

**Material Safety Data Sheet**

According to 91/155 EC

Printing date 03.07.2003

Reviewed on 03.07.2003

**1 Identification of the substance/preparation and of the company/undertaking****Product details****Trade name: 2224**

Application of the substance / the preparation Soldering flux

**Manufacturer/Supplier:**Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018Tel.(847) 297-1600  
Fax.(847) 390-9338**Further information obtainable from:**

MSDS Coordinator:

Tel. (847) 699-5755

**Information in case of emergency:**





CHEMTREC 24-Hour Emergency Response Telephone Number:

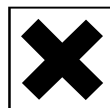
(800) 424-9300

CHEMTREC 24-Hour Emergency Response Telephone Number (Outside US and Canada):

(703) 527-3887

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

|                                   |                      |   |         |
|-----------------------------------|----------------------|---|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7 | propan-2-ol          |  Xi,  F; R 11-36-67 | 50-100% |
| CAS: 50-01-1<br>EINECS: 200-002-3 | guanidinium chloride |  Xn; R 22-36/38  | ≤ 2.5%  |
| CAS: 79-14-1<br>EINECS: 201-180-5 | glycollic acid       |  C; R 22-34  | ≤ 2.5%  |
| CAS: 56-81-5<br>EINECS: 200-289-5 | glycerol             |   | ≤ 2.5%  |

**3 Hazards identification****Hazard description:**Xi Irritant  
F Highly flammable**Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Has a narcotizing effect.

R 11 Highly flammable.

R 36 Irritating to eyes.

R 67 Vapours may cause drowsiness and dizziness.

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**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:** *Induce vomiting, if person is conscious. Seek medical help.***5 Fire-fighting measures****Suitable extinguishing agents:** *CO<sub>2</sub>, sand, extinguishing powder. Do not use water.***For safety reasons unsuitable extinguishing agents:** *Water with full jet***Special hazards caused by the substance, its products of combustion or resulting gases:***In case of fire, the following can be released:**Carbon monoxide (CO)**Carbon dioxide (CO<sub>2</sub>)**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, diatomaceous earth, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container. Flush residual with water.***7 Handling and storage****Handling:****Information for safe handling:***Ensure good ventilation/exhaustion at the workplace.**Open and handle receptacle with care.***Information about fire - and explosion protection:***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/personal protection****Additional information about design of technical facilities:** *No further data; see item 7.*

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**Ingredients with limit values that require monitoring at the workplace:****67-63-0 propan-2-ol**

OES Short-term value: 1250 mg/m<sup>3</sup>, 500 ppm  
 Long-term value: 999 mg/m<sup>3</sup>, 400 ppm

**56-81-5 glycerol**

OES Long-term value: 10 mg/m<sup>3</sup>

**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

**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.

**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.

**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  
**Colour:** Light yellow  
**Odour:** Alcohol-like

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**Change in condition****Melting point/Melting range:** *Undetermined.***Boiling point/Boiling range:** 82°C**Flash point:** 18°C**Ignition temperature:** 399°C**Danger of explosion:** *Product is not explosive. However, formation of explosive air/vapour mixtures are possible.***Explosion limits:****Lower:** 2.0 Vol %**Upper:** 12.0 Vol %**Vapour pressure at 20°C:** 33 mm Hg**Density at 20°C:** 0.837 g/cm<sup>3</sup>**Solubility in / Miscibility with water:** *Fully miscible.***pH-value at 20°C:** 1.8**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 decomposition products:***When heated to soldering temperatures, the solvents are evaporated and organic materials may be thermally degraded to liberate aliphatic aldehydes and acids.***11 Toxicological information****Acute toxicity:****LD/LC50 values relevant for classification:****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)        |

**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.***Sensitization:** *No sensitizing effects known.***Additional toxicological information:***The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:*

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Irritant

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**12 Ecological information****General notes:***Do not allow product to reach ground water, water course or sewage system.**Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.***13 Disposal considerations****Product:****Recommendation***Must not be disposed together with household garbage. Do not allow product to reach sewage system.***European waste catalogue**

14 06 03 | other solvents and solvent mixtures

**Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***14 Transport information****Land transport ADR/RID (cross-border)****ADR/RID class:** 3 Flammable liquids.**Danger code (Kemler):** 33**UN-Number:** 1219**Packaging group:** II**Hazard label** 3**Description of goods:** 1219 ISOPROPANOL (ISOPROPYL ALCOHOL), mixture**Maritime transport IMDG:****IMDG Class:** 3**UN Number:** 1219**Label** 3**Packaging group:** II**EMS Number:** F-E,S-E**Marine pollutant:** No**Proper shipping name:** ISOPROPANOL (ISOPROPYL ALCOHOL), mixture**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** 3**UN/ID Number:** 1219**Label** 3**Packaging group:** II

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**Proper shipping name:** ISOPROPANOL (ISOPROPYL ALCOHOL), mixture

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**15 Regulatory information****Code letter and hazard designation of product:***Xi Irritant  
F Highly flammable***Risk phrases:**

- 11 Highly flammable.
- 36 Irritating to eyes.
- 67 Vapours may cause drowsiness and dizziness.

**Safety phrases:**

- 2 Keep out of the reach of children.
- 7/9 Keep container tightly closed and in a well-ventilated place.
- 29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
- 46 If swallowed, seek medical advice immediately and show this container or label.

**National regulations:****Technical instructions (air):**

| Class | Share in % |
|-------|------------|
| Water | 3.4        |
| III   | 82.0       |
| NK    | 2.0        |

**Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**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.

**Relevant R-phrases**

- 11 Highly flammable.
- 22 Harmful if swallowed.
- 34 Causes burns.
- 36 Irritating to eyes.
- 36/38 Irritating to eyes and skin.
- 67 Vapours may cause drowsiness and dizziness.

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**Department issuing MSDS:** *Product Safety***Contact:** *Heather Holich, MSDS Coordinator**Tel. (847)699-5755*

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