

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 11/07/2017

Version number 3

Reviewed on 11/07/2017

1 Identification

Trade name: OR-421 Lead-free Alloy Solder Wire

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

No further relevant information available.

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

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 Hazard(s) identification

Classification of the substance or mixture Not applicable

Label elements

GHS label elements Not applicable

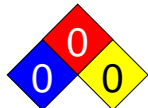
Hazard pictograms Not applicable

Signal word Not applicable

Hazard statements Not applicable

Classification system:

NFPA ratings (scale 0 - 4)



Health = 0
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 0
Fire = 0
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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(Contd. of page 1)

3 Composition/information on ingredients

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

| CAS No. | Description | % Range |
|----------------|---------------|--|
| CAS: 7440-31-5 | TIN (Sn) | 85-100% |
| CAS: 7440-36-0 | ANTIMONY (Sb) | 0-5% |
| CAS: 57-13-6 | urea | ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319 |
| CAS: 7440-22-4 | SILVER (Ag) | 0-5% |

4 First-aid measures

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.

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.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents:

CO₂, 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: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation

Environmental precautions: No special measures required.

Methods and material for containment and cleaning up: Pick up mechanically.

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/m ³ |
| CAS: 7440-36-0 | ANTIMONY (Sb) | 1.5 mg/m ³ |
| CAS: 57-13-6 | urea | 30 mg/m ³ |
| CAS: 7440-22-4 | SILVER (Ag) | 0.3 mg/m ³ |
| CAS: 7440-50-8 | COPPER (Cu) | 3 mg/m ³ |

PAC-2:

| | | |
|----------------|----------|----------------------|
| CAS: 7440-31-5 | TIN (Sn) | 67 mg/m ³ |
|----------------|----------|----------------------|

(Contd. on page 3)

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Trade name: OR-421 Lead-free Alloy Solder Wire

(Contd. of page 2)

| | | |
|----------------|---------------|-----------------------|
| CAS: 7440-36-0 | ANTIMONY (Sb) | 13 mg/m ³ |
| CAS: 57-13-6 | urea | 280 mg/m ³ |
| CAS: 7440-22-4 | SILVER (Ag) | 170 mg/m ³ |
| CAS: 7440-50-8 | COPPER (Cu) | 33 mg/m ³ |

PAC-3:

| | | |
|----------------|---------------|-------------------------|
| CAS: 7440-31-5 | TIN (Sn) | 400 mg/m ³ |
| CAS: 7440-36-0 | ANTIMONY (Sb) | 80 mg/m ³ |
| CAS: 57-13-6 | urea | 1,700 mg/m ³ |
| CAS: 7440-22-4 | SILVER (Ag) | 990 mg/m ³ |
| CAS: 7440-50-8 | COPPER (Cu) | 200 mg/m ³ |

7 Handling and storage

Handling:

Precautions for safe handling No special measures required.

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: None.

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:

CAS: 7440-31-5 TIN (Sn)

| | |
|-----|---|
| PEL | Long-term value: 2 mg/m ³ metal |
| REL | Long-term value: 2 mg/m ³ |
| TLV | Long-term value: 2 mg/m ³ metal |

CAS: 7440-36-0 ANTIMONY (Sb)

| | |
|-----|---|
| PEL | Long-term value: 0.5 mg/m ³ as Sb |
| REL | Long-term value: 0.5 mg/m ³ as Sb |
| TLV | Long-term value: 0.5 mg/m ³ as Sb |

CAS: 57-13-6 urea

| | |
|------|---------------------------------------|
| WEEL | Long-term value: 10 mg/m ³ |
|------|---------------------------------------|

CAS: 7440-22-4 SILVER (Ag)

| | |
|-----|---|
| PEL | Long-term value: 0.01 mg/m ³ |
|-----|---|

(Contd. on page 4)

Safety Data Sheet
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Version number 3

Reviewed on 11/07/2017

Trade name: OR-421 Lead-free Alloy Solder Wire

(Contd. of page 3)

| | |
|-----|--|
| REL | Long-term value: 0.01 mg/m ³ |
| TLV | Long-term value: 0.1 mg/m ³ 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.

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

Information on basic physical and chemical properties

General Information

Appearance:

Form: Solid
Color: Silver grey
Odor: Mild
pH-value: Not applicable.

Change in condition

Melting point/Melting range: Undetermined.

Flash point: Not applicable.

Flammability (solid, gaseous): Not determined.

Auto igniting: Product is not selfigniting.

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

(Contd. on page 5)

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Version number 3

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Trade name: OR-421 Lead-free Alloy Solder Wire

(Contd. of page 4)

Vapor pressure: Not applicable.

Density: Not determined.

Vapor density: Not applicable.

Solubility in / Miscibility with Water: Insoluble.

Solvent content:
Organic solvents: 0.0 %

10 Stability and reactivity

Reactivity No further relevant information available.

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: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin: No irritant effect.

on the eye: Irritating effect.

Sensitization: Sensitization possible through inhalation.

Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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

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.

(Contd. on page 6)

Safety Data Sheet
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vPvB: Not applicable.

(Contd. of page 5)

13 Disposal considerations

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

UN-Number

DOT, ADR, ADN, IMDG, IATA Not applicable

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA Not applicable

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class Not applicable

Packing group

DOT, IMDG, IATA Not applicable

Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL73/78

and the IBC Code Not applicable.

UN "Model Regulation": Not applicable

15 Regulatory information

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: 7440-36-0 ANTIMONY (Sb)

CAS: 7440-22-4 SILVER (Ag)

CAS: 7440-50-8 COPPER (Cu)

(Contd. on page 7)

Safety Data Sheet
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(Contd. of page 6)

TSCA new (21st Century Act) (Substances not listed)

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)

| | | |
|----------------|-------------|----|
| CAS: 57-13-6 | urea | II |
| CAS: 7440-22-4 | SILVER (Ag) | D |
| 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.

GHS label elements Not applicable

Hazard pictograms Not applicable

Signal word Not applicable

Hazard statements Not applicable

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.

Department issuing Safety Data Sheet (SDS): 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

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

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

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

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