

# SAFETY DATA SHEET

According to regulations (CE) No. 1907/2006 and 2015/830



Revision date : 24/11/2014

Version 16.2

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

### 1.1 Product identifier

Catalogue No **916**  
Product name **Fehling's solution - complete reagent ready for use**  
REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Reagent for analysis

### 1.3 Details of the supplier of the safety data sheet

Société : Laboratoires Dujardin-Salleron 37210 Noizay France Tél. +33 (0)2 47 25 58 25  
courriel : [info@dujardin-salleron.com](mailto:info@dujardin-salleron.com) - site : [www.dujardin-salleron.com](http://www.dujardin-salleron.com)

1.4 Emergency telephone number France : INRS : +33 (0)1 45 42 59 59

## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (Regulation (CE) N° 1272/2008)

Skin corrosion / irritation, Category 1A, H314  
Hazardous to the aquatic environment, Chronic hazard, H411  
For the full text of the R-phrases mentioned in this Section, see Section 16.

### 2.2 Label elements

#### Labeling (Regulation (CE) N° 1272/2008)

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H314 Causes severe skin burns and eye damage.  
H411 Toxic to aquatic life with long lasting effects.

*Precautionary statements*

P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301 + 330 + 331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P305+ P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.  
P303+ P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P391 Collect spillage.  
P501 Dispose of contents/container to officially approved facility.

### 2.3 Other hazards

None known.

## SECTION 3. Composition/information on ingredients

**Chemical nature:** Aqueous solution

### Non-hazardous components (Regulation (EC) No 1272/2008)

*Chemical Name (Concentration):*

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<i>Potassium sodium tartrate (≥ 18% - &lt; 19%)</i>			
CAS N°	EC N°	REACH N°	Classification
6381-59-5	215-185-5	-	not classified as dangerous substance
<b>Hazardous components (Regulation (EC) No 1272/2008)</b>			
<i>Chemical Name (Concentration):</i>			
<i>Copper (II) sulfate pentahydrate (≥ 3% - &lt; 4%)</i>			
CAS N°	EC N°	REACH N°	Classification
7758-99-8	281-847-6	01-2119520566-40-0000	Acute toxicity, Category 4, Oral, H302 Eye irritation, Category 2, H 319 Skin irritation, Category 2, H315 Chronic aquatic toxicity, category 1, H410
<i>Sodium hydroxide (≥ 10% - &lt; 12%)</i>			
CAS N°	EC N°	REACH N°	Classification
1310-73-2	215-185-5	01-2119457892-27-XXXX	Skin corrosion, Category 1A, H314 Corrosive to metals, Category 1, H290
<b>Component not classified as hazardous as a consequence of the substance concentration (Regulation (CE) N° 1272/2008)</b>			
<i>Chemical Name (Concentration):</i>			
<i>Sulphuric acid (&lt; 0.2%)</i>			
CAS N°	EC N°	REACH N°	Classification
7664-93-9	231-639-5	01-2119457892-27-XXXX	Skin corrosion, Category 1A, H314 Corrosive to metals, Category 1, H290
For the full text of the H-Statements mentioned in this Section, see Section 16.			
<b>SECTION 4. First aid measures</b>			
<b>4.1 Description of first aid measures</b>			
After inhalation: fresh air. In case of respiratory tract irritation, consult a physician. After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. In case of skin reaction, consult a physician. After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary. After swallowing: rinse out mouth with water. Do not induce vomiting. Do not give the casualty anything to eat or drink. Consult a physician.			
<b>4.2 Most important symptoms and effects, both acute and delayed</b>			
No information available.			
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>			
No information available.			
<b>SECTION 5. Firefighting measures</b>			
<b>5.1 Extinguishing media</b>			
<i>Suitable extinguishing media</i> Water, foam, dry powder or carbon dioxide.			
<i>Unsuitable extinguishing media</i> For this mixture no limitations of extinguishing agents are given.			
<b>5.2 Special hazards arising from the substance or mixture</b>			
Not combustible. In case of fire may be liberated: Pyrolysis products, toxic			
<b>5.3 Advice for firefighters</b>			

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## Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

## SECTION 6. Accidental release measures

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

See sections 7 and 8 for protective measures. Use personal protection equipment.

