

## Lenox

### HMIS

### NFPA

Lenox Lead-Free Solder

0

HEALTH	1
FIRE	0
REACTIVITY	0
PPE	



## SECTION 1 : Chemical Product and Company Identification

**MSDS Name:** Lenox Lead-Free Solder

**Manufacturer Name:** Lenox

**Address:**

1690 Lowery Street  
Winston-Salem, NC 27101

**Business Phone:** 336-777-8600

For information in North America, call: 336-777-8600

**Manufacturer MSDS Revision Date:**

October, 2007  
Supersedes: 2/19/07  
Rev: 004

**Trade Names:**

LENOX® LEAD-FREE SOLDER

**NFPA**

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Other:**

**HMIS**

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:**

MATERIAL SAFETY DATA SHEET

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

**NFPA/HMIS HAZARD CODES:**

**SPECIAL:** Not Applicable

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

**Product Codes:**

M/L 041



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**SECTION 2 : Hazardous Ingredients/Identity Information**

Chemical Name	CAS#	% Weight	
Tin	7440-31-5	Balance	

**RTECS:**

US-NIOSH: XP7320000

**OSHA PEL TWA:** US: 2.0 mg/m<sup>3</sup>; AL: NONE ESTABLISHED

**ACGIH TLV TWA:** 2.0 mg/m<sup>3</sup>

Chemical Name		% Weight	
Copper		4.95%	

**RTECS:**

US-NIOSH: GL5325000

**ACGIH TLV TWA:** 1.0 mg/mg<sup>3</sup> (dust); 0.2 mg/m<sup>3</sup> (fume)

Other Exposure Guidelines:

US OSHA AL: NONE ESTABLISHED

US OSHA PEL: 1.0 mg/m<sup>3</sup> (dust); 0.1 mg/m<sup>3</sup> (fume)

Chemical Name	CAS#	% Weight	
Selenium	7782-49-2	0.05%	

**RTECS:**

US-NIOSH: VS7700000

**OSHA PEL TWA:** US: 0.2 mg/m<sup>3</sup>; AL: NONE ESTABLISHED

**ACGIH TLV TWA:** 0.2 mg/m<sup>3</sup>

NE = NONE ESTABLISHED

AL = ACTION LEVEL

PEL = PERMISSIBLE EXPOSURE LIMIT

TLV = THRESHOLD LIMIT VALUE



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**SECTION 3 : Physical And Chemical Characteristics**

**Physical State/Appearance:**

(AT NORMAL CONDITIONS): Solid - metal

**Color:**

(AT NORMAL CONDITIONS): Silver to silver gray metallic

**Odor:**

(AT NORMAL CONDITIONS): No odor

**pH:**

Not applicable

**Boiling Point:**

(Deg C): Information not available

**Melting Point:**

419 - 425 deg F

**Solubility:**

IN WATER: Insoluble

**Specific Gravity:**

(H<sub>2</sub>O = 1): 7.39

**Volatile Organic Compound Content:**

None

**FlashPoint:**

Non-Flammable



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## SECTION 4 : Fire And Explosion Hazards

**Fire:**

FLAMMABLE LIMITS: Not Applicable

**Flash Point:**

Non-Flammable

**Extinguishing Media:**

No specific agents recommended

**Fire Fighting Instructions:**

If involved in fire, use full protective clothing and NIOSHA/MSHA approved self-contained breathing apparatus operated in a positive-pressure mode.

**Unusual Fire 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 5 : Health Hazards

**Applies to all ingredients:**

**Route of Exposure:**

Dust/fume inhalation; dust ingestion.

**Carcinogenicity:**

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

**Aggravation of Pre-Existing Conditions:**

Pre-existing conditions of the lungs, Wilson's Disease (genetic trait).

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 potential health hazard.

**Tin:**

**Potential Health Effects:**

SYMPTOMS & EFFECTS OF OVEREXPOSURE:

Acute (severe short-term) overexposure to Tin dust/fume can cause irritation of the eyes, skin, mucous membranes and respiratory system.

**Chronic Health Effects:**

#### SYMPTOMS & EFFECTS OF OVEREXPOSURE:

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.

