

# Ferrous Ammonium Sulfate Solution

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 06/27/2013

Version: 1.0

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

#### 1.1. Product identifier

Product form : Mixture  
Product name. : Ferrous Ammonium Sulfate Solution  
Product code : LC14545

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

Use of the substance/mixture : For laboratory and manufacturing use only.

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

LabChem Inc  
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court  
16063 Zelienople, PA - USA  
T 412-826-5230 - F 724-473-0647  
[info@labchem.com](mailto:info@labchem.com) - [www.labchem.com](http://www.labchem.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Skin Corr. 1B H314  
Eye Dam. 1 H318

#### 2.2. Label elements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



GHS05

Signal word (GHS-US) : Danger  
Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage  
Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapours, spray  
P264 - Wash exposed skin thoroughly after handling  
P280 - Wear protective gloves, eye protection  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER/doctor/...  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose of contents/container to comply with local, state and federal regulations

#### 2.3. Other hazards

Other hazards not contributing to the classification : None.

#### 2.4. Unknown acute toxicity (GHS US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable  
Full text of H-phrases: see section 16

#### 3.2. Mixture

| Name  | Product identifier | %    | GHS-US classification |
|-------|--------------------|------|-----------------------|
| Water | (CAS No) 7732-18-5 | 79.5 | Not classified        |

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| Name                                 | Product identifier | %    | GHS-US classification   |
|--------------------------------------|--------------------|------|---|
| Ferrous Ammonium Sulfate Hexahydrate | (CAS No) 7783-85-9 | 19.5 | Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319<br>STOT SE 3, H335 |
| Sulfuric Acid, 96% w/w               | (CAS No) 7664-93-9 | 1    | Skin Corr. 1A, H314<br>Eye Dam. 1, H318                       |

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

|                                       |  |
|---------------------------------------|--|
| First-aid measures general            | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  |
| First-aid measures after inhalation   | : Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.  |
| First-aid measures after skin contact | : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.                                 |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.   |

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

|                                      |   |
|--------------------------------------|---|
| Symptoms/injuries                    | : Causes severe skin burns and eye damage.  |
| Symptoms/injuries after inhalation   | : May cause respiratory irritation.   |
| Symptoms/injuries after skin contact | : Caustic burns/corrosion of the skin.  |
| Symptoms/injuries after eye contact  | : Causes serious eye damage.  |
| Symptoms/injuries after ingestion    | : Nausea. Vomiting. Diarrhoea.  |
| Chronic symptoms                     | : Affection/discolouration of the teeth. Cracking of the skin. Inflammation/damage of the eye tissue. |

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

Obtain medical assistance.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.                     |

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

|                  |  |
|------------------|--|
| Fire hazard      | : Not flammable.                                       |
| Explosion hazard | : Not applicable.                                      |
| Reactivity       | : Thermal decomposition generates : Corrosive vapours. |

#### 5.3. Advice for firefighters

|                                |   |
|--------------------------------|---|
| Firefighting instructions      | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection.   |

### SECTION 6: Accidental release measures

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

##### 6.1.1. For non-emergency personnel

|                      |                                   |
|----------------------|-----------------------------------|
| Protective equipment | : Safety glasses. Gloves.         |
| Emergency procedures | : Evacuate unnecessary personnel. |

##### 6.1.2. For emergency responders

|                      |  |
|----------------------|--|
| Protective equipment | : Equip cleanup crew with proper protection. |
| Emergency procedures | : Ventilate area.                            |

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

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

|                         |  |
|-------------------------|--|
| Methods for cleaning up | : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. |
|-------------------------|--|

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe mist, vapours, spray.
- Hygiene measures : Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

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

- Technical measures : Comply with applicable regulations.
- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container closed when not in use.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Special rules on packaging : Protect from light.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

| Ferrous Ammonium Sulfate Hexahydrate (7783-85-9) |                        |                                    |
|--|------------------------|------------------------------------|
| USA ACGIH  | ACGIH TWA (mg/m³)      | 1 mg/m³ Iron salts, soluble, as Fe |
| Sulfuric Acid, 96% w/w (7664-93-9)               |                        |                                    |
| USA ACGIH  | ACGIH TWA (mg/m³)      | 0.2 mg/m³                          |
| USA OSHA   | OSHA PEL (TWA) (mg/m³) | 1 mg/m³                            |

