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

Printing date 03.08.2023 *Version number 5* *Revision: 22.03.2023*

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

1.1 Product identifier
Trade name: Aluminium soft solder flux
Aluminiumweichlötflussmittel
UFI: *3QF9-P02N-G00F-SUSJ*

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

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


GHS08 health hazard

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


GHS05 corrosion

Skin Corr. 1B *H314 Causes severe skin burns and eye damage.*
Eye Dam. 1 *H318 Causes serious eye damage.*


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 GHS08

Signal word *Danger*

Hazard-determining components of labelling:
2-aminoethanol
2,2'-iminodiethanol
fluoroboric acid

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Hazard statements
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
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.
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: 141-43-5 *EINECS: 205-483-3* *Index number: 603-030-00-8* *Reg.nr.: 01-2119486455-28*	*2-aminoethanol* *Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Aquatic Chronic 3, H412* *Specific concentration limit: STOT SE 3; H335: C ≥ 5 %*	*<50%*
CAS: 111-42-2 *EINECS: 203-868-0* *Index number: 603-071-00-1* *Reg.nr.: 01-2119488930-28*	*2,2'-iminodiethanol* *STOT RE 2, H373; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315*	*<25%*
CAS: 16872-11-0 *EINECS: 240-898-3* *Index number: 009-010-00-X* *Reg.nr.: <1t/year*	*fluoroboric acid* *Skin Corr. 1B, H314* *Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 %* *Skin Irrit. 2; H315: 10 % ≤ C < 25 %* *Eye Irrit. 2; H319: 10 % ≤ C < 25 %*	*<25%*
CAS: 7783-49-5 *EINECS: 232-001-9*	*zinc fluoride* *Acute Tox. 3, H301; Acute Tox. 4, H332; Skin Irrit. 2, H315*	*<10%*

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: *Immediately remove any clothing soiled by the product.*
After inhalation: *In case of unconsciousness place patient stably in side position for transportation.*
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: *Drink plenty of water and provide fresh air. Call for a doctor immediately.*
4.2 Most important symptoms and effects, both acute and delayed *No further relevant information available.*
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:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
5.2 Special hazards arising from the substance or mixture *No further relevant information available.*

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5.3 Advice for firefighters
Protective equipment: *No special measures required.*

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: *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 section 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling *No special precautions are necessary if used correctly.*
Information about fire - and explosion protection: *No special measures required.*

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: *Not required.*
Further information about storage conditions: *Keep container tightly sealed.*
Storage class: *8 A*
7.3 Specific end use(s) *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:	
141-43-5 2-aminoethanol	
IOELV (EU)	*Short-term value: 7.6 mg/m³, 3 ppm* *Long-term value: 2.5 mg/m³, 1 ppm* *Skin*
AGW (Germany)	*Long-term value: 0.5 mg/m³, 0.2 ppm* *1(I);DFG, EU, H, Y, Sh, 11*
WEL (Great Britain)	*Short-term value: 7.6 mg/m³, 3 ppm* *Long-term value: 2.5 mg/m³, 1 ppm* *Sk*
OEL (Ireland)	*Short-term value: 7.6 mg/m³, 3 ppm* *Long-term value: 2.5 mg/m³, 1 ppm* *Sk, IOELV*
111-42-2 2,2'-iminodiethanol	
AGW (Germany)	*Long-term value: 0.5 mg/m³, 0.11 ppm* *1(I);AGS, H, Sh, Y, 11, 6*
OEL (Ireland)	*Long-term value: 1* mg/m³, 0.2 ppm* **Inhalable fraction and vapour*

Regulatory information
IOELV (EU): (EU) 2019/1831
AGW (Germany): TRGS 900
WEL (Great Britain): EH40/2020
OEL (Ireland): 2021 CoP for the Safety, Health and Welfare at Work
recommended monitoring procedures in accordance with 2020/878/EU no. 8.1.2:
141-43-5 2-aminoethanol: DFG Nr. 1 "Alkanolamine"(D,E); BIA 6120(D); OSHA PV 2111 "Ethanolamine"(E); NIOSH PV 2111(E); NIOSH 3509, 2007(E)
111-42-2 2,2'-iminodiethanol: DFG Nr. 1 "Alkanolamine"(D,E); BIA 67052(D); OSHA PV 2118 "Diethanolamine"(E); NIOSH 3509(E)

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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.
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.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Respiratory protection:
Use suitable respiratory protective device in case of insufficient ventilation.
Filter P2
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: ≥ 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
As protection from splashes gloves made of the following materials are suitable: *Nitrile rubber, NBR*
Not suitable are gloves made of the following materials: *Natural rubber, NR*
Eye/face 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

