



## LF Spheres

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Lead Free (LF) Alloyed Products (Contains Antimony, Bismuth, Silver, Nickel, Tin, and Gold)  
**Distributor:** BEST Inc  
3603 Edison Place  
Rolling Meadows IL  
(897) 797 9250



GHS Signal Word: Warning

### SECTION 2: HAZARDS IDENTIFICATION

**Hazard Statement(s):** 1-1320 Harmful if swallowed  
H315 Causes skin irritation  
H317 May cause an allergic skin reaction  
1-4333 May be harmful if inhaled  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness

**Precautionary Statements:** Keep out of reach of children  
Avoid breathing dust / fume / gas / mist / vapors / spray

**P270** Do not eat, drink, or smoke when using this product  
**P280** Wear protective gloves / protective eye protection / face protection  
**P301 + P310** IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
**P302 + P352** IF ON SKIN: Wash with plenty of soap and water  
**P304 + P340** IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing  
**P305 + P351** IF IN EYES: Rinse continuously with water for several minutes

#### MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:

Diseases of the blood-forming organs, kidneys, nervous and possibly reproductive systems

#### POTENTIAL HEALTH EFFECTS

**EYE CONTACT:** May cause moderate irritation, tearing, and reddening. Contact with fumes from molten metal may cause irritation.

**INHALATION:** Inhalation of fumes or dust may cause local irritation to the respiratory system, dizziness, weakness, fatigue, nausea, and/or headache.

**SKIN CONTACT:** May cause mild skin irritation

**INGESTION:** Harmful if swallowed. May cause irritation to the mouth, throat, and stomach. May cause abdominal discomfort, nausea, vomiting, and/or diarrhea.

#### POTENTIAL HEALTH EFFECTS (CHRONIC & OVEREXPOSURE)

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**TIN:** Dust or fumes may cause irritation of the skin mucous membranes and may result in a benign Pneumoconiosis (Stannosis).  
**SILVER:** May cause discoloration of eyes and skin (Argyria).  
**BISMUTH:** May cause foul breath, a blue-black line on the gums, and Stomatitis.

**ANTIMONY WARNING:** May cause gastrointestinal upset, sleeplessness, irritability, and muscular pain.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<b>Ingredient</b>	<b>CAS</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>
Tin	7440-31-5	2.0 MG/M <sup>3</sup>	2.0 MG/M <sup>3</sup>
Silver	7440-40-224	0.01 MG/M <sup>3</sup>	0.1 MG/M <sup>3</sup>
Bismuth	7440-69-9	N/A	N/A
Antimony	7440-36-0	0.5 MG/M <sup>3</sup>	0.5 MG/M <sup>3</sup>
Nickel	7440-02-0	1.0 Mg/Cu. M.	1.0 Mg/Cu. M.
Copper	7440-50-8	1.0 Mg./Cu. M.	1.0 Mg/Cu. M.
Gold	7440-57-5	N/A	N/A

### SECTION 4: First aid measures

**Inhalation:** If symptoms are present, the individual should be immediately removed from exposure and a physician consulted.  
**Eye Contact:** Flush with water, contact a physician. Dust and/or fumes may cause irritation. If contact lenses can be removed easily, flush eyes without contact lenses.  
**Skin Contact:** For hot metal burns, exposed area should be cooled with water and medical attention sought. After handling material wash hands thoroughly with soap and water. Dust, vapor, and/or fumes are not readily absorbed through the skin.  
**Ingestion:** Call a physician or Poison Control immediately. Do not induce vomiting.

### SECTION 5: FIREFIGHTING MEASURES

**Unusual Fire and Explosion Hazards** Moderate in the form of dust when exposed to heat or flame.  
**Fire Fighting Instructions:** Use NIOSH-approved self-contained Breathing Apparatus and full protective clothing if involved in a fire.  
**Extinguishing Media::** Use media appropriate for the surrounding fire.  
**Section 5 Note:** Molten solder alloys consisting of Antimony, Bismuth, Copper, gold, Silver, and/or Tin do not produce significant quantities of fumes below 900° F.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

**Accidental Release Measures: Material is non-hazardous:** Follow directions listed under HANDLING/STORAGE  
**Section 6 Note:** See Sections 2, 4, and 7 for more information.

### SECTION 7: HANDLING AND STORAGE

**Handling/Storage:** Avoid inhalation of solder fumes or dust. Vacuuming is recommended. Do not use dry sweeping or compressed air cleaning systems. Wear protective gloves to pick up solid metal pieces. Dispose by following Federal State/Provincial, and Local laws. Metal may have reclaim value.  
**Work Hygienic Practices:** Cosmetics/Food/Drink/Tobacco should not be consumed or used in areas where solder products may be used. Always wash hands after handling soldering products and before applying or using cosmetics/food/drink/tobacco.  
**Other Precautions:** Empty containers may retain product residues in vapor, liquid, and/or solid form. All labeled hazard precautions must be observed.  
**Section 7 Note:** This is for industrial use only.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ventilation:** Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLVs  
**Respiratory Protection:** A NIOSH-approved dust/fume respirator should be worn when applicable limits may be exceeded.

