

**SECTION I: Identification of the Substance/Mixture and of the Company/Undertaking****1.1 Product Identifier**

Product name: Ferrosol

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

Use: Turf maintenance

**1.3 Details of the supplier of the safety data sheet**Company: Aquatrols Europe Ltd  
Units 7-8 New Street Farm  
Chilmington Green Road  
Great Chart, Ashford  
Kent TN23 3DLWebsite: [uk.aquatrols.com](http://uk.aquatrols.com)

Phone number: + 44 (0)1233 756 241

Email: [jjychye@aquatrols.com](mailto:jjychye@aquatrols.com)**1.4 Emergency telephone**Phone number: CHEMTREC - (800) 424-9300  
CHEMTREC INTERNATIONAL- +1-703-527-3887  
NETHERLANDS - +31 88 755 85 61  
SPAIN - +34 917 689 800  
UK - + 44 2890 63 2032**SECTION II: Hazards Identification****2.1 Classification of the substance or mixture****Product description:** Mixture**Classification according to Regulation (EC) No. 1272/2008**

H302: Acute toxicity – Oral Category 4

H332: Acute toxicity – Inhalation Category 4

H315: Skin corrosion – Category 2

H319: Serious eye irritation – Category 2A

H350: Carcinogenicity – Category 1A

## 2.2 GHS label elements

Labelled according to Regulation (EC) No. 1272/2008



Hazard pictograms:

Signal word:

DANGER

Hazard statements:

H302: Harmful if swallowed

H332: Harmful if inhaled

H315: Causes skin irritation

H319: Causes serious eye irritation

H350: May cause cancer

Precautionary statements

Prevention:

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash face, hands and any exposed skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid breathing dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area.

Wear eye/face protection

Response:

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

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Rinse mouth.

Do NOT induce vomiting.

Storage: Store locked up

Disposal: Dispose of contents/container to an approved waste disposal plant.

### 2.3 Other hazards which do not result in classification

Not applicable.

## SECTION III: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance/Mixture: Mixture

### 3.2 Hazardous ingredients

Chemical Name	CAS No. EC No.	Classification according to Regulation EC 1272/2008 (CLP)	Concentration
Ferrous sulfate	7720-78-7 231-753-5	Acute Tox. 4 – H302 Skin Irrit. 2 – H315 Eye Irrit. 2 – H319	16.3%
Sulfuric acid	7664-93-9 231-639-5	Skin Corr. 1A – H314	< 6%

### 3.3 Non-hazardous ingredients and impurities

Chemical Name	CAS No. EC No.	Classification according to Regulation EC 1272/2008 (CLP)	Concentration
Urea	57-13-6 200-315-5	Not classified	32.6%

## SECTION IV: FIRST AID MEASURES

### 4.1 Description of first aid measures

<b>General advice:</b>	Show this SDS to the doctor in attendance. First responder needs to protect himself. Place affected apparel in a sealed bag for subsequent decontamination.
<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician if necessary.
<b>Skin contact:</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash contaminated clothing before re-use.
<b>Eye contact:</b>	Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
<b>Ingestion:</b>	Do not induce vomiting without medical advice. Immediate medical attention is required. If victim is conscious, drink plenty of water and do not leave victim unattended. Vomiting may occur spontaneously. Seek medical advice.

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

Symptoms after inhalation:	Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.
Symptoms after skin contact:	Skin contact may aggravate existing skin disease.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

Note to physician:	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales,
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frothy sputum, and high pulse pressure.  
Treat symptomatically.

## SECTION V: FIREFIGHTING MEASURES

### 5.1 Extinguishing media

Suitable extinguishing media: Dry chemical, CO<sub>2</sub>, foam, water spray.

Unsuitable extinguishing media: High volume water jet

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

Specific hazards during firefighting: Under fire conditions, will burn.

Hazardous decomposition products: Carbon oxides.

### 5.3 Advice for firefighters

**Special protective equipment:** Firefighters should wear approved self-contained breathing apparatus and full protective clothing.

**Further information:** Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

## SECTION VI: ACCIDENTAL RELEASE MEASURES

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

Wear suitable protective equipment. For further information, see Section VIII "Exposure Controls/Personal Protection".

