MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet complies with the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200

PRODUCT: TIN/ANTIMONY SOLDER ALLOY (Fabrications/Forms)



CODE: M/L 030

COMMON NAME OR SYNONYMS: Tin/Antimony formulations in the following forms: wire, ingot, pig, sheet, anodes, cast or extruded bar and miscellaneous extruded lines.

INCLUDES TRADE NAME PRODUCTS: LENOX® 95% SN/5%

NFPA/HMIS HAZARD CODES: HEALTH: 1/1* FIRE: 0/0 REACTIVITY: 0/0 SPECIAL: NA

REPAINING HAZARD CODES. HEALTH, 1/1 FIRE, 0/0 REACTIVITY, 0/0 SPECIAL, NA

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

SECTION I

MANUFACTURER NAME: LENOX® ISSUE DATE: October, 2004

1690 Lowery Street

Winston-Salem, NC 27101

INFORMATION PHONE: 336-777-8600

SECTION II HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	<u>US-NIOSH</u> RTECS NO.	<u>US</u> OSHA AL	<u>US</u> OSHA PEL	ACGIH TLV	WT. PERCENT
Tin (Sn)	7440-31-5	XP7320000	NE	2.0 mg/m3	2.0 mg/m3	90.0-98.0
Antimony (Sb)	7440-36-0	CC4025000	NE	0.5 mg/m3	0.5 mg/m3	2.0-10.0

NOTE: Product formulation is to customer specification and appears on product packaging or packing slip.

NE = NONE ESTABLISHED AL = ACTION LEVEL PEL = PERMISSIBLE EXPOSURE LIMIT TLV = THRESHOLD LIMIT VALUE

SECTION III PHYSICAL DATA

APPEARANCE & ODOR (AT NORMAL CONDITIONS): Solid - silver to silver gray metallic metal - no odor

SPECIFIC GRAVITY (H20=1): 5.77-5.8

MELTING POINT RANGE (DEGREES F): Alloy specific dependent: Tin-232 Antimony-630 BOILING POINT (DEGREES C): Alloy specific dependent: Tin-2260 Antimony-1380

SOLUBILITY IN WATER: Insoluble PH: Not applicable

SECTION IV FIRE & EXPLOSION HAZARD DATA

FLASH POINT: Non-flammable FLAMMABLE LIMITS: Not applicable

EXTINGUISHING MEDIA: No specific agents available

SPECIAL FIRE FIGHTING PROCEDURES: If involved in fire, use full protective clothing and NIOSHA/MSHA approved self-

contained breathing apparatus operated in a positive-pressure mode.

UNUSUAL FIRE & EXPLOSION HAZARDS: The solid metal form is not a fire hazard. However, it is possible that dust generated

from processing operations may present a moderate fire or explosion hazard.

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SECTION V REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: Not applicable

INCOMPATIBILTY: Chlorine, Turpentine, Strong Acids, bases, nascent hydrogen, reducing agents,

chlorine, fluorine and bromine. **NEVER** mix molten metal with water- it will explode. **NEVER** put product, by-products, dust or product waste into galvanized

or aluminum containers.

HAZARDOUS DECOMPOSITION PRODUCTS: At temperatures above the melting point metal oxide fumes may be evolved.

Under reducing conditions, such as any strong acid or base plus an active metal, or in the presence of nascent hydrogen, highly toxic stibine gas (TLV=0.10 ppm)

may be evolved.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VI HEALTH HAZARD DATA

NOTE: Exposure to the solid form of this product presents few health hazards in itself. However, normal handling or processing of this material may result in exposure to product components and/or decomposition products, which may present a health hazard.

