

SAFETY DATA SHEET

Safety data sheet according to (EF) no. 1907/2006.

POINT 1: Identification of material/compounds and of the company/factory

1.1. Product identifier:

Ferro-Liq

UFI: F520-20H2-A00T-DPHG

1.2. Relevant identifying use of the material or compound and the usage that is contraindicated:

Iron supplement for feed.

1.3. Detailed information about the supplier for the safety data sheet:

Jorenku A/S

Teglvaerksvej 11

4733 Tappernoeye

Denmark

Tel.: +45 56214070

Responsible for safety data sheet (e-mail): jorenku@jorenku.dk

1.4. Emergency phone:

Contact the poison centre in your own country.

POINT 2: Identification of danger

2.1. Classification of the material or compound:

Irritating liquid.

CLP (1272/2008): Eye Irrit. 2;H319

2.2. Label elements:



H314: Causes severe skin burns and eye damage.

P280: Wear protective gloves/protective clothing/eye protection/face

P337+P313: If eye irritation persists: Get medical advice/attention.

2.3. Other dangers:

PBT/vPvB: The ingredients are not PBT/vPvB according to the criteria in REACH annex XIII.

Endocrine disrupting properties: The ingredients are not considered endocrine disruptors according to the criteria of Regulation 2017/2100 or Regulation 2018/605.

POINT 3: Compensation of/information about contents

3.1. Compensation of/information about contents

3.2. Compounds:

Substance name	CAS	EF-No.	Index-no.	REACH reg.no.	Substance Classification	Note
Iron(II)sulphate (1:1) heptahydrate	7782-63-0	231-753-5	026-003-01-4	01-2119513203-57	Acute Tox. 4;H302 Skin Irrit. 2;H315 Eye Irrit. 2;H319	1,2
Propionic acid	79-09-4	201-176-3	607-089-00-0	01-2119486971-24	Flam. Liq. 3;H226 Skin Corr. 1B;H314 Eye Dam. 1;H318 STOT SE 3;H335	1,3
Zinc sulphate monohydrate	7446-19-7	231-793-3	030-006-00-9	-	Acute Tox 4;H302 Eye Dam. 1;H318 Aquatic Acute 1;H400 (M=1) Aquatic Chronic 1;H410 (M=1)	4
Copper sulphate pentahydrate	7758-99-8	231-847-6	029-023-00-4	01-2119520566-40	Acute Tox. 4;H302 Eye Dam. 1;H318 Aquatic Acute 1;H400 (M=10) Aquatic Chronic 1;H410 (M=1)	1,5

- 1) The substance has a limit value.
- 2) SCL (Specific Concentration limits) for classification: Skin Irrit. 2;H315: $C \geq 25\%$ (Harmonised classification). ATE (oral) = 1300 mg/kg.
- 3) SCL (Specific Concentration limits) for classification: Skin Corr. 1B;H314: $C \geq 25\%$; Skin Irrit. 2;H315: $10\% \leq C < 25\%$; Eye Irrit. 2;H319: $10\% \leq C < 25\%$; STOT SE 3;H335: $C \geq 10\%$ (Harmonised classification)
- 4) ATE (oral) = 1710 mg/kg
- 5) ATE (oral) = 482 mg/kg

The wording of the hazard statements - see paragraph 16.

POINT 4: First aid measures

4.1. Description of first aid measures:

Inhalation: Bring the person to fresh air. Keep calm under supervision. In case of discomfort: See medical attention.

Skin: Remove contaminated clothing. Rinse skin and wash thoroughly with soap and water. In case of discomfort: See medical attention.

Eyes: Immediately rinse with water or physiological saline for at least 15 minutes. If possibly remove contact lenses and open the eye wide. By continued irritation: seek medical attention.

Ingestion: Immediately rinse mouth thoroughly and drink copious amounts of water. In case of discomfort: Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed:

Eye irritation with redness and pain. Ingestion may cause stomach discomfort such as pain, nausea and vomiting.

4.3. Indication of whether emergency medical attention and special treatment are needed:

Show this safety data sheet to doctors or casualty ward.

