

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**1 Identification**

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

**Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

**Application of the substance / the preparation:** Flux cored solder

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Kester Inc.  
800 West Thorndale Avenue  
Itasca, IL 60143 USA  
Tel (630) 616-4000  
Tel International 00 1 630 616-4000

ITW Specialty Materials (Suzhou) Co., Ltd.  
Heng Qiao Road  
Wujiang Economic Development Zone  
Suzhou, Jiangsu 215200 China  
Tel +86 512 82060808

Kester GmbH  
Ganghofer Strasse 45  
D-82216 Gernlinden Germany  
Tel +49 (0) 8142 4785 0

**Information department:** Product Compliance: EHS\_Kester@kester.com

**Emergency telephone number:**

CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300

CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

**2 Hazard(s) identification**

**Classification of the substance or mixture**



Health hazard

Carc. 2 H351 Suspected of causing cancer.

Repr. 1 H360 May damage fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



Acute Tox. 4 H302 Harmful if swallowed.

Skin Sens. 1 H317 May cause an allergic skin reaction.

**Label elements**

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms**



GHS07

GHS08

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 1)

**Signal word** Danger

**Hazard-determining components of labeling:**

LEAD (Pb)  
Modified Rosin

**Hazard statements**

H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H351 Suspected of causing cancer.  
H360 May damage fertility or the unborn child.  
H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**

**NFPA ratings (scale 0 - 4)**



**HMIS-ratings (scale 0 - 4)**



**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.  
**vPvB:** Not applicable.

**3 Composition/information on ingredients**

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

CAS No.	Description	% Range
CAS: 7440-31-5	TIN (Sn)	55-70%
CAS: 7439-92-1	LEAD (Pb)	⚠ Carc. 2, H351; Repr. 1B, H360; STOT RE 2, H373 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332
Trade Secret	Modified Rosin	⚠ Skin Sens. 1, H317
CAS: 7440-22-4	SILVER (Ag)	0-3.0%

**Additional information:**

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

## Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 2)

### 4 First-aid measures

**Description of first aid measures**

**General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Follow general first aid procedures.

**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:** Seek immediate medical advice.

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** No further relevant information available.

**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5 Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

Aliphatic aldehydes

**Advice for firefighters**

**Protective equipment:** No special measures required.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Ensure adequate ventilation

**Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

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.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**Protective Action Criteria for Chemicals**

**PAC-1:**

CAS: 7440-31-5	TIN (Sn)	6 mg/m <sup>3</sup>
CAS: 7439-92-1	LEAD (Pb)	0.15 mg/m <sup>3</sup>
CAS: 7440-22-4	SILVER (Ag)	0.3 mg/m <sup>3</sup>

**PAC-2:**

CAS: 7440-31-5	TIN (Sn)	67 mg/m <sup>3</sup>
CAS: 7439-92-1	LEAD (Pb)	120 mg/m <sup>3</sup>
CAS: 7440-22-4	SILVER (Ag)	170 mg/m <sup>3</sup>

(Contd. on page 4)

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 3)

**PAC-3:**

CAS: 7440-31-5	TIN (Sn)	400 mg/m3
CAS: 7439-92-1	LEAD (Pb)	700 mg/m3
CAS: 7440-22-4	SILVER (Ag)	990 mg/m3

**7 Handling and storage**

**Handling:**

**Precautions for safe handling** Prevent formation of aerosols.

**Information about protection against explosions and fires:** No special measures required.

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** Store in a cool location.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in dry conditions.

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

**Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

**Additional information about design of technical systems:** No further data; see item 7.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

**CAS: 7440-31-5 TIN (Sn)**

PEL Long-term value: 2 mg/m<sup>3</sup> metal

REL Long-term value: 2 mg/m<sup>3</sup>

TLV Long-term value: 2 mg/m<sup>3</sup> metal

**CAS: 7439-92-1 LEAD (Pb)**

PEL Long-term value: 0.05\* mg/m<sup>3</sup>  
\*see 29 CFR 1910.1025

REL Long-term value: 0.05\* mg/m<sup>3</sup>  
\*8-hr TWA ;See PocketGuide App.C

TLV Long-term value: 0.05\* mg/m<sup>3</sup>  
\*and inorganic compounds, as Pb; BEI

**CAS: 7440-22-4 SILVER (Ag)**

PEL Long-term value: 0.01 mg/m<sup>3</sup>

REL Long-term value: 0.01 mg/m<sup>3</sup>

TLV Long-term value: 0.1 mg/m<sup>3</sup> metal: dust and fume

**Additional information:**

PEL = Permissible Exposure Limit (OSHA)

TLV= Threshold Limit Value (ACGIH)

(Contd. on page 5)

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 4)

OSHA= Occupational Safety and Health Administration  
ACGIH= American Conference of Governmental Industrial Hygienists

**Exposure controls**

**Personal protective equipment:**

**General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

**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.

Not necessary if room is well-ventilated.

