

# Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 06/02/2017

Version number 6

Reviewed on 06/02/2017

## 1 Identification

**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.

**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**



Flame

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



Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



Health hazard

STOT SE 2 H371 May cause damage to organs.



Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

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US

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**Label elements**

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

**Hazard pictograms**



GHS02 GHS06 GHS07 GHS08

**Signal word** Danger

**Hazard-determining components of labeling:**

methanol  
Isopropanol  
Aliphatic ketone

**Hazard statements**

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

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face 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+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**

**NFPA ratings (scale 0 - 4)**



Health = 2  
Fire = 3  
Reactivity = 0

**HMIS-ratings (scale 0 - 4)**



Health = \*2  
Fire = 3  
Reactivity = 0

**Other hazards**

**Results of PBT and vPvB assessment**

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

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### 3 Composition/information on ingredients

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

CAS No.	Description		% Range
CAS: 64-17-5	ethanol	⚠ Flam. Liq. 2, H225	55-70%
CAS: 67-63-0	Isopropanol	⚠ Flam. Liq. 2, H225 ⚠ Eye Irrit. 2A, H319; STOT SE 3, H336	10-25%
Trade Secret	Aliphatic ketone	⚠ Flam. Liq. 3, H226 ⚠ STOT SE 3, H336	5-<10%
CAS: 67-56-1	methanol	⚠ Flam. Liq. 2, H225 ⚠ Acute Tox. 2, H330 ⚠ STOT SE 1, H370	5-<10%
Trade Secret	Proprietary Carboxylic Acid	⚠ Eye Irrit. 2A, H319	1.0-3.0%

### 4 First-aid measures

**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.

**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.

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

**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**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Do not allow to enter sewers/ surface or ground water.

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**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

**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: 64-17-5	ethanol	1,800 ppm
CAS: 67-63-0	Isopropanol	400 ppm
	Aliphatic ketone	5 ppm
CAS: 67-56-1	methanol	530 ppm

**PAC-2:**

CAS: 64-17-5	ethanol	3300* ppm
CAS: 67-63-0	Isopropanol	2000* ppm
	Aliphatic ketone	200 ppm
CAS: 67-56-1	methanol	2,100 ppm

**PAC-3:**

CAS: 64-17-5	ethanol	15000* ppm
CAS: 67-63-0	Isopropanol	12000** ppm
	Aliphatic ketone	3000* ppm
CAS: 67-56-1	methanol	7200* ppm

**7 Handling and storage**

**Handling:**

**Precautions for safe handling** Prevent formation of aerosols.

**Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

**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 receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

**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.

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At this time, the remaining constituent has no known exposure limits.

**CAS: 64-17-5 ethanol**

PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1880 mg/m <sup>3</sup> , 1000 ppm

**CAS: 67-63-0 Isopropanol**

PEL	Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
REL	Short-term value: 1225 mg/m <sup>3</sup> , 500 ppm Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
TLV	Short-term value: 984 mg/m <sup>3</sup> , 400 ppm Long-term value: 492 mg/m <sup>3</sup> , 200 ppm BEI

**Aliphatic ketone**

PEL	Long-term value: 710 mg/m <sup>3</sup> , 150 ppm
REL	Long-term value: 950 mg/m <sup>3</sup> , 200 ppm
TLV	Short-term value: 712 mg/m <sup>3</sup> , 150 ppm Long-term value: 238 mg/m <sup>3</sup> , 50 ppm

**CAS: 67-56-1 methanol**

PEL	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm
REL	Short-term value: 325 mg/m <sup>3</sup> , 250 ppm Long-term value: 260 mg/m <sup>3</sup> , 200 ppm Skin
TLV	Short-term value: 328 mg/m <sup>3</sup> , 250 ppm Long-term value: 262 mg/m <sup>3</sup> , 200 ppm Skin; BEI

**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.  
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:**

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

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**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

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

**Form:** Liquid  
**Color:** Colorless  
**Odor:** Alcohol-like

**pH-value:** Not determined.

**Change in condition**

**Melting point/Melting range:** Undetermined.  
**Boiling point/Boiling range:** 78 °C (172 °F)

**Flash point:** 16 °C (60.8 °F)

**Ignition temperature:** 370 °C (698 °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/cm<sup>3</sup> (6.759 lbs/gal)

**Solubility in / Miscibility with**

**Water:** Not miscible or difficult to mix.

**Solvent content:**

**Organic solvents:** 94.8 %  
**Water:** 3.1 %

**Solids content:** 2.0 %

**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.

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**Hazardous decomposition products:** No dangerous decomposition products known.

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**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:**

**LD/LC50 values that are 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:**

**on the skin:** No irritant effect.

**on the eye:** Irritating effect.

**Sensitization:** Sensitization possible through inhalation.

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful  
Irritant

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

CAS: 64-17-5	ethanol	1
CAS: 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.

**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.



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**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, IMDG, IATA

UN1992

UN proper shipping name

DOT

Flammable liquids, toxic, n.o.s. (Ethanol, Methanol)

ADR

1992 Flammable liquids, toxic, n.o.s. (Ethanol, Methanol)

IMDG

FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)

IATA

FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL, METHANOL)

**Transport hazard class(es)**

DOT



**Class Label**

3 Flammable liquids  
3, 6.1

ADR



**Class Label**

3 Flammable liquids  
3+6.1

IMDG



**Class Label**

3 Flammable liquids  
3/6.1

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**IATA**



<b>Class</b>	3 Flammable liquids
<b>Label</b>	3 (6.1)
<b>Packing group</b>	
<b>DOT, IMDG, IATA</b>	II
<b>Marine pollutant:</b>	No
<b>Special precautions for user</b>	Not applicable.
<b>Danger code (Kemler):</b>	336
<b>EMS Number:</b>	F-E,S-D
<b>Stowage Category</b>	B
<b>Stowage Code</b>	SW2 Clear of living quarters.
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

**Transport/Additional information:**

<b>DOT</b>	
<b>Quantity limitations</b>	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L

<b>ADR</b>	
<b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

<b>IMDG</b>	
<b>Limited quantities (LQ)</b>	1L
<b>Excepted quantities (EQ)</b>	Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
<b>UN "Model Regulation":</b>	UN 1992 FLAMMABLE LIQUIDS, TOXIC, N.O.S. (ETHANOL, METHANOL), 3 (6.1), II

**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.

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**Section 313 (Specific toxic chemical listings):**

CAS: 67-63-0	Isopropanol
CAS: 67-56-1	methanol

**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:**

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.

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

**Hazard pictograms**



GHS02 GHS06 GHS07 GHS08

**Signal word** Danger

**Hazard-determining components of labeling:**

methanol  
Isopropanol  
Aliphatic ketone

**Hazard statements**

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

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face 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.

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P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
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:

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

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. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

STOT SE 2: Specific target organ toxicity (single exposure) – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

\* **Data compared to the previous version altered.**