United States Steel Corporation

Ammonium Sulfate

Safety Data Sheet (SDS)

USS IHS Number: 74577

Locations: Gary and Granite City

Original: 12/16/2010 **Revision: 7/07/26**

Section 1 – Identification

1(a) Product Identifier used on Label: Ammonium Sulfate

1(b) Other Means of Identification: None

1(c) Recommended use of the chemical and restrictions on use: None

1(d) Name, Address, and Telephone Number:

United States Steel Corporation
600 Grant Street
Pittsburgh, PA 15219-2800

Phone number: (412) 433-6840 (8:00 am to 5:00 pm)
E-Mail: SDSHelp@USS.com

1(e) Emergency Phone Number: 1-800-262-8200 (CHEMTREC)

Section 2 – Hazard(s) Identification

2(a) Classification of the chemical in accordance with the 2024 updated OSHA Hazard Communication Standard (29 CFR 1910.1200):

- As supplied, **Ammonium Sulfate** is not considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **Ammonium Sulfate as shipped/supplied, Refer to section 2(b)(i).**
- Under reasonably anticipated conditions of use and/or change in physical form, **Ammonium Sulfate is not** considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **a change in the physical form of Ammonium Sulfate**, **Refer to section 2(b)(ii).**

2(b)(i) Hazard Classification, Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s) for Material as Supplied:

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
NA	**NA**	**NA**	**NA**

NA: Not Applicable as this product (material as supplied) is not considered hazardous by the US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

2(b)(ii) Hazard Classification, Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s) for hazards associated with a change in Ammonium Sulfate physical form due to reasonably anticipated downstream uses: NA

2(c) Hazards Created by Chemical Reaction: None Known

2(d) Hazards not Otherwise Classified: None Known

2(e) Unknown Acute Toxicity Statement (mixture): NA

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical Name, Common Name (Synonyms), CAS Number and Other Identifiers, and Concentration:

Chemical Name	CAS Number	% weight
Ammonium sulfate	7783-20-2	97-100
Water	7732-18-5	< 3

CAS- Chemical Abstract Service

Section 4 – First-aid Measures

4(a) Description of Necessary Measures: If exposed, concerned or feel unwell: Get medical advice/attention, call a poison center or doctor/physician.

- **Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing.
- **Eye Contact:** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 4 – First-aid Measures (continued)

4(a) Description of Necessary Measures (continued):

- **Skin Contact:** If on skin: Rinse skin with water/shower. Wash contaminated clothing before reuse.
- **Ingestion:** If swallowed: Rinse mouth. Do NOT induce vomiting.

4(b) Most Important Symptoms/Effects, Acute and Delayed (Chronic):

Acute effects:

- **Inhalation:** Breathing mist and vapors may cause irritation to the respiratory tract.
- **Eye:** May cause irritation, redness, and pain.
- **Skin:** May cause irritation to skin.
- **Ingestion:** May cause irritation to the gastrointestinal tract and/or nausea.

Chronic (Delayed) Effects: Chronic inhalation of vapors is associated with the following conditions: Prolonged or repeated skin contact may cause dermatitis or irritation. Prolonged or repeated exposures may result in respiratory disorders.

4(c) Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5 – Fire-fighting Measures

5(a) Suitable (and Unsuitable) Extinguishing Media: Extinguish fire using agent suitable for type of surrounding fire. Cool all affected containers with flooding quantities of water.

5(b) Specific Hazards Arising from the Chemical: Flammable and toxic gases will form at elevated temperature >280ºC due to thermal decomposition (ammonia, sulfur oxides, nitrogen oxides).

5(c) Special Protective Equipment and Precautions for Fire-fighters: Self-contained NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Heat and flames cause emittance of acrid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water streams will scatter and spread flames and, therefore, should not be used.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: For spills involving finely divided particles, clean-up personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust. Personnel should be protected against contact with eyes and skin. Fine, dry material should be removed by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid using compressed air. Do not release into sewers or waterways. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations.

6(b) Methods and Materials for Containment and Clean Up: Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations. Follow applicable OSHA regulations (29 CFR 1910.120) and all other pertinent state and federal requirements

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Avoid inhalation or contact with skin or eyes. Ventilate area of leak or spill. Should be handled in ways to minimize generation of airborne dust and to prevent spills. Maintain all surfaces as free as practical of accumulation of material.

