SAFETY DATA SHEET (SDS)
according to 1907/2006/EC, Article 31

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Trade name: 331 Lead (Pb) Alloy Solder Wire
Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Kester Inc.
800 West Thordale Avenue
Itasca, IL 60143
Tel 00+1 + 630 616 4000

ITW Specialty Materials (Suzhou) Co., Ltd.
Hengqiao Road, Wujiang Economic Development Zone
Suzhou, Jiangsu Province, China 215200
Tel +86 512 82060807

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

Further information obtainable from:
Product Compliance: EHS_Kester@kester.com

1.4 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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS08 health hazard

Carc. 2  H351 Suspected of causing cancer.
Repr. 1B  H360 May damage fertility or the unborn child.
STOT RE 2  H373 May cause damage to organs through prolonged or repeated exposure.

GHS07

Acute Tox. 4  H302 Harmful if swallowed.
Acute Tox. 4  H332 Harmful if inhaled.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS07  GHS08

(Continued on page 2)
Signal word Danger

Hazard-determining components of labelling:
LEAD (Pb)

Hazard statements
H302+H332 Harmful if swallowed or if inhaled.
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
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information:
Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.
Restricted to professional users.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

Description: Mixture of substances listed below with nonhazardous additions.

Chemical components:

<table>
<thead>
<tr>
<th>CAS: 7439-92-1</th>
<th>LEAD (Pb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 231-100-4</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carc. 2, H351; Repr. 1B, H360; STOT RE 2, H373</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Tox. 4, H302; Acute Tox. 4, H332</td>
<td>55-70%</td>
<td></td>
</tr>
</tbody>
</table>

SVHC
This product does not contain any Substance of Very High Concern (SVHC) on the European Chemicals Agency (ECHA) candidate list.

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

SECTION 4: First aid measures

4.1 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:
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Supply fresh air; consult doctor in case of complaints.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

(Continued on page 3)
SECTION 5: Firefighting measures

5.1 Extinguishing media
  Suitable extinguishing agents: Water

5.2 Special hazards arising from the substance or mixture
  Nitrogen oxides (NOx)
  In case of fire, the following can be released:

5.3 Advice for firefighters
  Protective equipment: No special measures required.

SECTION 6: Accidental release measures

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

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

6.3 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.

6.4 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
  Thorough dusting.
  Information about fire - and explosion protection: No special measures required.

7.2 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 container tightly sealed.
  Store in dry conditions.
  Exposure to sulfur or to high humidity will tarnish the solder surface.

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

SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.
8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Respiratory protection:
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 with Side Shields Required

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Solid
Colour: Silver grey
Odour: Mild
pH-value: Not applicable.

Change in condition
Melting point/freezing point: 183 - 238 °C
Undetermined.
Initial boiling point and boiling range: 1740 °C

Flash point: Not Applicable
Flammability (solid, gas): Not determined.
Trade name: 331 Lead (Pb) Alloy Solder Wire

Auto-ignition temperature: Product is not selfigniting.
Explosive properties: Product does not present an explosion hazard.
Vapour pressure: Not applicable.
Density at 20 °C: 7 g/cm³
Vapour density: Not applicable.
Solubility in / Miscibility with water: Insoluble.
Solvent content:
  Organic solvents: 0.0 %
  0.0 g/l / 0.00 lb/gl
Solids content: 99.9 %

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions No dangerous reactions known.
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: Strong acids, strong oxidizers.
10.6 Hazardous decomposition products:
When heated to soldering temperatures, the solvents are evaporated and organic materials may be thermally degraded to liberate aliphatic aldehydes and acids.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Harmful if swallowed or inhaled.

LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>CAS: 7439-92-1 LEAD (Pb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Inhalative</td>
</tr>
</tbody>
</table>

Primary irritant effect:
Skin corrosion/irritation Based on available data, the classification criteria are not met.
Serious eye damage/irritation Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Suspected of causing cancer.
Reproductive toxicity
May damage fertility or the unborn child.
STOT-single exposure Based on available data, the classification criteria are not met.
STOT-repeated exposure
May cause damage to organs through prolonged or repeated exposure.
SECTION 12: Ecological information

12.1 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.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Disposal must be made according to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue

10 08 11 dross and skimmings other than those mentioned in 10 08 10

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number
IMDG
IATA
14.2 UN proper shipping name
ADR, ADN
IMDG, IATA
14.3 Transport hazard class(es)
ADR, ADN, IMDG, IATA

Class
14.4 Packing group
ADR, IMDG, IATA
14.5 Environmental hazards:
Marine pollutant:
14.6 Special precautions for user
14.7 Transport in bulk according to Annex II of Marpol
and the IBC Code
UN "Model Regulation":
Void
Not regulated
Void
Void
Void
Not regulated

(Continued from page 5)

(Continued on page 7)
SECTION 15: Regulatory information

15.1 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)
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

Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS07  GHS08

Signal word Danger

Hazard-determining components of labelling:
LEAD (Pb)

Hazard statements
H302+H332 Harmful if swallowed or if inhaled.
H315 Suspected of causing cancer.
H360 May damage fertility of the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 63
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 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 Safety Data Sheet (SDS) 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 Safety Data Sheet (SDS) as a source for hazard information.

Department issuing SDS: Product Compliance / EHS Department

(Continued on page 8)
Contact:
EHS_Kester@kester.com
Branch Manager (Malaysia Only) Telephone No : 04-6414633

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
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
LCS0: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Carc. 2: Carcinogenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
Repr. 1B: Reproductive toxicity – Category 1B
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

* Data compared to the previous version altered.