



Safety Data Sheet

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1. IDENTIFICATION

Product Name: Lead Free Alloys Consisting of Tin(SN), Antimony(SB), Copper(CU)
Synonyms: Lead Free Babbit Metal
Part Number: ASTM1AMS4800BABBITT,ASTM-2,ASTM-3,NICKELITE
Recommended Use: Surface bearings and other industrial uses
Restriction of Use: Non identified

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2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This product is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Toxicity - oral	Category 3
Acute Toxicity – inhalation vapor	Category 4
Skin Irritation	Category 2
Eye Damage/Irritation	Category 2B
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 2
Specific Target Organ Toxicity – Repeat Exposure	Category 1 (respiratory system, skin)
Hazardous To The Aquatic Environment - Acute	Category 1

GHS Label elements

Signal Word

Danger

Hazard Pictograms



Hazard Statements

Cause damage to respiratory system, eyes and skin.
Dust or fume may cause eye, skin and respiratory tract irritation.
Antimony causes nasal septal ulceration and stomach lining irritation.
Tin is not regarded as toxic but excessive exposure can cause fever, nausea, stomach cramps or diarrhea.
Nickel is suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure (respiratory system, skin)

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
IF IN EYES: Rinse cautiously with water for 15 minutes. Remove contacts lenses. If eye irritation persists get

Precautionary Statements - Storage

Store in tightly closed original container in a dry, cool and well-ventilated place. Store in a closed container away from incompatible materials. Keep out of reach of children. Keep away from food, drink and animal feedings. Store locked up.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Very toxic to aquatic life with long lasting effects
Very toxic to aquatic life.

3.COMPOSTION/INFORMATION ON INGREDIENTS

Material	% by Wt.	CAS #	OSHA EXPOSURE LIMIT
Tin	85 - 95	7440-31-5	2.00 mg/m ³
Antimony	2 - 10	7440-36-0	0.50 mg/m ³
Copper	2- 10	7440-50-8	0.10 mg/m ³

4. FIRST AID MESURES**First aid measures**

Eye Contact In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists. Do not rub affected area.

Skin Contact Wash off immediately with soap and plenty of water. If skin irritation persists, call a Physician.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical Attention immediately. If conscious, have victim clear nasal passages.

Ingestion Seek immediate medical attention. Rinse mouth. Drink plenty of water. Do not induce vomiting.

Most important symptoms and effects, both acute and delayed

Symptoms Antimony causes nasal septal ulceration and stomach lining irritation. Tin is not regarded as toxic but excessive exposure can cause fever, nausea, stomach cramps or diarrhea.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE – FIGHTING MESURES

<u>Suitable extinguishing media:</u>	Dry chemical, foam or CO2.
<u>Unsuitable extinguishing media:</u>	Do not use water or halogenated extinguishing media.
<u>Specific hazards arising from the chemical:</u>	May give off toxic fumes in a fire, including antimony fumes.
<u>Explosion data:</u>	
Sensitivity to Mechanical Impact:	None known.
Sensitivity to Static Discharge:	None known.
<u>Protective equipment and precautions for firefighters</u>	

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Not considered to be a fire hazard. Powder/dust is flammable when heated or exposed to flame.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evaluate personnel to safe areas. Avoid contact with skin, eyes and inhalation of dusts and fumes. Use personal protection recommended in Section 8.
For emergency responders	Wear respiratory protection. Wear proper personal protective equipment (gloves and goggles). Wear appropriate outer garment to protect clothing
Environmental precautions	Prevent entry into waterways, sewers, surface drainage systems and poorly ventilated areas.

Methods and material for containment and cleaning up

Methods for containment	Avoid creating dust. Safely stop source of spill. Restrict non-essential personnel from area. All personnel involved in spill cleanup should avoid skin and eye contact by wearing appropriate personal protection equipment. Do not breathe dust.
Methods for cleaning up	Avoid dust formation. Clean up dusts with high efficiency particulate air (HEPA) filtered vacuum equipment or by wet cleaning.
Prevention of secondary hazards	Clean contaminated objects and area thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

<u>Precautions for safe handling</u>	
Advice on safe handling	Use personal protection recommended in Section 8. Avoid generation of dust.
<u>Conditions for safe storage, including any incompatibilities</u>	
Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place.
Incompatible materials	Strong acids, oxidizers, reducing agents, halogens.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Tin 7440-31-5	TWA: 2.0 mg/m ³ Sn	TWA: 2.0 mg/m ³ Sn	IDLH: 100 mg/m ³ Sn TWA: 2.0 mg/m ³ Sn
Antimony 7440-36-0	TWA: 0.5 mg/m ³ Sb	TWA: 0.5 mg/m ³ Sb	IDLH: 0.50 mg/m ³ Sb TWA: 0.5 mg/m ³ Sb
Copper 7440-50-8	TWA: 1.0 mg/m ³ Cu	TWA: 1.0 mg/m ³ Cu	IDLH: 2000 mg/m ³ Cu TWA: 1.0 mg/m ³ Cu

Appropriate engineering controls

Engineering Controls

Use contained process enclosures, local exhaust ventilation or other engineering controls to maintain aerosols below the exposure limit. If user operations generate dust, fume or mist use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Eye/face protection

Use safety glasses with side shields or chemical goggles.

Skin and body protection

Not normally needed.

Respiratory protection

Only required if exposure limits are exceeded. Use NIOSH/MSHS approved respirator for toxic dust and/or fume.

