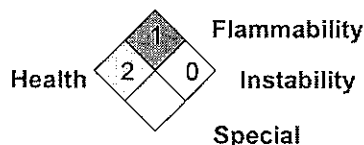


alpha

Material Safety Data Sheet

Material Safety Data Sheet

Emergency phone: US & Canada: 800 424-9300
Mexico: 01 800 022 1400, (55) 5559 1588



Health	2
Flammability	1
Physical hazards	0
Personal protection	

1. Product and company identification

Product name : **Solder Wire Cored 60Sn/40Pb Alloy, RA-32 Flux**
 Product Code : M060RA32
 Manufacturer : Cookson Electronics
 109 Corporate Blvd.
 South Plainfield, NJ 07080
 Toll Free: (800) 367-5460
 Main Phone: (908) 791-3000
 Fax: (908) 791-3090
 www.alphametals.com

Cookson Electronics Mexico, S.A. de C.V.
 Avenida Nafta No. 800,
 Parque Industrial Stiva Aeropuerto
 Apodaca, Nuevo León, C.P. 66600
 Mexico
 www.cooksonelectronics.com
 Customer Service: (814) 946-1611

Validation date : 2/3/2009. Supersedes Date : 6/6/2008
 Prepared by : T. Valverde
 (203)-799-4917

2. Hazards identification

Physical state : Solid.
 Odor : None.
 OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 Emergency overview : DANGER!
 Very toxic if swallowed. Toxic by inhalation. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. Contains material that can cause target organ damage. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Contains material which may cause heritable genetic effects, based on animal data. Contains material which may cause birth defects, based on animal data. Contains material which can cause developmental abnormalities. Avoid exposure during pregnancy. Contains material which can impair male fertility. Contains material which can impair female fertility. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Toxic by inhalation. Can cause target organ damage. Irritating to respiratory system.
 Ingestion : Very toxic if swallowed. Can cause target organ damage. Ingestion may cause gastrointestinal irritation and diarrhea.

Continued on next page

2. Hazards identification

Skin	: Irritating to skin. May cause sensitization by skin contact. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering. Prolonged or repeated contact may cause dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. In the event of any complaints or symptoms, avoid further exposure. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used.
Eyes	: Irritating to eyes. Adverse symptoms may include the following: redness, itching, swelling, pain
Potential chronic health effects	
Chronic effects	: Adverse symptoms may include the following: tin: Prolonged or repeated exposure may cause benign pneumoconiosis (Stannosis). lead: Poison! Other adverse effects: abdominal cramps and pain, nausea or vomiting, headache, muscle weakness, metallic taste, loss of appetite, insomnia, dizziness/vertigo, "lead line" on gums, high lead levels in blood and urine, loss of consciousness or coma and death. Chronic effects: irritability, visual disturbances, blood pressure elevation and discoloration of: skin. rosin: May cause allergic skin reactions with repeated exposure. Prolonged inhalation of fumes may cause respiratory sensitization.
Target organs	: Contains material which causes damage to the following organs: upper respiratory tract, skin, eye, lens or cornea. Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, mucous membranes, gastrointestinal tract, central nervous system (CNS).
Carcinogenicity	: Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: Contains material which may cause heritable genetic effects, based on animal data.
Teratogenicity	: Contains material which may cause birth defects, based on animal data.
Developmental effects	: Contains material which can cause developmental abnormalities.
Fertility effects	: Contains material which can impair male fertility. Contains material which can impair female fertility.
California Prop. 65	: WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Medical conditions aggravated by over-exposure	: Pre-existing respiratory, skin and digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used.

