

MATERIAL SAFETY DATA SHEET

KappTEC Cadmium-Silver Solder

Trade Name: Kapp Tec Solder for Most Metals

Composition: 95% Cadmium / 5% Silver

Ref. Kapp ID No. 177

Manufacturer: Kapp Alloy & Wire, Inc.

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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.ft ³ or g/ml	% (optional)
Cadmium (Cd)	7440-43-9	.2 dust / .1 fume	.05 mg/m ³ _(Dust&Fume)	.312 or 8.63	94 - 96
Silver (Ag)	7440-22-4	.01 mg/m ³ _(Dust&Fume)	.01 mg/m ³ _(Dust&Fume)	.3787 or 10.48	4 - 6

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: Cd @ 765 °C Ag @ 2210 °C

Melting Point: 338 - 393 °C / 640 - 740 °F

Vapor Pressure (mm Hg.): NIF

Vapor Density (AIR = 1): NAIF

Specific Gravity: 8.64

Solubility in Water: 0 (solid)

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

Appearance and Odor: Silver-white, blue-tinged, lustrous metal; odorless / various shapes and sizes.

III- FIRE AND EXPLOSION HAZARD DATA

Flash point & Methods Used:	Auto Ignition Temperature:	Flammability Limits (in air, % by volume):	LEL	UEL
N/A	N/A	N/A	N/A	N/A

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.

NOTE 1: Alloys which contain cadmium should never be heated to extremes beyond melting range.

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

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V - HEALTH HAZARD DATA

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

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

Metal fume fever....Flu-like symptoms (nausea, constipation, headache, dizziness) - self-limiting, usually disappear within 24 hours

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

(Cd) Cadmium: Fume produces metal fume fever which may result in severe tracheobronchitis, pneumonitis, pulmonary edema.

Suspected acute inhalation exposure to Cd must be treated for pulmonary edema (throat dryness, cough, headache, vomiting, chest pains, and chills) by a physician. Delay until onset of pulmonary involvement may result in death. Cadmium is transported via blood and stored in liver and kidneys.

Can cause kidney damage. Chronic overexposure to Cadmium has been reported to cause an increased incidence of cancer of the prostate in men.

(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 & fumes.

Eye Protection: Wear approved safety glasses or welding goggles, appropriate for your procedure.

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 highly recommended for accumulated metal dust from saw/grind operations.

Waste Disposal Method: DISPOSE OF MATERIAL IN CLOSED CONTAINERS. BE COGNIZANT OF FEDERAL, STATE, LOCAL AND OSHA REGULATIONS REGARDING CADMIUM.

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

TOXIC SUBSTANCE CONTROL ACT:

SARA Title III Program:

This product contains the following toxic chemicals subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372

Chemical Name

CAS No.

Concentration

Cadmium

7440-43-9

94 - 96

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

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