ROUTES OF ENTRY:

SYMPTOMS & EFFECTS OF OVEREXPOSURE:

Dust/fume inhalation; dust ingestion

Chronic (prolonged) overexposure to **Tin** can result in benign pneumoconiosis (stannous). This form of pneumoconiosis produces progressive x-ray changes of the lungs as long as exposure exists, but there is no distinctive fibrosis, no evidence of disability and no special complicating factors. Chronic overexposure to **Antimony** can lead to liver and kidney damage and central nervous system disorders. Antimony can cause eye and skin irritation and dermatitis.

Acute (severe short-term) overexposure to **Tin** can cause irritation of the eyes, skin, mucous membranes and respiratory system. Acute overexposure to **Antimony** can cause upper respiratory tract irritation and systematic antimony poisoning with symptoms including abdominal cramps, nausea, dizziness, dry throat and various nervous complaints, such as sleeplessness, irritability and muscular pains. Repeated skin contact with antimony may result in dermatitis, and eye contact may cause severe eye irritation.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:

Pre-existing conditions of the lungs, diseases of the kidneys, liver and nervous

systems.

CARCINOGENITY:

Not listed as a carcinogen by NTP, IARC, OSHA, and ACGIH.

ADDITIONAL INFORMATION:

In industrial/commercial processing operations, pre-employment medical evaluations are recommended for large users of this product. Attention should be directed to skin, eyes, respiratory tract, blood, kidneys, pulmonary function and neurological health.

Periodic medical examinations should be repeated on an annual basis for those employees exposed to potentially hazardous levels of this product.

Some animal studies indicate that inhalation of antimony trioxide fume may pose an increased risk of lung cancer. ACGIH identifies antimony trioxide as a Class A2 carcinogen (suspected human carcinogen). IARC classifies antimony trioxide as a Group 2B carcinogen (possibly carcinogenic to humans).

EMERGENCY & FIRST AID PROCEDURES:

SKIN: Normal hygiene and first aid procedures - wash with soap and water. If irritation or

rash develops obtain medical attention.

EYES: Flush well with running water to remove particulate. If irritation persists obtain medical

attention.

ACUTE INHALATION: Remove from exposure. Obtain immediate medical attention. If breathing has

stopped, initiate artificial resuscitation.

INGESTION: Give water; induce vomiting only in a conscious non-convulsing individual; obtain

immediate medical attention.

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SECTION VII PROTECTION MEASURES

RESPIRATORY PROTECTION: Respiratory protection is required where airborne exposures exceed U.S. OSHA/ACGIH

permissible air concentrations. Respirator selection shall be made in accordance with the

U.S. OSHA Respiratory Protection Standard, 29 CFR 1910.134.

VENTILATION: Good general ventilation, or ventilation, as described in "Industrial Ventilation, A Manual of

Recommended Practice," by the American Conference of Governmental Industrial Hygienists, is recommended to maintain exposure levels below the Permissible Exposure Limits (PEL's) or Threshold Limit Values (TLV's) specified by U.S. OSHA or other local or

state regulations.

PROTECTIVE GLOVES: Recommended for prolonged contact/heat.

EYE PROTECTION: Safety glasses or goggles are recommended where the possibility exists of getting dust

particles in the eyes. Safety glasses or goggles with face shield are recommended around

molten metal and where excessive metal dust exposure exists.

OTHER PROTECTIVE EQUIPMENT: WORK/HYGIENIC PRACTICES:

Safety equipment should be worn as appropriate for the work environment.

Do not permit eating, drinking, or the use of cosmetics or tobacco products while handling

or processing material or in product work areas. Practice good personal hygiene

procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Avoid inhalation and ingestion of product, and activities which generate dust or fume. Keep melting/soldering temperatures as low as possible to

minimize the generation of fume.

SECTION VIII PRECAUTIONS FOR SAFE HANDLING & USE

PRECAUTIONS TO BE TAKEN

IN HANDLING & STORING: Practice good housekeeping procedures to prevent dust accumulations. Keep material dry. Avoid

storage near incompatible materials (See Section V). Keep product away from children and their environment, feed products, food products, and domestic animals. Do NOT place product, by-

products, dust or product waste into galvanized or aluminum containers.