Odour:	*Characteristic*
Odour threshold:	*Not determined.*
Boiling point or initial boiling point and boiling range	*Undetermined.*
Flammability	*Not applicable.*
Lower and upper explosion limit	
Lower:	*2.1 Vol %*
Upper:	*10.6 Vol %*
Flash point:	*93 °C*
Auto-ignition temperature:	*370 °C*
Decomposition temperature:	*Not determined.*
pH	*Not determined.*
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.*

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Vapour pressure at 20 °C:	*0.3 hPa*
Density and/or relative density	
Density:	*Not determined.*
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 does not present an explosion hazard.*
Solvent content:	
Organic solvents:	*51.9 %*
VOC (EC)	*64.80 %*
Solids content:	*50.3 %*
Change in condition	
Evaporation rate	*Not determined.*

Information with regard to physical hazard classes

Explosives	*Void*
Flammable gases	*Void*
Aerosols	*Void*
Oxidising gases	*Void*
Gases under pressure	*Void*
Flammable liquids	*Void*
Flammable solids	*Void*
Self-reactive substances and mixtures	*Void*
Pyrophoric liquids	*Void*
Pyrophoric solids	*Void*
Self-heating substances and mixtures	*Void*
Substances and mixtures, which emit flammable gases in contact with water	*Void*
Oxidising liquids	*Void*
Oxidising solids	*Void*
Organic peroxides	*Void*
Corrosive to metals	*Void*
Desensitised explosives	*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 according to specifications.*
10.3 Possibility of hazardous reactions *No dangerous reactions known.*
10.4 Conditions to avoid *No further relevant information available.*
10.5 Incompatible materials: *No further relevant information available.*
10.6 Hazardous decomposition products: *No dangerous decomposition products known.*

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.*

LD/LC50 values relevant for classification:		
ATE (Acute Toxicity Estimates)		
Oral	*LD50*	*>2,020 mg/kg (rat)*
Dermal	*LD50*	*2,907 mg/kg (rabbit)*
Inhalative	*LC50/4 h*	*32 mg/l*

141-43-5 2-aminoethanol		
Oral	*LD50*	*2,050 mg/kg (rat)*

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Dermal	*LD50*	*1,000 mg/kg (rabbit)*
111-42-2 2,2'-iminodiethanol		
Oral	*LD50*	*1,600 mg/kg (rat)*
Dermal	*LD50*	*12,200 mg/kg (rabbit)*

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

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:
Must not reach sewage water or drainage ditch undiluted or unneutralised.
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
06 07 04: solutions and acids, for example contact acid*
HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP 6: Acute Toxicity
HP 8: Corrosive

cleaned plastic packaging:
15 01 02: plastic packaging
overpack:
15 01 01: paper and cardboard packaging
Uncleaned packaging:
15 01 10: Verpackungen, die Rückstände gefährlicher Stoffe enthalten oder durch gefährliche Stoffe verunreinigt sind*
Recommendation: *Disposal must be made according to official regulations.*

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

SECTION 14: Transport information

14.1 UN number or ID number
ADR, IMDG, IATA *UN1760*
14.2 UN proper shipping name
ADR *1760 CORROSIVE LIQUID, N.O.S. (FLUOROBORIC ACID, ETHANOLAMINE)*
IMDG, IATA *CORROSIVE LIQUID, N.O.S. (FLUOROBORIC ACID, ETHANOLAMINE)*
14.3 Transport hazard class(es)

ADR, IMDG, IATA

Class *8 Corrosive substances.*
Label *8*
14.4 Packing group
ADR, IMDG, IATA *II*
14.5 Environmental hazards: *Not applicable.*
14.6 Special precautions for user *Warning: Corrosive substances.*
Hazard identification number (Kemler code): *80*
EMS Number: *F-A,S-B*
Segregation groups *(SGG1) Acids, (SGG18) alkalis*
Stowage Category *B*
Stowage Code *SW2 Clear of living quarters.*
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 *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 1760 CORROSIVE LIQUID, N.O.S. (FLUOROBORIC ACID, ETHANOLAMINE), 8, 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.*
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.

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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:
09.07.2018: section 8.1, 11, 13, 15
05.06.2020: section 1, 8.1, 11
25.03.2021: section 1, 2, 3, 8, 15, 16
22.03.2023: section 8, 11, 14, 15
Information referred to in Annex I, point 1.3.4.2 of Regulation 1272/2008/EC:

Relevant phrases
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.
Contact: *Dr. M. Probst*
Abbreviations and acronyms:
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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 3: Acute toxicity – Category 3
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
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3