#### 8.2. Exposure controls

- Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Personal protective equipment : Avoid all unnecessary exposure.
- Hand protection : Wear protective gloves.
- Eye protection : Chemical goggles or face shield.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : Wear appropriate mask.
- Other information : Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : light green.
- Colour : Green.
- Odour : Odourless.
- Odour threshold : No data available
- pH : No data available
- Relative evaporation rate (butylacetate=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : No data available
- Flash point : No data available
- Self ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapour pressure : No data available
- Relative vapour density at 20 °C : No data available
- Relative density : No data available
- Solubility : Soluble in water.
- Log Pow : No data available
- Log Kow : No data available
- Viscosity, kinematic : No data available

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|                      |                     |
|----------------------|---------------------|
| Viscosity, dynamic   | : No data available |
| Explosive properties | : Not applicable.   |
| Oxidising properties | : None.             |
| Explosive limits     | : No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Incompatible materials.

### 10.5. Incompatible materials

Strong oxidizers. Strong bases.

### 10.6. Hazardous decomposition products

Gaseous ammonia. Sulfur compounds. Thermal decomposition generates : Corrosive vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

#### Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)

|               |            |
|---------------|------------|
| LD50 oral rat | 3250 mg/kg |
|---------------|------------|

#### Sulfuric Acid, 96% w/w (7664-93-9)

|               |   |
|---------------|---|
| LD50 oral rat | 2140 mg/kg bodyweight (Rat; Experimental value,Rat; Experimental value) |
|---------------|---|

#### Water (7732-18-5)

|               |               |
|---------------|---------------|
| LD50 oral rat | ≥ 90000 mg/kg |
|---------------|---------------|

|                                   |  |
|-----------------------------------|--|
| Skin corrosion/irritation         | : Causes severe skin burns and eye damage.                                       |
| Serious eye damage/irritation     | : Causes serious eye damage.   |
| Respiratory or skin sensitisation | : Not classified   |
| Germ cell mutagenicity            | : Not classifiedBased on available data, the classification criteria are not met |
| Carcinogenicity                   | : Not classified   |

#### Sulfuric Acid, 96% w/w (7664-93-9)

|            |   |
|------------|---|
| IARC group | 1 |
|------------|---|

|   |   |
|---|---|
| Reproductive toxicity                               | : Not classifiedBased on available data, the classification criteria are not met                      |
| Specific target organ toxicity (single exposure)    | : Not classified  |
| Specific target organ toxicity (repeated exposure)  | : Not classifiedBased on available data, the classification criteria are not met                      |
| Aspiration hazard                                   | : Not classifiedBased on available data, the classification criteria are not met                      |
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met.                                   |
| Symptoms/injuries after inhalation                  | : May cause respiratory irritation.   |
| Symptoms/injuries after skin contact                | : Caustic burns/corrosion of the skin.  |
| Symptoms/injuries after eye contact                 | : Causes serious eye damage.  |
| Symptoms/injuries after ingestion                   | : Nausea. Vomiting. Diarrhoea.  |
| Chronic symptoms                                    | : Affection/discolouration of the teeth. Cracking of the skin. Inflammation/damage of the eye tissue. |

## SECTION 12: Ecological information

### 12.1. Toxicity

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| Sulfuric Acid, 96% w/w (7664-93-9)        |   |
|---|---|
| LC50 fishes 1                             | 42 mg/l (96 h; Gambusia affinis)          |
| EC50 Daphnia 1                            | 29 mg/l (24 h; Daphnia magna)             |
| LC50 fish 2                               | 49 mg/l (48 h; Lepomis macrochirus)       |
| TLM fish 1                                | 42 mg/l (96 h; Gambusia affinis)          |
| Threshold limit other aquatic organisms 1 | 6900 mg/l (24 h; Pseudomonas fluorescens) |

### 12.2. Persistence and degradability

| Ferrous Ammonium Sulfate Solution |                  |
|-----------------------------------|------------------|
| Persistence and degradability     | Not established. |

| Ferrous Ammonium Sulfate Hexahydrate (7783-85-9) |                  |
|--|------------------|
| Persistence and degradability                    | Not established. |

| Sulfuric Acid, 96% w/w (7664-93-9) |                                   |
|------------------------------------|-----------------------------------|
| Persistence and degradability      | Biodegradability: not applicable. |
| Biochemical oxygen demand (BOD)    | Not applicable                    |
| Chemical oxygen demand (COD)       | Not applicable                    |
| ThOD                               | Not applicable                    |
| BOD (% of ThOD)                    | Not applicable                    |

