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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

*

1 PRODUCT AND COMPANY IDENTIFICATION

Trade name: K100LD Lead-Free Alloy Solder
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 Gernlinden Germany
Tel +49 (0) 8142 4785 0

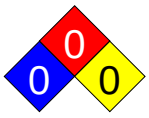
Information department: Product Compliance: EHS_Kester@kester.com
1.4 Emergency telephone number:
CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300
CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008 The product is not classified according to the CLP regulation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 Not applicable
Hazard pictograms Not applicable
Signal word Not applicable
Hazard statements Not applicable
Hazard description:
WHMIS Symbols

D2B - Toxic material causing other toxic effects
Classification system:
NFPA ratings (scale 0 - 4)



Health = 0
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 0
Fire = 0
Reactivity = 0

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

(Contd. on page 2)

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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

Trade name: K100LD Lead-Free Alloy Solder

(Contd. of page 1)

vPvB: Not applicable.

3 COMPOSITION OF MIXTURE

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

CAS No.	Description	% Range
CAS: 7440-31-5 EINECS: 231-141-8	TIN (Sn)	85-100%

4 FIRST AID MEASURES

4.1 Description of first aid measures
General information: No special measures required.
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.

*

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: Pick up mechanically.
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

PAC-1:		
CAS: 7440-31-5	TIN (Sn)	6 mg/m3
CAS: 7440-50-8	COPPER (Cu)	3 mg/m3
CAS: 7440-69-9	BISMUTH (Bi)	15 mg/m3
CAS: 7440-02-0	nickel	4.5 mg/m3

PAC-2:		
CAS: 7440-31-5	TIN (Sn)	67 mg/m3
CAS: 7440-50-8	COPPER (Cu)	33 mg/m3

(Contd. on page 3)

(Contd. of page 2)

CAS: 7440-69-9	BISMUTH (Bi)	170 mg/m3
CAS: 7440-02-0	nickel	50 mg/m3

PAC-3:		
CAS: 7440-31-5	TIN (Sn)	400 mg/m3
CAS: 7440-50-8	COPPER (Cu)	200 mg/m3
CAS: 7440-69-9	BISMUTH (Bi)	990 mg/m3
CAS: 7440-02-0	nickel	99 mg/m3

7 HANDLING AND STORAGE

7.1 Precautions for safe handling No special measures required.
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:	
CAS: 7440-31-5 TIN (Sn)	
PEL	Long-term value: 2 mg/m³ metal
REL	Long-term value: 2 mg/m³
TLV	Long-term value: 2 mg/m³ metal

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.
Breathing equipment:
Not necessary if room is well-ventilated.
Use suitable respiratory protective device in case of insufficient ventilation.
Protection of hands:

Protective gloves

(Contd. on page 4)

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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

Trade name: K100LD Lead-Free Alloy Solder

(Contd. of page 3)

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)

Flash point: NA °C

Flammability (solid, gaseous): Not determined.

Auto igniting: Product is not selfigniting.

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

Vapor pressure: Not applicable.

Density at 20 °C (68 °F): 3.54 g/cm³ (29.541 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 solvents: 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.

(Contd. on page 5)

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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

Trade name: K100LD Lead-Free Alloy Solder

(Contd. of page 4)

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.
Primary irritant effect:
on the skin: Based on available data, the classification criteria are not met.
on the eye: Based on available data, the classification criteria are not met.
Sensitization: Based on available data, the classification criteria are not met.
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.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

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.

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

(Contd. on page 6)

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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

Trade name: K100LD Lead-Free Alloy Solder

(Contd. of page 5)

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.
UN "Model Regulation": Not applicable

*
15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
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 Not applicable
Hazard pictograms Not applicable
Signal word Not applicable
Hazard statements Not applicable
15.2 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 responsibilty 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

(Contd. on page 7)

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

Printing Date 01/18/2017 Version number 1 Reviewed on 01/18/2017

Trade name: K100LD Lead-Free Alloy Solder

(Contd. of page 6)

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 01/18/2017 / -
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)
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
*** Data compared to the previous version altered.**