#### Copper:

##### Potential Health Effects:

#### SYMPTOMS & EFFECTS OF OVEREXPOSURE:

Acute (severe short-term): Acute overexposure to Copper dust/fume can cause irritation of the eyes, nose, throat and skin, and under severe fume overexposure may cause metal fume fever with flu-like symptoms such as sweet metal taste, dry throat, coughing, fever and chills, tight chest, dyspnea, headache, blurred vision, back pain, nausea, vomiting, fatigue. Symptoms usually disappear within 24 hours. Copper may cause skin and hair discoloration. Inhalation of copper dusts may cause changes in the gums and mucous lining in the mouth, which is generally attributable to, localized tissue effect rather than general toxicity.



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### SECTION 6 : Emergency And First Aid Procedures

#### Eye Contact:

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

#### Skin Contact:

Normal hygiene and first aid procedures - wash with soap and water. If irritation develops or persists obtain medical attention.

#### Inhalation:

ACUTE: 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 7 : Reactivity Data

#### Chemical Stability:

Stable.

#### Conditions to Avoid:

Not applicable

#### Incompatibilities with Other Materials:

Chlorine, Turpentine, Magnesium, and Acetylene Gas.

#### Hazardous Polymerization:

Will not occur.

#### Hazardous Decomposition Products:

At temperatures above the melting point metal oxide fumes may be evolved.



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### SECTION 8 : Precautions For Safe Handling

#### Spill Cleanup Measures:

##### 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.)

#### Other Precautions:

Special attention is drawn to the requirements of the U.S. OSHA Respirator 1910.134 should airborne exposures exceed the U.S. OSHA PEL. Inadvertant 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 the product).

#### Handling:

Practice good housekeeping procedures to prevent dust accumulations.

#### Storage:

Keep material dry. Avoid storage near incompatible materials (See Section 7). Keep product away from children and their environment and domestic animals.

#### Hygiene Practices:

Do not permit eating, drinking, or the use of cosmetics or tobacco products while handling or processing material or in solder work areas. Practice good oral 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.

#### Waste Disposal:

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.

#### DOT Shipping Name:

Non-regulated as shipped

#### DOT UN Number:

Not Applicable

DOT Hazard Class: Not Applicable

DOT Packing Group: Not Applicable

DOT Hazard Technical Name: Not Applicable

NAERG Number: Not Applicable

OTHER: Not Applicable



## SECTION 9 : Control Measures

### Ventilation System:

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.

### Hand Protection Description:

PROTECTIVE GLOVES: Recommended for prolonged contact/heat.

### Eye/Face 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.

### 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.

### Other Protective:

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

WORK/HYGIENIC PRACTICES: Do not permit eating, drinking, or the use of cosmetics or tobacco products while handling or processing material or in solder work areas. Practice good oral 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 10 : Other Information

### Applies to All Ingredients:

#### OSHA 29 CFR 1200:

MATERIAL SAFETY DATA SHEET

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### Copper:

#### Section 302:

UNITED STATES CERCLA SECTION 103 INFORMATION:

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

CHEMICAL NAME: Copper

RQ (LBS): 5000 (\*1)

#### FOOTNOTES:

\*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).

Section 302 Extremely Hazardous Substances (TPQ): (\*2) (LBS): Not Applicable

Section 302 Extremely Hazardous Substances (RQ): (\*1) (LBS): Not Applicable

Section 312 Hazard Category:

311/312 CATEGORY (\*5): H-1

Acute:Yes

Section 313 Toxic Release Form:

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 be found in Section 2 of this Material Safety Data Sheet.

SEC 313 (\*3): Yes

313 CATEGORY (\*4): Copper

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

H-2 = Delayed (CHRONIC) Health Hazard

Physical:

P-3 = Fire Hazard

P-4 = Sudden Release of Pressure Hazard

P-5 = Reactive Hazard

HMIS:

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

NFPA:

Fire Hazard: 0

Health: 1

Reactivity: 0

MSDS Revision Date:

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Disclaimer:

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VOC CONTENT: None

NFPA/HMIS HAZARD CODES:  
SPECIAL: Not Applicable

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

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