

# Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 15.11.2023

Version number 7 (replaces version 6)

Revision: 15.11.2023

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**1.1 Product identifier**Trade name: Lötöl ISO-Flux "EL"Solder oil ISO-Flux "EL"

UFI: SEP8-E0R9-T00E-K7V9

**1.2 Relevant identified uses of the substance or mixture and uses advised against***No further relevant information available.***Application of the substance / the mixture** *Soldering flux***1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Felder GmbH

Im Lipperfeld 11

D-46047 Oberhausen

Tel.: +49 (0)208/ 85035-0

Fax.: +49 (0)208/ 26080

<http://www.felder.de>e-mail: [info@felder.de](mailto:info@felder.de)**Further information obtainable from:***lab**(mo-thu. 8:00 a.m. - 4:00 p.m./ fr. 8:00 a.m. - 1:00 p.m.)**email: [mprobst@felder.de](mailto:mprobst@felder.de)***1.4 Emergency telephone number:** Tel: +49(0)208/85035-29

EuPCS: PC-TEC-24

## SECTION 2: Hazards identification

**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

*Flam. Liq. 2 H225 Highly flammable liquid and vapour.*

GHS07

*Eye Irrit. 2 H319 Causes serious eye irritation.**STOT SE 3 H336 May cause drowsiness or dizziness.***2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008

*The product is classified and labelled according to the CLP regulation.***Hazard pictograms**

GHS02 GHS07

**Signal word** *Danger***Hazard-determining components of labelling:***propan-2-ol***Hazard statements***H225 Highly flammable liquid and vapour.**H319 Causes serious eye irritation.**H336 May cause drowsiness or dizziness.***Precautionary statements***P101 If medical advice is needed, have product container or label at hand.**P102 Keep out of reach of children.**P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.**P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*

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**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.

**P405** Store locked up.

**P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Labelling of packages where the contents do not exceed 125 ml**

**Hazard pictograms**



GHS02 GHS07

**Signal word** *Danger*

**Hazard-determining components of labelling:**

*propan-2-ol*

**Hazard statements**

**H336** May cause drowsiness or dizziness.

**Precautionary statements**

**P101** If medical advice is needed, have product container or label at hand.

**P102** Keep out of reach of children.

**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.

**2.3 Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

**Description:** Mixture: consisting of the following components.

Dangerous components:		
CAS: 67-63-0 EINECS: 200-661-7 Index number: 603-117-00-0 Reg.nr.: 01-2119457558-25	propan-2-ol ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336	50-100%
CAS: 110-15-6 EINECS: 203-740-4 Reg.nr.: <1t/year	succinic acid ⚠ Eye Dam. 1, H318	<2.5%
CAS: 107-41-5 EINECS: 203-489-0 Index number: 603-053-00-3 Reg.nr.: 01-2119539582-35	2-methylpentane-2,4-diol ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	<2.5%

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

### 4.1 Description of 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.

Generally the product does not irritate the skin.

**After eye contact:**

Seek medical treatment.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

**After swallowing:** Seek medical treatment.

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

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

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing agents:

*Alcohol resistant foam*

*CO<sub>2</sub>, sand, extinguishing powder. Do not use water.*

**For safety reasons unsuitable extinguishing agents:** *Water with full jet*

#### 5.2 Special hazards arising from the substance or mixture

*Under certain fire conditions, traces of other toxic gases cannot be excluded, e.g.:*

*Carbon monoxide (CO)*

#### 5.3 Advice for firefighters

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

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

*Wear protective equipment. Keep unprotected persons away.*

#### 6.2 Environmental precautions:

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

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

#### 6.3 Methods and material for containment and cleaning up:

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

*Ensure adequate ventilation.*

*Do not flush with water or aqueous cleansing agents*

#### 6.4 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.*

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

*Ensure good ventilation/exhaustion at the workplace.*

*Prevent formation of aerosols.*

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

*Keep ignition sources away - Do not smoke.*

*Protect against electrostatic charges.*

#### 7.2 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:

*Store away from flammable substances.*

*Store away from foodstuffs.*

##### Further information about storage conditions:

*Protect from heat and direct sunlight.*

*Protect from frost.*

*Keep container tightly sealed.*

*Store in cool, dry conditions in well sealed receptacles.*

##### Storage class: 3

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

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### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

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

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

AGW (Germany)	Long-term value: 500 mg/m <sup>3</sup> , 200 ppm 2(I);DFG, Y
WEL (Great Britain)	Short-term value: 1250 mg/m <sup>3</sup> , 500 ppm Long-term value: 999 mg/m <sup>3</sup> , 400 ppm
OEL (Ireland)	Short-term value: 400 ppm Long-term value: 200 ppm Sk