7(b) Conditions for Safe Storage, including any Incompatibilities: Isolate from incompatible substances.

Section 8 - Exposure Controls / Personal Protection

8(a) Occupational Exposure Limits (OELs): The following exposure limits are offered as reference for an experienced industrial hygienist to review.

Ingredients	OSHA PEL [1]	ACGIH TLV [2]	NIOSH REL [3]	IDLH [4]
Ammonium sulfate	NE	NE	NE	NE

NE - None Established

1. OSHA PELs (Permissible Exposure Limits) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted. A ("C") designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted. A Short Term Exposure Limit (STEL) is defined as a 15-minute exposure, which should not be exceeded at any time during a workday. An Action level (AL) is used by OSHA and NIOSH to express a health or physical hazard. They indicate the level of a harmful or toxic substance/activity, which requires medical surveillance, increased industrial hygiene monitoring, or biological monitoring. Action Levels are generally set at one half of the PEL but the actual level may vary from standard to standard. The intent is to identify a level at which the vast majority of randomly sampled exposures will be below the PEL.
2. Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes. DSEN – May cause dermal sensitization. This notation is used to indicate the potential for dermal sensitization resulting from the interaction of an absorbed agent and ultraviolet light (i.e. photosensitization). RSEN – May cause respiratory sensitization.
3. The National Institute for Occupational Safety and Health Recommended Exposure Limits (NIOSH-REL)- Compendium of Policy and Statements. NIOSH, Cincinnati, OH (1992). NIOSH is the federal agency designated to conduct research relative to occupational safety and health. As is the case with ACGIH TLVs, NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.

Section 8 - Exposure Controls / Personal Protection (continued)

8(a) Occupational Exposure Limits (OELs) (continued) :

4. The "immediately dangerous to life or health air concentration values (IDLHs)" are used by NIOSH as part of the respirator selection criteria and were first developed in the mid-1970's by NIOSH. The Documentation for Immediately Dangerous to Life or Health Concentrations (IDLHs) is a compilation of the rationale and sources of information used by NIOSH during the original determination of 387 IDLHs and their subsequent review and revision in 1994. In 2013 NIOSH published a guidance document for calculating IDLH values Current Intelligence Bulletin 66: Derivation of Immediately Dangerous to Life or Health (IDLH) Values.

8(b) Appropriate Engineering Controls: Local exhaust ventilation should be used to control the emission of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations. Emergency eye wash stations and deluge safety showers should be available in the work area.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, use only a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Concentration in air of the various contaminants determines the extent of respiratory protection needed. Half-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 10 times the exposure limit. Full-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 50 times the exposure limit. Protection by air-purifying negative-pressure and powered air respirators is limited. Use a positive-pressure-demand, full-face, supplied air respirator or self-contained breathing apparatus (SCBA) for concentrations above 50 times the exposure limit. If exposure is above the IDLH (immediately dangerous to life or health) for any of the constituents, or there is a possibility of an uncontrolled release or exposure levels are unknown, then use a positive-demand, full-face, supplied air respirator with escape bottle or SCBA.

  Warning! Air-purifying respirators, both negative-pressure and powered-air, do not protect workers in oxygen-deficient atmospheres.
- **Eyes**: Wear appropriate eye protection to prevent eye contact. Use safety glasses with side shields or chemical goggles.
- **Skin**: Persons handling this product should wear appropriate clothing to prevent skin contact. Wear protective gloves.
- **Other protective equipment**: An eyewash fountain and deluge shower should be readily available in the work area.

Section 9 - Physical and Chemical Properties

9(a) Physical State: Solid

9(b) Color: White to yellowish

9(c) Odor and Odor Threshold: Acrid or ammonia odor

9(d Melting Point/Freezing Point: Decomposes above 235ºC

9(e) Initial Boiling Point and Boiling Range: NA

9(f) Flammability (solid, gas): Not Flammable, Not Combustible

9(g) Flash Point: NA

9(h) Upper/Lower Flammability or Explosive Limits: NA

9(i) Autoignition Temperature: ND

9(j) Decomposition Temperature: ND

9(k) pH: 5.5 for 0.1M solution

9(l) Kinematic Viscosity: ND

9(m) Solubility: 43% at 20ºC

9(n) Partition Coefficient n-octanol/water: NA

9(o) Vapor Pressure: NA

9(p) Relative Density: 1.77 kg/L

9(q) Relative Vapor Density (Air = 1): NA

9(r) Particle Characteristics: Crystals

NA - Not Applicable

ND - Not Determined for product as a whole

Section 10 - Stability and Reactivity

10(a) Reactivity: Not Determined (ND)

