

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

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

1.1 Product identifier

Trade name: **Lötwasser ZD**
Solder liquid "ZD"

UFI: *WKD8-90NE-800F-F2UN*

**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

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

1.4 Emergency telephone number:

24 hr. emergency information:

Poison emergency call Berlin

"Giftnotruf Berlin"

Tel.: 0049-30-30686 790

EuPCS: *PC-TEC-24*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

STOT SE 3 H335 May cause respiratory irritation.

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

GHS05 GHS07 GHS09

Signal word *Danger*

Hazard-determining components of labelling:

zinc chloride

hydrogen chloride

(Contd. on page 2)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 1)

Hazard statements

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

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**

GHS05 GHS07 GHS09

Signal word Danger**Hazard-determining components of labelling:**

zinc chloride

hydrogen chloride

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Do not breathe dusts or mists.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

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 Chemical characterisation: Mixtures****Description:** Mixture: consisting of the following components.**Dangerous components:**

CAS: 7646-85-7 EINECS: 231-592-0 Reg.nr.: 01-2119472431-44	zinc chloride ⚠ Skin Corr. 1B, H314; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	<50%
CAS: 12125-02-9 EINECS: 235-186-4 Reg.nr.: 01-2119487950-27	ammonium chloride ⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319	<20%
CAS: 7647-01-0 EINECS: 231-595-7 Reg.nr.: HCl Gas : 01-2119484862-27	hydrogen chloride ⚠ Met. Corr. 1, H290; Skin Corr. 1B, H314; ⚠ STOT SE 3, H335	<10%
CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28	ethanediol ⚠ STOT RE 2, H373; ⚠ Acute Tox. 4, H302	<5%
CAS: 67-63-0 EINECS: 200-661-7 Reg.nr.: 01-2119457558-25	propan-2-ol ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336	<5%

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 2)

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

General information:

Take affected persons out into the fresh air.

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.

After inhalation:

In case of unconsciousness place patient stably in side position for transportation.

Supply fresh air.

Seek medical treatment in case of complaints.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

After eye contact:

Rinse opened eye for several minutes under running water.

Protect unharmed eye.

Seek medical treatment.

After swallowing:

Do not induce vomiting; call for medical help immediately.

Rinse out mouth and then drink plenty of water.

Call a doctor immediately.

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

Hazards Danger of gastric perforation.

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:

Use fire extinguishing methods suitable to surrounding conditions.

CO₂, powder or water spray. Fight larger fires with water spray.

5.2 Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Hydrogen chloride (HCl)

5.3 Advice for firefighters

Protective equipment:

Do not inhale explosion gases or combustion gases.

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.

Ensure adequate ventilation

Wear protective clothing.

6.2 Environmental precautions: 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).

Use neutralising agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

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.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 3)

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

Information about fire - and explosion protection: *Keep respiratory protective device available.*

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: *No special requirements.*

Information about storage in one common storage facility:

Store away from foodstuffs.
Store away from metals.
Do not store together with textiles.

Further information about storage conditions:

Protect from frost.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Keep container tightly sealed.

Storage class: 8 B

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

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

7647-01-0 hydrogen chloride

IOELV (EU)	Short-term value: 15 mg/m ³ , 10 ppm Long-term value: 8 mg/m ³ , 5 ppm
AGW (Germany)	Long-term value: 3 mg/m ³ , 2 ppm 2(I);DFG, EU, Y

107-21-1 ethanediol

IOELV (EU)	Short-term value: 104 mg/m ³ , 40 ppm Long-term value: 52 mg/m ³ , 20 ppm Skin
AGW (Germany)	Long-term value: 26 mg/m ³ , 10 ppm 2(I);DFG, EU, H, Y, 11

67-63-0 propan-2-ol

AGW (Germany)	Long-term value: 500 mg/m ³ , 200 ppm 2(II);DFG, Y
---------------	--

Regulatory information

IOELV (EU): (EU) 2017/164

AGW (Germany): TRGS 900

recommended monitoring procedures in accordance with 453/2010/EU no. 8.1.2:

7647-01-0 hydrogen chloride: BIA 6640(D), MétroPol Fiche 009(F), MTA/MA-019/A90(ESP)

107-21-1 ethanediol: NIOSH 5523(E) "Glycols", OSHA 7(E) "organic solvents", BIA 7330(D)

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

7646-85-7 zinc chloride: NIOSH 7300, 7301, 7303(E) "Zinc", OSHA, ID-121(E)

(Contd. on page 5)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 4)

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.

Remove the fumes by means of suitable suction devices.

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Do not eat, drink, smoke or sniff while working.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Filter B

Protection of hands:



Protective gloves

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

Material of gloves

Butyl rubber, BR

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: ≥ 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 ≤ 6

Not suitable are gloves made of the following materials: Natural rubber, NR

Eye protection:



Tightly sealed goggles

Body protection: Acid resistant protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Fluid
Colour:	Yellowish
Odour:	Characteristic
Odour threshold:	Not determined.

