PRODUCT AND COMPANY IDENTIFICATION

Trade name: **952-D6 Soldering Flux**

**Article number:** C7-00-952D6

**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

- **GHS02 Flame**
  - Flam. Liq. 2 H225 Highly flammable liquid and vapor.

- **GHS08 Health hazard**
  - Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

- **GHS07**
  - Acute Tox. 4 H302 Harmful if swallowed.
  - Acute Tox. 4 H312 Harmful in contact with skin.
  - Acute Tox. 4 H332 Harmful if inhaled.
  - STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

(Contd. on page 2)
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

GHS02  GHS07  GHS08

Signal word Danger

Hazard-determining components of labeling:
Isopropanol
ethanol
Aliphatic ketone
methanol

Hazard statements
H225  Highly flammable liquid and vapor.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335–H36  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)

1  3  0
Health = 1  Fire = 3  Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH 1  Health = +1
FIRE 3  Fire = 3
REACTIVITY 0  Reactivity = 0

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
Trade name: 952-D6 Soldering Flux

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 EINECS: 200-661-7</td>
<td>Isopropanol</td>
<td>Flam. Liq. 2, H225 40-55%</td>
</tr>
<tr>
<td>CAS: 64-17-5 EINECS: 200-578-6</td>
<td>ethanol</td>
<td>Flam. Liq. 2, H225 25-40%</td>
</tr>
<tr>
<td>Aliphatic ketone</td>
<td>Flam. Liq. 3, H226 3.0-5.0%</td>
<td></td>
</tr>
<tr>
<td>CAS: 67-56-1 EINECS: 200-659-6</td>
<td>methanol</td>
<td>Acute Tox. 2, H330</td>
</tr>
<tr>
<td>Proprietary organic acids</td>
<td>Eye Irrit. 2A, H319 1.0-3.0%</td>
<td></td>
</tr>
<tr>
<td>CAS: 108-10-1 EINECS: 203-550-1</td>
<td>4-methylpentan-2-one</td>
<td>Flam. Liq. 2, H225 0.1-1%</td>
</tr>
</tbody>
</table>

**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 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.

**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.

EXPOSURE CONTROLS / PERSONAL PROTECTION

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

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-63-0 Isopropanol</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>64-17-5 ethanol</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
</tbody>
</table>

| Aliphatic ketone                                           |
| PEL              | Long-term value: 710 mg/m³, 150 ppm |
| REL              | Short-term value: 950 mg/m³, 200 ppm |
|                  | Long-term value: 710 mg/m³, 150 ppm |
| TLV              | Short-term value: 712 mg/m³, 150 ppm |
|                  | Long-term value: 238 mg/m³, 50 ppm |

(Contd. of page 3)

(Contd. on page 5)
### 67-56-1 methanol

<table>
<thead>
<tr>
<th></th>
<th>Long-term value: 260 mg/m³, 200 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>Short-term value: 325 mg/m³, 250 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 260 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>Skin</td>
</tr>
<tr>
<td>PEL</td>
<td>Short-term value: 328 mg/m³, 250 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 262 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>Skin; BEI</td>
</tr>
</tbody>
</table>

#### Proprietary organic acids

| Long-term value: 5 mg/m³ |
| TLV ||

#### 108-10-1 4-methylpentan-2-one

| Long-term value: 410 mg/m³, 100 ppm |
| PEL | Short-term value: 300 mg/m³, 75 ppm |
| REL | Long-term value: 205 mg/m³, 50 ppm |
| TLV | Short-term value: 307 mg/m³, 75 ppm |
| PEL | Long-term value: 82 mg/m³, 20 ppm |

**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: Colorless
Odor: Alcohol-like
pH-value at 20 °C (68 °F): 3.3
Change in condition
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 78 °C (172 °F)
Flash point: 18 °C (64 °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: 15.0 Vol %
Vapor pressure at 20 °C (68 °F): 59 hPa (44 mm Hg)
Density at 20 °C (68 °F): 0.81 g/cm³ (6.759 lbs/gal)
Solubility in / Miscibility with
Water: Fully miscible.
Solvent content:
Organic solvents: 94.6 %
Water: 1.9 %
Solids content: 3.6 %

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: No further relevant information available.
10.6 Hazardous decomposition products:
When heated to soldering temperatures, solvents will be evaporated and organic material may release aliphatic aldehydes and acids.
TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity:
Harmful if swallowed, in contact with skin or if inhaled.

LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th></th>
<th>67-63-0 Isopropanol</th>
<th>64-17-5 ethanol</th>
<th>67-56-1 methanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>5045 mg/kg (rat)</td>
<td>7060 mg/kg (rat)</td>
<td>5628 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>12800 mg/kg (rabbit)</td>
<td>20000 mg/l (rat)</td>
<td>15800 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
<td>30 mg/l (rat)</td>
<td></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: Based on available data, the classification criteria are not met.
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:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Additional toxicological information:

Carcinogenic categories

<table>
<thead>
<tr>
<th>IARC (International Agency for Research on Cancer)</th>
<th>67-63-0 Isopropanol</th>
<th>64-17-5 ethanol</th>
<th>108-10-1 4-methylpentan-2-one</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td>1</td>
<td>2B</td>
</tr>
</tbody>
</table>

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: 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

14.1 UN-Number DOT, ADR, IMDG, IATA
14.2 UN proper shipping name
DOT Flammable liquids, n.o.s. (Isopropanol, Ethanol)
ADR 1993 Flammable liquids, n.o.s. (Isopropanol, Ethanol)
IMDG FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), ETHANOL (ETHYL ALCOHOL))
IATA FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), ETHANOL)

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
14.6 Special precautions for user Not applicable.
Danger code (Kemler): 33
EMS Number: F-E,S-E
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
Remarks: Not Regulated per Small Quantity Exemption (49 CFR 173.4)


**Trade name:** 952-D6 Soldering Flux

(Contd. of page 8)

**ADR**

Excepted quantities (EQ)

<table>
<thead>
<tr>
<th>Code: E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
</tbody>
</table>

**IMDG**

Limited quantities (LQ)

| 1L |

Excepted quantities (EQ)

| Maximum net quantity per inner packaging: 30 ml |
| Maximum net quantity per outer packaging: 500 ml |

UN "Model Regulation":

UN 1993 FLAMMABLE LIQUIDS, N.O.S. (ISOPROPOANOL, ETHANOL), 3, II

---

### 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):

<table>
<thead>
<tr>
<th>67-63-0</th>
<th>Isopropanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1</td>
<td>methanol</td>
</tr>
<tr>
<td>108-10-1</td>
<td>4-methylpentan-2-one</td>
</tr>
</tbody>
</table>

Chemicals known to cause cancer:

- 4-methylpentan-2-one

Chemicals known to cause reproductive toxicity:

- N-methyl-2-pyrrolidone

**Carcinogenic categories**

<table>
<thead>
<tr>
<th>EPA (Environmental Protection Agency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-10-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NIOSH-Ca (National Institute for Occupational Safety and Health)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

**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 labeled according to the CLP regulation.

**Hazard pictograms**

- GHS02
- GHS07
- GHS08

**Signal word** Danger

(Contd. on page 10)
Hazard-determining components of labeling:
Isopropanol
ethanol
Aliphatic ketone
methanol

Hazard statements
H225  Highly flammable liquid and vapor.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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+P337 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

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing Safety Data Sheet (SDS): Product Compliance / EHS Department
Contact: EHS_Kester@kester.com
Date of preparation / last revision 09/02/2016 / 13

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
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
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Resp. Sens. 1: Respiratory sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.