## 1 Identification

**Trade name:** 2235 Soldering Flux  
**Article number:** C6-00-2235  
**Relevant identified uses of the substance or mixture and uses advised against:**  
No further relevant information available.  
**Application of the substance / the preparation:** Soldering flux  
**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  
Wujiaqiang Economic Development Zone  
Suzhou, Jiangsu 215200 China  
Tel: +86 512 82060808  
Kester GmbH  
Ganghofer Strasse 45  
D-82216 Germlinden 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.  
- **Corrosion**  
  Eye Dam. 1 H318 Causes serious eye damage.  
- **Skin Irrit. 2 H315 Causes skin irritation.**  
  STOT SE 3 H336 May cause drowsiness or dizziness.  

**Label elements**  
**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).  
(Contd. on page 2)
Hazard pictograms

GHS02  GHS05  GHS07

Signal word Danger

Hazard-determing components of labeling:
Isopropanol
Glycolic Acid
Organic Salt

Hazard statements
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection.
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+P233 Store in a well-ventilated place. Keep container tightly closed.
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

HMIS-ratings (scale 0 - 4)

HEALTH 1 Health = 1
FIRE 3 Fire = 3
REACTIVITY 0 Reactivity = 0

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.

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0</td>
<td>Isopropanol</td>
<td>Flam. Liq. 2, H225, Eye Irrit. 2A, H319; STOT SE 3, H336</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0</td>
<td>Isopropanol</td>
<td>Flam. Liq. 2, H225, Eye Irrit. 2A, H319; STOT SE 3, H336</td>
</tr>
</tbody>
</table>

(Contd. of page 1)

(Contd. on page 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.
For safety reasons unsuitable extinguishing agents: Water with full jet
Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
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
Keep away from ignition sources
Environmental precautions: Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Absorb with clay, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container.
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

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0</td>
<td>Isopropanol</td>
</tr>
<tr>
<td>CAS: 79-14-1</td>
<td>Glycolic Acid</td>
</tr>
<tr>
<td></td>
<td>Organic Salt</td>
</tr>
</tbody>
</table>
### 7 Handling and storage

**Handling:**
**Precautions for safe handling**
Store in cool, dry place in tightly closed receptacles. Ensure good ventilation/exhaustion at the workplace. 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.

**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.

<table>
<thead>
<tr>
<th>CAS: 67-63-0 Isopropanol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PEL</strong></td>
</tr>
<tr>
<td><strong>REL</strong></td>
</tr>
<tr>
<td><strong>TLV</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

(Contd. on page 5)
Trade name: 2235 Soldering Flux

<table>
<thead>
<tr>
<th>CAS: 56-81-5 glycerol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TLV</td>
</tr>
</tbody>
</table>

**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](image1)

**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](image2)

* 9 Physical and chemical properties

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**
Form: Liquid
Color: Light yellow
Odor: Alcohol-like

**pH-value at 20°C (68 °F):** 2.1

**Change in condition**

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 82°C (179.6 °F)

**Flash point:** < 23°C (<73.4 °F)

(Contd. of page 4)
Trade name: 2235 Soldering Flux

Ignition temperature: 399°C (750.2 °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): 0.86g/cm³ (7.18 lbs/gal)
Solubility in / Miscibility with Water at 20°C (68 °F): 100%
Solvent content:
  Organic solvents: 79.9%
  Water: 6.4%
  Solids content: 9.5%

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: Strong acids, strong oxidizers.
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

<table>
<thead>
<tr>
<th>Oral</th>
<th>LD50</th>
<th>5,045 mg/kg (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>12,800 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h</td>
<td>30 mg/l (rat)</td>
</tr>
</tbody>
</table>

Primary irritant effect:
on the skin:
Irritant to skin and mucous membranes.
Possible local irritation by contact with flux or fumes.
on the eye:
Irritating effect.
Smoke during soldering can cause eye irritation.
through inhalation:
Vapors during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, and nausea.
through ingestion: May cause gastrointestinal irritation.
Sensitization: Sensitization possible through inhalation.
Trade name: 2235 Soldering Flux

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

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:
Disposal must be made according to official regulations.
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
UN-Number
DOT, ADR, IMDG, IATA
UN proper shipping name
DOT
ADR
IMDG, IATA
Transport hazard class(es)
DOT
Class
UN1219
Isopropanol mixture
1219 Isopropanol mixture
ISOPROPANOL (ISOPROPYL ALCOHOL) mixture
3 Flammable liquids

(Contd. on page 8)
**Trade name:** 2235 Soldering Flux

<table>
<thead>
<tr>
<th>Label</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
</tr>
<tr>
<td>DOT, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Danger code (Kemler):</td>
<td>33</td>
</tr>
<tr>
<td>EMS Number:</td>
<td>F-E,S-D</td>
</tr>
<tr>
<td>Stowage Category</td>
<td>B</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Transport/Additional information:</td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td>Quantity limitations</td>
<td>On passenger aircraft/rail: 5 L</td>
</tr>
<tr>
<td></td>
<td>On cargo aircraft only: 60 L</td>
</tr>
<tr>
<td>ADR</td>
<td></td>
</tr>
<tr>
<td>Excepted quantities (EQ)</td>
<td>Code: E2</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
</tr>
<tr>
<td>Limited quantities (LQ)</td>
<td>1L</td>
</tr>
<tr>
<td>Excepted quantities (EQ)</td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td>UN &quot;Model Regulation&quot;:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UN 1219 ISOPROPANOL MIXTURE, 3, II</td>
</tr>
</tbody>
</table>

---

**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.

---

(Contd. of page 7)

(Contd. on page 9)
**Section 313 (Specific toxic chemical listings):**
CAS: 67-63-0 Isopropanol

**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.

**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](image) ![GHS05](image) ![GHS07](image)

**Signal word** Danger

**Hazard-determining components of labeling:**
Isopropanol
Glycolic Acid
Organic Salt

**Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.

**Precautionary statements**
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection.
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+P233 Store in a well-ventilated place. Keep container tightly closed.
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

(Contd. on page 10)
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
LDS0: 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
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.