1 Identification

Trade name: 977 Soldering Flux
Relevant identified uses of the substance or mixture and uses advised against
Soldering Flux
Professional use of Solder

Application of the substance / the preparation: Soldering flux

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

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

Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms

⚠️ GHS07

Signal word Warning

Hazard-determining components of labeling:
Dicarboxylic acid
Halogenated organic diol

Hazard statements
H317 May cause an allergic skin reaction.

Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray

(Contd. on page 2)
Trade name: 977 Soldering Flux

(Contd. of page 1)

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

3 Composition/information on ingredients

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

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Proprietary Organic Acids</td>
<td>Acute Tox. 4, H302; Acute Tox. 4, H312; Eye Irrit. 2A, H319</td>
<td>1-3%</td>
</tr>
<tr>
<td>Trade Secret Dicarboxylic acid</td>
<td>Acute Tox. 4, H302; Eye Irrit. 2A, H319; Skin Sens. 1, H317</td>
<td>1-3%</td>
</tr>
<tr>
<td>Trade Secret Halogenated organic diol</td>
<td>Acute Tox. 4, H302; Eye Irrit. 2A, H319; Skin Sens. 1B, H317</td>
<td>0.1-5%</td>
</tr>
</tbody>
</table>

4 First-aid measures

Description of first aid measures
General information: 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.
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
Nitrogen oxides (NOx)
In case of fire, the following can be released:

(Contd. on page 3)
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:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

**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**

<table>
<thead>
<tr>
<th>PAC-1</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Organic Acids</td>
<td>6.8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Propylene glycol compound</td>
<td>1.1 ppm</td>
<td></td>
</tr>
<tr>
<td>Heterocyclic azole isomers</td>
<td>1.2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Organic Acids</td>
<td>75 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Propylene glycol compound</td>
<td>13 ppm</td>
<td></td>
</tr>
<tr>
<td>Heterocyclic azole isomers</td>
<td>13 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Organic Acids</td>
<td>450 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Propylene glycol compound</td>
<td>76 ppm</td>
<td></td>
</tr>
<tr>
<td>Heterocyclic azole isomers</td>
<td>77 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

7 Handling and storage

**Handling:**

Precautions for safe handling:
Keep receptacles tightly sealed.
Store in cool, dry place in tightly closed receptacles.

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:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.
### 9 Physical and chemical properties

#### Information on basic physical and chemical properties

**General Information**

**Appearance:**
- **Form:** Liquid
- **Color:** Colorless
- **Odor:** Mild
- **pH-value:** Not determined.

**Change in condition**
- **Melting point/Melting range:** 0°C (32 °F)
- **Boiling point/Boiling range:** 100°C (212 °F)

**Flash point:** Not applicable.

**Auto igniting:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.
Trade name: 977 Soldering Flux

(Contd. of page 4)

Vapor pressure at 20°C (68 °F): 23hPa (17.3 mm Hg)
Density at 20°C (68 °F): 1.01g/cm³ (8.43 lbs/gal)
Solubility in / Miscibility with
Water: Not miscible or difficult to mix.
Viscosity:
Dynamic at 20°C (68 °F): 0.952mPas
Solvent content:
Water: 95.2%
Solids content: 4.4%

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: 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: No irritant effect.
on the eye: Irritating effect.
through ingestion: May cause gastrointestinal irritation.
Sensitization: Sensitization possible through inhalation.
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

Toxicity
Aquatic toxicity: No further relevant information available.

(Contd. on page 6)
Trade name: 977 Soldering Flux

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:
Disposal must be made according to official regulations.
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 Not applicable
IMDG, IATA Not applicable
Not regulated

Transport hazard class(es)
DOT, ADR, ADN, IMDG, IATA
Class Not applicable
Packing group
DOT, IMDG, IATA Not applicable
Marine pollutant: No
Special precautions for user
Not applicable.
Transport in bulk according to Annex II of MARPOL 73/78 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: 68412-54-4 | Ethoxylated Nonylphenol, Branched

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)
None of the ingredients is listed.

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 The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms

⚠️
GHS07

Signal word Warning

Hazard-determining components of labeling:
Dicarboxylic acid
Halogenated organic diol

Hazard statements
H317 May cause an allergic skin reaction.

Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
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P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
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

(Contd. of page 6)
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
- Acute Tox. 4: Acute toxicity – Category 4
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
- Skin Sens. 1: Skin sensitisation – Category 1
- Skin Sens. 1B: Skin sensitisation – Category 1B

* Data compared to the previous version altered.