SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

PRODUCT AND COMPANY IDENTIFICATION

Trade name: 952-S Soldering Flux
Article number: C3-00-952-S
Application of the substance / the preparation: Soldering flux

1.3 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

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

HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

![Flame] GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

![Eye Irrit. 2A] GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labeled according to the CLP regulation.
Hazard pictograms

![Fire] GHS02
![Exclamation] GHS07

(Contd. on page 2)
Trade name: 952-S Soldering Flux

Signal word Danger

Hazard-determining components of labeling:
Isopropanol
Proprietary organic acids

Hazard statements
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280 Wear protective gloves / eye protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:

WHMIS Symbols

Classification system:
NFPA ratings (scale 0 - 4)

Health = 1
Fire = 3
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 1
Fire = 3
Reactivity = 0

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

COMPOSITION OF MIXTURE

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>CAS: 67-63-0</td>
<td>Isopropanol</td>
<td>85-100%</td>
</tr>
<tr>
<td>EINECS: 200-661-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye Irrit. 2A, H319; STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proprietary organic acids</td>
<td>1.0-3.0%</td>
</tr>
<tr>
<td></td>
<td>Eye Irrit. 2A, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Azole Isomers</td>
<td>0.1-&lt;1%</td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4, H302; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335</td>
<td></td>
</tr>
</tbody>
</table>

(Contd. of page 1)
### FIRST AID MEASURES

4.1 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. If symptoms persist, 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.

### FIREFIGHTING MEASURES

5.1 Extinguishing media  
**Suitable extinguishing agents:** CO2, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.  
5.2 Special hazards arising from the substance or mixture  
**Nitrogen oxides (NOx)**  
In case of fire, the following can be released:  
5.3 Advice for firefighters  
**Protective equipment:** No special measures required.

### ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Keep away from ignition sources.  
6.2 Environmental precautions: Do not allow to enter sewers/surface or ground water.  
6.3 Methods and material for containment and cleaning up:  
Ensure adequate ventilation.  
Absorb with clay, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container.  
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.

### HANDLING AND STORAGE

7.1 Precautions for safe handling  
Store in cool, dry place in tightly closed receptacles.  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.  
**Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
### 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:** Store away from oxidizing agents.
- **Further information about storage conditions:**
  - Keep receptacle tightly sealed.
  - Store in cool, dry conditions in well sealed receptacles.

### 7.3 Specific end use(s)
No further relevant information available.

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### EXPOSURE CONTROLS / PERSONAL PROTECTION

**Additional information about design of technical systems:** No further data; see item 7.

#### 8.1 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 remaining constituent has no known exposure limits.

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL</th>
<th>REL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropanol</td>
<td>980 mg/m³, 400 ppm</td>
<td>1225 mg/m³, 500 ppm</td>
<td>980 mg/m³, 400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 980 mg/m³, 400 ppm</td>
<td>Long-term value: 984 mg/m³, 400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long-term value: 492 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BEI</td>
</tr>
</tbody>
</table>

**Proprietary organic acids**
- **TLV** | Long-term value: 5 mg/m³ |

**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

#### 8.2 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.
    - Avoid contact with the eyes and skin.
  - **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

Face Shield with Safety Glasses when refilling.

PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Liquid
Color: Clear
Odor: Alcohol-like

pH-value at 20 °C (68 °F): 3.3

Change in condition
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 82 °C (180 °F)

Flash point: 12 °C (54 °F)

Ignition temperature: 399 °C (750 °F)

Auto igniting: Product is not selfigniting.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

Explosion limits:
Lower: 2.0 Vol %
Upper: 12.0 Vol %

Vapor pressure at 20 °C (68 °F): 43 hPa (32 mm Hg)

Density at 20 °C (68 °F): 0.83 g/cm³ (6.926 lbs/gal)

Solubility in / Miscibility with Water: Fully miscible.

Solvent content:
Organic solvents: 93.1 %
Water: 4.9 %
Solids content: 2.0 %

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.
**TOXICOLOGICAL INFORMATION**

11.1 Information on toxicological effects

**Acute toxicity:** Based on available data, the classification criteria are not met.

**LD/LC50 values that are relevant for classification:**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>5045 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>12800 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Inhalative</td>
<td>30 mg/l (rat)</td>
<td></td>
</tr>
</tbody>
</table>

**Primary irritant effect:**

- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Causes serious eye irritation.
- **through inhalation:**
  - Vapors during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, and nausea.
  - **through ingestion:** May cause gastrointestinal irritation.

**Sensitization:** Based on available data, the classification criteria are not met.

**Additional toxicological information:**

**Carcinogenic categories**

- **IARC (International Agency for Research on Cancer):**
  - 67-63-0 Isopropanol
    - 3

- **NTP (National Toxicology Program):**
  - None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration):**
  - None of the ingredients is listed.

**ECOLOGICAL INFORMATION**

12.1 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.

**12.5 Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**DISPOSAL CONSIDERATIONS**

13.1 Waste treatment methods

**Recommendation:**

Disposal must be made according to official regulations.
**Trade name:** 952-S Soldering Flux

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.

### TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>14.1 UN-Number</th>
<th>UN1219</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Isopropanol mixture</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>1219 Isopropanol mixture</td>
</tr>
<tr>
<td>DOT</td>
<td>Not regulated</td>
</tr>
<tr>
<td>ADR</td>
<td>ISOPROPANOL (ISOPROPYL ALCOHOL) mixture</td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td></td>
</tr>
</tbody>
</table>

**14.3 Transport hazard class(es)**

**DOT**

- **Class:** 3 Flammable liquids
- **Label:** 3

**ADR, IMDG, IATA**

- **Class:** 3 Flammable liquids
- **Label:** 3

**14.4 Packing group**

**DOT, IMDG, IATA**

- **II**

**Marine pollutant:**

- **No**

**14.6 Special precautions for user**

- **Not applicable.**

**Danger code (Kemler):**

- **33**

**EMS Number:**

- **F-E,S-D**

**Stowage Category**

- **B**

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

- **Not applicable.**

**Transport/Additional information:**

**DOT**

- **Quantity limitations**
  - On passenger aircraft/rail: 5 L
  - On cargo aircraft only: 60 L

**ADR**

- **Exceptioned quantities (EQ)**
  - Code: E2
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 500 ml
REGULATORY INFORMATION

15.1 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):
67-63-0 Isopropanol

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:
Not classified.

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 labeled according to the CLP regulation.

Hazard pictograms

GHS02 GHS07

Signal word Danger

Hazard-determining components of labeling:
Isopropanol
Proprietary organic acids

Hazard statements
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280 Wear protective gloves / eye protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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
Date of preparation / last revision 09/07/2016 / 14

Abbreviations and acronyms:
ICAO: International Civil Aviation Organisation
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
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
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
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. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.