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>% by weight</u>
tin	7440-31-5	50-60
lead	7439-92-1	30-40
rosin	8050-09-7	1-5

Any ingredient not listed in Section 3 is non-regulated or present in the product in concentrations below legal disclosure limits.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Get medical attention. May cause sensitization by skin contact. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Wash contaminated clothing before reuse. Clean shoes thoroughly before reuse. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear suitable protective clothing, gloves and eye/face protection. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6 . Accidental release measures

- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or approved alternative container. Containers should be kept closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
- Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8 . Exposure controls/personal protection

<u>Product name</u>	<u>CAS number</u>	<u>Exposure limits</u>
tin	7440-31-5	OSHA PEL (United States, 9/2005). TWA: 2 mg/m³ 8 hour(s). ACGIH TLV (United States, 1/2008). TWA: 2 mg/m³ 8 hour(s). NIOSH REL (United States, 6/2008). Notes: Note: The REL and PEL also apply to other inorganic tin compounds (as Sn) except tin oxides. TWA: 2 mg/m³ 10 hour(s).
lead	7439-92-1	OSHA PEL (United States, 5/2005). TWA: 0.05 mg/m³ 8 hour(s). ACGIH TLV (United States, 1/2008). Notes: as Pb TWA: 0.05 mg/m³, (as Pb) 8 hour(s). OSHA PEL (United States, 11/2006). Notes: as Pb TWA: 50 ug/m³, (as Pb) 8 hour(s). NIOSH REL (United States, 6/2008). Notes: See Appendix C - Supplemental Exposure Limits Note: The REL and PEL also apply to other lead compounds (as Pb). TWA: 0.05 mg/m³ 10 hour(s).
rosin	8050-09-7	NIOSH REL (United States, 6/2008). Notes: as formaldehyde TWA: 0.1 mg/m³, (as formaldehyde) 10 hour(s). OSHA PEL 1989 (United States, 3/1989). Notes: measured as formaldehyde

8 . Exposure controls/personal protection

TWA: 0.1 mg/m³, (measured as formaldehyde) 8 hour(s).

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Processes should be designed to minimize airborne and skin exposure to hazardous substances.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Remove/Take off immediately all contaminated clothing. Contaminated work clothing should not be allowed out of the workplace.

Personal protection

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.
- Eyes** : Avoid contact with eyes. Safety eyewear should be used when there is a likelihood of exposure.
- Skin** : Avoid contact with skin and clothing. Wear protective clothing. Body garments used should be based upon the task being performed (e.g., lab coat, chemical resistant protective suit, sleevelets, synthetic apron, gauntlets) to avoid exposed skin surfaces. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Solid.
- Flash point** : Not available.
- Auto-ignition temperature** : Not available.
- Flammable limits** : Not available.
- Color** : Gray.
- Odor** : None.
- pH** : Not available.
- Boiling/condensation point** : Not available.
- Melting/freezing point** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Odor threshold** : Not available.
- Evaporation rate** : Not available.

Continued on next page

9 . Physical and chemical properties

VOC : 1.8 g/l
Solubility : Insoluble in the following materials: cold water and hot water.

10 . Stability and reactivity

Stability : The product is stable.
Conditions to avoid : No specific data.
Incompatibility with various substances : Reactive with oxidizing agents, reducing agents, acids, alkalis.
Chlorine, peroxides
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Other Hazardous decomposition products : metal oxides, toxic. fumes
Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
lead	LDLo	Rat	1 g/kg	-
	Intraperitoneal			
rosin	TDLo Oral	Rat	0.2 mg/kg	-
	LD50 Oral	Rat	3 g/kg	-
	LD50 Oral	Mouse	2.2 g/kg	-
	LD50 Oral	Rat	3 mg/kg	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
lead	A3	2B	-	-	Possible	-
rosin	-	-	-	+	-	-

Mutagenicity

Product/ingredient name	Test	Experiment	Result
lead	-	Mammalian-Animal	Equivocal

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
lead	Equivocal - Inhalation	10 mg/m ³	10 mg/m ³	24 hours per day
	Equivocal - Oral	2118 mg/kg	2118 mg/kg	-

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
lead	-	Equivocal	-	Mouse	Oral: 4099.2 mg/kg	-
	Equivocal	-	-	Mouse - Female	Oral: 300 mg/kg	-
	-	-	Equivocal	Rat - Female	Inhalation: 3	24 hours per day
	-	-	Equivocal	Rat - Female	Oral: 520 mg/kg	-

