NAPCO CHEMICAL COMPANY

Safety Data Sheet
Ferrous Sulfate

SECTION 1: Identification

1.1 Product identifier

Product name	Ferrous Sulfate
Substance name	Aluminum sulfate
CAS no.	10043-01-3

1.3 Recommended use of the chemical and restrictions on use

All proper and legal purposes.

1.4 Supplier's details

Name	NAPCO Chemical Company
Address	2830 Spring Cypress Rd Spring, Tx 77383 United States
Telephone	281-651-6800
Fax	281-651-6868

1.5 Emergency phone number(s)

ChemTel 1(800)255-3924

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with OSHA (29 CFR 1910.1200)

- Acute toxicity, oral (chapter 3.1), Cat. 4
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Eye damage/irritation (chapter 3.3), Cat. 1
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word **Warning**

Hazard statement(s)

H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation

Precautionary statement(s)

P261	Avoid breathing mist or vapors.
P264	Wash … thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell,
P302+P352	IF ON SKIN: Wash with plenty of water/...
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.
P312	Call a POISON CENTER/doctor/... if you feel unwell.
P321	Specific treatment (see … on this label).
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P403+P233	Store in a well ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	Aluminum sulfate
CAS no.	10043-01-3

Hazardous components

1. Ferrous sulfate

Concentration	25 %
CAS no.	7720-78-7

2. Sulfuric acid (<10%)

Concentration	0.25 %
EC no.	231-639-5
CAS no.	7664-93-9
Index no.	016-020-00-8

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personel are aware of the material(s) involved, and take precautions to protect themselves. Show this SDS to doctor in attendance.
If inhaled	If breathed in, move person into fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or doctor/physician if you feel unwell.

In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of water. Consult a physician. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
If swallowed	Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into lungs. Never give anything by mouth to an unconscious person. Administer 250 - 300 ml water to dilute material in the stomach. Consult a physician or poison control center immediately.

Personal protective equipment for first-aid responders

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.2 Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Provide general supportive measures and treat symptomatically. Keep victom warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use extinguishing media appropriate for the surrounding fire. This material will not burn easily.

5.2 Specific hazards arising from the chemical

Sulfur oxides and/or toxic and flammable hydrogen sulfide may be formed under fire conditions. Keep unnecessary people away.

5.3 Special protective actions for fire-fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. See section 8 of the SDS for exposure controls and personal protection.

Further information

Move containers from fire area if you can do so without risk.
Use standard firefighting procedures and consider the hazards of other involved materials.
See section 10 - Stability and reactivity.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist. Ensure adequate ventilation. Evacuate personnel to safe areas upwind of spill/leak. For personal protection see section 8.

6.2 Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3 Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas. SMALL SPILLS: Contain and absorb with absorbent material and place into containers for later disposal. Wash site of spillage thoroughly with water. LARGE SPILLS: Dike far ahead of spill to prevent further movement. Recover by pumping or by using a suitable absorbent material and place into containers for later disposal. Dispose in suitable waste container.

Reference to other sections
Never return spills to original containers for re-use. For waste disposal see section 13 of the SDS.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. When using, do not eat, drink or smoke. Provide adequate ventalation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities
Store locked up. Store in original tightly closed container. Store away from incompatible materials including any incompatibilities. (See section 10 ofthe SDS).

SECTION 8: Exposure controls/personal protection

8.2 Appropriate engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wearing appropriate chemical resistant gloves and impervious apron is recommended.

Body protection
Wearing appropriate chemical resistant gloves and impervious apron is recommended.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment. Use NIOSH approved respirator recommended for the material and level of exposure.

Thermal hazards
Wear appropriate thermal protective clothing when necessary.

