



Solder Preforms | Engineered Solder Materials

## Safety Data Sheet #830 – Flux Coated Lead Free Solder Alloys

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** Flux-coated Tin, Silver, Indium, Bismuth, Antimony, Copper, Germanium - Soldering Alloys, Flux-coated SAC-alloy

**Revised Date:** April 27, 2020

**Product Use:** Electronics & industrial

**MANUFACTURER:**

Array Solders  
152 Myrtle Avenue, Jersey City, NJ 07305  
Information: (201) 997-1333

**EMERGENCY PHONE:**

**CHEMTREC 24 hrs.**  
**USA:** 1(800) 424-9300  
**Outside USA:** +1(703) 527-3887

### 2. HAZARDS IDENTIFICATION

2.1. Classification of the Substances or Mixture

Classification GHS-US: Not classified

Adverse physicochemical, human health and environmental effects:

No additional information available.

2.2. Label Elements In Accordance with 29CFR1910.1200 (f)(4):

Not regulated for labeling.GHS

Classification GHS-US: Hazard Pictograms GHS



Signal Word: Warning

Hazard statement(s)

Hazard Statements H317

May cause allergic skin reaction

Signal Word: Not applicable

Precautionary Statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

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

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

2.3. Other hazards: This product is present in a massive form as an alloy. It does not present the same hazards when the individual components are in their powdered form.

NOTE: Array Solders does not recommend, manufacture, market or endorse any of its products for human consumption.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances Not applicable

3.2. Mixture

Name	Product Identifier CAS #	%	Classification according to Regulation GHS-US
Tin	7440-31-5	85-95	Solid Not Classified
Silver	7440-22-4	3-4	Solid Not Classified
Indium	7440-74-6	0.1-20	Solid Not Classified
Bismuth	7440-69-9	0.5-5	Solid Not Classified
Copper	7440-50-8	0.1-100	Solid Not Classified
Antimony	7440-36-0	0.1-5	Solid Not Classified
Germanium	7440-56-4	0-1	Solid Not Classified
Rosin	8050-09-7	0-2.3	Skin Sens. 1 H317

Full text of H- and P-phrases: see section 16

Composition and weight percent of solder alloys varies widely and can be determined by product label. Flux in core is typically 1-3.3% in weight.

### 4. FIRST AIDE MEASURES

Eye Contact: Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Under normal conditions of use not expected to present a significant hazard. Under milling, or physical alteration metal dusts may be produced that cause irritation of the respiratory tract, skin, and may be harmful. Molten material may release toxic and irritating fumes. Safety Data Sheet According to OSHA Regulation: 29 CFR 1910.1200(g) Date of issue: May 30, 2015 Version: 1.0 May 30, 2015 3 / 12

Symptoms/injuries after inhalation : Not expected to be a primary route of exposure. The primary acute health hazard associated with this product would be the potential for exposure to fumes during metal processing operations. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Symptoms/injuries after skin contact : Skin contact is not considered a potential route of exposure. The primary acute health hazard associated with this product would be the potential for exposure to fumes during metal processing operations. Where possible allow molten material to solidify naturally. Removal of solidified molten material from skin requires medical assistance.

Symptoms/injuries after eye contact : Not expected to be a primary route of exposure. Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause mechanical irritation or injure the eye.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Chronic symptoms : Tin: Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume may result in "stannosis", a mild form of pneumoconiosis. Silver: Chronic skin contact or ingestion of silver dust, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes. Antimony: Exposure to dusts and fumes may result in irritation eyes, skin, nose, throat, mouth; cough; dizziness; fainting; dyspnea (breathing difficulty); nausea, vomiting, diarrhea, stomach cramps; insomnia; anorexia; unable to smell properly. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic

dust exposure. Colophony/rosin is suspect for being carcinogenic in the presence of formaldehyde, acetaldehyde, or malonaldehyde.

4.3. Indication of any immediate medical attention and special treatment needed If medical advice is needed, have product container or label at hand.

## **5. FIRE FIGHTING MEASURES**

Flash Point: Not established.

Method: Not established.

Auto-ignition Temperature: Not established.

Flammable Limits: Limits not established.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions.  
Special Fire Fighting Procedures: Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.

## **6. ACCIDENTAL LEAK MEASURES**

Spill or Leak Procedures: Pick up solids and put in container for reuse or recycling. Do not sweep powder or small particulate. Use vacuum. Reduce airborne dust and prevent scattering by moistening with water. Dispose of following all Federal, State and Local regulations.

## **7. HANDLING & STORAGE**

7.1. Precautions for safe handling Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for safe storage, including any incompatibilities Storage conditions: Store in a dry, cool and well-ventilated place. Incompatible products: Strong acids. Strong bases. Strong oxidizers.

7.3. Specific end use(s) Soldering.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Engineering Controls: Exhaust ventilation is recommended to keep exposures below established limits and protect operators. Use proper ventilation when working with leaded products.

Personal protection:

Eyes: Chemical safety glasses/goggles. Face shield for splash hazards.

Respirator: An approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or exceed exposure limits.

