

**Material Safety Data Sheet**

According to 91/155 EEC

Printing date 08.06.2004

Reviewed on 04.06.2004

**1 Identification of the substance/preparation and of the company/undertaking****Product details****Trade name: 2211**

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

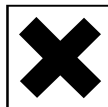
**Information in case of emergency:**

CHEMTREC 24-Hour Emergency Response Telephone Number (Outside US and Canada): (703) 527-3887

CHEMTREC 24-Hour Emergency Response Telephone Number: (800) 424-9300

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

CAS: 64-17-5 EINECS: 200-578-6	ethanol	 F; R 11	50-100%
CAS: 107-21-1 EINECS: 203-473-3	ethanediol	 Xn; R 22	10-25%
CAS: 67-63-0 EINECS: 200-661-7	propan-2-ol	 Xi,  F; R 11-36-67	2.5-10%
CAS: 67-56-1 EINECS: 200-659-6	methanol	 T,  F; R 11-23/24/25-39/23/24/25	2.5-10%
CAS: 7647-01-0 EINECS: 231-595-7	hydrogen chloride	 C; R 34-37	≤ 2.5%

**3 Hazards identification****Hazard description:**Xn Harmful  
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.

R 11 Highly flammable.

R 22 Harmful if swallowed.

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**4 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.*

**After inhalation:** *Supply fresh air; consult doctor in case of complaints.*

**After skin contact:** *Generally the product does not irritate the skin.*

**After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*

**After swallowing:**

*Induce vomiting, if person is conscious. Seek medical help.*

*Call for a doctor immediately.*

**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*

**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>)*

**Protective equipment:** *Wear self-contained respiratory protective device.*

**6 Accidental release measures****Person-related safety precautions:**

*Ensure adequate ventilation*

*Keep away from ignition sources.*

*Wear protective equipment. Keep unprotected persons away.*

**Measures for environmental protection:**

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

*Prevent seepage into sewage system, workpits and cellars.*

*Inform respective authorities in case of seepage into water course or sewage system.*

*Dilute with plenty of water.*

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

**Measures for cleaning/collecting:**

*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).*

*Dispose contaminated material as waste according to item 13.*

*Ensure adequate ventilation.*

*Do not flush with water or aqueous cleansing agents*

**7 Handling and storage****Handling:**

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

**Information about fire - and explosion protection:**

*Keep ignition sources away - Do not smoke.*

*Protect against electrostatic charges.*

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## 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:**

Keep container tightly sealed.

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.

### Ingredients with limit values that require monitoring at the workplace:

#### 64-17-5 ethanol

OES Long-term value: 1920 mg/m<sup>3</sup>, 1000 ppm

#### 107-21-1 ethanediol

OES Short-term value: 104\*\* mg/m<sup>3</sup>  
Long-term value: 10\* 52\*\* mg/m<sup>3</sup>  
\*particulate, IOELV, Sk \*\*vapour, IOELV, Sk

#### 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

#### 67-56-1 methanol

OES Short-term value: 333 mg/m<sup>3</sup>, 250 ppm  
Long-term value: 266 mg/m<sup>3</sup>, 200 ppm  
Sk, ILV

#### 7647-01-0 hydrogen chloride

OES Short-term value: 8 mg/m<sup>3</sup>, 5 ppm  
Long-term value: 2 mg/m<sup>3</sup>, 1 ppm  
gas and aerosol mists; ILV

### Personal protective equipment:

#### General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

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

Natural rubber, NR

Nitrile rubber, NBR

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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:***Tightly sealed goggles**Safety glasses***Body protection:** *Protective work clothing***9 Physical and chemical properties****General Information**

**Form:** *Liquid*  
**Colour:** *Colourless*  
**Odour:** *Characteristic*

**Change in condition****Melting point/Melting range:** *Undetermined.***Boiling point/Boiling range:** *76°C***Flash point:** *18°C***Ignition temperature:** *410.0°C***Self-igniting:** *Product is not selfigniting.***Danger of explosion:** *Product is not explosive. However, formation of explosive air/vapour mixtures are possible.***Explosion limits:****Lower:** *3.2 Vol %***Upper:** *53.0 Vol %***Vapour pressure at 20°C:** *59.0 hPa***Density at 20°C:** *0.906 g/cm<sup>3</sup>***Solubility in / Miscibility with water:** *Fully miscible.***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.*

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**Dangerous decomposition products:**Carbon monoxide and carbon dioxide  
Aldehyde**11 Toxicological information****Acute toxicity:****LD/LC50 values relevant for classification:****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: Irritating effect.

**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:

Harmful

**12 Ecological information****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**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
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**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:** 1987**Packaging group:** II

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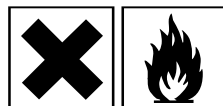
*Hazard label* 3  
**Description of goods:** 1987 ALCOHOLS, N.O.S., special provision 640D (ETHANOL (ETHYL ALCOHOL), ISOPROPANOL (ISOPROPYL ALCOHOL))

**Maritime transport IMDG:**

**IMDG Class:** 3  
**UN Number:** 1987  
**Label** 3  
**Packaging group:** II  
**EMS Number:** F-E,S-E  
**Marine pollutant:** No  
**Proper shipping name:** ALCOHOLS, N.O.S. (ETHANOL (ETHYL ALCOHOL), ISOPROPANOL (ISOPROPYL ALCOHOL))

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 3  
**UN/ID Number:** 1987  
**Label** 3  
**Packaging group:** II  
**Proper shipping name:** ALCOHOLS, N.O.S. (ETHANOL, ISOPROPANOL (ISOPROPYL ALCOHOL))

**15 Regulatory information****Code letter and hazard designation of product:**

Xn Harmful  
 F Highly flammable

**Risk phrases:**

11 Highly flammable.  
 22 Harmful if swallowed.

**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	0.7
III	78.1
NK	0.5

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**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.*
- 23/24/25 *Toxic by inhalation, in contact with skin and if swallowed.*
- 34 *Causes burns.*
- 36 *Irritating to eyes.*
- 37 *Irritating to respiratory system.*
- 39/23/24/25 *Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.*
- 67 *Vapours may cause drowsiness and dizziness.*

**Department issuing MSDS:** *Product Safety***Contact:** *Stacey Pole, MSDS Coordinator**Tel:(847)699-5755*