POINT 5: Fire suppression

5.1. Suppression methods:

Not flammable. Against surrounding fire: Water fogging (never water jet - spreads the fire), foam, powder or carbon dioxide.

5.2. Special dangers in connection with the material or compound:

Cannot burn.

5.3. Indication for a fire department:

Use compressed air mask for heavy smoke from surrounding fire.

POINT 6: Accidental release measures

6.1. Personal precautions, personal protective equipment, and emergency procedures:

Use personal protective equipment - see point 8. Limit spread. Ensure good ventilation.

6.2. Environmental protection indications:

Avoid discharge to drains - see point 12. Inform local environmental authorities in case of spillage to the environment.

6.3. Methods and equipment for containment and cleaning:

Smaller amounts are soaked up with paper or the like. Larger amounts are soaked up with granulate and collect in a plastic bucket with a close-fitting lid. Rinse thoroughly with water. Further waste handling - see point 13.

6.4. References to other points:

See above.

POINT 7: Handling and storage

7.1. Measures for safe handling:

Ensure good ventilation. Avoid contact with skin and eyes. After use, wash with plenty of soap and water. There must be access to water and eyewash bottles.

7.2. Conditions for safe storage, including any incompatibility:

In well-closed original container, cool and protected from moisture. Secure, inaccessible to unauthorized persons, separated from foodstuffs, medicines etc.

7.3. Special usage:

See use - point 1.

PUNKT 8: Exposure control/personal protective equipment

8.1. Control parameter:

AT-limit value (reg. 1054 ff 28.06.2022):

	8-hours limit value	Short-term limit value	Anm.
Iron salts, soluble, calculated as Fe	1 mg/m ³	2 mg/m ³	-

Propionic acid	10 ppm = 31 mg/m ³	20 ppm = 62 mg/m ³	E
Copper, powder and dust	1 mg/m ³	2 mg/m ³	-

E = The substance has an EF-limit value

DNEL:	Exposure	Value	Population	Effects
Propionic acid	Long-term - skin	0.26 mg/kg	Workers	Local
	Long-term - skin	20.9 mg/kg	Workers	Systemic
	Acute, inhalation	62 mg/m ³	Workers	Local
	Acute, inhalation	62 mg/m ³	Workers	Systemic
	Long-term - inhalation	31 mg/m ³	Workers	Local
	Long-term - inhalation	73 mg/m ³	Workers	Systemic
PNEC:	Medium	Value		
Propionic acid	Fresh water	0.5 mg/l		
	Sea water	0.05 mg/l		
	Fresh water sediment	1.86 mg/kg		
	Sea water sediment	0.186 mg/kg		
	Sewage works (STP)	5 mg/l		
	Soil	0.126 mg/kg		
Copper sulphate	Fresh water	7.8 µg/l		
	Sea water	5.2 µg/l		
	Soil	65 mg/kg		

8.2. Exposure control:

Appropriate measures for exposure control: Provide effective ventilation.

Personal protective equipment:

Inhalation: By dusty work: Use approved mask (EN149) with particle filter P2. The filters have a limited service life (must be replaced). Read the manufacturer's instructions.

Skin: Wear protective gloves (EN374) made of neoprene or nitrile rubber. Breakthrough time 4 hours.

Eyes: Tightly fitted safety goggles (EN 166) or face shield by risk of dash.

Measures to limit exposure to the environment: See points 6 and 13.

POINT 9: Physical and chemical characteristics

9.1. Information about basic physical and chemical characteristics:

Appearance:	Liquid
Colour:	Reddish
Odor:	Aromatic, sweet
Melting point/freezing point (°C):	Not decided
Boiling point or bubble-point and boiling point interval (°C):	Not decided
Ignitability (solid, gaseous):	Not decided
Upper/lower explosion limits (vol-%):	Not decided
Flash point (°C):	Not relevant
Auto-ignition temperature (°C):	Not decided
Self-accelerating decomposition temperature (°C):	Not relevant
pH:	Not decided
Kinematic viscosity (mm ² /s at 40°C):	Not decided
Solubility (mg/l):	Soluble in water



Partition coefficient n-octanol/water Log K_{ow} :

Vapor pressure (hPa, 20°C):

Density and/or relative density (g/cm³):

Relative vapor density (air=1):

Particulate properties:

Not relevant – solution
(see point 12)

Not decided

Not decided

Not decided

Not decided for liquids

9.2. Other information:

None known.