Skin: Compatible chemical resistant gloves may be required for certain applications. Hot gloves as needed for melting applications.

Other: Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas. Follow standard lead work practices when working with lead containing products.

Work/Hygienic: Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area. Follow applicable lead work practices.

Protection of Hands:



Material of gloves:

Nitrile, rubber, NBR

Natural rubber, NR

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and to be observed.

Eye Protection:



Face shield when refilling.

## 9. PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Solid metal, preforms, wire, strip		
Boiling Point:	Not applicable.		
Odor:	Odorless	Melting Point:	No data
Specific Gravity:	No Data	pH:	Not applicable
Vapor Pressure:	No Data	Solubility in Water:	Insoluble

Vapor Density: No data

## 10. STABILITY & REACTIVITY

### 10.1 Reactivity

Hazardous reactions will not occur under normal conditions.

### 10.2 Chemical stability

Stable under normal conditions. Dust, chips or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp.

### 10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5 Incompatible materials

Strong acids. Strong base. Strong oxidizers.

### 10.6. Hazardous decomposition products

Metal oxides

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Acute toxicity :	Not classified
Silver (7440-22-4)	
LD50 oral rat	>2000 mg/kg

Antimony (7440-36-0)	
LD50 oral rat	100 mg/kg

Irritation :	Not classified
Corrosivity :	Not classified
Sensitization :	Not classified
Repeated dose toxicity :	Not classified
Carcinogenicity :	Not classified
Mutagenicity :	Not classified
Toxicity for reproduction :	Not classified

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

### Copper (7440-50-8)

LC50 fishes 1 0.0068 (0.0068-0.0156)mg/l (Exposure time: 96 h-Species: Pimephales promelas)

EC50 Daphnia 1 0.03mg/l (Exposure time: 48h-Species: Daphnia magna [Static])

### EC50 other aquatic organisms

LC50 fish 1 2 0.0426 (0.0426-0.0535)mg/l (Exposure time:72 h-Species: Pseudokirchneriella subcapitata [Static]) 0.3mg/l (Exposure time: 96h –species: Pimephales promelas [Static])

### EC50 other aquatic organisms

2 0.031(0.031-0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [Static])

### Silver (7440-22-4)

LC50 fishes 1 0.00155 (0.00155-0.00293)mg/l (Exposure time: 96 h-Species: Pimephales promelas [Static])

EC50 Daphnia 1 0.00024mg/l (Exposure time: 48h-Species: Daphnia magna [Static])

LC50 fish 2 0.0062mg/l (Exposure time: 96h –species: Oncorhynchus mykiss [flow-through])

## 12.2 Persistence and degradability

### Soldering Alloys

Persistence and degradability Not established

### Copper (7440-50-8)

Persistence and degradability Not readily biodegradable.

## 12.3 Bioaccumulative potential

Soldering Alloys Bioaccumulative potential Not established

## 12.4 Mobility in soil

No additional information available.

## 12.5 Results of PBT and vPvB assessment

No additional information available.

## 12.6 Other adverse effects

Other information: Avoid release to the environment.

### **13. DISPOSAL CONSIDERATIONS**

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations.

### **14. TRANSPORT INFORMATION**

Transport in accordance with applicable international regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Not hazardous under shipping regulations (USDOT/IATA/IMDG).

UN – none

Not regulated for shipping- ground/IATA/IMDG

### **15. REGULATORY INFORMATION**

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. US Federal Regulations All ingredients are listed on the EPA TSCA Inventory.

Copper/Copper Alloys

SARA Section 311/312 Hazard Classes            Delayed (chronic) health hazard

Copper (7440-50-8)

Listed on the United States TSCA (Toxic Substances Control Act) Inventory

Listed on United States SARA Section 313 SARA Section 313 – Emission Reporting 1%

Silver (7440-22-4)

Listed on the United States TSCA (Toxic Substances Control Act) Inventory

Listed on United States

SARA Section 313 SARA Section 313 – Emission Reporting 1

Antimony (7440-36-0)

Listed on the United States TSCA (Toxic Substances Control Act) Inventory Listed on United States CERCLA

500 lb final RQ (no reporting of release of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm ); 2270 kg final RQ (no reporting of release of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm )

15.1.2. US State Regulations:

Copper (7440-50-8)

U.S. - Massachusetts – Right To Know List

U.S. – New Jersey – Right to Know Hazardous Substances List



U.S. – Pennsylvania – RTK (Right to Know) List- Environmental Hazard List

U.S. – Pennsylvania – RTK (Right to Know) List

15.1.3 Canadian Regulations All ingredients are listed on the Canadian Domestic Substance List

Copper/Copper Alloys

WHMIS Classification Uncontrolled product according to

WHMIS classification criteria

Copper (7440-50-8)

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1%

WHMIS Classification Uncontrolled product according to WHMIS classification criteria

15.2 Chemical safety assessment No chemical safety assessment has been carried out.

## 16. OTHER INFORMATION

Other information This Safety Data Sheet has been established in accordance with the SDS requirements of the OSHA Regulation 29 CFR 1910.1200

Revised Date: April 16, 2020

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