### 6.2 Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

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

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Trivorex® (PREVOR)). Dispose of properly.

Clean up affected area.

### 6.4 Additional information

Clear spills immediately.

## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

Observe label precautions.

Avoid: Inhalation. Avoid contact with skin and eyes..

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

Storage temperature: +15°C to +25°C.

Keep container tightly closed in a cool, well-ventilated place.

Do not use metal containers.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8. Exposure controls / personal protection

### 8.1 Control parameters

#### Components with occupational exposure limit values

*Sodium hydroxide (1310-73-2)*

Base	Value	Threshold limit values	Comment	
Limit value for occupational exposure (VLEP France)	Time Weighted Average Threshold Limit Value	2 mg/m <sup>3</sup>	Indicative limit values	
<b>Derived No Effect Level (DNEL)</b>				
<i>Sodium hydroxide (1310-73-2)</i>				
Worker DNEL, long term		Local effects	inhalation	1 mg/m <sup>3</sup>
Consumer DNEL, long term		Local effects	inhalation	1 mg/m <sup>3</sup>

### Recommended control procedures

Measuring methods of workplace atmosphere must meet DIN EN 482 and DIN EN 689 standards.

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## 8.2 Exposure controls

### Engineering measures

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

### Individual protection measures

#### Eye/face protection

Eye glasses with side protection

#### Hand protection

Wear chemically protective gloves with the CE-label. In the case of wanting to use the gloves again, clean them before taking off and air them well

By short-term hand contact:	Glove material:	Nitrile rubber
	Glove thickness:	0.12 mm
	Break through time:	> 480 min.

By long-term hand contact	Glove material:	Nitrile rubber
	Glove thickness:	0.38 mm
	Break through time:	> 480 min.

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374.

#### Other protective equipment

Wear appropriate chemically protective clothing, with the CE-labels

#### Respiratory protection

Respiratory protection: required when vapors/aerosols are generated.

Recommended filter type: P2.

The company has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented

### Environmental exposure controls

Do not empty into drains.

## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid.
Color	indigo blue.
Odor	characteristic
Odor Threshold	No data available.
pH	About 12 at 20°C
Melting point	No data available.
Boiling point/boiling range	> 100 °C
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available.
Upper explosion limit	No data available.
Vapor pressure	No data available.
Relative vapor density	No data available.
Relative density	1.20 g/cm <sup>3</sup> at 20°C
Water solubility	soluble.
Partition coefficient: n- octanol/water	No data available.
Auto-ignition temperature	No data available.

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Decomposition temperature	No data available.
Viscosity, dynamic	No data available.
Explosive properties	Not classified as explosive.
Oxidizing properties	None

## 9.2 Other data

Bulk density	No data available
Refraction index	No data available
Dissociation constant	No data available
Surface tension	No data available
Henry constant	No data available.

## SECTION 10. Stability and reactivity

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

The product is chemically stable for a year under standard ambient conditions (room temperature).

### 10.3 Possibility of hazardous reaction

Reacts with light metals to form hydrogen (risk of explosion!). Reacts violently with acids. May form ammonia on contact with ammonium compounds.

### 10.4 Conditions to avoid

Direct sunlight. Extreme low temperatures or extreme hot temperature.

### 10.5 Incompatible materials

Aluminium, tin, zinc, acids, chloroform, acetone, ammonium compounds, nitromethane, phenols, strong acids and strong bases.

### 10.6 Hazardous decomposition products

In the event of fire : vapors, carbon monoxide, carbon dioxide.

## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### *Acute oral toxicity*

Effective dose - species - Exposure time No data available.

#### *Acute dermal toxicity*

Effective dose - species - Exposure time No data available.

#### *Acute inhalation toxicity*

Effective dose - species - Exposure time No data available.

