

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 08/01/2007

Reviewed on 08/01/2007

1 Identification of substance**Product details****Trade name: 1544***Application of the substance / the preparation: Soldering flux***Manufacturer/Supplier:**

Kester
800 W. Thorndale Ave.
Itasca, IL 60143

Tel.(847) 297-1600

Fax.(847) 390-9338

Information department:

MSDS Coordinator

Tel. (847) 699-5755

Emergency information:

CHEMTREC 24-Hour Emergency Telephone Number:

(800)424-9300

CHEMTREC 24-Hour Emergency Telephone Number (Outside of the U.S. and Canada):

(703)527-3887

2 Composition/Data on components**Chemical characterization***Description: Mixture of the substances listed below with nonhazardous additions.***Dangerous components:**

8050-09-7	Rosin	25-50%
78-92-2	sec-butanol	10-25%
64-17-5	ethanol	10-25%
67-63-0	propan-2-ol	≤ 2.5%
67-56-1	methanol	≤ 2.5%
506-59-2	dimethylammonium chloride	≤ 2.5%

3 Hazards identification**WHMIS Hazard Symbols****Information pertaining to particular dangers for man and environment:***The product has to be labelled due to the calculation procedure of international guidelines.**Has a narcotizing effect.**Highly flammable.**Irritating to eyes and respiratory system.**May cause sensitisation by skin contact.**Vapours may cause drowsiness and dizziness.*

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NFPA ratings (scale 0 - 4)

Health = 2

Fire = 3

Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH	2
FIRE	3
REACTIVITY	0

Health = *2

Fire = 3

Reactivity = 0

4 First aid measures**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: If symptoms persist consult doctor.**5 Fire fighting measures****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 caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO₂)

Aliphatic aldehydes

Protective equipment: Wear self-contained respiratory protective device.**6 Accidental release measures****Person-related safety precautions:**

Ensure adequate ventilation

Keep away from ignition sources

Measures for environmental protection: Do not allow product to reach sewage system or any water course.**Measures for cleaning/collecting:**

Absorb with clay, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container.

7 Handling and storage**Handling:****Information for safe handling:** Store in cool, dry place in tightly closed receptacles.

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Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

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:** Store in cool, dry conditions in well sealed receptacles.

8 Exposure controls and personal protection

Additional information about design of technical systems: No further data; see item 7.**Components with limit values that require monitoring at the workplace:****8050-09-7 Rosin**

PEL (Colophony)
TLV SEN; (L)

78-92-2 sec-butanol

PEL 450 mg/m³, 150 ppm
REL Short-term value: 455 mg/m³, 150 ppm
Long-term value: 305 mg/m³, 100 ppm
TLV 300 mg/m³, 100 ppm

64-17-5 ethanol

PEL 1900 mg/m³, 1000 ppm
REL 1900 mg/m³, 1000 ppm
TLV 1880 mg/m³, 1000 ppm

67-63-0 propan-2-ol

PEL 980 mg/m³, 400 ppm
REL Short-term value: 1225 mg/m³, 500 ppm
Long-term value: 980 mg/m³, 400 ppm
TLV Short-term value: (1230) mg/m³, (500) ppm
Long-term value: (983) mg/m³, (400) ppm
NIC-200; 491; 400; 984; A 4

67-56-1 methanol

PEL 260 mg/m³, 200 ppm
REL Short-term value: 325 mg/m³, 250 ppm
Long-term value: 260 mg/m³, 200 ppm
Skin
TLV Short-term value: 328 mg/m³, 250 ppm
Long-term value: 262 mg/m³, 200 ppm
Skin; BEI

Additional information:

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

TLV = Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute for Occupational Safety and Health

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Personal protective equipment:

General protective and hygienic measures:

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.

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:



Tightly sealed goggles

Safety glasses

9 Physical and chemical properties

General Information

Form: Liquid
Color: Amber colored
Odor: Alcohol-like

Change in condition

Melting point/Melting range: Undetermined.

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

Flash point: 18°C (64°F)

Ignition temperature: 390°C (734°F)

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

Explosion limits:

Lower: 1.7 Vol %
Upper: 15.0 Vol %

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Vapor pressure at 20°C (68°F): 40 hPa (30 mm Hg)

Density at 20°C (68°F): 0.926 g/cm³

Solubility in / Miscibility with Water: Partly soluble.

10 Stability and reactivity

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Materials to be avoided: Strong acids, strong oxidizers.

Dangerous reactions No dangerous reactions known.

Dangerous products of decomposition:

When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

Carbon monoxide and carbon dioxide

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:

78-92-2 sec-butanol

Oral	LD50	6480 mg/kg (rat)
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506-59-2 dimethylammonium chloride

Oral	LD50	1070 mg/kg (rat)
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8050-09-7 Rosin

Oral	LD50	2.2 mg/kg (mouse) 3.0 mg/kg (rat)
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64-17-5 ethanol

Oral	LD50	7060 mg/kg (rat)
Inhalative	LC50/4 h	20000 mg/l (rat)

67-63-0 propan-2-ol

Oral	LD50	5045 mg/kg (rat)
Dermal	LD50	12800 mg/kg (rabbit)
Inhalative	LC50/4 h	30 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: Possible local irritation by contact with flux or fumes.

on the eye: Smoke during soldering can cause eye irritation.

through inhalation:

Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

through ingestion: May cause gastrointestinal irritation.

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Sensitization: *Sensitization possible through skin contact.*

Additional toxicological information:

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

12 Ecological information

General notes: *Do not allow product to reach ground water, water course or sewage system.*

13 Disposal considerations

Product:

Recommendation:

*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.*

Uncleaned packagings:

Recommendation: *Disposal must be made according to official regulations.*

14 Transport information

DOT regulations:

Hazard class: 3
Identification number: UN1987
Packing group: II
Proper shipping name (technical name): ALCOHOLS, N.O.S. (ETHANOL, BUTANOLS)
Label 3

Land transport ADR/RID (cross-border):

ADR/RID class: *3 Flammable liquids*
UN-Number: *1986*
Packaging group: *II*
Description of goods: *1986 ALCOHOLS, FLAMMABLE, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)*

Maritime transport IMDG:

IMDG Class: *3*
UN Number: *1986*
Label *3+6.1*
Packaging group: *II*
EMS Number: *F-E,S-D*
Marine pollutant: *No*
Proper shipping name: *ALCOHOLS, FLAMMABLE, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)*

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: *3*
UN/ID Number: *1986*

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Label 3+6.1

Packaging group: II

Proper shipping name: ALCOHOLS, FLAMMABLE, TOXIC, N.O.S. (ETHANOL, METHANOL)

Transport/Additional information: Not dangerous according to the above specifications.

15 Regulations

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):

78-92-2 | sec-butanol

67-56-1 | methanol

TSCA (Toxic Substances Control Act):

All ingredients are listed or exempt from listing.

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.

Carcinogenicity categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

CANADA: The following information relates to product regulation specific to 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 MSDS contains all of the information required by the CPR.

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EUROPEAN UNION*The following information relates to product regulation specific to the directives of the European Union.***Risk phrases:***Highly flammable.**Irritating to eyes and respiratory system.**May cause sensitisation by skin contact.**Vapours may cause drowsiness and dizziness.***Safety phrases:***Keep out of the reach of children.**Avoid contact with skin and eyes.**Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.**Wear suitable gloves.**If swallowed, seek medical advice immediately and show this container or label.***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 MSDS: *Product Safety*

USA