

SAFETY DATA SHEET

ANGUS CHEMICAL COMPANY

Product name : Ammonium Sulfate, NF/ACS Grade

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ANGUS CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name Ammonium Sulfate, NF/ACS Grade

Manufacturer or supplier's details

Company name of supplier ANGUS CHEMICAL COMPANY

Address 1500 E. LAKE COOK ROAD
Buffalo Grove IL 60089-6553

Customer Information Number +1-847-808-3711

E-mail address NAR_CC@ANGUS.COM

Emergency telephone number 800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use Manufacture of dyes and pigments
Manufacture of fertilizers and nitrogen compounds
For industrial use only.
The ANGUS Chemical Company recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact the Customer Information Group (see Section 1 of this data sheet).

2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label elements, including precautionary statements

This product is not hazardous per the Globally Harmonized System of Classification and Labelling (GHS).

Other hazards

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

Components

Chemical Name	CAS-No.	Concentration (% w/w)
Ammonium Sulfate	7783-20-2	100.0%

4. FIRST AID MEASURES

If inhaled	If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	Wash off with plenty of water.
In case of eye contact	Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
If swallowed	Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.
Protection of first-aiders	If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	Water. Carbon dioxide fire extinguishers. Dry chemical fire extinguishers.
Specific hazards during firefighting	Non Combustible Solids Container may rupture from gas generation in a fire situation.

Hazardous combustion products	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides.
Further information	Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Keep people away. Isolate fire and deny unnecessary entry. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up	Contain spilled material if possible. Collect in suitable and properly labeled containers. Use care to minimize generation of airborne dust. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Advice on safe handling	Avoid generating and breathing dust. Good housekeeping and controlling of dusts are necessary for safe handling of product. Keep container closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Conditions for safe storage	Store in a dry place. Do not store in: Zinc.

Galvanized containers.
 Copper.
 Copper alloys.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process.
 In dusty or misty atmospheres, use an approved particulate respirator.
 The following should be effective types of air-purifying respirators:
 Particulate filter.

Hand protection

Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection Use safety glasses (with side shields).

Skin and body protection Wear clean, body-covering clothing.

Hygiene measures General industrial hygiene practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Crystalline solid
Color	Colorless to off-white
Odor	Odorless
Odor Threshold	no data available

pH	5.5 1.3 %
Melting point/range	280 °C (536 °F) (with decomposition)
Boiling point/boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	no data available
Flammability (solid, gas)	Non-flammable
Vapor Pressure	0.00405 hPa
Relative density	1.8
Density	1.77 g/cm ³
Solubility(ies) Water solubility	770 g/l Soluble
Partition coefficient: n- octanol/water	log Pow: -5.1
Viscosity	
Viscosity, dynamic	Not applicable
Viscosity, kinematic	Not applicable
Explosive properties	No data available.
Oxidizing properties	no data available
Molecular weight	132.13 g/mol
Hygroscopic	hygroscopic

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity	Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (ammonia, nitrous vapours, sulphur oxides). Reacts with (strong) oxidizers: (increased) risk of fire/explosion. Violent exothermic reaction with (some) bases: release of toxic and corrosive gases/vapours (ammonia, sulphur oxides).
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Chemical stability	Hygroscopic
Possibility of hazardous reactions	Stable under recommended storage conditions. Stable under normal conditions.
Conditions to avoid	heat
Incompatible materials	Strong acids. Metals Oxidizing agents Strong bases.
Hazardous decomposition products	No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Product:

Acute oral toxicity Remarks: not classified

Skin corrosion/irritation

Product:

Remarks: not classified

Serious eye damage/eye irritation

Product:

Remarks: not classified

Respiratory or skin sensitization

Product:

Remarks: not classified

Carcinogenicity

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Teratogenicity

Product

Not Classified

Reproductive toxicity

Product:

Not Classified

STOT - single exposure

Product:

Remarks: not classified

STOT - repeated exposure

Product:

Remarks: not classified

Further information

Product:

Remarks: no data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Persistence and degradability

no data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water log Pow: -5.1

Mobility in soil

no data available

Other adverse effects

Product:

Ozone-Depletion Potential Remarks: This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Additional ecological information no data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.
All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations.
Regulations may vary in different locations.
Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.
THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.
FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.
Landfill.
ANGUS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

International Regulation**IATA-DGR**

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**49 CFR (DOT) – NON BULK**

Not regulated as a dangerous good

49 CFR (DOT) - BULK

Not regulated as a dangerous good

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazards Combustible dust

EPCRA - Emergency Planning and Community Right-to-Know Act**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations**Massachusetts Right To Know**

Massachusetts Right to Know List of Chemicals and Hazard Classifications

Cas No.	Component
7783-20-2	Ammonium Sulfate

Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Cas No.	Component
7783-20-2	Ammonium Sulfate

New Jersey Right To Know

The following chemicals are listed because of the additional requirements of New Jersey law:

Cas No.	Component
7783-20-2	Ammonium Sulfate

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

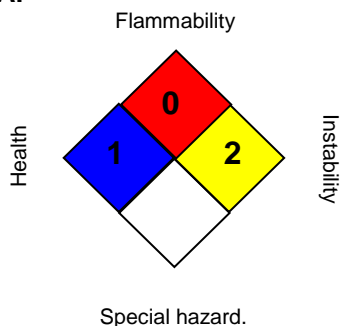
United States TSCA Inventory

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	2

0 = not significant, 1 =Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

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US / EN

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying

Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods