1 PRODUCT AND COMPANY IDENTIFICATION

Trade name: 44 Flux Cored Solder Sn63Pb37; Sn60Pb40

Relevant identified uses of the substance or mixture and uses advised against Professional use of lead 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 Throndale 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.
Repr. 1A H360 May damage fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Label elements

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

Hazard pictograms

GHS07 GHS08 GHS09
Signal word Danger

Hazard-determining components of labelling:
lead
Hazard statements
H302 Harmful if swallowed.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P362 Take off contaminated clothing and wash before reuse.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:

WHMIS Hazard Symbols
D2A - Very toxic material causing other toxic effects

Classification system:
NFPA ratings (scale 0 - 4)

Health = 2
Fire = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH
Health = *2

FIRE
Fire = 1

REACTIVITY
Reactivity = 0

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

3 COMPOSITION OF MIXTURE

Chemical characterization: Mixtures

Description: This product contains the substance(s) listed below:

<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</td>
<td>60 - 65%</td>
</tr>
<tr>
<td>EINECS: 231-141-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS: 7439-92-1</td>
<td>lead</td>
<td>35 - 40%</td>
</tr>
<tr>
<td>EINECS: 231-100-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS: 8050-09-7</td>
<td>Rosin</td>
<td>1 - 3%</td>
</tr>
<tr>
<td>EINECS: 232-475-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional information:
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.
Flux in core is typically 1-3% by weight.

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.

5 FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.

Special hazards arising from the substance or mixture
In case of fire, the following can be released:
- Carbon monoxide (CO)
- Carbon dioxide (CO2)
- Melted solder above 1000°F will liberate toxic lead fumes.
- Aliphatic aldehydes

Advice for firefighters
Protective equipment:
Firefighters 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:
Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.
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:
- Keep receptacle tightly sealed.
- 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

<table>
<thead>
<tr>
<th>Components with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-31-5 tin</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>metal</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td>metal</td>
</tr>
</tbody>
</table>

| 7439-92-1 lead                                                |
| PEL | 0.05* mg/m³        |
| *see 29 CFR 1910.1025 |
| REL | 0.05 mg/m³         |
| excluding lead arsenate; See Pocket Guide App. C |
| TLV | 0.05* mg/m³        |
| *and inorganic compounds, as Pb; BEI |
| 8050-09-7 Rosin                                              |
| TLV | SEN; L             |

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.
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:
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:

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.
Trade name: 44 Flux Cored Solder Sn63Pb37; Sn60Pb40

Eye protection:
Safety Glasses with Sideshields at all times.
Face Shield 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: 361°C (682 °F)
Boiling point/Boiling range: 1740°C (3164 °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.
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:
Carbon monoxide and carbon dioxide
When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate 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.
Possible local irritation by contact with flux or fumes.
SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/06/2012  Reviewed on 11/06/2012
Version number 15

Trade name: 44 Flux Cored Solder Sn63Pb37; Sn60Pb40

on the eye:
Irritating effect.
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 be harmful if swallowed.

Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

Carcinogenic categories

<table>
<thead>
<tr>
<th>IARC (International Agency for Research on Cancer)</th>
<th>NTP (National Toxicology Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-92-1 lead 2B</td>
<td>7439-92-1 lead R</td>
</tr>
</tbody>
</table>

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.
Danger to drinking water if even small quantities leak into the ground.

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.
Disposal must be made according to official regulations.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>UN-Number</th>
<th>DOT, ADN, IMDG, IATA</th>
<th>ADR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not regulated</td>
<td>Not applicable</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN proper shipping name</th>
<th>DOT, ADR, ADN</th>
<th>IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not regulated</td>
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</tr>
</tbody>
</table>

Transport hazard class(es)

<table>
<thead>
<tr>
<th>DOT, IMDG</th>
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</tr>
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(Contd. on page 7)
Trade name: 44 Flux Cored Solder Sn63Pb37; Sn60Pb40

**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):
7439-92-1 | lead

**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:
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.
lead

Chemicals known to cause reproductive toxicity:
WARNING: This product contains a chemical(s) known to the State of California to cause birth defects and/or other reproductive harm.
lead

**Carcinogenic categories**

**EPA (Environmental Protection Agency)**
7439-92-1 | lead B2

**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

GHS07  GHS08  GHS09

(Contd. on page 8)
Signal word Danger

Hazard-determining components of labelling:
lead
Hazard statements
H302 Harmful if swallowed.
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P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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 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.