

**SAFETY DATA SHEET**

SDS Date: 01/01/2025

SDS Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

SDS Number: 226-229

Page 1 of 5

**SECTION I: PRODUCT AND COMPANY INFORMATION**

Product Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

CAS Number:

Component	CAS Number	ECHA Number
Tin (Sn)	7440-31-5	231-141-8
Zinc (Zn)	7440-66-6	231-175-3
Cadmium (Cd)	7440-43-9	231-152-8

Company Identification: Kapp Alloy and Wire, 1 Klein Street / PO Box 1188, Oil City, PA 16301

Contact: Telephone: 1-800-327-6533, or 814-676-0613, Email: [info@kappalloy.com](mailto:info@kappalloy.com)**SECTION II: HAZARD INFORMATION**

Acute toxicity, inhalation (Category 3)

Sensitization, respiratory (Category 1)

Germ cell mutagenicity (Category 2)

Carcinogenicity (Category 1A,1B)

Reproductive toxicity (Category 2)

Specific target organ toxicity – repeated exposure (Category 1)

Hazardous to the aquatic environment, acute hazard (Category 1)

Hazardous to the aquatic environment, long-term hazard (Category 1)



GHS08 Health Hazard

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H350 – May cause cancer.

H361 – Suspected of damaging fertility or the unborn child.

H373 - May cause damage to organs through prolonged or repeated exposure.



GHS07

H302 - Harmful if swallowed.



GHS09

H400 - Very toxic to aquatic life

H413 - May cause long lasting harmful effects to aquatic life.



GHS07



GHS08



GHS09

Label Elements: Hazard Pictograms

Signal Word: **Danger**

Hazard-determining components of labeling: Cadmium

Hazard Statements:

H302 - Harmful if swallowed.

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 - May cause an allergic skin reaction.

H351 – May cause cancer.

H361 – Suspected of damaging fertility or the unborn child.

H373 – May cause damage to organs through prolonged or repeated exposure.

H400 - Very toxic to aquatic life.

H413 - May cause long lasting harmful effects to aquatic life.

**SAFETY DATA SHEET**

SDS Date: 01/01/2025

SDS Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

SDS Number: 226-229

Page 2 of 5

**Precautionary Statements:**

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P234 - Keep only in original container

P260 - Do not breathe dust/fumes.

P263 - Avoid contact during pregnancy/while nursing.

P264 - Wash thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P273 - Avoid release to the environment

P280 - Wear protective gloves, protective clothing, eye protection, face protection

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash

+P302+P352 thoroughly with soap and water to remove any residue. If a rash develops, call a physician.

P305+P351+P338 - IF IN EYES: Flush with water for at least 15 minutes to remove irritant. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a physician.

P304+P341 - IF INHALED: Terminate exposure and remove to fresh air. Call physician; advise of chemical composition (section III).

P308+P313 - IF exposed or concerned: Get medical advice/attention

P310 - Immediately call a POISON CENTER/doctor

P363 - Wash contaminated clothing before reuse

P405 - Store locked up

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

**SECTION III: COMPOSITION / INGREDIENTS**

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

Component	CAS Number	ECHA Number	OSHA PEL	ACGIH TLV	Density lbs/in <sup>3</sup> & g/cm <sup>3</sup>	% (optional)
Tin (Sn)	7440-31-5	231-141-8	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	.264 & 7.307	40-49
Zinc (Zn)	7440-66-6	231-175-3	5mg/m <sup>3</sup>	5mg/m <sup>3</sup>	.257 & 7.114	27-32
Cadmium (Cd)	7440-43-9	231-152-8	.2 mg/m <sup>3</sup> dust/ .1 mg/m <sup>3</sup> fume	.05 mg/m <sup>3</sup> (Dust&Fume)	.312 & 8.636	19-33

NA = Not Applicable

NE = Not Established

NAIF = No Applicable Information found

**SECTION IV: FIRST AID MEASURES**

**Ingestion:** NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 2-8 oz. (60-240ml) of water. If vomiting occurs naturally, have victim rise mouth with water again. Immediately obtain medical attention and bring a copy of this SDS.

**Skin Contact:** *Dust:* Remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash gently and thoroughly with lukewarm gently flowing water and non-abrasive soap for 5 minutes. If irritation persists, repeat flushing. Obtain medical advice. Completely decontaminate clothing, shoes and leather goods before reuse or else discard. *Molten Metal:* Flush contact area to solidify and cool, but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

**Inhalation:** Remove source of contamination or move victim from exposure area to fresh air immediately. If breathing is difficult, trained personnel should administer medical oxygen. DO NOT allow victim to move around unnecessarily. Treat pulmonary edema as a priority, even if no symptoms (i.e. wheezing, coughing, shortness of breath, tec.) are apparent. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Quickly transport victim to an emergency care facility.

## SAFETY DATA SHEET

SDS Date: 01/01/2025

SDS Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

SDS Number: 226-229

Page 3 of 5

**Eye Contact:** Do not allow victim to rub eye(s). Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing, while holding eyelid(s) open. If irritation persists, immediately obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye. Immediately call a POISON CENTER or doctor/physician.