### 6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system. Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Spills should be reported to local agencies.

### 6.3 Methods and materials for containment and cleanup

Methods of containment:	Stop leak if safe to do so. Dam up with sand or inert earth (do not use combustible materials).
Recovery:	Soak up with inert absorbent materials. Shovel or sweep up. Keep in suitable, closed container for disposal. Never return spills to original containers for re-use.
Decontamination/cleaning:	Clean contaminated surface thoroughly. Wash non-recoverable remainder with large amounts of water. Recover the cleaning water for subsequent disposal. Decontaminate tools, equipment and personal protective equipment in a segregated area.
Disposal:	Dispose of in accordance with local regulations.

**6.4 Reference to other sections**

See Section VII for Handling and Storage.

**SECTION VII: HANDLING AND STORAGE****7.1 Precautions for safe handling of the substance/mixture.**

Technical measures:	Provide adequate ventilation.
Advice on safe handling and usage:	Avoid inhalation of vapor or mist. Avoid contact with skin and eyes.
Hygiene measures:	Personal hygiene is an important workplace practice exposure control measure and the following general measures should be taken when working with or handling this material: <ol style="list-style-type: none"><li>1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.</li><li>2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.</li></ol>

- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Recommended:	Keep container tightly closed in a cool, dry, well-ventilated place. Keep out of reach of children. Keep in properly labeled containers.
To be avoided:	Keep away from open flames, hot surfaces and sources of ignition. Keep away from incompatible materials

### Storage stability

Storage temperature:	No data available.
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## 7.3 Specific end use(s)

See Section I

## SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

### General comments

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

### 8.1 Control parameters

Local and general ventilation.

### 8.2 Exposure controls

Exposure limits:	Ferrous sulfate: 1 mg/m <sup>3</sup> Sulfuric acid: 1 mg/m <sup>3</sup>
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Protective measures:	Ensure that eyewash stations and safety showers are close to workstation. Emergency equipment immediately accessible, with instructions for use.
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Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

**Respiratory protection:**

When respirators are required, use approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

**Hand protection:**

Gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

**Eye protection:**

Eye and face protection will vary dependent upon work, environmental conditions and material handling practices. Appropriate approved equipment should be selected for the particular use intended for this material. Eye contact should be prevented through the use of safety glass with side-shields.

**Body protection:**

Footwear protecting against chemicals; impervious clothing.

**Hygiene measures:**

Personal hygiene is an important workplace practice exposure control measure and the following general measures should be taken when working with or handling this material:

- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.



**SECTION IX: CHEMICAL AND PHYSICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

<b>Physical state:</b>	Liquid
<b>Form:</b>	Liquid
<b>Color:</b>	Brown
<b>Odor:</b>	No discernible odor
<b>Odor threshold:</b>	No data available
<b>pH:</b>	1.4 – 2.5
<b>Freezing point:</b>	-5°C
<b>Boiling point:</b>	12°C
<b>Flashpoint:</b>	> 96°C
<b>Evaporation rate:</b>	Not determined
<b>Flammability:</b>	Not determined
<b>Upper explosive limit:</b>	No data available
<b>Lower explosive limit:</b>	No data available
<b>Vapor pressure:</b>	< 17 mm Hg
<b>Vapor density:</b>	> 1
<b>Specific gravity :</b>	1.36 g/mL
<b>Solubility:</b>	Soluble in water
<b>Partition n-octanol/water:</b>	No data available
<b>Autoignition temperature:</b>	No data available
<b>Thermal decomposition:</b>	No data available
<b>Viscosity:</b>	No data available
<b>Explosive properties:</b>	No data available
<b>Oxidizing properties:</b>	No data available

**9.2 Other information**

Not applicable

**SECTION X: STABILITY AND REACTIVITY****10.1 Reactivity**

No data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

Hazardous polymerization will not occur.

**10.4 Conditions to avoid**

Exposure to air or moisture over prolonged periods.

**10.5 Incompatible materials**

Strong bases. Strong oxidizing agents.

**10.6 Hazardous decomposition products**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**SECTION XI: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity**

Acute oral toxicity: May cause irritation. May be harmful if swallowed.