Use suitable respiratory protective device in case of insufficient ventilation.

**Protection of hands:**



Protective gloves

**Material of gloves:**

Cloth gloves

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:**



Safety glasses

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

<b>Form:</b>	Solid
<b>Color:</b>	Silver grey
<b>Odor:</b>	Mild

**pH-value:** Not determined.

**Change in condition**

<b>Melting point/Melting range:</b>	> 100 °C (> 212 °F)
	Undetermined.
<b>Boiling point/Boiling range:</b>	1,740 °C (34,1364 °F)

**Flash point:** > 60 °C (> 140 °F)

**Auto igniting:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.

**Density at 20 °C (68 °F):** 7 g/cm<sup>3</sup> (58.415 lbs/gal)

(Contd. on page 6)

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 5)

**Solubility in / Miscibility with Water:** Not miscible or difficult to mix.

**Solvent content:**

**Organic solvents:** 0.2 %

**Solids content:** 99.9 %

**10 Stability and reactivity**

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** Strong acids, strong oxidizers.

**Hazardous decomposition products:**  
Carbon monoxide and carbon dioxide  
When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

**CAS: 7439-92-1 LEAD (Pb)**

Oral	LD50	500 mg/kg (ATE)
Inhalative	LC50/4 h	11 mg/l (ATE)

**Modified Rosin**

Oral	LD50	>4,000 mg/kg (Rat)
Dermal	LD50	>2,500 mg/kg (rabbit)

**Primary irritant effect:**

**on the skin:** Possible local irritation by contact with flux or fumes.

**on the eye:**

Irritating effect.

Smoke during soldering can cause eye irritation.

**through inhalation:**

Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

**through ingestion:** May be harmful if swallowed.

**Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

CAS: 7439-92-1 | LEAD (Pb)

2B

(Contd. on page 7)

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 6)

**NTP (National Toxicology Program)**

CAS: 7439-92-1 | LEAD (Pb)

R

**OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

**12 Ecological information**

**Toxicity**

**Aquatic toxicity:** No further relevant information available.

**Additional ecological information:**

**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**13 Disposal considerations**

**Waste treatment methods**

**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

**UN-Number**

DOT, ADR, ADN, IMDG, IATA

Not applicable

**UN proper shipping name**

DOT, ADR, ADN, IMDG, IATA

Not applicable

**Transport hazard class(es)**

DOT, ADR, ADN, IMDG, IATA

**Class**

Not applicable

**Packing group**

DOT, IMDG, IATA

Not applicable

**Marine pollutant:**

No

**Special precautions for user**

Not applicable.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

**UN "Model Regulation":**

Not applicable

**15 Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

All ingredients are listed on the following Government Inventories:

China: Inventory of Existing Chemical Substances in China (IECSC)

Korea: Korea Existing Chemicals List (ECL)

Europe: European Inventory of Existing Commercial Chemical Substances (EINECS)

(Contd. on page 8)

**Safety Data Sheet**  
acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 7)

Japan: Inventory of Existing and New Chemical Substances (ENCS)  
 Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)  
 USA: TSCA (Toxic Substances Control Act) TSCA Inventory of Chemical Substances

**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):**

CAS: 7439-92-1 | LEAD (Pb)

CAS: 7440-22-4 | SILVER (Ag)

**California Proposition 65**

**Chemicals known to cause cancer:**

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

LEAD (Pb)

**Chemicals known to cause reproductive toxicity:**

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects and/or other reproductive harm.

LEAD (Pb)

**Carcinogenic categories**

**EPA (Environmental Protection Agency)**

CAS: 7439-92-1 | LEAD (Pb) | B2

CAS: 7440-22-4 | SILVER (Ag) | D

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

**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 Safety Data Sheet (SDS) contains all of the information required by the CPR.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms**



GHS07 GHS08

**Signal word** Danger

**Hazard-determining components of labeling:**

LEAD (Pb)

Modified Rosin

**Hazard statements**

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

(Contd. on page 9)



## Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 07/19/2017

Version number 5

Reviewed on 07/19/2017

**Trade name: 245 Lead (Pb) Alloy Solder Wire**

(Contd. of page 8)

**Precautionary statements**

- P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**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 Safety Data Sheet (SDS):** Product Compliance / EHS Department**Contact:** EHS\_Kester@kester.com**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organisation  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Acute Tox. 4: Acute toxicity – Category 4  
Skin Sens. 1: Skin sensitisation – Category 1  
Carc. 2: Carcinogenicity – Category 2  
Carc. 2: Carcinogenicity – Category 2  
Repr. 1: Reproductive toxicity – Category 1  
Repr. 1B: Reproductive toxicity – Category 1B  
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

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