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

Trade name: TSF 6522  No Clean Tacky Flux

Article number: T5-00-6522

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

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

Kester GmbH
Ganghofer Strasse 45
D-82216 Gernlinden Germany
Tel +49 (0) 8142 4785 0

Further information obtainable from: 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

SECTION 2: Hazards identification

2.1 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.

Aquatic Chronic 3  H412 Harmful to aquatic life with long lasting effects.

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

GHS08

(Continued on page 2)
Signal word Danger

Hazard-determining components of labelling:
Rosin
Halogenated organic diol

Hazard statements
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P284 [In case of inadequate ventilation] wear respiratory protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves.
P273 Avoid release to the environment.
P272 Contaminated work clothing should not be allowed out of the workplace.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P331 Specific treatment (see on this label).
P332+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of water.
P362+P364 Take off contaminated clothing and wash it before reuse.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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

SECTION 3: Composition/information on ingredients

Description:
Lacquer on the basis of the following fillers, resins and other components.
Mixture: consisting of the following components.
Mixture of substances listed below with nonhazardous additions.

Chemical components:

<table>
<thead>
<tr>
<th>CAS:</th>
<th>EINECS:</th>
<th>Trade Secret</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>112-73-2</td>
<td>204-001-9</td>
<td>bis(2-butoxyethyl) ether</td>
<td>10-25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute Tox. 4, H312</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resp. Sens. 1, H334</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</td>
<td></td>
</tr>
<tr>
<td>27136-73-8</td>
<td>248-248-0</td>
<td>Aliphatic hydroxy diol</td>
<td>3.0-5.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye Irrit. 2, H319</td>
<td></td>
</tr>
<tr>
<td>872-50-4</td>
<td>212-828-1</td>
<td>N-methyl-2-pyrrolidone</td>
<td>1.0-3.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rep. 1B, H330D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute Tox. 4, H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Halogenated organic diol</td>
<td>0.1-&lt;1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute Tox. 4, H312; Eye Irrit. 2, H319; Skin Sens. 1B, H317</td>
<td></td>
</tr>
</tbody>
</table>

SVHC

CAS: 872-50-4 N-methyl-2-pyrrolidone
SECTION 4: First aid measures

4.1 Description of first aid measures
General information:
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
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. Then consult a doctor.
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: CO2, 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.

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.
Ensure adequate ventilation.
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 aerosols.
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:

<table>
<thead>
<tr>
<th>CAS: 872-50-4 N-methyl-2-pyrrolidone</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL Short-term value: 80 mg/m³, 20 ppm</td>
</tr>
<tr>
<td>Long-term value: 40 mg/m³, 10 ppm</td>
</tr>
<tr>
<td>Sk</td>
</tr>
</tbody>
</table>

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.
Avoid contact with the eyes and skin.

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.
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 with Side Shields Required

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Pasty
Colour: Yellow
Odour: Mild

pH-value at 20 °C: 3.4

Change in condition

Melting point/freezing point: Undetermined.
Initial boiling point and boiling range: 254 °C

Flash point: > 60 °C
TRADE NAME: TSF 6522 No Clean Tacky Flux

Ignition temperature: 190 °C
Auto-ignition temperature: Product is not selfigniting.
Explosive properties: Product does not present an explosion hazard.
Density at 20 °C: 0.99 g/cm³
Solubility in / Miscibility with water: Not miscible or difficult to mix.
Solvent content: Organic solvents: 26.3 %
Solids content: 49.9 %

SECTION 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: 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: Based on available data, the classification criteria are not met.
LD/LC50 values relevant for classification:

| CAS: 112-73-2 bis(2-butoxyethyl) ether |
| Oral | LD50 3900 mg/kg (rat) |
| Dermal | LD50 1100 mg/kg (ATE) |

Rosin:
| Oral | LD50 > 4000 mg/kg (rat) |
| Dermal | LD50 >2500 mg/kg (rabbit) |

| CAS: 27136-73-8 1H-imidazole-1-ethanol, 2-(heptadecenyl)-4,5-dihydro-
| Oral | LD50 500 mg/kg (ATE) |

| CAS: 872-50-4 N-methyl-2-pyrrolidone |
| Oral | LD50 3914 mg/kg (rat) |
| Dermal | LD50 8000 mg/kg (rabbit) |

Primary irritant effect:
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Serious eye damage/irritation: Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):
Germ cell mutagenicify: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
Ecotoxical effects:
Remark: Harmful to fish
Additional ecologicial information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Disposal must be made according to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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

SECTION 14: Transport information

14.1 UN-Number
IMDG, IATA Void
14.2 UN proper shipping name
ADR, ADN, IMDG, IATA Void
14.3 Transport hazard class(es)
ADR, ADN, IMDG, IATA Class Void
14.4 Packing group
ADR, IMDG, IATA Void
14.5 Environmental hazards:
Marine pollutant: No
14.6 Special precautions for user
Not applicable.
14.7 Transport in bulk according to Annex II of Marpol
and the IBC Code
Not applicable.
UN "Model Regulation": Void
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.

Hazard pictograms

GHS08

Signal word: Danger

Hazard-determining components of labelling:
Rosin
Halogenated organic diol

Hazard statements:
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
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Precautionary statements:
P284 [In case of inadequate ventilation] wear respiratory protection.
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P272 Contaminated work clothing should not be allowed out of the workplace.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P321 Specific treatment (see on this label).
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of water.
P362+P364 Take off contaminated clothing and wash it before reuse.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 30

National regulations:

Other regulations, limitations and prohibitive regulations

Substances of very high concern (SVHC) according to REACH, Article 57
CAS: 872-50-4 |N-methyl-2-pyrrolidone

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 (Continued on page 8)
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 SDS:** Product Compliance / EHS Department  
**Contact:** EHS_Kester@kester.com

**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 Organisation  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (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  
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  
PBT: Persistent, Bioaccumulative and Toxic  
SVHC: Substances of Very High Concern  
vPvB: very Persistent and very Bioaccumulative  
Acute Tox. 4: Acute toxicity – Category 4  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
Resp. Sens. 1: Respiratory sensitisation – Category 1  
Skin Sens. 1: Skin sensitisation – Category 1  
Skin Sens. 1B: Skin sensitisation – Category 1B  
Repr. 1B: Reproductive toxicity – Category 1B  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2  
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3  
* Data compared to the previous version altered.