Acute inhalation toxicity: May cause irritation

Acute dermal toxicity: May cause irritation

Acute toxicity (other routes of administration): May cause irritation. May cause burns.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ferrous sulfate	= 237 mg/kg (rat)	-	-
Sulfuric acid	= 2140 mg/kg (rat)	-	= 510 mg/m <sup>3</sup> (rat) 2 h

**Skin corrosion/irritation**

Skin irritation: No data available

**Serious eye damage/eye irritation**

Eye irritation: Not data available

**Respiratory or skin sensitization**

Sensitization: No data available

**Mutagenicity**

Genotoxicity in vitro: No data available

Genotoxicity in vivo: No data available

**Carcinogenicity**

Carcinogenicity: Sulfuric acid: IARC – Group 1 – Carcinogenic to Humans

**Toxicity for reproduction and development**

Toxicity to reproduction/fertility: No data available

Developmental toxicity/teratogenicity: No data available

**SECTION XII: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Toxic to aquatic life with long lasting effects.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Custacea
Urea		16,200 – 18,300: 96 h Poecillia reticulata mg/L LC50		10,000: 24 h Daphnia magna mg/L EC50 3910: 48 h Daphnia magna mg/L EC50 Static
Ferrous sulfate		925: 96 h Poecillia reticulate mg/L LC50 static 0.56: 96 h Cyprinus carpio mg/L LC 50 semi-static		152: 48h Daphnia magna mg/L EC50 6.15 – 9.26: 48 h Daphnia magna mg/L EC50 Static
Sulfuric acid		500: 96 h Brachydanio rerio mg/L LC50 static		29: 24 h Daphnia magna mg/L EC50

**12.2 Persistence and degradability**

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**

No data available

**SECTION XIII: DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods**

Advice on disposal: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult local regulations regarding proper disposal of this material.

Contaminated containers: Rinse with appropriate solvent. Dispose of contents/container in accordance with local regulations.

**SECTION XIV: TRANSPORT INFORMATION**

In accordance with the provisions of ADR/RID/ADNR/IMDG/ICAO/IATA

**14.1 UN Number**

Not classified as dangerous

**14.2 Shipping name UN Model**

Not applicable

**14.3 Transport hazard class**

Not applicable

**14.4 Packing group**

Not applicable

**14.5 Environmental hazards**

Other information: No additional information available

**14.6 Special precautions for use**

No additional information available

**14.6.1 Ground transport**

No additional information available

**14.6.2 Sea transport**

No additional information available.

**14.6.3 Air transport**

No additional information available

**14.7 Transport in bulk according to Annex II of Marpol 73/78 and IBC Code**

Not applicable.

**SECTION XV: REGULATORY INFORMATION****15.1 Safety legislation specific for the substance or mixture****15.1.1 EU-Regulations**

No restrictions according to Annex XVII of REACH. Does not contain REACH candidate substances.

**15.1.2 National regulations**

No information available

**15.2 Chemical safety assessment**

No information available

**SECTION XVI: OTHER INFORMATION****More information****Abbreviations**

ADR:	European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMDG:	International Maritime Code for Dangerous Goods
LC50:	Lethal Concentration 50%
LD50:	Lethal Dose 50%
EC50:	Effective Dose 50%
CLP:	Classification, Labelling and Packaging
CAS:	Chemical Abstract Service
RID:	Regulations concerning the International Carriage of Dangerous Goods by Rail
IATA-DGR:	International Air Transport Association Dangerous Goods Regulations
GHS:	Globally Harmonized System (GHS) of Labelling Chemical Products

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<b>REACH:</b>	Registration, Evaluation, Authorization and Restriction of Chemical Products
<b>IARC:</b>	International Agency for Research on Cancer
<b>Version:</b>	1.0
<b>Previous version:</b>	Not applicable
<b>Reason for revision:</b>	New SDS

The information in this SDS, to our knowledge, is accurate at the data of publication. This information is intended as a guide for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a guarantee or indication of quality. The information relates only to the specific material and may not be valid in combination with other products or used in any process, unless specified in the text.