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

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

Trade name: 951 Soldering Flux and Flux Pen  
Relevant identified uses of the substance or mixture and uses advised against  
No further relevant information available.  

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  

- GHS02 flame  
Flam. Liq. 2  H225 Highly flammable liquid and vapour.  

- GHS06 skull and crossbones  
Acute Tox. 3  H331 Toxic if inhaled.  

- GHS08 health hazard  
STOT SE 2  H371 May cause damage to organs.  

- GHS07  
Eye Irrit. 2  H319 Causes serious eye irritation.  
STOT SE 3  H336 May cause drowsiness or dizziness.  

(Continued on page 2)
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**

- GHS02
- GHS06
- GHS08
- GHS07

**Signal word** Danger

**Hazard-determining components of labelling:**
- methanol
- Isopropanol

**Hazard statements**
- H225 Highly flammable liquid and vapour.
- H331 Toxic if inhaled.
- H319 Causes serious eye irritation.
- H371 May cause damage to organs.
- H336 May cause drowsiness or dizziness.

**Precautionary statements**
- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P240 Ground/bond container and receiving equipment.
- P233 Keep container tightly closed.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- 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.
- P405 Store locked up.
- P403+P235 Store in a well-ventilated place. Keep cool.
- 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.

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**SECTION 3: Composition/information on ingredients**

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

<table>
<thead>
<tr>
<th>Chemical components:</th>
<th>CAS: 64-17-5</th>
<th>Ethanol</th>
<th>Flam. Liq. 2, H225</th>
<th>55-70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 200-578-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 200-661-7</td>
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<td></td>
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</table>
Trade name: 951 Soldering Flux and Flux Pen

<table>
<thead>
<tr>
<th>Trade Secret</th>
<th>Aliphatic ketone</th>
<th>Flammable, Liquid: H226, STOT SE 3, H336</th>
<th>5-10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-56-1</td>
<td>methanol</td>
<td>Flammable, Liquid: H225, Acute Tox. 2, H330, STOT SE 1, H370</td>
<td>5-10%</td>
</tr>
<tr>
<td>EINECS: 200-659-6</td>
<td>Proprietary Carboxylic Acid</td>
<td>Eye Irritation: H319</td>
<td>1.0-3.0%</td>
</tr>
</tbody>
</table>

SVHC
This product does not contain any Substance of Very High Concern (SVHC) on the European Chemicals Agency (ECHA) candidate list.

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:
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
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.

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.
For safety reasons unsuitable extinguishing agents: Water with full jet

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
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

6.2 Environmental precautions:
Do not allow product to reach sewage system or any water course.
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.
Do not flush with water or aqueous cleansing agents

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

(Continued on page 4)
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Prevent formation of aerosols.
Information about fire - and explosion protection:
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: Not required.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.

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</th>
<th>Long-term value: 1920 mg/m³, 1000 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td></td>
</tr>
<tr>
<td>ethanol</td>
<td></td>
</tr>
<tr>
<td>WEL</td>
<td></td>
</tr>
<tr>
<td>67-63-0</td>
<td></td>
</tr>
<tr>
<td>Isopropanol</td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>Short-term value: 1225 mg/m³, 500 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 980 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>TWA</td>
<td>Short-term value: 1250 mg/m³, 500 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 980 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>WEL</td>
<td>Short-term value: 1250 mg/m³, 500 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 999 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>Aliphatic ketone</td>
<td></td>
</tr>
<tr>
<td>WEL</td>
<td>Short-term value: 966 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 724 mg/m³, 150 ppm</td>
</tr>
<tr>
<td>67-56-1</td>
<td></td>
</tr>
<tr>
<td>methanol</td>
<td></td>
</tr>
<tr>
<td>WEL</td>
<td>Short-term value: 333 mg/m³, 250 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 266 mg/m³, 200 ppm</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.

(Continued on page 5)
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: Liquid
Colour: Colourless
Odour: Alcohol-like

pH-value: Not determined.

Change in condition
Melting point/freezing point: Undetermined.
Initial boiling point and boiling range: 78 °C

Flash point: < 23 °C

Ignition temperature: 370 °C

Auto-ignition temperature: Product is not self-igniting.

Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Explosion limits:
Lower: 2.0 Vol %
Upper: 15.0 Vol %

Vapour pressure at 20 °C: 59 hPa

Density at 20 °C: 0.81 g/cm³

Solubility in / Miscibility with water: Not miscible or difficult to mix.

Solvent content:
Organic solvents: 94.8 %
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
Toxic if inhaled.

LD/LC50 values relevant for classification:

**CAS: 64-17-5 ethanol**
- Oral LD50 7060 mg/kg (rat)
- Inhalative LC50/4 h 20000 mg/l (rat)

**CAS: 67-63-0 Isopropanol**
- Oral LD50 5045 mg/kg (rat)
- Dermal LD50 12800 mg/kg (rabbit)
- Inhalative LC50/4 h 30 mg/l (rat)

**CAS: 67-56-1 methanol**
- Oral LD50 5628 mg/kg (rat)
- Dermal LD50 15800 mg/kg (rabbit)
- Inhalative LC50/4 h 0.5 mg/l (ATE)

Primary irritant effect:
Skin corrosion/irritation Based on available data, the classification criteria are not met.
Serious eye damage/irritation
Causes serious eye irritation.
Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Based on available data, the classification criteria are not met.
Reproductive toxicity Based on available data, the classification criteria are not met.
STOT-single exposure
May cause damage to organs.
STOT-repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: 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.

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 UN1992

14.2 UN proper shipping name
ADR 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)
IMDG FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)
IATA FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL, METHANOL)

14.3 Transport hazard class(es)
ADR
Class Label 3 Flammable liquids.
3+6.1

IMDG
Class Label 3 Flammable liquids.
3/6.1

IATA
Class Label 3 Flammable liquids.
3 (6.1)
14.4 Packing group
ADR, IMDG, IATA

14.5 Environmental hazards:
Marine pollutant: No
14.6 Special precautions for user
Danger code (Kemler): 336
EMS Number: F-E-S-D
Stowage Category B
Stowage Code SW2 Clear of living quarters.
14.7 Transport in bulk according to Annex II of Marpol
and the IBC Code Not applicable.

Transport/Additional information:

ADR
Limited quantities (LQ) 1L
Excepted quantities (EQ) Code: E2
Transport category 2
Tunnel restriction code D/E

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 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL), 3 (6.1), II

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

GHS02  GHS06  GHS08  GHS07

Signal word Danger

Hazard-determining components of labelling:
methanol
isopropanol

Hazard statements
H225 Highly flammable liquid and vapour.
H331 Toxic if inhaled.

(Continued on page 9)
H319 Causes serious eye irritation.
H371 May cause damage to organs.
H336 May cause drowsiness or dizziness.

Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Ground/bond container and receiving equipment.
P233 Keep container tightly closed.
P243 Take precautionary measures against static discharge.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P303 + P361 + P333 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.
P405 Store locked up.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Directive 2012/18/EU
Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t
Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t
REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

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 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
Flam. Liq. 2: Flammable liquids – Category 2

(Continued on page 10)
Trade name: 951 Soldering Flux and Flux Pen

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute Tox. 2</td>
<td>Acute toxicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>Acute toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>STOT SE 1</td>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>STOT SE 2</td>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

* Data compared to the previous version altered.