10(b) Chemical Stability: Ammonium Sulfate is stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: Exothermic reaction with: chlorates & nitrates. Risk of explosion with: chlorates, acid nitrates, potassium nitrates, acids, nitrites, sodium hypochlorite. Generates dangerous gases or fumes in contact with alkalines. Possible formation of ammonia.

10(d) Conditions to Avoid: Heat, incompatibles. Explodes when mixed with potassium and sodium-potassium alloys. May also explode when mixed with potassium chlorate, potassium nitrate, and potassium nitrite. Vigorous reaction with flame when mixed with potassium nitride.

10(e) Incompatible Materials: Sodium hypochlorite, potassium plus ammonium nitrate, potassium chlorate, potassium nitrite, and sodium-potassium powder plus ammonium nitrate, and other strong oxidizers

10(f) Hazardous Decomposition Products: May emit ammonia, oxides of sulfur, oxides of nitrogen, and oxides of carbon.

Section 11 - Toxicological Information

Information on Toxicological Effects: The following toxicity data have been determined for **Ammonium Sulfate** and its Components

Potential Health Effects:

11(a) Likely Routes of Exposure: Inhalation and Dermal

11(b) Symptoms Related to Physical, Chemical and Toxicological Characteristics: May cause irritation of the respiratory tract, skin and eyes.

11(c) Delayed, Chronic and Immediate Effects from Short-term and Long-term Exposure: Irritation.

Section 11 - Toxicological Information (continued)

Information on Toxicological Effects (continued):

11(d) Numerical Measures of Toxicity for the Product and/ or Components or Acute Toxicity Estimates (ATE): NA

Inhalation/ Oral:

- **Ammonium Sulfate**: Rat LD_{50} = 2840 mg/kg Oral

Skin (Dermal) Irritation:

- **Ammonium Sulfate**: May be irritating to human skin (HSDB).

Eye Irritation:

- **Ammonium Sulfate**: May be irritating to eyes (HSDB).

Skin (Dermal)/Respiratory Sensitization:

- **Ammonium Sulfate:** Maximization Test (Guinea Pig) – Negative

Aspiration Hazard:

- **Ammonium Sulfate:** NA

Germ Cell Mutagenicity:

- **Ammonium Sulfate**: Negative

Reproductive Toxicity:

- **Ammonium Sulfate:** ND

Specific Target Organ Toxicity (STOT) following a Single Exposure:

- **Ammonium Sulfate**: ND

Specific Target Organ Toxicity (STOT) following Repeated Exposure:

- **Ammonium Sulfate:** ND

11(e) Interactive Effects: The toxicological properties have not been fully investigated.

11(f) Carcinogenicity *: IARC, NTP, NIOSH, OSHA, EPA and ACGIH do not list **Ammonium Sulfate** as a carcinogen.

* Carcinogenicity determinations are based on the National Toxicology Program (NTP) Report on Carcinogens (latest edition),or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

The above toxicity information was determined from available scientific sources to illustrate the prevailing posture of the scientific community. The scientific resources includes: The American Conference of Governmental Industrial Hygienist (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure indices (BEIs) with Other Worldwide Occupational Exposure Values 2026, The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP) updated documentation, the World Health Organization (WHO) and other available resources, the International Uniform Chemical Information Database (IUCLID), European Union Risk Assessment Report (EU-RAR), Concise International Chemical Assessment Documents (CICAD), European Union Scientific Committee for Occupational Exposure Limits (EU-SCOEL), Agency for Toxic Substances and Disease Registry (ATSDR), Hazardous Substance Data Bank (HSDB), and International Programme on Chemical Safety (IPCS).

