

# MATERIAL SAFETY DATA SHEET



4700 W. 160TH Street  
P.O. Box 35906  
Cleveland, Ohio 44135  
Emergency Tel No.  
(303) 623-5716 Collect

SAFE-FLO SILVER LEAD-FREE SOLDER

Best Revision Date...06/06/00

Date of Issue.....01/17/03

## SECTION 1 IDENTITY OF MATERIAL

TRADE NAME..... SAFE-FLO SILVER LEAD-FREE SOLDER  
PRODUCT NUMBERS... 29023, 29024, 29025, 50683, 53061, 53062, 53064, 53094, 53096, 53097, 53099, 53154, 53155  
FORMULA..... See Below  
SYNONYMS..... Lead-Free Wire Solder

## SECTION 2 HAZARDOUS INGREDIENTS

<u>INGREDIENTS</u>	<u>%</u>	<u>CAS NUMBER</u>	<u>SEC 313</u>
Tin (*Non-Hazardous)	>90%	7440-31-5	No
Copper (*Non-Hazardous)	<5%	7440-50-8	Yes
Bismuth (*Non-Hazardous)	<5%	7440-69-9	No
Silver (*Non-Hazardous)	<5%	7440-22-4	Yes

## SECTION 3 KNOWN HAZARDS UNDER 29 CFR 1910.1200

<u>HAZARDS</u>	<u>YES</u>	<u>NO</u>	<u>HAZARDS</u>	<u>YES</u>	<u>NO</u>
Combustible Liquid		x	Skin Hazard	x	
Flammable Material		x	Eye Hazard	x	
Pyrophoric Material		x	Toxic Agent		x
Explosive Material		x	Highly Toxic Agent		x
Unstable Material		x	Sensitizer		x
Water Reactive Material		x	Kidney Toxin	x	
Oxidizer		x	Reproductive Toxin		x
Organic Peroxide		x	Blood Toxin		x
Corrosive Material		x	Nervous System Toxin		x
Compressed Gas		x	Lung Toxin	x	
Irritant	x		Liver Toxin	x	
Carcinogen NTP/IARC/OSHA		x	Lung Hazard	x	

\*All ingredients may be hazardous during fluxing operations due to fumes from flux if overheated or misused.

## SECTION 4 REGULATION

<u>CHEMICAL</u>	<u>TLV (TWA)</u>	<u>PEL</u>	<u>STEL</u>	<u>Hazard Action Level</u>
Tin (Inorganic)	2.0 mg/cu m	2.0 mg/cu m	N/A	
Copper	0.1 mg/cu m (Fume) 1.0 mg/cu m (Dust)	0.1 mg/cu m (Fume) 1.0 mg/cu m (Dust)	N/A N/A	
Bismuth	No TLV established	N/A	N/A	
Silver	0.01 mg/cu m	0.01 mg/cu m	N/A	

## SECTION 5 REGULATED IDENTIFICATION

DOT PROPER SHIPPING NAME..... N/A  
DOT HAZARD CLASS..... N/A  
SHIPPING ID NUMBER..... N/A  
EPA HAZARDOUS WASTE ID NUMBER... N/A  
EPA HAZARD WASTE CLASS..... N/A

## SECTION 6 EFFECTS OF EXPOSURE

ENTRY ROUTE.... INHALE - YES    INGEST - YES    SKIN - YES    EYE - YES  
GENERAL..... Additionally, Overexposure to bismuth can cause "bismuth line", black spots on gums, foul breath, and salivation. Overexposure to copper can cause anemia. Long term overexposure to fumes may cause lung damage.  
INHALATION..... If heated, fumes may produce respiratory irritation, fever, chills, muscular pain, vomiting, dizziness, sweating, and a metallic taste in mouth. Overexposure to fumes can cause a flu-like condition called Metal Fume Fever.  
SKIN..... Fumes may cause irritation.  
EYE..... Fumes may cause irritation.  
INGESTION..... May cause abdominal pain, nausea, vomiting, diarrhea, gastrointestinitis, internal cuts or obstructions.  
TARGET ORGANS... N/A

## SECTION 7 EMERGENCY AND FIRST AID PROCEDURES - 303/623-5716 COLLECT

SKIN..... If irritation arises, wash thoroughly with soap and water. Seek medical attention if irritation persists.  
EYES..... If fumes cause irritation, move to fresh air and irrigate eyes with water for 15 minutes. If irritation persists, seek medical attention. If eye is struck with wire, seek medical attention.  
INHALATION... Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Keep victim quiet and warm. Call a poison control center or physician immediately.  
INGESTION.... Drink water and call a poison control center or physician immediately. Avoid alcoholic beverages. Never give anything by mouth to an unconscious person.

(Continued on next page)

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SECTION 8

PHYSICAL AND CHEMICAL PROPERTIES

NFPA HAZARD SIGNAL..... HEALTH - 0 FLAMMABILITY - 0 STABILITY - 0 SPECIAL - NONE  
BOILING POINT..... N/A  
MELTING POINT..... 420 - 460 Degrees F  
VAPOR PRESSURE..... N/A  
VAPOR DENSITY (AIR = 1).... N/A  
VOLATILE COMPONENTS..... N/A  
SOLUBILITY IN WATER..... Insoluble  
PH..... N/A  
SPECIFIC GRAVITY..... 9 - 11  
EVAPORATION RATE..... N/A  
APPEARANCE..... Silver-Gray Wire Metal  
ODOR..... None  
WILL DISSOLVE IN..... N/A  
MATERIAL IS..... Solid  
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SECTION 9

FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY..... LEL = N/A UEL = N/A  
FLASHPOINT AND METHOD USED..... N/A  
STABILITY..... Stable CONDITIONS TO AVOID: Do not heat over 480 Degrees F. HAZARDOUS DECOMPOSITION  
PRODUCTS: If overheated, oxides of tin, bismuth, copper and silver.  
HAZARDOUS POLYMERIZATION..... Will not occur. CONDITIONS TO AVOID: None  
INCOMPATIBILITY/MAT. TO AVOID..... None  
SPECIAL FIRE FIGHTING PROCEDURE..... None  
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SECTION 10

SPILL AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES... Place material in a closed container.  
WASTE DISPOSAL..... According to local, state and federal regulations.  
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SECTION 11

SAFE USAGE DATA

PROTECTIVE EQUIPMENT TYPES... EYES: Safety glasses with side shields. RESPIRATORY: NIOSH-approved respirator for toxic  
dust/fumes. GLOVES: Rubber OTHER: None  
VENTILATION..... GENERAL MECHANICAL: Necessary if soldering in non-ventilated area. LOCAL EXHAUST: Oper doors  
and windows to remove fumes.  
PRECAUTIONS..... HANDLING AND STORAGE: Practice good personal hygiene and housekeeping.  
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SECTION 12

MANUFACTURER OR SUPPLIER DATA

FIRM NAME & MAILING ADDRESS... OATEY CO., 4700 West 160th Street, P.O. Box 35906, Cleveland, Ohio 44135  
OATEY PHONE NUMBER..... (216) 267-7100  
EMERGENCY PHONE NUMBER..... (303) 623-5716 COLLECT  
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SECTION 13

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