### 12.3. Bioaccumulative potential

| Ferrous Ammonium Sulfate Solution |                  |
|-----------------------------------|------------------|
| Bioaccumulative potential         | Not established. |

| Ferrous Ammonium Sulfate Hexahydrate (7783-85-9) |                  |
|--|------------------|
| Bioaccumulative potential                        | Not established. |

| Sulfuric Acid, 96% w/w (7664-93-9) |                                  |
|------------------------------------|----------------------------------|
| Log Pow                            | -2.20 (Estimated value)          |
| Bioaccumulative potential          | Bioaccumulation: not applicable. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

UN-No.(DOT) : 3264  
DOT NA no. UN3264

### 14.2. UN proper shipping name

DOT Proper Shipping Name : Corrosive liquid, acidic, inorganic, n.o.s.  
Sulfuric acid  
Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Hazard labels (DOT) : 8 - Corrosive substances



DOT Symbols : G - Identifies PSN requiring a technical name  
Packing group (DOT) : II - Medium Danger

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|   |  |
|---|--|
| DOT Special Provisions (49 CFR 172.102)   | : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.<br>IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.<br>T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)<br>TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.<br>TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : 154  |
| DOT Packaging Non Bulk (49 CFR 173.xxx)   | : 202  |
| DOT Packaging Bulk (49 CFR 173.xxx)       | : 242  |

### 14.3. Additional information

|                   |   |
|-------------------|---|
| Other information | : No supplementary information available. |
|-------------------|---|

#### Overland transport

No additional information available

#### Transport by sea

|                             |   |
|-----------------------------|---|
| DOT Vessel Stowage Location | : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded. |
| DOT Vessel Stowage Other    | : 40 - Stow "clear of living quarters"  |

#### Air transport

|  |        |
|--|--------|
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : 1 L  |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)     | : 30 L |

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)                          |                                 |
|---|---------------------------------|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                                 |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) :            | 1000 lb                         |
| SARA Section 311/312 Hazard Classes                                       | Immediate (acute) health hazard |
| Sulfuric Acid, 96% w/w (7664-93-9)  |                                 |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                                 |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) :            | 1000 lb                         |
| SARA Section 311/312 Hazard Classes                                       | Immediate (acute) health hazard |

### 15.2. International regulations

#### CANADA

| Ferrous Ammonium Sulfate Solution                                    |   |
|--|---|
| WHMIS Classification   | Class E - Corrosive Material  |
| Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)                     |   |
| Not listed on the Canadian DSL (Domestic Substances List) inventory. |   |
| WHMIS Classification   | Class D Division 2 Subdivision B - Toxic material causing other toxic effects |
| Sulfuric Acid, 96% w/w (7664-93-9)                                   |   |
| Listed on the Canadian DSL (Domestic Substances List) inventory.     |   |
| WHMIS Classification   | Class E - Corrosive Material  |

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### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

### Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

### 15.2.2. National regulations

#### Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)

Not listed on the Canadian Ingredient Disclosure List

#### Sulfuric Acid, 96% w/w (7664-93-9)

Listed on the Canadian Ingredient Disclosure List

### 15.3. US State regulations

#### Sulfuric Acid, 96% w/w (7664-93-9)

U.S. - Maine - Chemicals of High Concern  
U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

Indication of changes : Revision - See : \*

Other information : None.

Full text of H-phrases: see section 16:

|               |  |
|---------------|--|
| Eye Dam. 1    | Serious eye damage/eye irritation, Category 1  |
| Eye Irrit. 2A | Serious eye damage/eye irritation, Category 2A   |
| Skin Corr. 1A | Skin corrosion/irritation, Category 1A   |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B   |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2  |
| STOT SE 3     | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| 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   |

NFPA health hazard

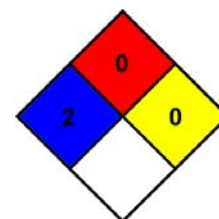
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



### HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : B

SDS US (GHS HazCom 2012)

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