

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

PRODUCT AND COMPANY IDENTIFICATION

Trade name: 953S 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

Carc. 2 H351 Suspected of causing cancer.
STOT SE 2 H371 May cause damage to organs.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labeled according to the CLP regulation.

(Contd. on page 2)
US

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 1)

Hazard pictograms



GHS02 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:

methanol
Isopropanol
4-methylpentan-2-one
Aliphatic ketone

Hazard statements

H225 Highly flammable liquid and vapor.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H371 May cause damage to organs.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Ground/bond container and receiving equipment.
P233 Keep container tightly closed.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P403+P235 Store in a well-ventilated place. Keep cool.
P404 Store in a closed container.
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

(Contd. on page 3)

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

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 2)

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.

CAS No.	Description	% Range
CAS: 64-17-5 EINECS: 200-578-6	ethanol Flam. Liq. 2, H225	70-85%
CAS: 67-63-0 EINECS: 200-661-7	Isopropanol Flam. Liq. 2, H225 Eye Irrit. 2A, H319; STOT SE 3, H336	5-<10%
	Aliphatic ketone Flam. Liq. 3, H226 STOT SE 3, H336	5-<10%
CAS: 67-56-1 EINECS: 200-659-6	methanol Flam. Liq. 2, H225 Acute Tox. 2, H330 STOT SE 1, H370	3.0-5.0%
	Proprietary organic acids Eye Irrit. 2A, H319	1.0-3.0%
CAS: 108-10-1 EINECS: 203-550-1	4-methylpentan-2-one Flam. Liq. 2, H225 Acute Tox. 3, H331 Carc. 2, H351 Eye Irrit. 2A, H319; STOT SE 3, H335	0.1-≤1%
	Azole Isomers Acute Tox. 4, H302; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	0.1-<1%

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.

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.

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

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 3)

FIREFIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing agents:** CO₂, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.**For safety reasons unsuitable extinguishing agents:** Water with full jet**5.2 Special hazards arising from the substance or mixture**Nitrogen oxides (NO_x)

In case of fire, the following can be released:

5.3 Advice for firefighters**Protective equipment:** Wear self-contained respiratory protective device.**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 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.

See Section 13 for disposal information.

HANDLING AND STORAGE**7.1 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.

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 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****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.

(Contd. on page 5)

US

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 4)

64-17-5 ethanol

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

67-63-0 Isopropanol

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

Aliphatic ketone

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

67-56-1 methanol

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

Proprietary organic acids

TLV	Long-term value: 5 mg/m ³
-----	--------------------------------------

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

PEL	Long-term value: 410 mg/m ³ , 100 ppm
REL	Short-term value: 300 mg/m ³ , 75 ppm Long-term value: 205 mg/m ³ , 50 ppm
TLV	Short-term value: 307 mg/m ³ , 75 ppm Long-term value: 82 mg/m ³ , 20 ppm 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

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.
 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.

(Contd. on page 6)

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 5)

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: Not determined.

Change in condition

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

Flash point: 16 °C (61 °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: 3.5 Vol %
Upper: 15.0 Vol %

Vapor pressure at 20 °C (68 °F): 59 hPa (44 mm Hg)

Density: Not determined.

Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

Solvent content:

Organic solvents: 94.6 % (VOC: 792 g/litre)
Water: 4.1 %

(Contd. on page 7)

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 6)

Solids content: 1.2 %

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.

TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Harmful if inhaled.

LD/LC50 values that are relevant for classification:

64-17-5 ethanol

Oral	LD50	7060 mg/kg (rat)
------	------	------------------

Inhalative	LC50/4 h	20000 mg/l (rat)
------------	----------	------------------

67-56-1 methanol

Oral	LD50	5628 mg/kg (rat)
------	------	------------------

Dermal	LD50	15800 mg/kg (rabbit)
--------	------	----------------------

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.

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

Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

64-17-5	ethanol	1
67-63-0	isopropanol	3
108-10-1	4-methylpentan-2-one	2B

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.

(Contd. on page 8)

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

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

12.5 Results of PBT and vPvB assessment

(Contd. of page 7)

PBT: Not applicable.
vPvB: Not applicable.

DISPOSAL CONSIDERATIONS

13.1 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.

TRANSPORT INFORMATION

14.1 UN-Number

DOT, ADR, IMDG, IATA UN1993

14.2 UN proper shipping name

DOT Flammable liquids, n.o.s. (Ethanol)
ADR 1993 Flammable liquids, n.o.s. (Ethanol)
IMDG Not regulated
FLAMMABLE LIQUID, N.O.S. (ETHANOL (ETHYL ALCOHOL))
IATA Not regulated
FLAMMABLE LIQUID, N.O.S. (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 II

Marine pollutant:

No

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.

(Contd. on page 9)

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

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 8)

Transport/Additional information:

DOT

Quantity limitations

On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

ADR

Excepted quantities (EQ)

Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

IMDG

**Limited quantities (LQ)
Excepted quantities (EQ)**

1L
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. (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):

67-63-0	Isopropanol
67-56-1	methanol
108-10-1	4-methylpentan-2-one

Chemicals known to cause cancer:

4-methylpentan-2-one

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

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

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.

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labeled according to the CLP regulation.

(Contd. on page 10)

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

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 9)

Hazard pictograms



GHS02 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:

methanol
Isopropanol
4-methylpentan-2-one
Aliphatic ketone

Hazard statements

H225 Highly flammable liquid and vapor.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H371 May cause damage to organs.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Ground/bond container and receiving equipment.
P233 Keep container tightly closed.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P403+P235 Store in a well-ventilated place. Keep cool.
P404 Store in a closed container.
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 09/02/2016 / 7

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)

(Contd. on page 11)

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 09/02/2016

Version number 8

Reviewed on 09/02/2016

Trade name: 953S Soldering Flux

(Contd. of page 10)

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
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
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.**