OTHER PRECAUTIONS: Special attention is drawn to the requirements of the U.S. OSHA Respirator Standard 1910.134

should airborne exposures exceed the U.S. OSHA Action Level (AL) or (PEL). Inadvertent contaminants to product such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten metal bath or melting furnace (preheating metal will remove moisture from

product).

SECTION IX SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES:

- 1. Material in dust form-minimize exposure. Clean up using dustless methods (i.e. HEPA Vacuum). Do not use compressed air.
- 2. Place in closed labeled containers for recycling or disposal.
- 3. Keep out of waterways.

NOTE: Cleanup personnel should wear protective clothing and respiratory protection where significant dust/fume exposure exists.

OTHER PROCEDURES: For large product users or involving large product quantities, we recommend that the purchaser establish a spill prevention, control and counter measure plan. This plan should include procedures for proper storage as well as clean up of spills or leaks. The procedures should conform to safe practices and provide for proper recovery and/or disposal. Depending on the quantity spilled, notification to the U.S. National Response Center (800-424-8802) may be required in case of hazardous substances. (See USEPA and USDOT regulations: also various states and local regulations.)

WASTE DISPOSAL METHODS: May have value on a recycled basis. If disposed of, dispose of in a permitted disposal site in accordance with all federal, state and local disposal or discharge regulations.

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SECTION X UNITED STATES SARA TITLE III INFORMATION

This product/mixture contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the U.S. Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372. The percent by weight of each toxic chemical and its associated chemical abstract system (CAS) number are to found in Section II of this Material Safety Data Sheet.

CHEMICAL

<u>NAME</u>	<u>EHS RQ (LBS)</u>	EHS TPQ (LBS)	<u>SEC.313</u>	313 CATEGORY	311/312 CATEGORY
	*1	*2	*3	*4	*5
Antimony	Not Applicable	Not Applicable	YES	Antimony	H-1, H-2

-FOOTNOTES-

- *1 = Reportable quantity of extremely hazardous substance, Section 302.
- *2 = Threshold planning quantity, extremely hazardous substance, Section 302.
- *3 = Toxic chemical list, Section 313
- *4 = Chemical category as required by Section 313 (40 CFR 372.42). Subject to annual release reporting requirements.
- *5 = Hazard category for SARA Section 311/312 reporting:

Health H-1 = Immediate (ACUTE) Health Hazard Physical P-3 = Fire Hazard

H-2 = Delayed (CHRONIC) Health Hazard P-4 = Sudden Release of Pressure Hazard

P-5 = Reactive Hazard

SECTION XI UNITED STATES CERCLA SECTION 103 INFORMATON

This product/mixture contains the following chemicals subject to the release reporting of Section 302.

CHEMICAL NAME RQ (LBS)

Antimony 5000 (*1)

-FOOTNOTES-

SECTION XII TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Non-regulated material

TECHNICAL NAME: N/A
HAZARD CLASS: N/A
UN NO.: N/A
PACKING GROUP: N/A
EMERGENCY RESPONSE GUIDE NUMBER: N/A
OTHER: N/A

SECTION XIII ADDITIONAL INFORMATION

VOC CONTENT: None

This Material Safety Data Sheet is offered solely for your information, consideration and investigation. LENOX® provides no warranties, either express or implied, and assumes no responsibilities for the accuracy or completeness of the data contained in this document. The data in this Material Safety Data Sheet relates only to this product and does not relate to use in combination with any other material or in any process.

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^{*1 =} Reportable quantity (RQ) under CERCLA Section 302. Spills to the environment exceeding the reportable quantity in any 24-hour period must be reported to the U.S. National Response Center (800-424-8802). No reporting of releases of the hazardous substance(s) is required if the diameter of the pieces of the solid metal(s) released is equal to or exceeds 100 micrometers (0.004 inches).