(Contd. on page 6)

EU

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 5)

pH-value at 20 °C:	2
Change in condition	
Initial boiling point and boiling range:	100 °C
Flash point:	Not applicable.
Ignition temperature:	410 °C
Decomposition temperature:	Not determined.
Auto-ignition temperature:	Product is not selfigniting.
Explosive properties:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapour pressure at 20 °C:	23 hPa
Density at 20 °C:	1.3 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	Fully miscible.
Partition coefficient: n-octanol/water:	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	2.0 %
Water:	46.2 %
VOC (EC)	2.0 %
	2.00 %
9.2 Other information	No further relevant information available.

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 according to specifications.
- 10.3 Possibility of hazardous reactions**
Reacts with various metals.
Reacts with metals forming hydrogen.
- 10.4 Conditions to avoid** No further relevant information available.
- 10.5 Incompatible materials:** No further relevant information available.
- 10.6 Hazardous decomposition products:**
Corrosive gases/vapours
Hydrogen chloride (HCl)

SECTION 11: Toxicological information

- 11.1 Information on toxicological effects**
Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:
--

ATE (Acute Toxicity Estimates)

Oral LD50 2,436-2,628 mg/kg

7646-85-7 zinc chloride

Oral LD50 1,100-1,260 mg/kg (rat)

Primary irritant effect:

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/irritation

Causes serious eye damage.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 6)

CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**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 respiratory irritation.

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.

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.**Ecotoxicological effects:****Remark:** Very toxic for fish**Additional ecological information:****General notes:**

Must not reach sewage water or drainage ditch undiluted or unneutralised.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

12.5 Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods**Recommendation**

Dilute concentrate with water and neutralise afterwards with suitable alkali material (sodium hydroxide solution, lime).

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue

06 03 13*: solid salts and solutions containing heavy metals

HP 6: Acute Toxicity

HP 8: Corrosive

HP 14: Ecotoxic

cleaned packaging:

15 01 02: plastic 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**ADR, IMDG, IATA**

UN3264

14.2 UN proper shipping name**ADR**3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(HYDROCHLORIC ACID, ZINC CHLORIDE),

ENVIRONMENTALLY HAZARDOUS

IMDGCORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(HYDROCHLORIC ACID, ZINC CHLORIDE), MARINE
POLLUTANT**IATA**CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(HYDROCHLORIC ACID, ZINC CHLORIDE)

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 7)

14.3 Transport hazard class(es)**ADR, IMDG**

Class 8 Corrosive substances.
Label 8
IATA



Class 8 Corrosive substances.
Label 8

14.4 Packing group

ADR, IMDG, IATA

II

14.5 Environmental hazards:

Product contains environmentally hazardous substances:
zinc chloride

Marine pollutant:

Yes
Symbol (fish and tree)

Special marking (ADR):

Symbol (fish and tree)

14.6 Special precautions for user

Warning: Corrosive substances.

Hazard identification number (Kemler code):

80

EMS Number:

F-A,S-B

Segregation groups

Acids

Stowage Category

B

Stowage Code

SW2 Clear of living quarters.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

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

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 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC,
N.O.S. (HYDROCHLORIC ACID, ZINC CHLORIDE), 8, II,
ENVIRONMENTALLY HAZARDOUS

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** E1 Hazardous to the Aquatic Environment**Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t**Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t**REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 65**National regulations:****Information about limitation of use:** Employment restrictions concerning juveniles must be observed.**Waterhazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.

(Contd. on page 9)

Safety data sheet

according to 1907/2006/EC, Article 31 and 453/2010/EC

Printing date 17.02.2020

Version number 6

Revision: 22.10.2019

Trade name: Lötwasser ZD
Solder liquid "ZD"

(Contd. of page 8)

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:

10/16/2015: Section 1, 8, 15 adaptation to VO 453/2010/EC, 830/2015/EU, 18/2012/EU

01/23/2017: section 2

09/18/2018: section 2, 11, 15, 13

27.03.2019. section 3

22.10.2019: section 1

Relevant phrases

H225 *Highly flammable liquid and vapour.*

H290 *May be corrosive to metals.*

H302 *Harmful if swallowed.*

H314 *Causes severe skin burns and eye damage.*

H319 *Causes serious eye irritation.*

H335 *May cause respiratory irritation.*

H336 *May cause drowsiness or dizziness.*

H373 *May cause damage to organs through prolonged or repeated exposure.*

H400 *Very toxic to aquatic life.*

H410 *Very toxic to aquatic life with long lasting effects.*

Contact: *Dr. M. Probst*

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 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*

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)*

LC50: *Lethal concentration, 50 percent*

LD50: *Lethal dose, 50 percent*

PBT: *Persistent, Bioaccumulative and Toxic*

vPvB: *very Persistent and very Bioaccumulative*

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

Met. Corr. 1: *Corrosive to metals – Category 1*

Acute Tox. 4: *Acute toxicity - oral – Category 4*

Skin Corr. 1B: *Skin corrosion/irritation – Category 1B*

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*

STOT RE 2: *Specific target organ toxicity (repeated exposure) – Category 2*

Aquatic Acute 1: *Hazardous to the aquatic environment - acute aquatic hazard – Category 1*

Aquatic Chronic 1: *Hazardous to the aquatic environment - long-term aquatic hazard – Category 1*

Safety data sheet SD3035

— EU —