

## 1 PRODUCT AND COMPANY IDENTIFICATION

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

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

Application of the substance / the preparation: Flux cored solder

**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  
800 West Throntdale Ave.  
Itasca, IL 60143  
Tel (630) 616-4000  
Fax (630) 616-4044

Kester Components Pte Ltd  
500 Chai Chee Lane  
Singapore 469024  
Tel: 65-64491133

**Information department:** SDS Coordinator (630) 616-6844

**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

**Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

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

**Label elements**

**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

**Hazard pictograms**



GHS08

**Signal word** Danger

**Hazard statements**

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

**Precautionary statements**

P285 In case of inadequate ventilation wear respiratory protection.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

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P302+P352  
P501*IF ON SKIN: Wash with plenty of soap and water.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Hazard description:****WHMIS Hazard Symbols**

D2B - Toxic material causing other toxic effects

**Classification system:****NFPA ratings (scale 0 - 4)**

Health = 1

Fire = 1

Reactivity = 0

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

Health = 1

Fire = 1

Reactivity = 0

**Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**3 COMPOSITION OF MIXTURE****Chemical characterization: Mixtures****Description:** Mixture: consisting of the following components.

| CAS No.                              | Description         | % Range  |
|--------------------------------------|---------------------|----------|
| CAS: 7440-31-5<br>EINECS: 231-141-8  | tin                 | 90-95%   |
| CAS: 7440-22-4<br>EINECS: 231-131-3  | silver              | 2.5-5.0% |
| CAS: 25322-68-3<br>EINECS: 203-473-3 | Polyethylene glycol | 2.5-5.0% |

**Additional information:**

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

**4 FIRST AID MEASURES****Description of 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:** 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.

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**5 FIREFIGHTING 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:**Advice for firefighters****Protective equipment:**

Fire fighters should be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

**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:**

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.

**7 HANDLING AND STORAGE****Handling:****Precautions for safe handling** Thorough dedusting.**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:

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:****7440-31-5 tin**PEL 2 mg/m<sup>3</sup>  
metalREL 2 mg/m<sup>3</sup>TLV 2 mg/m<sup>3</sup>  
metal**7440-22-4 silver**PEL 0.01 mg/m<sup>3</sup>  
metal and soluble compounds (as Ag)

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|     |   |
|-----|---|
| REL | 0.01 mg/m <sup>3</sup>                        |
| TLV | 0.1 mg/m <sup>3</sup><br>metal: dust and fume |

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

**Exposure controls****Personal protective equipment:**

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Wash hands before breaks and at the end of work.

Breathing equipment:

Exposure Controls: Use appropriate engineering control such as process enclosures, local exhaust ventilation to control airborne levels below recommended exposure limits.

When ventilation is not sufficient to remove airborne levels from the breathing zone, a NIOSH safety approved respirator or self-contained breathing apparatus should be worn. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

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



Face Shield with Safety Glasses when refilling.

**9 PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties****General Information**

Appearance:

Form: Metal in wire, ribbon, or preformed shapes with a core of flux

Color: Silver grey

Odor: Mild

**pH-value:** Not applicable.**Change in condition**

Melting point/Melting range: 217 °C (423 °F)

**Flash point:** Undetermined.**Flammability (solid, gaseous):** Not determined.**Auto igniting:** Product is not selfigniting.**Danger of explosion:** Product does not present an explosion hazard.

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**Vapor pressure:** Not applicable.**Density:**  
Vapour density Not applicable.**Solubility in / Miscibility with**  
Water: Insoluble.**10 STABILITY AND REACTIVITY****Reactivity****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:**

When heated to soldering temperatures, solvents will be evaporated and organic material may release aliphatic aldehydes and acids.

**11 TOXICOLOGICAL INFORMATION****Information on toxicological effects****Acute toxicity:**

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye: 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 cause gastrointestinal irritation.

**Additional toxicological information:**

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

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.

**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.

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*Disposal must be made according to official regulations.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***14 TRANSPORT INFORMATION****UN-Number****DOT, ADN, IMDG, IATA****ADR***Not applicable**Not applicable**Not regulated***UN proper shipping name****DOT, ADR, ADN****IMDG, IATA****Transport hazard class(es)***Not applicable**Not regulated***DOT****Class***Not applicable**Not regulated.***ADR, ADN, IMDG, IATA****Class***Not applicable***Packing group****DOT, ADR, IMDG, IATA****Environmental hazards:****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.***15 REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture***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):**7440-22-4 silver**7440-50-8 copper**TSCA (Toxic Substances Control Act): Kester certifies that all components listed below for the subject finished product are on the TSCA Inventory of Chemical Substances and are not subject to any chemical specific regulation under TSCA Section 12(b) export notification requirements delineated at 40 CFR part 707, subpart D.**All ingredients are listed or exempt from listing.**California Proposition 65**Chemicals known to cause cancer:**None of the ingredients is listed.**Chemicals known to cause reproductive toxicity:**None of the ingredients is listed.**Carcinogenic categories**EPA (Environmental Protection Agency)**7440-22-4 silver***D**

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|  |        |   |
|--|--------|---|
| 7440-50-8  | copper | D |
| 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:****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 labelled according to the CLP regulation.

Hazard pictograms



GHS08

Signal word **Danger**

Hazard statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

Precautionary statements

P285 In case of inadequate ventilation wear respiratory protection.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

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.

**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 Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (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

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

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