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<b>Eye Protection:</b>	Safety glasses and/or face protection is recommended for exposures where there is a risk of dust or hot metal splashing.
<b>Skin Protection:</b>	Protective gloves should be worn to reduce burn exposure. Disposable gloves are recommended to minimize direct exposure to material.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	N/A
<b>pH as Supplied:</b>	N/A
<b>Freezing Point:</b>	Varies
<b>Melting Point:</b>	Varies
<b>Initial boiling Point:</b>	Varies
<b>Boiling Range:</b>	Varies
<b>Flash Point / Evaporation Rate:</b>	N/A (°F / °C)
<b>Flammability (solid):</b>	N/A
<b>Upper / Lower Flammability:</b>	N/A
<b>Upper / Lower Explosives Limits:</b>	N/A
<b>Physical State:</b>	Sphere, rectangular, or washer shaped; wire; bar or ingot form
<b>Vapor Pressure (mmHg)</b>	N/A (°F / °C)
<b>Appearance:</b>	Silver-gray
<b>Vapor Density (AIR = 1)</b>	N/A (°F / °C)
<b>Relative Density:</b>	N/A
<b>Solubility in Water:</b>	Insoluble
<b>Partition Coefficient (n-octanol / water)</b>	N/A
<b>Autoignition Temperature:</b>	N/A
<b>Decomposition Temperature:</b>	N/A
<b>Viscosity:</b>	N/A (°F / °C)

#### Section 9 Note: Typical Alloy Compositions of Alloys Used

- 96.5%Tin/3%Silver/0.5%Copper
- 95.5%Tin/4.0%Silver/0.5%Copper
- 95%Tin/5%Antimony

### SECTION 10: STABILITY AND REACTIVITY

<b>General:</b>	Stable
<b>Incompatible materials and Conditions to Avoid:</b>	N/A
<b>Hazardous Decomposition or Byproducts:</b>	N/A
<b>Possibility of Hazardous Reactions:</b>	Will not occur.

### SECTION 11: TOXICOLOGICAL INFORMATION

<b>Acute Toxicity:</b>	
<b>Antimony (7440-36-0)</b>	
LD50 Ingested Rat	7000 mg/kg
<b>Silver (7440-224)</b>	
LD50 Oral Mouse	100/mg/kg
<b>Skin Corrosion/Irritation</b>	N/A
<b>Serious eye Damage/ Irritation</b>	N/A
<b>Respiratory or Skin Sensitization</b>	N/A
<b>Germ Cell Mutagenicity</b>	N/A
<b>Carcinogenicity:</b>	N/A
<b>Reproductive Toxicity</b>	N/A
<b>Stot-Single Exposure:</b>	N/A
<b>Stot-Repeated</b>	N/A
<b>Aspiration Hazard:</b>	N/A

### SECTION 12: ECOLOGICAL INFORMATION

<b>Toxicity / Persistence / Bio-accumulative Potential / Mobility in Soil</b>	Information not available.
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### SECTION 13: DISPOSAL CONSIDERATIONS

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**Waste Disposal Method:** Scrap and waste solder should be recycled or stored in a dry, sealed container for later disposal. Disposal must be in accordance with standards, regulations, laws, and statutes set forth by Federal, State/Provincial, and Local Regulations.

### SECTION 14: TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

**UN Number:** N/A  
**UN Proper Shipping Name:** N/A  
**Packaging Group** N/A  
**Environmental Hazards:** None  
**UN Number:** N/A

#### Transport Hazard Classes

**US DOT Hazardous Material Classification** Alloyed Products are not listed as a DOT hazardous material  
**Water Transportation:** Alloyed Products are not listed as a hazardous material  
**IATA Hazardous Material Classification:** Alloyed Products are not listed as IATA hazardous material

### SECTION 15: REGULATORY INFORMATION

#### United States Federal Regulations:

**All ingredients are listed on the EPA TSCA Inventory.** Finished product is not listed on the EPA TSCA Inventory.

**U.S. Federal Regulations:** None  
**State Regulations:** None  
**International Regulations:** None

### SECTION 16: OTHER INFORMATION

HMIS Rating: Health-I                      Flammability-I                      Physical Hazard-O                      Personal Protection-X

Preparation Information:  
This update supersedes all previously released documents.

#### KEY:

N/A: Not Applicable  
GHS: Global Harmonized System  
CAS: Chemical abstract Service  
OSHA: Occupational Safety and Health Administration  
PEL: Permissible Exposure Limit  
ACGIH: American Conference of Governmental Industrial Hygienists  
LD50: Lethal Dose, 50% or medial lethal dose  
STOT: Specific target organ toxicity  
TLV: Threshold limit value  
NTP: National Toxicology Program  
IARC: International Agency for Research on Cancer  
NIOSH: National Institute for occupational Safety and Health  
US DOT: United States Department of Transportation  
DOT: Department of Transportation  
IATA: International Air Transport Association  
EPA: Environmental Protection Agency  
TSCA: Toxic Substance Control Act  
HMIS: Hazardous Material Identification System

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