1 Identification

Trade name: 1800 Soldering Flux

Article number: C5-00-1800

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

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Kester Inc.
800 West Thornton 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

Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

Aquatic Acute 3 H402 Harmful to aquatic life.

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

(Contd. on page 2)
Hazard pictograms

GHS07  GHS08

Signal word Danger
Hazard statements
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H402 Harmful to aquatic life.

Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P402+P404 Store in a dry place. Store in a closed container.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)

Health 1
Fire 0
Reactivity 0

HMIS-ratings (scale 0 - 4)

Health 1
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: consisting of the following components.
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>CAS: 34590-94-8</td>
<td>(2-methoxy)methylethoxy)propanol</td>
<td>10-25%</td>
</tr>
<tr>
<td></td>
<td>Resp. Sens. 1B, H334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 4, H227</td>
<td></td>
</tr>
</tbody>
</table>

(Contd. of page 1)

(Contd. on page 3)
Trade name: 1800 Soldering Flux

<table>
<thead>
<tr>
<th>Trade Secret</th>
<th>Polyethylene glycol</th>
<th>5-10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 111-76-2</td>
<td>2-butoxyethanol</td>
<td>5-10%</td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2; H315; Eye Irrit. 2A, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 4, H227</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade Secret</th>
<th>Organic Acids</th>
<th>5-10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 1336-21-6</td>
<td>ammonia</td>
<td>≥1-&lt;2.5%</td>
</tr>
<tr>
<td></td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin Corr. 1B, H314; Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic Acute 1, H400</td>
<td></td>
</tr>
</tbody>
</table>

4 First-aid measures

Description of first aid measures

General information: Follow general first aid procedures.

After inhalation:
In case of unconsciousness place patient stably in side position for transportation.
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: Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up: Dispose of the collected material according to regulations.

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: 34590-94-8 | (2-methoxymethylethoxy)propanol | 150 ppm |
|                 | Polyethylene glycol | 30 mg/m3 |
| CAS: 111-76-2 | 2-butoxyethanol | 60 ppm |
| CAS: 1336-21-6 | ammonia | 61 ppm |

(Contd. on page 4)
7 Handling and storage

Handling:
Precautions for safe handling 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: Protect from frost.
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 constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

CAS: 34590-94-8 (2-methoxymethyleneoxy)propanol

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL</th>
<th>REL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term</td>
<td>Short-term: 900 mg/m³, 150 ppm</td>
<td>Short-term: 909 mg/m³, 150 ppm</td>
</tr>
<tr>
<td></td>
<td>value: 600 mg/m³, 100 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyethylene glycol</td>
<td>Skin</td>
<td>Skin</td>
<td>Skin</td>
</tr>
</tbody>
</table>

CAS: 111-76-2 2-butoxyethanol

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term</td>
</tr>
<tr>
<td></td>
<td>value: 240 mg/m³, 50 ppm</td>
</tr>
</tbody>
</table>
Trade name: 1800 Soldering Flux

<table>
<thead>
<tr>
<th>REL</th>
<th>Long-term value: 24 mg/m³, 5 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td>TLV</td>
<td>Long-term value: 97 mg/m³, 20 ppm</td>
</tr>
<tr>
<td></td>
<td>BEI</td>
</tr>
</tbody>
</table>

(Contd. of page 4)

**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.
Wash hands before breaks and at the end of work.

**Breathing equipment:**
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

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9 Physical and chemical properties

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**
- Form: Liquid
- Color: Colorless to light yellow
- Odor: Mild

**pH-value at 20°C (68 °F):**
- 7.1

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

(Contd. on page 6)
### 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:**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50 (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>5,135</td>
</tr>
<tr>
<td>Dermal</td>
<td>&gt;19,000</td>
</tr>
</tbody>
</table>

**Primary irritant effect:**

- on the skin: No irritant effect.
- on the eye: Irritating effect.
- through inhalation: May cause respiratory irritation.
- through ingestion: May cause gastrointestinal irritation.

**Sensitization:** Sensitization possible through inhalation.
Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer)
CAS: 111-76-2 2-butoxyethanol
3

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.
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.

Recommended cleansing agent: Water, if necessary with cleansing agents.

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

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 MARPOL73/78
and the IBC Code
Not applicable.

(Contd. on page 8)
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: 111-76-2 | 2-butoxyethanol |
| CAS: 1336-21-6 | ammonia |

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: 111-76-2 | 2-butoxyethanol | NL |

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 GHS08

Signal word Danger

Hazard statements
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H402 Harmful to aquatic life.

Precautionary statements:
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P402+P404 Store in a dry place. Store in a closed container.
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 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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
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
Flam. Liq. 4: Flammable liquids – Category 4
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Resp. Sens. 1: Respiratory sensitisation – Category 1
Resp. Sens. 1B: Respiratory sensitisation – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
* Data compared to the previous version altered.