

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/02/2004

Reviewed on 12/02/2004

1 Identification of substance

Product details

Trade name: LEAD-FREE SOLDER ALLOYS

Application of the substance / the preparation: Solder

Manufacturer/Supplier:

Kester
515 E. Touhy Ave.
Des Plaines, IL 60018

Tel.(847) 297-1600
Fax.(847) 390-9338

Information department:

MSDS Coordinator

Tel. (847) 699-5755

Emergency information:

CHEMTREC 24-Hour Emergency Telephone Number:

(800)424-9300

CHEMTREC 24-Hour Emergency Telephone Number (Outside of the U.S. and Canada):

(703)527-3887

2 Composition/Data on components

Chemical characterization

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

7440-31-5	tin	0-100%
7440-36-0	antimony	0-100%
7440-50-8	copper	0-100%
7440-22-4	silver	0-100%
7440-69-9	bismuth	0-100%
7440-66-6	Zinc	0-100%

Additional information:

Composition and weight percent of solder alloys varies widely and can be determined by product label.

3 Hazards identification

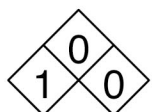
WHMIS Hazard Symbols



Information pertaining to particular dangers for man and environment:

The product does not have to be labelled due to the calculation procedure of international guidelines.

NFPA ratings (scale 0 - 4)



Health = 1
Fire = 0
Reactivity = 0

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HMIS-ratings (scale 0 - 4)

HEALTH	1	Health = 1
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

4 First aid measures**After inhalation:** Supply fresh air; consult doctor in case of complaints.**After skin contact:** Immediately wash with water and soap and rinse thoroughly.**After eye contact:** Rinse opened eye for several minutes under running water.**After swallowing:** Induce vomiting, if person is conscious. Seek medical help.**5 Fire fighting measures****Suitable extinguishing agents:**CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**Special hazards caused by the material, its products of combustion or resulting gases:**

Melted solder above 1000°F will liberate toxic lead and/or antimony fumes.

Protective equipment: Wear self-contained respiratory protective device.**6 Accidental release measures****Person-related safety precautions:** Ensure adequate ventilation**Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.**Measures for cleaning/collecting:**

Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

7 Handling and storage**Handling:****Information for safe handling:** Ensure good ventilation/exhaustion at the workplace.**Information about protection against explosions and fires:** No special measures required.**Storage:****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:**

Store in dry conditions.

Exposure to sulfur or to high humidity will tarnish solder surface.

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8 Exposure controls and personal protection**Additional information about design of technical systems:** *No further data; see item 7.***Components with limit values that require monitoring at the workplace:****7440-31-5 tin**PEL 2 mg/m³

Metal

REL 2 mg/m³

Tin, Metal

TLV 2 mg/m³**7440-36-0 antimony**PEL 0.5 mg/m³REL 0.5 mg/m³

as Sb

TLV 0.5 mg/m³**7440-50-8 copper**PEL 0.1*, 1** mg/m³

*fume **dusts & mists

REL 0.1*, 1** mg/m³

*Copper fume, as Cu **Copper dusts & mists, as Cu

TLV 0.2*, 1** mg/m³

*fume; ** dusts&mists, as Cu

7440-22-4 silverPEL 0.01 mg/m³REL 0.01 mg/m³TLV 0.1 mg/m³**Additional information:**

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

TLV = Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute for Occupational Safety and Health

Personal protective equipment:**General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Breathing equipment:

When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.

Protection of hands:

Protective gloves

Material of gloves:

Cloth gloves

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*Nitrile rubber, NBR**Natural rubber, NR**Penetration time of glove material:**The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye protection:***Tightly sealed goggles**Safety glasses***9 Physical and chemical properties****General Information**

Form: *Solid*
Color: *Silver grey*
Odor: *Mild*

Change in condition**Melting point/Melting range:** *> 100°C (> 212°F)***Boiling point/Boiling range:** *Undetermined.***Flash point:** *Not applicable.***Danger of explosion:** *Product does not present an explosion hazard.***Density at 20°C (68°F):** *> 7 g/cm³***Solubility in / Miscibility with****Water:** *Insoluble.***10 Stability and reactivity****Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.***Materials to be avoided:** *Strong acids, strong oxidizers.***Dangerous reactions** *No dangerous reactions known.***Dangerous products of decomposition:** *No dangerous decomposition products known.***11 Toxicological information****Acute toxicity:****Primary irritant effect:***on the skin: No irritant effect.**on the eye: Smoke during soldering can cause eye irritation.**through inhalation: May cause respiratory irritation.*

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*through ingestion: May be harmful if swallowed.***Sensitization:** *No sensitizing effects known.***12 Ecological information****General notes:** *Do not allow product to reach ground water, water course or sewage system.***13 Disposal considerations****Product:****Recommendation:***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.**Disposal must be made according to official regulations.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***14 Transport information****DOT regulations:***Hazard class: -
Not regulated.***Land transport ADR/RID (cross-border):***ADR/RID class: -
Not regulated.***Maritime transport IMDG:***IMDG Class: -
Not regulated.***Marine pollutant:** *No***Air transport ICAO-TI and IATA-DGR:***ICAO/IATA Class: -
Not regulated.***15 Regulations***USA The following information relates to product regulation specific to the USA.***SARA (Superfund Amendments and Reauthorization Act)***Section 355 (extremely hazardous substances):**None of the ingredient is listed.**Section 313 (Specific toxic chemical listings):**7440-36-0 | antimony*

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7440-50-8	copper
7440-22-4	silver
7440-66-6	Zinc

TSCA (Toxic Substances Control Act):

All ingredients are listed.

California Proposition 65

Chemicals known to cause cancer:

WARNING: This product may contain a chemical in trace amounts known to the State of California to cause cancer.

7439-92-1	lead
7440-43-9	cadmium
7440-02-0	nickel

Chemicals known to cause reproductive toxicity:

WARNING: This product may contain a chemical in trace amounts known to the State of California to cause birth defects or other reproductive harm.

7439-92-1	lead
7440-43-9	cadmium

Carcinogenicity categories

EPA (Environmental Protection Agency)		
7440-50-8	copper	D
7440-22-4	silver	D
IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
NTP (National Toxicology Program)		
None of the ingredients is listed.		
TLV (Threshold Limit Value established by ACGIH)		
None of the ingredients is listed.		
NIOSH-Ca (National Institute for Occupational Safety and Health)		
None of the ingredients is listed.		
OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

CANADA: The following information relates to product regulation specific to Canada.

Workplace Hazardous Materials Identification (WHMIS):

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS Classification: D2B

Components on Ingredient List for WHMIS:tin
antimony
copper

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silver

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16 Other information

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

Department issuing MSDS: Product Safety**Contact:** Stacey Pole, MSDS Coordinator

Tel. (847) 699-5755

*** Data compared to the previous version altered.**

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