

## FERROUS SULFATE HEPTAHYDRATE

### Section 1: Chemical Product and Company Identification

#### 1.1 Product identifier

**Product Name:** Ferrous Sulfate Heptahydrate

**Material No.** 9018XXXXXXXXXX

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

**Relevant identified uses:** Food, pharma, technical

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

CHEMICAL ELEMENTS UKRAINE, LLC  
Khimikov avenue, 74, Cherkassy, 18028, Ukraine  
+38 0472 59 02 28  
hello@chemelements.life  
www.chemelements.life

#### 1.4 Emergency telephone number

+49 40 333 13 237

### Section 2: Hazards Identification

#### 2.1 Classification of the substance or mixture

**Eye irritation:** Category 2

**Acute toxicity - Oral:** Category 4

**Skin irritation:** Category 2

#### 2.2 Label elements

**Pictogram:**



**Signal Word:**

WARNING

**Hazard statements:**

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation

**Precautionary statements:**

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection. P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P330 Rinse mouth.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before reuse.

### Section 3: Composition and Information on Ingredients

#### 3.1 Substance

**Chemical name:** Ferrous Sulfate Heptahydrate

**Formula:**  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$

**CAS No.** 7782-63-0

**EC No.** 231-753-5

## 3.2 Hazardous components (REGULATION (EC) No 1272/2008)

Component	CAS No.	WP, %
Ferrous Sulfate Heptahydrate	7782-63-0	98-105.0

## 3.5 Mixture

Not applicable

## Section 4: First Aid Measures

### 4.1 Description of first aid measures

<b>Inhalation:</b>	Provide access to fresh air, peace, warmth, comfortable body position, conditions for free breathing. If breathing is disturbed, give moistened oxygen, while breathing stops, give artificial respiration. If necessary, seek medical help.
<b>Ingestion:</b>	Rinse mouth thoroughly with water immediately. Give plenty of water to drink. Seek immediate medical assistance.
<b>Skin:</b>	Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention.
<b>Eye contact:</b>	Gently flush eyes with water until symptoms of irritation are resolved. If necessary, seek medical help.

### 4.2 Most important symptoms and effects, both acute and delayed

<b>Symptoms:</b>	Ingestion: nausea, vomiting with blood, stomachache, diarrhea hyperemia, a drop in blood pressure, decreased blood clotting. Inhalation: Lachrymation, sore throat, cough.
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### 4.3 Indication of any immediate medical attention and special treatment needed

No information available

## Section 5: Fire fighting measures

### 5.1 Extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

Oxides of sulfur and iron (III), ferrous sulfate anhydrous.

### 5.3 Advice for firefighters

In a fire situation, wear self-contained positive pressure breathing apparatus and protective clothing from resistant materials.

## Section 6: Accidental Release Measures

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

Avoid inhalation and ingestion. Avoid contact with skin, eyes and clothing. Wear protective clothing specified for normal operations (see Section 8).

### 6.2 Environmental precautions

Avoid release to the environment.

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

Substance collect in a closed identified container, using a dry method. Wash off contaminated surface with water and detergents. Leaks of aqueous solutions of the substance are covered with lime, crushed limestone or sodium bicarbonate, make the pH value to 7 and mechanically remove the precipitate.

### 6.4 Reference to other sections

Disposal (see Section 13).

## Section 7: Handling and Storage

### 7.1 Precautions for safe handling

Change contaminated clothing immediately; wash hands and face after handling.

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

Store in a cool, dry, ventilated warehouse in the original tightly closed packaging away from sources of heat. Maintain a constant temperature not to exceed 25°C. Avoid exposure to direct sunlight.

### 7.3 Specific end use(s)

Food, pharma, technical.

## Section 8: Exposure Controls/Personal Protection

### 8.1 Control parameters

Provide adequate ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits. The level of protection and types of controls will vary depending upon potential exposure conditions.

### 8.2 Exposure controls

<b>Eye/face protection:</b>	Safety glasses with side-shields.
<b>Skin and body protection:</b>	Wear suitable protective clothing (protective gloves, dustproof clothing and special footwear). Recommended Glove material: Nitrile rubber 0,11 mm.
<b>Respiratory Protection:</b>	Respiratory protection necessary at: Dust formation. Recommended Filter type: Filter B-(P2).