POINT 10: Stability and reactivity

10.1. Reactivity:

None known

10.2. Chemical stability:

Stable under recommended storage conditions - see point 7.

10.3. Risk of dangerous reactions:

None known.

10.4. Conditions that should be avoided:

Avoid strong heating.

10.5. Materials that should be avoided:

Oxidants, acids and bases.

10.6. Dangerous decomposition products:

None known.

POINT 11: Toxicological information

11.1. Information about 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/eye irritation: Eye Dam. 1; H319 Causes serious eye irritation.

Respiratory or skin sensitization: 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.

Reproduction toxicity: Based on available data, the classification criteria are not met.

Single STOT-exposure: Based on available data, the classification criteria are not met.

Repeated STOT-exposures: Based on available data, the classification criteria are not met.

Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

Danger class	Data	Test	Data source
Acute toxicity: Inhalation	LC ₅₀ (rat) = 1 mg/m ³ /4h (Iron sulphate)	Not informed	ECHA
	LC ₅₀ (rat) > 19.7 mg/l/1H (vapour) (Propionic acid)	Not informed	ECHA
	EC ₅₀ (hamster) = 4.5 mg/m ³ /4h (Zinc sulphate)	Not informed	ECHA
Dermal	LC ₅₀ (rat) > 2000 mg/kg (Iron sulphate)	OECD 402	ECHA
	LD ₅₀ (rabbit) = 3235mg/kg (Propionic acid)	Not informed	ECHA
	LD ₅₀ (rabbit) > 2000 mg/kg (Zinc sulphate)	OECD 402	ECHA
Oral	LD ₅₀ (rabbit) > 1000 mg/kg (Copper sulphate)	Not informed	IUCLID
	LD ₅₀ (mouse) = 1300 mg/kg (Iron sulphate)	Not informed	ECHA
	LD ₅₀ (rat) = 2600 mg/kg (Propionic acid)	Not informed	TOXNET
	LD ₅₀ (rat) = 1710 mg/kg (Zinc sulphate)	OECD 401	ECHA
	LD ₅₀ (rat) = 482 mg/kg (Copper sulphate)	Not informed	Supplier
Corrosivity/ irritation:	Skin irritation, rabbit (Iron sulphate)	OECD 404	ECHA
	Eye irritation, rabbit (Iron sulphate)	OECD 405	ECHA
	Corrosive, rabbit (Propionic acid)	OECD 404	ECHA
	No skin irritation. Very irritating, eyes, rabbit (Zinc sulphate)	OECD 404, 405	ECHA
	Eye irritation, rabbit (Copper sulphate)	OECD 405	ECHA
	No skin irritation, rabbit (Copper sulphate)	OECD 404	ECHA
Sensitisation:	No skin sensitizing, guinea pig (Propionic acid)	OECD 406	ECHA
	No sensitizing, guinea pig (Zinc sulphate)	OECD 406	ECHA
	No skin sensitizing, guinea pig (Copper sulphate)	OECD 406	ECHA
CMR:	No CMR-effects (Propionic acid)	Various	ECHA
	No mutagenic, carcinogenic or reproductive toxic effects (Zinc sulphate)	Various	ECHA
	No CMR-effects (Copper sulphate)	Different	ECHA

Usual exposure methods: Lungs, skin, and gastrointestinal tract.

Inhalation: May be irritating to the mucous membranes of the respiratory tract with sore throat, cough and shortness of breath.

Skin: May be mildly irritating.

Eyes: May be irritating with redness and sting.

Ingestion: May irritate the mucous membranes in the mouth and throat and cause nausea and discomfort. If large amounts are consumed, bloody vomiting, diarrhoea, fall in blood-pressure, constipation, gastric ulcer, palpitations and, in severe cases, unconsciousness may occur. Damage to the liver and kidneys may occur.

Chronic

effects: Frequent or long-term skin contact can degrease the skin, cause eczema, cracking, redness and itching and trigger an allergic reaction.