###### 110-15-6 succinic acid

AGW (Germany)	Long-term value: 2 E mg/m <sup>3</sup> 2(I);DFG, Y
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###### 107-41-5 2-methylpentane-2,4-diol

MAK (Germany)	Long-term value: 49 mg/m <sup>3</sup> , 10 ppm vgl. Abschn. Xc; Dampf und Aerosol
WEL (Great Britain)	Short-term value: 123 mg/m <sup>3</sup> , 25 ppm Long-term value: 123 mg/m <sup>3</sup> , 25 ppm
OEL (Ireland)	Short-term value: 125 mg/m <sup>3</sup> , 25 ppm

##### Regulatory information

AGW (Germany): TRGS 900

WEL (Great Britain): EH40/2020

OEL (Ireland): 2021 CoP for the Safety, Health and Welfare at Work

MAK (Germany): MAK- und BAT-Liste

##### recommended monitoring procedures in accordance with 2020/878/EU no. 8.1.2:

67-63-0 propan-2-ol: BIA 8415(D), MétroPol Fiche 077 Alcools en C3 à C8(F), MTA/MA-016/A89(ESP), DFG (D, E)  
Solvent mixtures 6

107-41-5 2-methylpentane-2,4-diol: OSHA PV2101(E) "Hexylen glycol"

##### Ingredients with biological limit values:

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

BGW (Germany)	25 mg/l Untersuchungsmaterial: Vollblut Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: Aceton
	25 mg/l Untersuchungsmaterial: Urin Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: Aceton

Regulatory information BGW (Germany): TRGS 903

Additional information: The lists valid during the making were used as basis.

#### 8.2 Exposure controls

##### Appropriate engineering controls:

Ensure adequate ventilation.

Explosion protection required. Remove all open flames. Remove ignition sources. Avoid sparks.

Take precautionary measures against electrostatic charging. Ground all devices.

Remove the fumes by means of suitable suction devices.

Ensure adequate ventilation.

Explosion protection equipment required. Extinguish all open flames. Remove sources of ignition. avoid sparks.

Take measures to prevent electrostatic charging. Ground all devices.

Removing the fumes by suitable suction devices.

##### Individual protection measures, such as 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.

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**Respiratory protection:** Use suitable respiratory protective device in case of insufficient ventilation.

**Hand protection**



Protective gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Recommended thickness of the material:  $\geq 0.33$  mm

**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.

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions.

Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

Value for the permeation: Level  $\leq 6$

As protection from splashes gloves made of the following materials are suitable: Nitrile rubber, NBR

**Eyeface protection**



Tightly sealed goggles

**Body protection:** Protective work clothing

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General Information

Colour:	Amber coloured
Odour:	Characteristic
Odour threshold:	Not determined.
Melting point/freezing point:	Not determined
Boiling point or initial boiling point and boiling range	82 °C
Flammability	Not applicable.
Lower and upper explosion limit	
Lower:	2.0 Vol %
Upper:	12.0 Vol %
Flash point:	13 °C
Auto-ignition temperature:	300 °C
Decomposition temperature:	Not determined.
pH at 20 °C	3.9
Viscosity:	
Kinematic viscosity	Not determined.
Dynamic:	Not determined.
Solubility	
water:	Not miscible or difficult to mix.
Partition coefficient n-octanol/water (log value)	Not determined.
Vapour pressure at 20 °C:	43 hPa
Density and/or relative density	
Density at 20 °C:	0.81 g/cm <sup>3</sup>
Relative density	Not determined.
Vapour density	Not determined.

### 9.2 Other information

**Appearance:**

**Form:** Fluid

**Important information on protection of health and environment, and on safety.**

**Ignition temperature:**

Product is not selfigniting.

**Explosive properties:**

Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

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<b>Solvent content:</b>	
<b>Organic solvents:</b>	85.0 %
<b>VOC (EC)</b>	85.00 %
<b>Change in condition</b>	
<b>Evaporation rate</b>	Not determined.
<b>Information with regard to physical hazard classes</b>	
<b>Explosives</b>	Void
<b>Flammable gases</b>	Void
<b>Aerosols</b>	Void
<b>Oxidising gases</b>	Void
<b>Gases under pressure</b>	Void
<b>Flammable liquids</b>	Highly flammable liquid and vapour.
<b>Flammable solids</b>	Void
<b>Self-reactive substances and mixtures</b>	Void
<b>Pyrophoric liquids</b>	Void
<b>Pyrophoric solids</b>	Void
<b>Self-heating substances and mixtures</b>	Void
<b>Substances and mixtures, which emit flammable</b>	
<b>gases in contact with water</b>	Void
<b>Oxidising liquids</b>	Void
<b>Oxidising solids</b>	Void
<b>Organic peroxides</b>	Void
<b>Corrosive to metals</b>	Void
<b>Desensitised explosives</b>	Void