General Hygiene Considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear disposable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Metallic, faint grey
Odor	None

Property	Values	Remarks *Method
pH	Not available	
Melting point	460°depending on composition	
Boiling point/boiling range	Not applicable	
Flash Point	Not applicable (high-melting point solid)	
Evaporation rate	Not applicable (high-melting point solid)	
Flammability (solid, gas)	Not combustible	
Flammability Limit in Air	Not combustible	
Upper flammability limit:	Not combustible	
Lower flammability limit:	Not combustible	
Vapor pressure	Not volatile	
Vapor density	Not volatile	
Specific Gravity	7.3 approx., depending on composition	
Water solubility	NIL	
Partition coefficient	Not applicable (inorganic)	
Auto ignition temperature	Not combustible	
Decomposition temperature	Not combustible	
Kinematic viscosity	Not applicable (solid)	
Dynamic viscosity	Not applicable (solid)	
Explosive properties	Not considered to be explosive	
Oxidizing properties	Not considered to be oxidizing	

Other information

Softening point	Not available
Molecular weight	Not available
VOC Content (%)	Not available
Bulk density	Not available

10. STABILITY AND REACTIVITY

Reactivity

Stable under normal conditions.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization does not occur.

Conditions to avoid

Avoid excessive exposure to heat.

Incompatible materials

Strong acids, oxidizers and reducing agents, halogens.

Hazardous Decomposition Products

Antimonial fumes at high temperatures.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation

Inhalation of dust and fume must be avoided. This product, when used for welding and similar applications, produces chemicals known to cause cancer and birth defects (or other reproductive harm).

Eye contact

Dust or fume will be irritant.

Skin contact

Not a route of entry into the body.

Ingestion

Ingestion of dust and fume must be avoided. Antimony is toxic and dust or fume can cause nasal septal ulceration and stomach lining irritation. Tin is not regarded as toxic but excessive exposure can cause fever, nausea, stomach cramps or diarrhea.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Tin 7440-31-5	2207mg Sn/kg Rat	Not available	Not available
Antimony 7440-36-0	7500mg Sb/kg Rat	Not available	720 mg Cu/m ³ Rat
Copper 7440-50-8	1000 mg Cu/kg Rat	Not available	>2000 mg Cu/m ³ Mammal

Information on toxicological effects

Symptoms

Not available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Antimony metal granules or dust: May cause skin irritation by mechanical action.

Serious eye damage/eye irritation

Antimony metal granules or dust: Can irritate eyes by mechanical action.

Inhalation

Inhalation of dust and fumes must be avoided.

Ingestion

Ingestion of dust and fumes must be avoided. Antimony is toxic and dust or fume can cause nasal septal ulceration and stomach lining irritation. Tin is not regarded as toxic but excessive exposure can cause fever, nausea, stomach cramps or diarrhea.

Carcinogenic effects

Chemical Name	ACGIH	IARC	NTP	OSHA
Tin 7440-31-5	Not Listed	Not Listed	Not Listed	Not Listed
Antimony 7440-36-0	A2	2B	Not Listed	Category 2
Copper 7440-50-8	Not Listed	Not Listed	Not Listed	Not Listed

Numerical measures of toxicity – Product Information

The following values are calculated based on chapter 3.1 of the GHS document.

Inhalation LC50 None available

12. ECOLOGICAL INFORMATION

Environmental Toxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacean
Tin 7440-31-5	None listed	None listed	None listed	None listed
Antimony 7440-36-0	None listed	Cyprinodont variegates: LC50 = 6.2-8.3 mg/L/96h	None listed	None listed
Copper 7440-50-8	Pseudokirchneriella subcapitata: EC50 = .0426 - .0535 mg/L/72h	Pimephales promelas: LC50 = .0068 - .0156 mg/L/96h. Pimephales promelas (static): LC50 = .3mg/L/96h.	None listed	Daphnia magna: EC50 = .03 mg/L/48h

Bioaccumulation

Metal powders in water or soil may form metal oxides or other metal compounds that could become bioavailable and harm aquatic or terrestrial organisms.

Mobility

Metal powder would be relatively immobile in soils but some metal compounds may be transported with ground water.

Other adverse effects

Not available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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

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

14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail.

DOT

Proper shipping name	Not applicable
Hazard Class	Not applicable
Packing Group	Not applicable
Reportable Quantity (RQ)	Not applicable
Marine pollutant	Not applicable
Emergency Response Guide	Not applicable

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL – Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS – European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS – Japan Existing and New Chemical Substances
IECSC – China Inventory of Existing Chemical Substances
KECL – Korean Existing and Evaluated Chemical Substances
PICCS – Philippines Inventory of Chemicals and Chemical Substances
AICS – Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This Product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Name	% by Wt.	CAS #	SARA 313 – Threshold Values %
Tin	85 - 95	7440-31-5	Not Listed
Antimony	2 - 10	7440-36-0	1.0
Copper	2 - 10	7440-50-8	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA – Reportable Quantities	CWA – Toxic Pollutants	CWA – Priority Pollutants	CWA – Hazardous Substances
Tin 7440-31-5	-	-	-	-
Antimony 7440-36-0	5000 lb.	X	X	X
Copper 7440-50-8	1 lb.	-	X	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

US State Regulations

California Proposition 65

This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.

Chemical Name	California Proposition 65
Tin 7440-31-5	Not Listed
Antimony 7440-36-0	Cancer
Copper 7440-50-8	Not Listed

US State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Tin 7440-31-5	X	-	X	-	-
Antimony 7440-36-0	X	-	X	-	X
Copper 7440-50-8	X	X	X	-	-

US EPA Label Information

EPA Pesticide Registration Number Not available.

16. OTHER INFORMATION

Issue Date 08-Feb-2005
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Revision Note None

Disclaimer

This information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information materials or in any process, unless specified in the text.