11.2. Information about other hazards: None known.

POINT 12: Environmental information

12.1. Toxicity:

Aquatic	Data	Test (Media)	Data source
Fish	LC ₅₀ (Leuciscus idus, 96h) > 10,000 mg/l (Propionic acid) LC ₅₀ (Pimephales promelas, 96h) = 0.3 mg/l (Zinc sulphat) LC ₅₀ (Oncorhynchus mykiss, 96h) = 0.032 mg/l (Copper sulphate)	Not informed Static (FW) Not informed (FW)	ECHA ECHA EPA Ecotox
Crustacean	LC ₅₀ (Daphnia magna, 48h) = 7.1 mg/l (Iron sulphate) EC ₅₀ (Daphnia magna, 48h) > 500 mg/l (Propionic acid) EC ₅₀ (Daphnia magna, 48h) = 0.3 mg/l (Zinc sulphat) EC ₅₀ (Daphnia magna, 48h) = 0.019 mg/l (Copper sulphate)	Not informed Not informed OECD 202 (FW) Not informed (FW)	IUCLID ECHA ECHA EPA Ecotox
Alga	EC ₅₀ (Pseudokirchnerella subcapitata, 72h) = 0.14 mg/l (Zinc sulphat) EC ₅₀ (Pseudokirchneriella subcapitata, 5d) = 0.003 mg/l (Copper sulphate)	OECD 201 (FW) Not informed (FW)	ECHA EPA Ecotox

12.2. Persistence and degradability:

Most of the substances are inorganic. Methods for determining the biodegradability do not apply to inorganic substances.

Propionic acid is rapidly biodegradable (OECD 301).

12.3. Bioaccumulative potential:

Propionic acid: Log K_{ow} > 0.33 (no bioaccumulation).

Copper bioaccumulates strongly in invertebrate organisms.

12.4. Mobility in soil:

Copper sulfate is easily soluble in water (forming copper and sulfate ions upon dissolution) and has high mobility in land treatment.

12.5. Results of PBT and vPvB assessment:

The ingredients are not PBT/vPvB according to the criteria in REACH annex XIII.

12.6. Endocrine-disrupting capacities: None known.

12.7. Other adverse effects: None known.

POINT 13: Removal

13.1. Methods for waste handling:

The chemical must be considered as hazardous waste. Use the local authority's collection scheme.

Chemical waste group: **EAK-code:**

H 02 01 06

POINT 14: Transport information

Not covered by the transport regulations (ADR/RID/IMDG/IATA).

14.1. UN-number or ID-number: None.

14.2. UN-shipment designation (UN proper shipping name): None.

14.3. Transport danger class(es): None.

14.4. Packaging group: None.

14.5. Environmental dangers: None.

14.6. Special regulations for the user: None.

14.7. Bulk transport by sea according to IMO instruments: Not relevant.

POINT 15: Information about regulations

15.1. Special determinations/special rules for the material or compound with respect to safety, health and environment:

None.

15.2. Chemical safety evaluation:

No CSR.

POINT 16: Other information

Hazard statements given under point 3:

H226: Flammable liquid and vapour.

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H400: Very toxic to aquatic life.

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

Abbreviations:

AT = Working environment authority

CMR = carcinogenic, mutagenic, or toxic to reproduction

CSR = Chemical Safety Report

DNEL = Derived No-Effect Level

EC₅₀ = Effect Concentration 50 %

LC₅₀ = Lethal Concentration 50 %

LD₅₀ = Lethal dosage 50 %

PBT = Persistent, Bioaccumulative, Toxic

PNEC = Predicted No-Effect Concentration

FW = Fresh Water

vPvB = very Persistent, very Bioaccumulative

Literature:

ECHA = REACH Registration dossier from ECHA's website

EPA Ecotox = US Environmental Protection Agency (database with ecotoxicological data for chemical compounds)

IUCLID = International Uniform Chemical Database Information

TOXNET = Toxicology Data Network via Toxline database

Advice on training / instruction:

The product may only be used by persons who are carefully instructed in the execution of the work and who have knowledge of the contents of this safety data sheet.

Changes since previous version:

Not relevant - first issue.

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