

**Material Safety Data Sheet***acc. to ISO/DIS 11014*

Printing date 12/16/2004

Reviewed on 12/16/2004

**1 Identification of substance****Product details****Trade name: 2331ZX***Application of the substance / the preparation: Soldering flux***Manufacturer/Supplier:**

Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018

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:**

67-63-0	propan-2-ol	50-100%
56-81-5	glycerol	10-25%
111-42-2	2,2'-iminodiethanol	2.5-10%
506-59-2	dimethylammonium chloride	2.5-10%
50-21-5	lactic acid	2.5-10%
79-14-1	hydroxyacetic acid	≤ 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.**Vapours may cause drowsiness and dizziness.***NFPA ratings (scale 0 - 4)**

Health = 1

Fire = 3

Reactivity = 0

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

HEALTH	1	Health = 1
FIRE	3	Fire = 3
REACTIVITY	0	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:** Seek immediate medical advice.**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 material, 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**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.**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:**

Do not store together with oxidizing and acidic materials.

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**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:

#### 67-63-0 propan-2-ol

PEL	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: (1230) mg/m <sup>3</sup> , (500) ppm Long-term value: (983) mg/m <sup>3</sup> , (400) ppm NIC-200; 491; 400; 984; A 4

#### 56-81-5 glycerol

PEL	15*; 5** mg/m <sup>3</sup> *Total dust **Respirable fraction
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#### 111-42-2 2,2'-iminodiethanol

REL	15 mg/m <sup>3</sup> , 3 ppm
TLV	2 mg/m <sup>3</sup> , 0.46 ppm Skin

#### 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.

##### 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.

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**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:** *82°C (180°F)*

**Flash point:** *18°C (64°F)*

**Ignition temperature:** *370.0°C (698°F)*

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

**Explosion limits:**

**Lower:** *0.9 Vol %*  
**Upper:** *12.0 Vol %*

**Vapor pressure at 20°C (68°F):** *33 hPa (25 mm Hg)*

**Density at 20°C (68°F):** *0.899 g/cm<sup>3</sup>*

**Solubility in / Miscibility with**

**Water:** *Soluble.*

**pH-value at 20°C (68°F):** *6.7*

**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:**

*Carbon monoxide and carbon dioxide*

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Aldehydes

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**11 Toxicological information****Acute toxicity:****LD/LC50 values that are 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)

**111-42-2 2,2'-iminodiethanol**

Oral	LD50	1600 mg/kg (rat)
Dermal	LD50	12200 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:

Fumes during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, narcosis, and nausea.

through ingestion: May cause gastrointestinal irritation.

**Sensitization:** No sensitizing effects known.

**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.

**Uncleaned packagings:**

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

**14 Transport information****DOT regulations:**

Hazard class: 3  
Identification number: UN1219  
Packing group: II

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*Proper shipping name (technical name): ISOPROPANOL (ISOPROPYL ALCOHOL), mixture*  
*Label* 3

**Land transport ADR/RID (cross-border):**

**ADR/RID class:** 3 *Flammable liquids*  
**Danger code (Kemler):** 33  
**UN-Number:** 1219  
**Packaging group:** II  
**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  
**Proper shipping name:** ISOPROPANOL (ISOPROPYL ALCOHOL), mixture

**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):*

67-63-0 *propan-2-ol*

111-42-2 *2,2'-iminodiethanol*

**TSCA (Toxic Substances Control Act):**

*All ingredients are listed.*

**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.*

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**Carcinogenicity categories**

<i>EPA (Environmental Protection Agency)</i>
<i>None of the ingredients is listed.</i>
<i>IARC (International Agency for Research on Cancer)</i>
<i>67-63-0   propan-2-ol   3</i>
<i>NTP (National Toxicology Program)</i>
<i>None of the ingredients is listed.</i>
<i>TLV (Threshold Limit Value established by ACGIH)</i>
<i>None of the ingredients is listed.</i>
<i>NIOSH-Ca (National Institute for Occupational Safety and Health)</i>
<i>None of the ingredients is listed.</i>
<i>OSHA-Ca (Occupational Safety &amp; Health Administration)</i>
<i>None of the ingredients is listed.</i>

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.

WHMIS Classification:

B2  
D2B

**Components on Ingredient List for WHMIS:**

propan-2-ol  
2,2'-iminodiethanol  
lactic acid  
hydroxyacetic acid  
dimethylammonium chloride

**EUROPEAN UNION**

The following information relates to product regulation specific to the directives of the European Union.

**Risk phrases:**

Highly flammable.  
Irritating to eyes.  
Vapours may cause drowsiness and dizziness.

**Safety phrases:**

Keep out of the reach of children.  
Keep container tightly closed in a cool place.  
Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.  
If swallowed, seek medical advice immediately and show this container or label.

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**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***Contact:** *Stacey Pole, MSDS Coordinator**Tel. (847) 699-5755*

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