

# Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 10/06/2017

Version number 4

Reviewed on 10/06/2017

## 1 Identification

**Trade name: 2166-BN Soldering Flux****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 &amp; Canada) Telephone Number : (703) 527-3887

## 2 Hazard(s) identification

**Classification of the substance or mixture**

Corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H302 Harmful if swallowed.

Flam. Liq. 4 H227 Combustible liquid.

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

GHS05 GHS07

**Signal word** Danger

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US

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**Trade name: 2166-BN Soldering Flux**

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**Hazard-determining components of labeling:**

Glycolic Acid  
ethanolamine  
2-butoxyethanol

**Hazard statements**

H227 Combustible liquid.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.

**Precautionary statements**

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.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**

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



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



**Other hazards**

**Results of PBT and vPvB assessment**

PBT: Not applicable.  
vPvB: Not applicable.

**3 Composition/information on ingredients**

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

CAS No.	Description	% Range
CAS: 79-14-1	Glycolic Acid ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302	10-25%
Trade Secret	Organic Acids ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	10-25%

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CAS: 141-43-5	ethanolamine ⚠ Acute Tox. 3, H311 ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H332 Flam. Liq. 4, H227	5-10%
CAS: 111-76-2	2-butoxyethanol ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319 Flam. Liq. 4, H227	1-3%

### 4 First-aid measures

**Description of first aid measures**

**General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

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. Then 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:**

CO<sub>2</sub>, 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:** Do not allow to enter sewers/ surface or ground water.

**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

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.

**Protective Action Criteria for Chemicals**

**PAC-1:**

CAS: 79-14-1	Glycolic Acid	25 mg/m <sup>3</sup>
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CAS: 141-43-5	ethanolamine	6 ppm
CAS: 111-76-2	2-butoxyethanol	60 ppm
CAS: 67-63-0	Isopropanol	400 ppm

**PAC-2:**

CAS: 79-14-1	Glycolic Acid	280 mg/m3
CAS: 141-43-5	ethanolamine	170 ppm
CAS: 111-76-2	2-butoxyethanol	120 ppm
CAS: 67-63-0	Isopropanol	2000* ppm

**PAC-3:**

CAS: 79-14-1	Glycolic Acid	390 mg/m3
CAS: 141-43-5	ethanolamine	1,000 ppm
CAS: 111-76-2	2-butoxyethanol	700 ppm
CAS: 67-63-0	Isopropanol	12000** ppm

**7 Handling and storage**

**Handling:**

**Precautions for safe handling** Prevent formation of aerosols.

**Information about protection against explosions and fires:** No special measures required.

**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.

**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: 141-43-5 ethanolamine**

PEL	Long-term value: 6 mg/m <sup>3</sup> , 3 ppm
REL	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 8 mg/m <sup>3</sup> , 3 ppm
TLV	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 7.5 mg/m <sup>3</sup> , 3 ppm

**CAS: 111-76-2 2-butoxyethanol**

PEL	Long-term value: 240 mg/m <sup>3</sup> , 50 ppm Skin
REL	Long-term value: 24 mg/m <sup>3</sup> , 5 ppm Skin
TLV	Long-term value: 97 mg/m <sup>3</sup> , 20 ppm BEI

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**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:** Light orange color  
**Odor:** Mild

**pH-value:** Not determined.

**Change in condition**

**Melting point/Melting range:** Undetermined.  
**Boiling point/Boiling range:** 100°C (212 °F)

**Flash point:** 93°C (199.4 °F)

**Ignition temperature:** 385°C (725 °F)

**Auto igniting:** Product is not selfigniting.

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**Danger of explosion:** Not determined.  
**Vapor pressure at 20°C (68 °F):** 23hPa (17.3 mm Hg)  
**Density at 20°C (68 °F):** 1.14g/cm<sup>3</sup> (9.51 lbs/gal)  
**Solubility in / Miscibility with Water:** Fully miscible.  
**Solvent content:**  
**Organic solvents:** 9.6%  
**Water:** 59.1%  
**Solids content:** 31.3%

**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: 79-14-1 Glycolic Acid**

Oral	LD50	1,950 mg/kg (rat)
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**CAS: 141-43-5 ethanolamine**

Oral	LD50	2,050 mg/kg (rat)
Dermal	LD50	1,000 mg/kg (rabbit)
Inhalative	LC50/4 h	11 mg/l (ATE)

**Primary irritant effect:**

**on the skin:** Caustic effect on skin and mucous membranes.

**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:

Harmful  
Corrosive  
Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

CAS: 111-76-2	2-butoxyethanol	3
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**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. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

**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

UN1760

**UN proper shipping name**

DOT

Corrosive liquids, n.o.s. (Glycolic Acid, Ethanolamine)

ADR

1760 Corrosive liquids, n.o.s. (Glycolic Acid, Ethanolamine)

IMDG, IATA

CORROSIVE LIQUID, N.O.S. (Glycolic Acid, ETHANOLAMINE)

**Transport hazard class(es)**

DOT



**Class**

8 Corrosive substances

**Label**

8

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**ADR, IMDG, IATA**



<b>Class</b>	8 Corrosive substances
<b>Label</b>	8
<b>Packing group</b>	
<b>DOT, IMDG, IATA</b>	III
<b>Special precautions for user</b>	Not applicable.
<b>Danger code (Kemler):</b>	80
<b>EMS Number:</b>	F-A,S-B
<b>Segregation groups</b>	Acids, alkalis
<b>Stowage Category</b>	A
<b>Stowage Code</b>	SW2 Clear of living quarters.
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

**Transport/Additional information:**

<b>DOT</b>	
<b>Quantity limitations</b>	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L

<b>ADR</b>	
<b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

<b>IMDG</b>	
<b>Limited quantities (LQ)</b>	5L
<b>Excepted quantities (EQ)</b>	Maximum net quantity per inner packaging: 30 ml
<b>UN "Model Regulation":</b>	UN 1760 CORROSIVE LIQUIDS, N.O.S. (GLYCOLIC ACID, ETHANOLAMINE), 8, III

**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

**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.

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**Section 313 (Specific toxic chemical listings):**

CAS: 111-76-2 | 2-butoxyethanol

**California Proposition 65**

**Chemicals known to cause cancer:**

1,4-dioxane

**Chemicals known to cause reproductive toxicity:**

None of the ingredients is listed.

**Carcinogenic categories**

**EPA (Environmental Protection Agency)**

CAS: 111-76-2 | 2-butoxyethanol

NL

**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**



GHS05 GHS07

**Signal word** Danger

**Hazard-determining components of labeling:**

Glycolic Acid  
ethanolamine  
2-butoxyethanol

**Hazard statements**

H227 Combustible liquid.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.

**Precautionary statements**

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.  
P403+P235 Store in a well-ventilated place. Keep cool.  
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

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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. 4: Flammable liquids – Category 4

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

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

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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