

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/16/2017

Version number 11

Reviewed on 08/16/2017

1 Identification

Trade name: 2331ZX Soldering Flux and Flux Pen**Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

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**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

2 Hazard(s) identification

Classification of the substance or mixture

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



Health hazard

Carc. 2 H351 Suspected of causing cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



STOT SE 3 H336 May cause drowsiness or dizziness.

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US

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Label elements

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS02 GHS05 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:

diethanolamine
Isopropanol
Glycolic Acid

Hazard statements

H225 Highly flammable liquid and vapor.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/attention if you feel unwell.
P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 1
Fire = 3
Reactivity = 0

HMS-ratings (scale 0 - 4)



Health = *1
Fire = 3
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

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vPvB: Not applicable.

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3 Composition/information on ingredients

Description: Mixture of the substances listed below with nonhazardous additions.

CAS No.	Description		% Range
CAS: 67-63-0	Isopropanol	⚠ Flam. Liq. 2, H225 ⚠ Eye Irrit. 2A, H319; STOT SE 3, H336	55-70%
CAS: 56-81-5	glycerol		10-25%
CAS: 111-42-2	diethanolamine	⚠ Carc. 2, H351; STOT RE 2, H373 ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302	5-10%
Trade Secret	Organic Salt	⚠ Acute Tox. 4, H302	5-10%
Trade Secret	Organic Acid	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	3-5%
CAS: 79-14-1	Glycolic Acid	⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302	1-3%

4 First-aid measures

Description of first aid measures

General information: Follow general first aid procedures.

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.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture In case of fire, the following can be released:

Advice for firefighters

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions: No special measures required.

Methods and material for containment and cleaning up: Ensure adequate ventilation.

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.

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Protective Action Criteria for Chemicals

PAC-1:

CAS: 67-63-0	Isopropanol	400 ppm
CAS: 56-81-5	glycerol	45 mg/m3
CAS: 111-42-2	diethanolamine	3 mg/m3
CAS: 79-14-1	Glycolic Acid	25 mg/m3

PAC-2:

CAS: 67-63-0	Isopropanol	2000* ppm
CAS: 56-81-5	glycerol	180 mg/m3
CAS: 111-42-2	diethanolamine	28 mg/m3
CAS: 79-14-1	Glycolic Acid	280 mg/m3

PAC-3:

CAS: 67-63-0	Isopropanol	12000** ppm
CAS: 56-81-5	glycerol	1,100 mg/m3
CAS: 111-42-2	diethanolamine	130 mg/m3
CAS: 79-14-1	Glycolic Acid	390 mg/m3

7 Handling and storage

Handling:

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.

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.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

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 other constituents have no known exposure limits.

CAS: 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

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TLV	Short-term value: 984 mg/m ³ , 400 ppm Long-term value: 492 mg/m ³ , 200 ppm BEI
CAS: 56-81-5 glycerol	
PEL	Long-term value: 15* 5** mg/m ³ mist; *total dust **respirable fraction
TLV	TLV withdrawn-insufficient data human occup. exp.
CAS: 111-42-2 diethanolamine	
REL	Long-term value: 15 mg/m ³ , 3 ppm
TLV	Long-term value: 1* mg/m ³ , 0.2* ppm Skin; *inhalable fraction and vapor

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

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.
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:

Not necessary if room is well-ventilated.
Use suitable respiratory protective device in case of insufficient ventilation.

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

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Amber colored

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Odor: Alcohol-like

pH-value at 20°C (68 °F): 6.5

Change in condition
Melting point/Melting range: Undetermined.

Flash point: 18°C (64 °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: 2Vol %
Upper: 12Vol %

Vapor pressure at 20°C (68 °F): 43hPa (32.3 mm Hg)

Density at 20°C (68 °F): 0.9g/cm³ (7.51 lbs/gal)

Solubility in / Miscibility with
Water: Fully miscible.

Solvent content:
Organic solvents: 80.6%
Water: 2.8%

Solids content: 11.6%

10 Stability and reactivity

Reactivity No further relevant information available.
Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions No dangerous reactions known.
Conditions to avoid No further relevant information available.
Incompatible materials: No further relevant information available.
Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:

CAS: 67-63-0 Isopropanol

Oral	LD50	5,045 mg/kg (rat)
Dermal	LD50	12,800 mg/kg (rabbit)
Inhalative	LC50/4 h	30 mg/l (rat)

CAS: 56-81-5 glycerol

Oral	LD50	12,600 mg/kg (rat)
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Trade name: 2331ZX Soldering Flux and Flux Pen

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CAS: 111-42-2 diethanolamine

Oral	LD50	1,600 mg/kg (rat)
Dermal	LD50	12,200 mg/kg (rabbit)

Primary irritant effect:
on the skin: No irritant effect.
on the eye: Irritating effect.
Sensitization: Sensitization possible through inhalation.

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

Carcinogenic categories

IARC (International Agency for Research on Cancer)

CAS: 67-63-0	Isopropanol	3
CAS: 111-42-2	diethanolamine	2B

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

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.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

13 Disposal considerations

Waste treatment methods

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.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number

DOT, ADR, IMDG, IATA

UN1219

UN proper shipping name

DOT

Isopropanol mixture

ADR

1219 Isopropanol mixture

IMDG, IATA

ISOPROPANOL (ISOPROPYL ALCOHOL) mixture

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Transport hazard class(es)

DOT



Class Label 3 Flammable liquids
3

ADR, IMDG, IATA



Class Label 3 Flammable liquids
3

Packing group II
DOT, IMDG, IATA Not applicable.
Special precautions for user 33
Danger code (Kemler): F-E,S-D
EMS Number: B
Stowage Category B
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

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) 1L
Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation": UN 1219 ISOPROPANOL MIXTURE, 3, II

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

All ingredients are listed on the following Government Inventories:

- China: Inventory of Existing Chemical Substances in China (IECSC)
- Korea: Korea Existing Chemicals List (ECL)
- Europe: European Inventory of Existing Commercial Chemical Substances (EINECS)
- Japan: Inventory of Existing and New Chemical Substances (ENCS)
- Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)
- USA: TSCA (Toxic Substances Control Act) TSCA Inventory of Chemical Substances

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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):

CAS: 67-63-0 | Isopropanol

CAS: 111-42-2 | diethanolamine

California Proposition 65

Chemicals known to cause cancer:

diethanolamine

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

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.

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS02 GHS05 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:

diethanolamine
Isopropanol
Glycolic Acid

Hazard statements

H225 Highly flammable liquid and vapor.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/attention if you feel unwell.
P370+P378 In case of fire: Use for extinction: CO₂, powder or water spray.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 Safety Data Sheet (SDS): Product Compliance / EHS Department

Contact: EHS_Kester@kester.com

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
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)
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
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Carc. 2: Carcinogenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

* **Data compared to the previous version altered.**