Alpha has not conducted specific studies on the toxicity of this product.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name lead	Test	Result	Species	Exposure
	-	Acute LC50 1.17 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 145 mm	96 hours
	-	Acute LC50 38829 to 71806 ppb Marine water	Fish - Inland silverside - Menidia beryllina	96 hours
	-	Acute LC50 26150 to 44761 ppb Marine water	Fish - Inland silverside - Menidia beryllina	96 hours
	-	Acute LC50 1.33 ppm Fresh water	Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) - 6.5 cm	96 hours
	-	Acute LC50 0.8 ppm Fresh water	Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) - 6.5 cm	96 hours
	-	Acute LC50 0.44 ppm Fresh water	Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) - 3.5 cm	96 hours
	-	Acute LC50 4500 to 5500 ug/L Fresh water	Crustaceans - Water flea - Simocephalus vetulus - <24 hours	48 hours
	-	Acute LC50 4460 ug/L Marine water	Crustaceans - Indian prawn - Penaeus indicus - 6 to 9 cm	48 hours
	-	Acute LC50 4400 to 5300 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 2800 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieu - Swim- up	96 hours
	-	Acute LC50 2200 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieu - Swim- up	96 hours
	-	Acute LC50 933 to 1200 ug/L Marine water	Crustaceans - Fleshy prawn - Penaeus chinensis	48 hours
	-	Acute LC50 530	Daphnia - Water	48 hours

Continued on next page

12 . Ecological information

-	ug/L Fresh water	flea - Ceriodaphnia reticulata - <4 hours	
-	Acute LC50 29000 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieu - Fingerling	96 hours
-	Acute LC50 40000 ug/L Fresh water	Fish - Goldfish - Carassius auratus	96 hours
-	Acute LC50 5100 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - <24 hours	48 hours
-	Acute LC50 5010 ug/L Marine water	Crustaceans - Brine shrimp - Artemia salina	48 hours

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways; drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG* Label	Additional information
DOT Classification	Not regulated.	-	-	-	

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Highly toxic material
Irritating material
Sensitizing material
Carcinogen
Target organ effects

U.S. Federal regulations : All ingredients comply with applicable rules or orders under United States TSCA. All components are listed or exempted.
TSCA 5(a)2 proposed significant rules: No products were found.
TSCA 5(a)2 final significant rules: No products were found.
TSCA 12(b) one-time export: No products were found.

SARA 313

Product name

Continued on next page

15 . Regulatory information

Form R - Reporting requirements : lead

Supplier notification : lead

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
Canada inventory : All components are listed or exempted.

International lists

China inventory (IECSC) : All components are listed or exempted.
Europe inventory : All components are listed or exempted.
Australia inventory (AICS) : All components are listed or exempted.
Japan inventory (ENCS) : Not determined.
Not determined.
Korea inventory (KECI) : All components are listed or exempted.
Philippines inventory (PICCS) : All components are listed or exempted.

16 . Other information

Definition of Terms

ACGIH	American Conference of Governmental Industrial Hygienists
Ceiling	Maximum exposure limit defined by OSHA
CAS	Chemical Abstract Service
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
REL	Recommended Exposure Limit
RTK	Right to Know
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TLV	ACGIH Threshold Limit Value
TLV-C	ACGIH Threshold Limit Value, Ceiling
TRADE SECRET	Claimed as allowed under 29CFR§1910.1200
TSCA	Toxic Substances Control Act
PPE	Personal Protection Equipment
CEPA	Canadian Environmental Protection Act
DSL	Domestic Substance List
NDSL	Non-Domestic Substance List
NSN	New Substance Notification Rules

Disclaimer

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Additionally, Cookson Electronics assumes no responsibility for injury to the vendee or third persons proximately caused by the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

16 . Other information



Cookson Electronics