### 1 PRODUCT AND COMPANY IDENTIFICATION

**Trade name:** 275 K100LD Lead-Free Solder Wire  
**Relevant identified uses of the substance or mixture and uses advised against:** Solder

#### 1.3 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 Gerlininden Germany  
Tel +49 (0) 8142 4785 0

**Information department:** 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

### 2 HAZARDS IDENTIFICATION

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

![GHS07](image)

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

#### 2.2 Label elements

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

**Hazard pictograms**

![GHS07](image)

**Signal word** Warning

**Hazard-determining components of labeling:**  
Acid Modified Hydrogenated Rosin  
Organic acid

**Hazard statements**  
H317 May cause an allergic skin reaction.

**Precautionary statements**  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

(Contd. on page 2)
Trade name: 275 K100LD Lead-Free Solder Wire

(Contd. of page 1)

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P402 Store in a dry place.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:
WHMIS Symbols

Classification system:
NFPA ratings (scale 0 - 4)

Health = 0
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH
Health = *0

FIRE
Fire = 0

REACTIVITY
Reactivity = 0

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

3 COMPOSITION OF MIXTURE

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

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7440-31-5</td>
<td>TIN (Sn)</td>
<td>85-100%</td>
</tr>
<tr>
<td>EINECS: 231-141-8</td>
<td>Acid Modified Hydrogenated Rosin</td>
<td>1.0-3.0%</td>
</tr>
<tr>
<td></td>
<td>(Skin Sens. 1; H317)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organic acid</td>
<td>0.1-&lt;1%</td>
</tr>
<tr>
<td></td>
<td>(Acute Tox. 4; H302; Eye Irrit. 2A; H319; Skin Sens. 1; H317)</td>
<td></td>
</tr>
</tbody>
</table>

4 FIRST AID MEASURES

4.1 Description of first aid measures
General information: 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.

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

(Contd. on page 3)
5 FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing agents:
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture In case of fire, the following can be released:

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

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.

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.

Protective Action Criteria for Chemicals

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7440-31-5 TIN (Sn)</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-50-8 COPPER (Cu)</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-69-9 BISMUTH (Bi)</td>
<td>15 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-02-0 nickel</td>
<td>4.5 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7440-31-5 TIN (Sn)</td>
<td>67 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-50-8 COPPER (Cu)</td>
<td>33 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-69-9 BISMUTH (Bi)</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-02-0 nickel</td>
<td>50 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7440-31-5 TIN (Sn)</td>
<td>400 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-50-8 COPPER (Cu)</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-69-9 BISMUTH (Bi)</td>
<td>990 mg/m³</td>
</tr>
<tr>
<td>CAS: 7440-02-0 nickel</td>
<td>99 mg/m³</td>
</tr>
</tbody>
</table>

7 HANDLING AND STORAGE

7.1 Precautions for safe handling Prevent formation of dust.
Information about protection against explosions and fires: 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: None.
7.3 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.

8.1 Control parameters
Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>CAS: 7440-31-5 TIN (Sn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL Long-term value: 2 mg/m³ metal</td>
</tr>
<tr>
<td>REL Long-term value: 2 mg/m³</td>
</tr>
<tr>
<td>TLV Long-term value: 2 mg/m³ metal</td>
</tr>
</tbody>
</table>

Additional information:
PEL = Permissible Exposure Limit (OSHA)
TLV = Threshold Limit Value (ACGIH)
OSHA = Occupational Safety and Health Administration
ACGIH = American Conference of Governmental Industrial Hygienists

8.2 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:
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:
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

9.1 Information on basic physical and chemical properties
General Information
Appearance:
  Form: Solid material
  Color: Silver grey
  Odor: Mild
pH-value: Not applicable.
Change in condition
  Melting point/Melting range: 227 °C (441 °F)
  Boiling point/Boiling range: >999 °C (>1830 °F)
Flash point: NA °C
Flammability (solid, gaseous): Not determined.
Auto igniting: Product is not self-igniting.
Danger of explosion: Product does not present an explosion hazard.
Vapor pressure: Not applicable.
Density at 20 °C (68 °F): 3.5 g/cm³ (29.208 lbs/gal)
Bulk density at 20 °C (68 °F): 4000 kg/m³
Vapor density: Not applicable.
Solubility in / Miscibility with Water: Insoluble.
Solvent content:
  Organic content: 0.0 %
  Solids content: 100.0 %

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: No further relevant information available.
10.6 Hazardous decomposition products: No dangerous decomposition products known.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity: Based on available data, the classification criteria are not met.
LD/LC50 values that are relevant for classification:
  Rosin
  Oral LD50 > 4000 mg/kg (Rat)
## 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity
Aquatic toxicity: No further relevant information available.

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

## 13 DISPOSAL CONSIDERATIONS

### 13.1 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

### 14.1 UN-Number
**DOT, ADR, ADN, IMDG, IATA**
Not applicable

### 14.2 UN proper shipping name
**DOT, ADR, ADN, IMDG, IATA**
Not applicable

### 14.3 Transport hazard class(es)
**DOT, ADR, ADN, IMDG, IATA**
Class
Not applicable

### 14.4 Packing group
**DOT, IMDG, IATA**
Not applicable

### 14.6 Special precautions for user
**Not applicable.**

### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
**Not applicable.**

(Contd. on page 7)
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

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: 7440-50-8 | COPPER (Cu)

Chemicals known to cause cancer:
nickel

Chemicals known to cause reproductive toxicity:
None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)
CAS: 7440-50-8 | COPPER (Cu)  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.

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

Hazard pictograms

![GHS07]

Signal word Warning

Hazard-determining components of labeling:
Acid Modified Hydrogenated Rosin
Organic acid

Hazard statements
H317 May cause an allergic skin reaction.
### Trade name: 275 K100LD Lead-Free Solder Wire

#### Precautionary statements
- **P280** Wear protective gloves/protective clothing/eye protection/face protection.
- **P304+P340** If INHALED: Remove person to fresh air and keep comfortable for breathing.
- **P333+P313** If skin irritation or rash occurs: Get medical advice/attention.
- **P302+P352** IF ON SKIN: Wash with plenty of soap and water.
- **P402** Store in a dry place.
- **P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

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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 Safety Data Sheet (SDS):** Product Compliance / EHS Department  
**Contact:** EHS_Kester@kester.com  
**Date of preparation / last revision:** 01/24/2017 / -

**Abbreviations and acronyms:**
- **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
- **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)
- **NFPA:** National Fire Protection Association (USA)
- **HMIS:** Hazardous Materials Identification System (USA)
- **WHMIS:** Workplace Hazardous Materials Information System (Canada)
- **LC50:** Lethal concentration, 50 percent
- **LD50:** Lethal dose, 50 percent
- **PBT:** Persistent, Bioaccumulative and Toxic
- **vPvB:** very Persistent and very Bioaccumulative
- **TLV:** Threshold Limit Value
- **PEL:** Permissible Exposure Limit
- **REL:** Recommended Exposure Limit
- **Acute Tox. 4:** Acute toxicity – Category 4
- **Eye Irrit. 2A:** Serious eye damage/eye irritation – Category 2A
- **Skin Sens. 1:** Skin sensitisation – Category 1

* Data compared to the previous version altered.