

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

## 1 Identification

- **Product identifier**
- **Trade name:** Ferric Sulfate/Sulfuric Acid Solution  
ASTM D 1685
- **Article number:** 3818
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Aqua Solutions, Inc.  
6913 Highway 225  
DEER PARK, TX 77536  
USA  
800-256-2586
- **Information department:**  
Technical Coordinator  
Sherman Nelson sherman@aquasolutions.org
- **Emergency telephone number:**  
Chemtrec: 800-424-9300  
Canutec: 613-996-6666



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Carc. 1A H350 May cause cancer.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Sulfuric Acid 96 - 98%
- **Hazard statements**  
Causes severe skin burns and eye damage.  
May cause cancer.
- **Precautionary statements**  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dusts or mists.

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 1)

Wash thoroughly after handling.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 If swallowed: Rinse mouth. Do NOT induce vomiting.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 Immediately call a poison center/doctor.  
 IF exposed or concerned: Get medical advice/attention.  
 Specific treatment (see on this label).  
 Wash contaminated clothing before reuse.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%	99.0%
----------------	------------------------	-------

· **Table of Nonhazardous Ingredients**

CAS: 10028-22-5	Ferric Sulfate, Hydrate	0.1%
CAS: 7732-18-5	Water	0.5%

### 4 First-aid measures

· **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 copious amounts of water and provide fresh air. Immediately call a doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**  
 No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**  
 During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
 Mount respiratory protective device.  
 Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 Use neutralizing agent.  
 Dispose contaminated material as waste according to item 13.  
 Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%	0.20 mg/m <sup>3</sup>
CAS: 10028-22-5	Ferric Sulfate, Hydrate	11 mg/m <sup>3</sup>

- **PAC-2:**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%	8.7 mg/m <sup>3</sup>
CAS: 10028-22-5	Ferric Sulfate, Hydrate	120 mg/m <sup>3</sup>

- **PAC-3:**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%	160 mg/m <sup>3</sup>
CAS: 10028-22-5	Ferric Sulfate, Hydrate	710 mg/m <sup>3</sup>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
 Ensure good ventilation/exhaustion at the workplace.  
 Open and handle receptacle with care.  
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 3)

- **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 receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

**CAS: 7664-93-9 Sulfuric Acid 96 - 98%**

PEL	Long-term value: 1 mg/m <sup>3</sup>
REL	Long-term value: 1 mg/m <sup>3</sup>
TLV	Long-term value: 0.2* mg/m <sup>3</sup>
	*as thoracic fraction

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **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.
- Avoid contact with the eyes and skin.

- **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

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 can not be calculated in advance and has therefore to be checked prior to the application.

- **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.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 4)

· **Eye protection:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:****Form:**

Fluid

**Color:**

According to product specification

· **Odor:**

Characteristic

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition****Melting point/Melting range:**

Undetermined.

**Boiling point/Boiling range:**

&gt;212 °C (&gt;413.6 °F)

· **Flash point:**

Not applicable.

· **Flammability (solid, gaseous):**

Not applicable.

· **Decomposition temperature:**

Not determined.

· **Auto igniting:**

Product is not selfigniting.

· **Danger of explosion:**

Product does not present an explosion hazard.

· **Explosion limits:****Lower:**

Not determined.

**Upper:**

Not determined.

· **Vapor pressure at 20 °C (68 °F):**

&lt;0.01 hPa (&gt;0 mm Hg)

· **Density at 20 °C (68 °F):**1.5 g/cm<sup>3</sup> (12.5175 lbs/gal)· **Relative density**

Not determined.

· **Vapor density**

Not determined.

· **Evaporation rate**

Not determined.

· **Solubility in / Miscibility with****Water:**

Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:****Dynamic:**

Not determined.

**Kinematic:**

Not determined.

· **Solvent content:****Water:**

0.5 %

**VOC content:**

0.00 %

0.0 g/l / 0.00 lb/gal

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 5)

**Solids content:** 0.4 %  
**Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**  
 Strong caustic effect.  
 Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Corrosive  
 Irritant  
 Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 7664-93-9   Sulfuric Acid 96 - 98%	I
-----------------------------------------	---

- **NTP (National Toxicology Program)**

CAS: 7664-93-9   Sulfuric Acid 96 - 98%	K
-----------------------------------------	---

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**



(Contd. of page 6)

- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (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.*  
*Must not reach bodies of water or drainage ditch undiluted or unneutralized.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- |                                                                                     |                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------|
| <b>· UN-Number</b>                                                                  | UN1760                                    |
| <b>· DOT, IMDG, IATA</b>                                                            |                                           |
| <b>· UN proper shipping name</b>                                                    | Corrosive liquids, n.o.s. (Sulfuric acid) |
| <b>· DOT</b>                                                                        | CORROSIVE LIQUID, N.O.S. (SULPHURIC ACID) |
| <b>· IMDG, IATA</b>                                                                 |                                           |
| <b>· Transport hazard class(es)</b>                                                 |                                           |
| <b>· DOT</b>                                                                        |                                           |
|  |                                           |
| <b>· Class</b>                                                                      | 8 Corrosive substances                    |
| <b>· Label</b>                                                                      | 8                                         |
|                                                                                     |                                           |
| <b>· IMDG, IATA</b>                                                                 |                                           |
|  |                                           |
| <b>· Class</b>                                                                      | 8 Corrosive substances                    |
| <b>· Label</b>                                                                      | 8                                         |
| <b>· Packing group</b>                                                              | II                                        |
| <b>· DOT, IMDG, IATA</b>                                                            |                                           |
| <b>· Environmental hazards:</b>                                                     |                                           |
| <b>· Marine pollutant:</b>                                                          | No                                        |
| <b>· Special precautions for user</b>                                               | Warning: Corrosive substances             |

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 7)

· **Danger code (Kemler):** 80  
 · **EMS Number:** F-A,S-B  
 · **Segregation groups** Strong acids  
 · **Stowage Category** B  
 · **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**  
 · **Quantity limitations** On passenger aircraft/rail: 1 L  
 On cargo aircraft only: 30 L

· **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. (SULPHURIC ACID), 8, II

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
 · **Sara**

· **Section 355 (extremely hazardous substances):**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%
----------------	------------------------

· **Section 313 (Specific toxic chemical listings):**

CAS: 7664-93-9	Sulfuric Acid 96 - 98%
----------------	------------------------

· **TSCA (Toxic Substances Control Act):**

Sulfuric Acid 96 - 98%	ACTIVE
Ferric Sulfate, Hydrate	ACTIVE
Water	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

(Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 8)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 7664-93-9 | Sulfuric Acid 96 - 98%

A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05    GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Sulfuric Acid 96 - 98%

· **Hazard statements**

Causes severe skin burns and eye damage.

May cause cancer.

· **Precautionary statements**

Obtain special instructions before use.

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

Do not breathe dusts or mists.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a poison center/doctor.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

US

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2019

Reviewed on 07/23/2019

**Trade name: Ferric Sulfate/Sulfuric Acid Solution**  
**ASTM D 1685**

(Contd. of page 9)

## 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.*

· **Department issuing SDS:** Environment protection department.

· **Contact:**

· **Date of preparation / last revision** 07/23/2019 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Carc. 1A: Carcinogenicity – Category 1A

US