#### Irritant and corrosive effects

#### *Primary irritation of the skin*

Exposure time - species No data available.

#### *Eye irritation*

Exposure time - species No data available.

#### *Sensitization*

In case of skin contact No data available.

After inhalation No data available.

*Specific target organ toxicity* (single exposure) No data available.

*Specific target organ toxicity* (repeated exposure) No data available.

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CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

<i>Carcinogenicity</i>	No data available.
<i>Germ cell mutagenicity/Genotoxicity</i>	No data available.
<i>Reproductive toxicity</i>	No data available.
<i>Aspiration hazards</i>	No data available.

## 11.2 Additional information

Handle in accordance with good industrial hygiene and safety practice.

### Components

#### *Copper (II) sulfate pentahydrate (7758-99-8)*

##### *Acute oral toxicity*

LDLO human: 1.088 mg/kg (RTECS)

LD50 rat: 960 mg/kg ((HSDB)

Symptoms: gastric pain, vomiting, diarrhea

##### *Acute inhalation toxicity*

Symptoms: may cause irritation of respiratory tract.

##### *Acute dermal toxicity*

LD50 rat: > 2.000 mg/kg (RTECS).

##### *Skin irritation*

Causes skin irritation.

##### *Eye irritation*

Risk of corneal clouding, conjunctivitis

Causes serious eye irritation.

##### *Sensitization*

No data available

##### *Specific target organ toxicity (single exposure)*

No data available.

##### *Specific target organ toxicity (repeated exposure)*

No data available.

##### *Genotoxicity in vivo*

Mutagenicity (mammal cell test): micronucleus

Result: negative (National Toxicology Program).

##### *Genotoxicity in vitro*

##### *Ames test*

Salmonella typhimurium

Result: negative (Lit.).

##### *Carcinogenicity*

No data available.

##### *Reproductive toxicity*

No data available.

##### *Aspiration hazards*

No data available.

##### *Further information*

After absorption: drop in blood pressure, tachycardia, collapse, acidosis.

Metal-fume fever after inhalation of large quantities.

Handle in accordance with good industrial hygiene and safety practice.

#### *Sodium hydroxide (1310-73-2)*

##### *Acute oral toxicity*

LD50 rat: 1350 mg/kg (IUCLID)

##### *Skin irritation*

Rabbit: Result: Causes burns. (RTECS)

##### *Eye irritation*

Rabbit: Result: Causes burns. (RTECS)

##### *Germ cell mutagenicity*

##### *Genotoxicity in vitro*

Mutagenicity (mammal cell test): micronucleus. Result: negative (Lit.)

##### *Ames test*

Result: negative (IUCLID)

##### *Teratogenicity*

Did not show teratogenic effects in animal experiments. (Lit.)

## SECTION 12. Ecological information

### Mixture

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## 12.1 Ecotoxicity

Acute (short-term) fish toxicity  
LC50 - EC50 - species - exposure time No data available.

Chronic (long-term) fish toxicity  
LC50 - EC50 - species - exposure time No data available.

Acute (short-term) daphnia toxicity  
LC50 - EC50 - species - exposure time No data available.

Chronic (long-term) daphnia toxicity  
LC50 - EC50 - species - exposure time No data available.

Acute (short-term) algae toxicity  
LC50 - EC50 - species - exposure time No data available.

Chronic (long-term) algae toxicity  
LC50 - EC50 - species - exposure time No data available.

**12.2 Persistence and degradability – Biodegradability** No data available.

**12.3 Bioaccumulative potential** No data available.

**12.4 Mobility in soil** No data available.

**12.5 Results of PBT and vPvB assessment** No data available.

## 12.6 Other adverse effects

Discharge into the environment must be avoided.

## Components

### *Copper (II) sulfate pentahydrate (7758-99-8)*

#### *Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 0.11 mg/l, 96 h (anhydrous substance) (ECOTOX Database)

#### *Toxicity to daphnia and other aquatic invertebrates.*

EC50 Daphnia magna (Water flea): 0,02 mg/l, 48 h (anhydrous substance) (ECOTOX Database)

#### *Persistence and degradability*

No information available.

