

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

**Trade name:** **331 Flux-Cored Lead Free Solder**

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

Professional use of solder

### 1.3 Details of the supplier of the safety data sheet

This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).

#### Manufacturer/Supplier:

Kester Inc.  
 800 West Thorndale 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

**Further information obtainable from:** Product Compliance: EHS\_Kester@kester.com

#### 1.4 Emergency telephone number:

TRANSPORT EMERGENCY Phone: CHEMTREC (800) 424-9300 (Outside US & Canada): 00+1 +703 527 3887

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.  
 Skin Sens. 1 H317 May cause an allergic skin reaction.  
 STOT SE 3 H335 May cause respiratory irritation.

### 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

#### Signal word Warning

#### Hazard statements

H319 Causes serious eye irritation.  
 H317 May cause an allergic skin reaction.  
 H335 May cause respiratory irritation.

#### Precautionary statements

P280 Wear protective gloves / eye protection.  
 P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
 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.

#### Additional information:

For use in industrial installations only.  
 Restricted to professional users.

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

**SECTION 3: Composition/information on ingredients**

**3.2 Chemical characterisation: Mixtures****Description:** Mixture of substances listed below with nonhazardous additions.**Chemical components:**

|                                     |               |                      |          |
|-------------------------------------|---------------|----------------------|----------|
| CAS: 7440-31-5<br>EINECS: 231-141-8 | TIN (Sn)      |                      | >65%     |
| CAS: 65997-06-0                     | Rosin         | ⚠ Skin Sens. 1, H317 | 3.0-5.0% |
| CAS: 7440-22-4<br>EINECS: 231-131-3 | SILVER (Ag)   |                      | 3.0-5.0% |
| CAS: 7440-50-8<br>EINECS: 231-159-6 | COPPER (Cu)   |                      | ^^       |
| CAS: 7440-36-0<br>EINECS: 231-146-5 | ANTIMONY (Sb) |                      | ^^       |
| CAS: 7440-69-9<br>EINECS: 231-177-4 | BISMUTH (Bi)  |                      | ^^       |

**Additional information:**

^^ See Product Alloy Table

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

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:** 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.**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media****Suitable extinguishing agents:** CO<sub>2</sub>. Do not use water.**For safety reasons unsuitable extinguishing agents:** Water**5.2 Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Carbon monoxide (CO)

Nitrogen oxides (NO<sub>x</sub>)Carbon dioxide (CO<sub>2</sub>)**5.3 Advice for firefighters****Protective equipment:** Wear self-contained respiratory protective device.

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## 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.

**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**

Prevent formation of dust.

Ensure good ventilation/exhaustion at the workplace.

**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:** None.

**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:**

**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

**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.

Immediately remove all soiled and contaminated clothing

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.

**Protection of hands:**



Protective gloves

**Material of gloves**

Nitrile rubber, NBR

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Natural rubber, NR

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## 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 material  
**Colour:** Silver grey  
**Odour:** Odourless

**pH-value:** Not applicable.

#### Change in condition

**Melting point/Melting range:** 221-245 °C

**Flash point:** Undetermined.

**Flammability (solid, gaseous):** Not determined.

**Self-igniting:** Product is not selfigniting.

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

**Vapour pressure:** Not applicable.

**Density at 20 °C:** 7.31-7.42 g/cm<sup>3</sup>

**Vapour density:** Not applicable.

**Solubility in / Miscibility with water:** Insoluble.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

### 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:** No dangerous decomposition products known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

#### Primary irritant effect:

**Skin corrosion/irritation** Irritant to skin and mucous membranes.

**Serious eye damage/irritation** Smoke during soldering can cause eye irritation.

#### Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Harmful

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Irritant

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## 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.

### 12.5 Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Recommendation

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

Disposal must be made according to official regulations.

#### Uncleaned packaging:

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

## SECTION 14: Transport information

|                                 |               |
|---------------------------------|---------------|
| 14.1 UN-Number                  | Not regulated |
| 14.2 UN proper shipping name    | Not regulated |
| IMDG, IATA                      | Not regulated |
| 14.3 Transport hazard class(es) | Not regulated |

#### ADR, IMDG, IATA

**Class** Not regulated.

**14.4 Packing group** Not regulated

**14.5 Environmental hazards:** Not applicable.

**Marine pollutant:** No

**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.

## 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.

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**Hazard pictograms**



GHS07

**Signal word** Warning

**Hazard statements**

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

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**Precautionary statements**

P280 Wear protective gloves / eye protection.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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.

**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 MSDS:** Product Compliance / EHS Department

**Contact:** EHS\_Kester@kester.com

**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

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

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

### 331 Flux-Cored Lead-Free Products included in this SDS

| Alloy  | Flux | Diameter | Core | Description                          | Part #     |
|--------|------|----------|------|--------------------------------------|------------|
| K100LD | 331  | 0.015    | 66   | K100LD #66/331 .015 1 LB SPL         | 2495746422 |
| K100LD | 331  | 0.02     | 66   | K100LD #66/331 .020 1 LB SPL         | 2495746401 |
| K100LD | 331  | 0.025    | 66   | K100LD #66/331 .025 1 LB SPL         | 2495746417 |
| K100LD | 331  | 0.031    | 66   | K100LD #66/331 .031 1 LB SPL         | 2495746403 |
| K100LD | 331  | 0.05     | 66   | K100LD #66/331 .050 1 LB SPL         | 2495746409 |
| K100LD | 331  | 0.062    | 66   | K100LD #66/331 .062 1 LB SPL         | 2495746411 |
| SAC305 | 331  | 0.01     | 66   | SN96.5AG03CU.5 #66/331 .010 1 LB SPL | 2470686442 |
| SAC305 | 331  | 0.015    | 66   | SN96.5AG03CU.5 #66/331 .015 1 LB SPL | 2470686422 |
| SAC305 | 331  | 0.02     | 66   | SN96.5AG03CU.5 #66/331 .020 1 LB SPL | 2470686401 |
| SAC305 | 331  | 0.025    | 66   | SN96.5AG03CU.5 #66/331 .025 1 LB SPL | 2470686417 |
| SAC305 | 331  | 0.031    | 66   | SN96.5AG03CU.5 #66/331 .031 1 LB SPL | 2470686403 |
| SAC305 | 331  | 0.04     | 66   | SN96.5AG03CU.5 #66/331 .040 1 LB SPL | 2470686407 |
| SAC305 | 331  | 0.05     | 66   | SN96.5AG03CU.5 #66/331 .050 1 LB SPL | 2470686409 |
| SAC305 | 331  | 0.062    | 66   | SN96.5AG03CU.5 #66/331 .062 4 LB SPL | 2570686411 |