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** No further relevant information available.
- 10.2 Chemical stability**
- Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- 10.3 Possibility of hazardous reactions**  
Flammable.  
Forms flammable gases/fumes.
- 10.4 Conditions to avoid** No further relevant information available.
- 10.5 Incompatible materials:** No further relevant information available.
- 10.6 Hazardous decomposition products:** Flammable gases/vapours

## SECTION 11: Toxicological information

- 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- Acute toxicity** Based on available data, the classification criteria are not met.
- Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- Serious eye damage/irritation**  
Causes serious eye irritation.
- Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- Carcinogenicity** Based on available data, the classification criteria are not met.
- Reproductive toxicity** Based on available data, the classification criteria are not met.
- STOT-single exposure**  
May cause drowsiness or dizziness.
- STOT-repeated exposure** Based on available data, the classification criteria are not met.
- Aspiration hazard** Based on available data, the classification criteria are not met.
- 11.2 Information on other hazards**

### Endocrine disrupting properties

None of the ingredients is listed.

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### SECTION 12: Ecological information

#### 12.1 Toxicity

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

#### 12.5 Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

#### 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

#### 12.7 Other adverse effects

**Additional ecological information:**

**General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

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

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### 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

HP 3: Flammable

HP 4: Irritant - skin irritation and eye damage

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

cleaned plastic can:

15 01 02: plastic packaging

overpack:

15 01 01: paper and cardboard packaging

**Uncleaned packaging:** 15 01 10\*: packaging containing residues of or contaminated by hazardous substances

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

**Recommended cleansing agents:** Water, if necessary together with cleansing agents.

### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR, IMDG, IATA

UN1219

#### 14.2 UN proper shipping name

ADR

1219 ISOPROPANOL (ISOPROPYL ALCOHOL) mixture

IMDG, IATA

ISOPROPANOL (ISOPROPYL ALCOHOL) mixture

#### 14.3 Transport hazard class(es)

ADR, IMDG, IATA



**Class**

3 Flammable liquids.

**Label**

3

#### 14.4 Packing group

ADR, IMDG, IATA

II

#### 14.5 Environmental hazards:

**Marine pollutant:**

No

#### 14.6 Special precautions for user

Warning: Flammable liquids.

**Hazard identification number (Kemler code):**

33

**EMS Number:**

F-E,S-D

**Stowage Category**

B

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### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

### Transport/Additional information:

#### ADR

Limited quantities (LQ)

1L

Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

Transport category

2

Tunnel restriction code

D/E

#### IMDG

Limited quantities (LQ)

1L

Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation":

UN 1219 ISOPROPANOL (ISOPROPYL ALCOHOL) MIXTURE, 3, II

## SECTION 15: Regulatory information

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

Directive 2012/18/EU

Named dangerous substances - ANNEX I *None of the ingredients is listed.*

Seveso category P5c FLAMMABLE LIQUIDS

Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t

Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t

REGULATION (EU) 2019/1021 on persistent organic pollutants (POP) *None of the ingredients are listed.*REGULATION (EC) No 1907/2006 ANNEX XVII *Conditions of restriction: 3*

**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

*None of the ingredients is listed.*

REGULATION (EU) 2019/1148

**Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

*None of the ingredients is listed.*

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

*None of the ingredients is listed.*

Regulation (EC) No 273/2004 on drug precursors

*None of the ingredients is listed.*

**Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

*None of the ingredients is listed.*

### National regulations:

Information about limitation of use: *Employment restrictions concerning juveniles must be observed.*Waterhazard class: *Water hazard class 1 (Self-assessment): slightly hazardous for water.*15.2 Chemical safety assessment: *A Chemical Safety Assessment has not been carried out.*

## SECTION 16: Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

### Reasons for changes:

07/10/2015: matching section 1, 8, 15 to Regulations 453/2010/EC, 830/2015/EU, 2012/18/EU

06/26/2016: section 13, adaption to Regulation 2016/918/EU

10/24/2019: section 1, 8.1

10/14/2021: section 15, 16

11/15/2023: section 8, 11, 15

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**Information referred to in Annex I, point 1.3.4.2 of Regulation 1272/2008/EC:**

### Relevant phrases

*H225 Highly flammable liquid and vapour.*

*H315 Causes skin irritation.*

*H318 Causes serious eye damage.*

*H319 Causes serious eye irritation.*

*H336 May cause drowsiness or dizziness.*

**Contact: Dr. M. Probst**

**Version number of previous version: 6**

### Abbreviations and acronyms:

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organisation*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*

*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)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Flam. Liq. 2: Flammable liquids – Category 2*

*Skin Irrit. 2: Skin corrosion/irritation – Category 2*

*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*

*Eye Irrit. 2: Serious eye damage/eye irritation – Category 2*

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

**Safety data sheet SD3138**

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