## Section 9: Physical and Chemical Properties

<b>Form:</b>	Solid
<b>Appearance:</b>	Greenish-blue crystals
<b>Odour:</b>	Odourless.
<b>Melting Point:</b>	>60°C (release of crystalline water)
<b>Boiling point:</b>	No information available.
<b>Decomposition temperature:</b>	>300°C
<b>Solubility in Water:</b>	665 g/l (20°C)
<b>Solubility in Organic Solvents:</b>	Insoluble in alcohol
<b>Specific Gravity:</b>	1.898 g/cm <sup>3</sup>
<b>pH:</b>	pH 3 - 4 (50 g/l, H <sub>2</sub> O, 20 °C)
<b>Flammability:</b>	Non-combustible material.
<b>Molecular Weight:</b>	278.01
<b>Partition coefficient: n-octanol/water:</b>	No information available
<b>Vapor pressure:</b>	No information available

## Section 10: Stability and Reactivity Data

### 10.1 Reactivity

Hydrolyzed, oxidized, forms double salts. Reacts with oxygen, forming the basic ferrous sulfate.

### 10.2 Chemical stability

Loses water in dry air and oxidases upon exposure to moisture, forming a brown coating of extremely corrosive basic ferric sulfate.

### 10.3 Possibility of hazardous reactions

No information available.

### 10.4 Conditions to avoid

Dust generation. Moisture. Incompatibles. Direct sunlight. Temperatures above 25°C.

## 10.5 Incompatible materials

Strong acids, organic substances, alkaline, soluble carbonates, gold or silver salts, lead acetate, potassium iodide, potassium/sodium tartrate, sodium borate, tannin.

## 10.6 Hazardous decomposition products

See 5.2

## Section 11: Toxicological Information

<b>Acute Toxicity:</b>	DL <sub>50</sub> = 1520 mg/kg (mouse: oral). DL <sub>50</sub> = 245 mg/kg (rat: intraperitoneally). DL <sub>50</sub> = 51 mg/kg (mouse: intravenously).
<b>Inhalation:</b>	Inhalation of dust may cause irritation to the upper respiratory system. Symptoms may include coughing and shortness of breath.
<b>Skin:</b>	Skin contact may cause irritation, redness, itching and pain to the skin.
<b>Eye:</b>	May be harmful if in contact with the eyes. Symptoms include irritation, redness, tearing, stinging, pain and blurred vision.
<b>Carcinogenicity:</b>	No information available
<b>Mutagenicity:</b>	Positive result (Escherichia coli). Negative outcome (mouse lymphoma cells), negative result in the micronuclear test (anhydrous salt, male mouse), gene mutation (Drosophila SLRL, anhydrous salt).
<b>Reproductive toxicity:</b>	No information available
<b>Specific target organ toxicity - single exposure:</b>	No information available
<b>Specific target organ toxicity - repeated exposure:</b>	No information available
<b>Aspiration hazard:</b>	No information available
<b>Systemic effects:</b>	See 4.2

## Section 12: Ecological Information

### 12.1 Acute toxicity

For fish: EC<sub>50</sub> = 0,9 mg/L at pH = 6,5-7,5.  
For Daphnia magna: EC<sub>50</sub> = 152 mg/l (48 hours, for the anhydrous form).  
For algae: No Available data

### 12.2. Persistence and degradability

Stability under abiotic conditions (τ<sub>1</sub> / 2): 7-1 days (stable). Products of transformation in the environment- ferric salt.

### 12.3 Bioaccumulative potential

No information available

### 12.4. Mobility in soil

No information available

### 12.5 Results of PBT and vPvB assessment

No information available

### 12.6 Other adverse effects

Identified effects on model ecosystems: in the surface of the reservoir, ferrous iron can be converted into trivalent iron, which is accompanied by the absorption of dissolved oxygen.

## Section 13: Disposal Considerations

Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

## Section 14: Transport Information

### 14.1 UN number

Not dangerous goods

14.2 UN proper shipping name

Not dangerous goods

14.3 Transport hazard class(es)

**Land transport (ADR/RID):** Not classified as dangerous in the meaning of transport regulations

**Air transport (IATA):** Not classified as dangerous in the meaning of transport regulations

**Sea transport (IMDG):** Not classified as dangerous in the meaning of transport regulations

14.4 Packaging group:

Not dangerous goods

## Section 15: Other Regulatory Information

Chemical Safety Assessment: No information

## Section 16: Other Information

*Revision date: May, 2020*

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