#### *Bioaccumulative potential*

No information available.

#### *Mobility in soil*

No information available.

#### *Results of PBT and vPvB assessment*

No information available.

#### *Addition/ ecological information*

Fungicide

#### *Further information on ecology*

Do not allow to run into surface waters, wastewater, or soil.

### *Sodium hydroxide (1310-73-2)*

#### *Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 45.4 mg/l; 96 h (50% solution) (IUCLID)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 76 mg/l; 24 h (50% solution) (External SDS)

#### *Toxicity to bacteria*

CE50 Photobacterium phosphoreum : 22 mg/l ; 15 min (External SDS).

#### *Persistence and degradability*

No information available

#### *Bioaccumulative potential*

Bioaccumulation is unlikely.

#### *Mobility in soil*

No information available.

#### *Results of PBT and vPvB assessment*

No information available.

#### *Other adverse effects*

May increase pH (soil, water)

## SECTION 13. Disposal considerations

### *Waste treatment methods*



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Waste must be disposed of in accordance with the Directive on waste 2008/98/EC and with local and national regulations. Leave chemicals in original containers. No mixing with other waste. Treat uncleaned containers like the product itself.

## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number	1760
14.2 Proper shipping name	CORROSIVE LIQUID, N.S.A. (FEHLING REAGENT)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for users	yes
Tunnel restriction code	E

### Air transport (IATA)

14.1 UN number	1760
14.2 Proper shipping name	CORROSIVE LIQUID, N.O.S. (FEHLING REAGENT)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for users	yes

### Sea transport (IMDG)

14.1 UN number	1760
14.2 Proper shipping name	CORROSIVE LIQUID, N.O.S. (FEHLING REAGENT)
14.3 Class	8
14.4 Packing group	III
14.5 Marine pollution	yes
14.6 Special precautions for users	yes
EMS	F-A S-B
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant

## SECTION 15. Regulatory information

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

Water hazard class (WGK): WGK 3 (very hazardous for water)

Occupational restriction Take note of Directive 94/33/EC on the protection of young people at work  
And Directive 92/85/EEC on the safety and health at work of pregnant women

Substances of very high concern (SVHC) This product does not contain substances of very high concern above the respective regulatory limit (> 0.1 % (w/w) Regulation (EC) No 1907/2006 (REACH), Article 57).

### 15.2 Chemical Safety Assessment

See exposure scenario for component sodium hydroxide in annex.

## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.



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## Training advice

Provide adequate information, instruction and training for operators.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

*The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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ANNEX: Extract of the exposure scenario (ES n°2) of workers and environment for professional use of substance sodium hydroxide in accordance with REACH regulation (EC) No 1907/2006

## 1. Professional use (Reagent for analysis)

### Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

### Chemical product category

PC 21 Laboratory chemicals

### Process categories

PROC 15 Use as laboratory reagent

### Environmental Release Categories

ERC 2 Formulation of preparations

ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC 6b Industrial use of reactive processing aids

## 2. Contributing scenarios: Operational conditions and risk management

### 2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC6a, ERC6b

#### Technical conditions and measures / Organizational measures

Water Solutions with high pH-value must be neutralized before discharge.

Remarks Do not allow uncontrolled discharge of product into the environment..

### 2.2 Contributing scenario controlling worker exposure for: PROC15

#### Product characteristics

Concentration of the Substance in Mixture/Article covers the percentage of the substance in the product up to 100 %.

Physical Form (at time of use) Aqueous solution

#### Frequency and duration of use

Frequency of use 600 minutes / day

Frequency of use 200 days / year

#### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

#### Technical conditions and measures

Good work practice required. Ensure adequate ventilation, especially in confined areas.

#### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374), coverall and eye protection. Breathing apparatus only if aerosol or dust is formed.

## 3. Exposure estimation and reference to its source

For (other) local effects risk management measures are based on qualitative risk characterization.

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).