



Material Safety Data Sheet

Section 1. Chemical product and Company Identification

Common name	Solder Ball	Code	Not available
Supplier	MK ELECTRON CO.,LTD	MSDS#	Not available
Synonym		Reporting Date	11. April, 2007
Trade name	Not available		
Material Uses	Industrial applications : Mounting. (BGA, CSP, Circuit, etc.)	<u>In case of</u> <u>Emergency</u>	Korea & International Tel : (82)031-330-1900 Fax: (82)031-338-6817
Manufacturer	MK ELECTRON CO.,LTD 316-2, Kumeu-ri, Pogok-myun, Yongin-si, Kyunggi-do, 449-810, Korea		

Section 2. Composition and Information on Ingredients

Type of Solder Ball	Name	CAS#	% by Weight
Sn-1.0Ag-0.5Cu	Tin	7440-31-5	98.0 -99.0
	Silver	7440-22-4	0.90 - 1.10
	Copper	7440-50-8	0.45 - 0.55

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III. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

: Moderate eye irritant. Will not burn. Toxic by inhalation. Moderate gastrointestinal tract irritant. Moderate respiratory tract irritant. Causes skin irritation.

ROUTES OF ENTRY

: Inhalation ; Ingestion ; Skin Contact ; Eye Contact ; Absorption.

TARGET ORGANS

: Blood ; Digestive tract ; Kidneys ; Nervous System.

MEDICAL CONDITIONS AGGRAVATED

: Digestive tract disease ; Kidney disease.

IMMEDIATE (ACUTE) SYMPTOMS OVER-EXPOSURE BY ROUTE OF EXPOSURE

- Eye Contact : Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
- Skin Contact : Can cause slight skin irritation.
- Inhalation : Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
- Ingestion : Irritating to mouth, throat and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.

LONG TERM (CHRONIC) HEALTH EFFECTS

- Carcinogenicity : None of the substances have been shown to cause cancer in long term animal studies. Not a carcinogen according to the NTP, IARC or OSHA.
- Reproduction : No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
- Mutagenicity : No data available to indicate product or any components present at greater than 0.1% is mutagenic or genotoxic.

HMIS CODE : (Health : 2) (Flammability : 0) (Reactivity : 0) (Protection : B)

NFPA CODE : (Health : 2) (Flammability : 0) (Reactivity : 0)

IV. FIRST AID MEASURES

EYE

: Immediately flush eyes with plenty of water for at least twenty minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediated medical attention.

SKIN

: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops persists.

INHALATION

: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately.

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INGESTION

: Seek medical attention immediately.

NOTES TO DOCTOR

: No additional first aid information available.

V. FIRE FIGHTING MEASURES

FLASHPOINT : N/A

UEL : Not determined

LEL : Not determined

AUTOIGNITION TEMPERATURE : N/E

FLAMMABILITY CLASSIFICATION : Not combustible.

FIRE-FIGHTING EQUIPMENT : Will not burn, no special instructions available. Use methods for surrounding the fire.

HAZARDOUS COMBUSTION PRODUCTS : Metal fumes, toxic fumes.

VI. ACCIDENTAL RELEASE MEASURES

PRECAUTIONS AND EQUIPMENT

: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in section 8 of this MSDS.

METHODS FOR CLEAN-UP

: Wear complete and proper personal protective equipment following the recommendation of section 8. Gather and store in a sealed container pending a waste disposal evaluation. Do not use broom or air cleaning etc.

VII. HANDLING AND STORAGE

HANDLING

: Harmful or irritating material. Avoid contact and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material. Avoid contact with the material, avoid breathing dust or fumes, use only in a well ventilated area. Wash thoroughly after handling ; do not get in eyes, on skin and clothing ; Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation.

STORAGE

: No special requirements. Store in a tightly closed container ; Keep away from food and drinking water.

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VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION

EYE

: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses. Wear goggles and a face shield. Have an eye wash station available.

SKIN

: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking and when leaving work. Where contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots and chemical goggles, plus a safety shield.

INHALATION

: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if ventilation is not available or sufficient to eliminate symptoms. Follow a respiratory protection program that meet 29 CFR 1910.134 and ANSI Z88.2 requirements whenever work place conditions warrant the use of a respirator. Wear a NIOSH approved respirator if any exposure is possible.

ENGINEERING CONTROLS

: Use local exhaust ventilation or other engineering controls to minimize exposures and maintain operator comfort. Engineering controls must be designed to meet the OSHA Chemical Specific Standard in 29 CFR 1910. Use process enclosures, local exhaust ventilation or other engineering controls to control airborne levels below recommended exposure limits.

EXPOSURE GUIDELINES :

Component	ACGIH Exposure Limits		
	TLV-TWA	STEL	CEILING
Tin	2mg/m3 TWA		
Silver	0.1mg/m3 TWA		
Copper	0.2mg/m3 TWA		

IX. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR : Gray. None.

pH : N/A.

SOLUBILITY IN WATER : Negligible ; 0 - 1%.

X. STABILITY AND REACTIVITY

STABILITY

: Decomposition Products : Metal fumes ; Toxic fumes.

CONDITIONS TO AVOID

: None known. Contamination. Contact with air. Contact with water.

MATERIALS TO AVOID

: Strong oxidizing agents ; Strong acids ; Peroxides ; Metals ; Strong reducing agents ; Chlorine ; Strong alkalis.

XI. TOXICOLOGICAL INFORMATION

COMPONENT TOXICOLOGY DATA (NIOSH)

: Chemical Name LD50 / LC50

XII. ECOLOGICAL INFORMATION

OVERVIEW

: Slight ecological hazard. In high concentrations, this material may be dangerous to plants and / or wildlife.

XIII. DISPOSAL CONSIDERATIONS

WASTE DESCRIPTION

: Spent or discarded material may be hazardous waste.

DISPOSAL METHODS

: Dispose of in accordance with Federal, State, Local or Provincial laws and regulations.

XIII. TRANSPORTATION INFORMATION

SHIPPING BASIC DESCRIPTION

: - DOT & IATA : Not restricted.

XV. REGULATORY INFORMATION

TSCA STATUS

: All components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

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REGULATED CHEMICALS

Chemical Name	Regulation
Tin	SARA 311/312
Silver	SARA 313
Copper	SARA 313

XVI. OTHER INFORMATION

Country of Origin : the Republic of Korea

MK ELECTRON CO., LTD.

316-2, Kumeu-ri, Pogok-myun, Yongin-si, Kyunggi-do, 449-810, Korea

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