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial):

Ammonium Sulfate

Toxicity to fish:

- *Oncorhynchus mykiss LC50 = 53 mg/L 96h* (ECHA)
- *Lepomis macrochirus EC10 5.29 mg/L 30 Days*

Toxicity to daphnia & other invertebrates:

- *Ceriodaphnia acanthina EC_{50} 121.7mg/L 48h*
- *Daphnia magna EC_{10} 3.12 mg/L 70 Days*

12(b) Persistence & Degradability: No Data Available

12(c) Bioaccumulative Potential: No Data Available

12(d) Mobility (in soil): No Data Available

12(e) Other Adverse Effects: None Known

Additional Information:

Hazard Category: Aquatic Acute 3

Signal Word: No Signal Word

Hazard Symbol: No Hazard Symbol

Hazard Statement: Harmful to aquatic life.

Section 13 - Disposal Considerations

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

Container Cleaning and Disposal: Follow applicable federal, state and local regulations. Observe safe handling precautions.

Please note this information is for Ammonium Sulfate in its original form. Any alterations can void this information.

Section 14 - Transport Information

14 (a-g) Transportation Information:

US Department of Transportation (DOT) under 49 CFR 172.101 does not regulate **Ammonium Sulfate** as a hazardous material. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

Section 15 - Regulatory Information

Regulatory Information: *The following listing of regulations relating to a U. S. Steel product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.* This product and/or its constituents are subject to the following regulations:

U.S. Federal Regulations: Ammonium Sulfate may be regulated by OSHA and/ or EPA

State Regulations: Ammonium Sulfate may be listed in some state regulations.

California Prop. 65: Ammonium Sulfate does not contain elements known to the State of California to cause cancer or reproductive toxicity.

Section 16 - Other Information

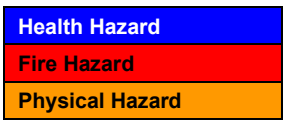
Prepared By: United States Steel Corporation

Revision History:

7/07/2026 – Update to OSHA HCS 2024 GHS v.7
9/08/2020 – Update Sections 8, 11 & 15
6/21/17 – Update WHMIS 2015
4/01/2014 - Update to OSHA HAZCOM 2012
1/20/11 – Update of content and format to comply with GHS
12/16/2010 - Original

Additional Information:

Hazardous Material Identification System (HMIS) Classification



HEALTH= 1, * Denotes possible chronic hazard if airborne dusts or fumes are generated. Irritation or minor reversible injury possible.
FIRE= 0, Materials that will not burn.
PHYSICAL HAZARDS = 0, Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.

National Fire Protection Association (NFPA)

HEALTH = 1, Exposure could cause irritation but only minor residual injury even if no treatment is given.
FIRE = 0, Materials that will not burn.
REACTIVITY = 0, Normally stable, even under fire exposure conditions, and are not reactive with water
SPECIAL HAZARDS = NA

ABBREVIATIONS/ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists	**NIOSH**	National Institute for Occupational Safety and Health
ATE	Acute Toxicity Estimate	**NTP**	National Toxicology Program
BEIs	Biological Exposure Indices	**ORC**	Organization Resources Counselors
CAS	Chemical Abstracts Service	**OSHA**	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	**PEL**	Permissible Exposure Limit
CFR	Code of Federal Regulations	**PNOR**	Particulate Not Otherwise Regulated
CNS	Central Nervous System	**PNOC**	Particulate Not Otherwise Classified
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	**PPE**	Personal Protective Equipment
HMIS	Hazardous Materials Identification System	**ppm**	parts per million
IARC	International Agency for Research on Cancer	**RCRA**	Resource Conservation and Recovery Act
LC_{50}	Median Lethal Concentration	**RTECS**	Registry of Toxic Effects of Chemical Substances
LD_{50}	Median Lethal Dose	**SARA**	Superfund Amendment and Reauthorization Act
LD_{Lo}	Lowest Dose to have killed animals or humans	**SCBA**	Self-contained Breathing Apparatus
LEL	Lower Explosive Limit	**SDS**	Safety Data Sheet
µg/m3	microgram per cubic meter of air	**STEL**	Short-term Exposure Limit
mg/m3	milligram per cubic meter of air	**TLV**	Threshold Limit Value
mppcf	million particles per cubic foot	**TWA**	Time-weighted Average
MSHA	Mine Safety and Health Administration	**UEL**	Upper Explosive Limit
NFPA	National Fire Protection Association		

Disclaimer: This information is taken from sources or based upon data believed to be reliable. However, United States Steel Corporation makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.