## SECTION V: FIRE FIGHTING MEASURES

Flash point & Methods Used: N/A      Auto Ignition Temperature: N/A  
Flammability Limits:                      (in air, % by volume) LEL: N/A and UEL: N/A  
Extinguisher Media:                      CO<sub>2</sub> 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  
\*Alloys which contain Cadmium should never be heated to extremes beyond melting range**

## SECTION VI: ACCIDENTAL RELEASE MEASURES

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.

## SECTION VII: HANDLING AND STORAGE

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/EXPLOSION RISKS. Always preheat ingot before charging into furnace.**

## SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION



Respiratory Protection: Use NIOSH-approved breathing apparatus to prevent exposure to dusts and fumes.

Eye Protection: Approved safety glasses/welding goggles, appropriate to your procedure, should be worn.

Ventilation: Local Exhaust: YES; Mechanical: YES Special: Conform to your regulatory statutes.

Other: Standard protective equipment used in soldering (/applicable) operations.

\*Protective gloves are recommended, especially for high temperature applications to prevent burns. \*Conform to all local, state, federal regulations.

See also: 29 CFR 1910.132 - 29 CFR 1910.140. *Personal Protective Equipment*  
29 CFR 1910.251 - 29 CFR 1910.257. *Welding, Cutting and Brazing*

## SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Cd @ 1409°F / 765°C and Zn @ 1665°F / 907°C

Melting Point: 265 to 316°C / 509 to 600°F

Vapor Pressure (mm Hg.): **CADMIUM ONLY: Health Significance ONLY >500°C**

Vapor Density (AIR = 1): N/A

Density: .3027 lbs/cu in or 8.377g/ml

Solubility in Water: 0 (solid)

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

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

**SAFETY DATA SHEET**

SDS Date: 01/01/2025

SDS Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

SDS Number: 226-229

Page 4 of 5

**SECTION X: STABILITY AND REACTIVITY**

Stability: Stable  
 Conditions to avoid: None  
 Incompatibility (materials to avoid): Strong Acids, Strong Alkalis  
 Hazardous Decomposition Products: None; Hazardous Polymerization will not occur

**SECTION XI: TOXICOLOGY INFORMATION**

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

Zinc (Zn): Excessive inhalation of zinc oxide fumes may produce symptoms known as "zinc shakes" which are flu-like and usually cease when the individual is removed from the source.

IT IS UNLIKELY THAT NORMAL EXPOSURE (USING APPROPRIATE PROTECTIVE EQUIPMENT) WILL RESULT IN ILLNESS.

\*0 = Insignificant    1 = Slight    2 = Moderate    3 = High    4 = Extreme

	Health	Flammability	Reactivity	Special
<b>NFPA Rating</b>	1	0	0	0
<b>HMIS Rating</b>	1	0	0	0

**SECTION XII: ECOLOGY INFORMATION**

This product will not biodegrade. It will oxidize if left out in the elements, but will not affect the surrounding ecology. General notes: Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Danger to drinking water if even extremely small quantities leak into the ground.

**Results of PBT and vPvB assessment:** PBT: Not applicable; vPvB: Not applicable.

**SECTION XIII: DISPOSAL CONSIDERATION**

Waste Disposal Method

- Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Disposal must be made according to official regulations. Dispose of according to federal, state, local, international, and OSHA regulations.

**SECTION XIV: TRANSPORT INFORMATION**

**Ground - DOT Proper Shipping Name: Solder**  
 Not regulated for transport by US DOT.

**Air - IATA Proper Shipping Name: Solder**  
 Not regulated for air transport by IATA.

**SECTION XV: REGULATORY INFORMATION**

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.	% / WEIGHT
Zinc (Zn) – Fume & Dust	7440-66-6	27 – 32%
Cadmium (Cd)	7440-43-9	19 – 33%

UNITED STATES

HCS Classification: Toxic Material, Irritating material, carcinogen, target organ effects.

U.S. Federal Regulations: All ingredients comply with applicable rules or orders under US TSCA.  
 All components are listed or exempted.

**SAFETY DATA SHEET**

SDS Date: 01/01/2025

SDS Name: KappRad™ Tin-Zinc-Cadmium Multipurpose Solders for Aluminum Alloys

SDS Number: 226-229

Page 5 of 5

SARA 313	Substance Name
Form R - Reporting Requirements:	Cadmium
Supplier Notification:	Cadmium

California Prop. 65: This product contains a substance known to the State of California to cause cancer and birth defects or other reproductive harm. More information at [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

WHMIS (Canada): Class D-2A: Material causing other toxic effects (very toxic). CEPA DSL: Cadmium.

Reach Directive 1907/2006: Contains Cadmium, a Substance of Very High Concern (SVHC).

---

**SECTION XVI: OTHER INFORMATION**

---

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

**GOOD HOUSEKEEPING PROCEDURES SHOULD BE MAINTAINED.  
PERSONNEL SHOULD WASH THOROUGHLY BEFORE SMOKING OR EATING  
FOOD AND DRINK SHOULD NOT BE CONSUMED, TOBACCO PRODUCTS USED, OR COSMETICS  
APPLIED IN AREAS WHERE EXPOSURES EXIST.**

Please retain this sheet for your files. Kapp Alloy maintains a file of Safety Data Sheets (SDS) 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 SDS 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 there within; 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.