Environmental exposure controls
Should not be released into the environment. See Section 12 for additional ecological information.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form	Green-blue/liquid
Odor	Slightly acidic
Odor threshold	Not available.
pH	>2
Melting point/freezing point	Not available.
Initial boiling point and boiling range	105-110 C (220-230 F)
Flash point	Not applicable.
Evaporation rate	Similar to water.
Flammability (solid, gas)	Not Applicable.
Upper/lower flammability limits	Not applicable.
Upper/lower explosive limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Partition coefficient: n-octanol/water	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

SECTION 10: Stability and reactivity

10.1 Reactivity
The product is stable and non-reactive under normal condions of use, storage and transport.

10.2 Chemical stability
Chemical is stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerization does not occur.

10.4 Conditions to avoid
Avoid contact with mineral acids, excessive heat and bases/alkalis.

10.5 Incompatible materials
Carbon steel, brasses, and nylon.

10.6 Hazardous decomposition products
Thermal decomposition, after completely dry and heated to decomposition will produce oxides and sulfur.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Ferrous sulfate has oral (rat) LD50 value of 237 mg/kg.
The acute oral (rat) LD50 and acute 1-hour inhalation (rat) for sulfuric acid are 2,140 mg/kg and 347 ppm (0.348 mg/L/4hr), respectively.
Inhalation overexeposure may cause irritation to the repiratory tract, nose, mucous membranes, and gastrointestinal tract.

Skin corrosion/irritation

Corrosive to skin.

Serious eye damage/irritation
Causes severe eye damage.

Respiratory or skin sensitization
Chronic exposure has been reported to be associated with dermatitis, chronic bronchitis, gastritis, erosion of dental enamel, conjunctivitis, increased frequency of respiratory tract infections and cancer of the larynx, lungs and upper repiratory tract.

Germ cell mutagenicity
No data available.

Carcinogenicity
Chronic exposure has been reported to be associated with increased frequency of respiratory tract infections and cancer of the larynx, lungs and upper repiratory tract.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Summary of evaluation of the CMR properties
This product is not expected to contribute to mutagen or reproductive toxin properties.

STOT-single exposure
May cause respiratory irritation.

STOT-repeated exposure
Oral LD50 (mouse) 1520 mg/kg
Ferrous sulfate has oral (rat) LD50 value of 237 mg/kg.
The acute oral (rat) LD50 and acute 1-hour inhalation (rat) for sulfuric acid are 2,140 mg/kg and 347 ppm (0.348 mg/L/4hr), respectively.
Inhalation overexeposure may cause irritation to the repiratory tract, nose, mucous membranes, and gastrointestinal tract.

Aspiration hazard
Not an aspiration hazard.

Additional information
Prolonged inhalation may be harmful.

SECTION 12: Ecological information

Toxicity
This product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmfull or damaging effect on the environment.

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
No data is available.

Mobility in soil
No data is available.

Results of PBT and vPvB assessment

No data is available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

Disposal of the product
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Disposal of contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Waste treatment
Dispose of in accordance with local regulations.

Sewage disposal
Do not allow.

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

SECTION 14: Transport information

DOT (US)
UN Number: UN3264
Class: 8
Packing Group: III
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS FERROUS SULFATE)
Reportable quantity (RQ): 1,000 lbs.
Marine pollutant:
Poison inhalation hazard:

IMDG
UN Number:
Class:
Packing Group:
EMS Number:
Proper Shipping Name:

IATA
UN Number:
Class:
Packing Group:
Proper Shipping Name:

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Massachusetts Right To Know Components
Chemical name: Ferrous sulfate
CAS number: 7720-78-7

New Jersey Right To Know Components
Common name: FERROUS SULFATE
CAS number: 7720-78-7

Pennsylvania Right To Know Components
Chemical name: Sulfuric acid, iron(2+) salt (1:1)
CAS number: 7720-78-7

Massachusetts Right To Know Components
Chemical name: Sulfuric acid
CAS number: 7664-93-9

New Jersey Right To Know Components
Common name: SULFURIC ACID
CAS number: 7664-93-9

Pennsylvania Right To Know Components
Chemical name: Sulfuric acid
CAS number: 7664-93-9

California Prop. 65 components
Chemical name: Sulfuric acid (<10%)
CAS number: 7664-93-9
03/14/2003 - Cancer

15.2 Chemical Safety Assessment

Product hazard classification under section 311 of SARA.
Acute

HMIS Rating

Aluminum sulfate	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating

SECTION 16: Other information

16.1 Further information/disclaimer

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