960.8 °C

Vapor Density (AIR = 1): N/A

Solubility in Water: 0 (solid)

III- FIRE AND EXPLOSION HAZARD DATA

Flash point & Methods Used: N/A	Auto Ignition Temperature: N/A	Flammability Limits (in air, % by volume): N/A	LEL: N/A	UEL: N/A
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Extinguisher Media: CO₂ or dry chemical extinguisher.

DO NOT USE WATER ON MOLTEN METAL.

Large fires may be flooded with water from a distance.

Special Fire Fighting Procedures: Use NIOSH/MSHA -approved self-contained breathing apparatus and full protective clothing if involved in fire.

Unusual Fire and Explosion Hazards: Finely Divided dust may form explosive mixture with air.

NEVER DROP WATER OR LIQUIDS INTO MOLTEN SOLDER.

Do not plunge damp or wet solder bars/pieces into molten solder.

IV - REACTIVITY HAZARD DATA

Stability: STABLE **Conditions to avoid:** NONE

Incompatibility (materials to avoid): Strong Acids, Strong Alkalis

Hazardous Decomposition Products: NONE, HAZARDOUS POLYMERIZATION WILL NOT OCCUR

V - HEALTH HAZARD DATA

PRIMARY Inhalation: Fumes
 ROUTES Ingestion: Solid metal - not edible
 OF ENTRY: Skin Absorption: N/A

**GOOD HOUSEKEEPING PROCEDURES SHOULD BE MAINTAINED.
 PERSONNEL SHOULD WASH THOROUGHLY BEFORE SMOKING OR EATING
 FOOD AND DRINK SHOULD NOT BE CONSUMED OR TOBACCO PRODUCTS USED.
 NOR COSMETICS APPLIED IN AREAS WHERE EXPOSURES EXIST.**

VI - EMERGENCY AND FIRST AID PROCEDURES

INGESTION: Drink large quantities of water - induce vomiting.
 Call a physician at once; advise of chemical composition (section II).
 SKIN: Wash thoroughly with water to remove all residue. If a rash develops, call a physician.
 INHALATION: Terminate exposure and remove to fresh air. Call physician, advise of chemical composition (section II).
 EYES: Flush with water for at least 15 minutes to remove irritant. Consult a physician.

VII - EFFECTS OF ACUTE EXPOSURE

(Sn) Tin: Elemental Tin is NOT generally considered to be toxic.
 (Ag) Silver: Argyria, a blue-gray discoloration of the skin, mucous membranes and eyes may result from inhalation of silver.
 This discoloration may become permanent.

**NOTE: IT IS UNLIKELY THAT NORMAL EXPOSURE TO THIS SOLDER,
 WHILE USING APPROPRIATE PROTECTIVE EQUIPMENT, WOULD RESULT IN ILLNESS.**

VIII - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection: Use NIOSH-approved breathing apparatus to prevent exposure to dusts and fumes.
 Eye Protection: Approved safety glasses or welding goggles, appropriate to your procedure, should be worn.
 Ventilation: Local Exhaust: YES Mechanical: YES Special: Conform with your regulatory statutes.
 Protective gloves are recommended, especially for high temperature applications to prevent burns.
 Other: Standard protective equipment used in soldering (/applicable) operations.
 Conform with all local, state, federal regulations.

IX - PRECAUTIONS FOR SAFE HANDLING AND USE / LEAK PROCEDURES

Steps to be taken if material is spilled or released: SOLDER IS SOLID/RECYCLABLE. Vacuuming is recommended for accumulated metal dust from saw/grind operations.
 Waste Disposal Method: AND OSHA DISPOSE OF ACCORDING TO FEDERAL, STATE, LOCAL REGULATIONS.
 Precautions to be taken in handling and storage: DRY STORAGE; AMBIENT TEMPERATURE
 Other Precaution / Special Handling: Wet or moist ingot(s) WILL present an explosion hazard when submerged in molten solder.

**AVOID FIRE RISKS.
 Always preheat ingot before charging into furnace.**

*0 = Insignificant	1 = Slight	2 = Moderate	3 = High	4 = Extreme
NFPA RATING:	Health: 1	Flammability: 0	Reactivity: 0	Special: 0
HMIS RATING:	Health: 1	Flammability: 0	Reactivity: 0	Special: 0

X. - OPTIONAL INFORMATION

DEPARTMENT OF TRANSPORTATION:

Proper shipping name:	Solder wire - NOT REGULATED
Hazard Class:	NAIF
ID & Packing Group Number:	NAIF
ERG Guide Number:	NAIF

SARA Title III Program:

This product contains no toxic chemicals subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372.

This information must be included in all MSDS that are copied and distributed for this material.

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Visit us on the web at www.kappalloy.com