SAFETY DATA SHEET

Sulfate Plus, Compacted, 20.5-0-0 Ammonium Sulfate

Section 1. Identification

Product identifier : Sulfate Plus, Compacted, 20.5-0-0 Ammonium Sulfate

Other means of identification : Synonym: Ammonium sulfate, compacted
Product code: 497-25750; 1997-30912
Historic MSDS #: 14283

Product type : Solid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Fertilizer. Manufacture of specialty fertilizers.

Uses advised against	Reason
Not applicable	Non-hazardous substance.

Supplier's details : Agrium Canada Partnership
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc.
5296 Harvest Lake Drive
Loveland, CO 80538

Company phone number (North America):
1-800-403-2861 (Customer Service)

Emergency telephone number (with hours of operation) : Agrium 24 Hr Emergency Telephone Numbers:
English:
Transportation Emergencies: 1-800-792-8311
Medical Emergencies: 1-303-389-1653

French or Spanish:
Tranportation or Medical Emergencies: 1-303-389-1654

Section 2. Hazard identification

Classification of the substance or mixture : Not classified. This product is not considered hazardous according to the definitions and classification requirements under WHMIS 2015 (Canada), HAZCOM 2012 (United States), and NORMA OFICIAL MEXICANA 018 (Mexico).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

GHS label elements

Hazard pictograms : **Not Applicable.**
No Aplicable.
Non applicable.

Signal word : No signal word.

Hazard statements : Not applicable.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Not applicable.

Section 2. Hazard identification

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : None known.

Other hazards which do not result in classification : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
Ammonium sulfate	> 95	7783-20-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove person to fresh air. No known significant effects. Seek medical attention for any signs of wheezing and/or breathing difficulties. For additional advice call the medical emergency number on this SDS or your poison center or medical provider.

Skin contact : No known significant effects. Rinse the affected areas with water. Remove contaminated clothing, jewelry, and shoes. Wash/clean items before reuse. Seek medical attention for persistent skin pain or irritation. For additional advice call the medical emergency number on this SDS or your poison center or doctor.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : May cause irritation due to mechanical action.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : May cause irritation due to mechanical action.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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

Section 4. First-aid measures

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. For professional, multilingual, medical support, in case of medical emergencies involving Agrium products, telephone the Agrium global 24 hour Emergency Number: 1-303-389-1653.

Specific treatments : No specific treatment. Treat symptomatically.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. Mouth-to-mouth resuscitation of oral exposure patients is not recommended. First-aiders with contaminated clothing should be properly decontaminated.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : The substance will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and flammable gases. Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
nitrogen oxides
sulfur oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : This material is not explosive. If mixed with chlorine or hypochlorites, it may form nitrogen trichloride which may explode spontaneously in air. Contain and collect the water used to fight the fire for later treatment and disposal.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Recycle to process, if possible.
or
Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Do not ingest. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. May form steep piles that can collapse without warning when stored in bulk. Avoid forming steep slopes when removing product. Ensure that bulk bags or smaller packaged products stored in tiers are stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, rolling, or collapse. Use caution when opening truck or railcar doors as product may have shifted during transport.

Must be stored in a dry location. Absorbs moisture on long-term storage under high humidity conditions. Store away from incompatible materials (see Section 10). When product is stored in sealable containers, keep container tightly closed and sealed until ready for use. Sealable containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Canadian Regulations:: Ammonium sulfate	**CA Alberta Provincial (Canada).** TWA: 10 mg/m³, (Total dust) 8 hours. **CA Quebec Provincial (Canada).** TWA: 10 mg/m³, (Total dust) 8 hours.
U.S. Federal Regulations:: Ammonium sulfate	**OSHA PEL (United States).** Particulates not otherwise regulated (PNOR): TWA: 15 mg/m³, (Total dust) 8 hours. STEL: 5 mg/m³, (Respirable dust) 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: sealed eyewear

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. No special measures are typically indicated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Cotton or cotton/synthetic overalls or coveralls are normally suitable.

Other skin protection : The personal protective equipment required varies, depending upon your risk assessment. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. No special measures are typically indicated.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. For U.S. work sites where respiratory protection is required, ensure that a respiratory protection program meeting 29 CFR 1910.134 requirements is in place. No personal respiratory protective equipment is normally required.

Section 9. Physical and chemical properties

Appearance

Physical state : Granular solid.

Color : Grayish - Brown.

Odor : Odorless to slight hydrocarbon scent.

Odor threshold : Not available.

pH : 4.9 [Conc. (% w/w): 40%]

Melting point : Decomposition temperature: 235.01°C (455°F)

Boiling point : Not available.

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not applicable.

Flammability (solid, gas) : Not applicable.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not applicable

Relative density : 0.881

Solubility : Easily soluble in the following materials: cold water and hot water.

Solubility in water : 767 g/l

Partition coefficient: n-octanol/water : -5.1

Auto-ignition temperature : Not applicable.

Decomposition temperature : 235.01°C (455°F)

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : Incompatible with halogens, hydrogen peroxide, chlorinated hydrocarbons, fluorine, nitric acid, oxidizing agents and sulfuric acid.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data. May produce corrosive substances on hydrolysis. Contact your sales representative or a metallurgical specialist to ensure compatability with your equipment.

Incompatible materials : See above

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium sulfate	LD50 Oral	Mouse - Male, Female	3040 mg/kg	-
	LD50 Oral	Rat	2840 mg/kg	-
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	4540 mg/kg	-

Conclusion/Summary : Very low toxicity to humans or animals.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ammonium sulfate	Skin	Rabbit	0	20 hours	24 hours
	Skin	Rabbit	0	4 hours	72 hours
	Eyes	Rabbit	0	-	72 hours

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Ammonium sulfate	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result
Ammonium sulfate	OECD 476	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Negative
	OECD 473	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium sulfate	Negative - Oral - TCLo	Rat - Male, Female	1288 mg/kg	2 years; 7 days per week

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Ammonium sulfate	Negative	Negative	-	Mouse - Male, Female	Oral: 5000 mg/kg	-

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium sulfate	Negative - Oral	Rat - Male, Female	1500 mg/kg	-

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Inhalation.
Routes of entry not anticipated: Dermal.

Potential acute health effects

Eye contact : May cause irritation due to mechanical action.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : May cause irritation due to mechanical action.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

Potential immediate effects : May cause irritation due to mechanical action.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

Conclusion/Summary : Very low toxicity to humans or animals.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Ammonium sulfate	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Young	48 hours
	Acute LC50 14000 µg/l Fresh water	Daphnia - Daphnia magna - Young	48 hours
	Acute LC50 53 mg/l	Fish - Oncorhynchus mykis	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks

Conclusion/Summary : Very low acute toxicity to fish.

Persistence and degradability

Conclusion/Summary : Not applicable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ammonium sulfate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Ammonium sulfate	-5.1	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	DOT Classification	Mexico Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Classification per the current revision, Transportation of Dangerous Goods Regulation, Part 2, Sec 2.3.	-	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : This material is listed. Total of ammonia (NH3 — CAS RN 7664-41-7) and the ammonium ion (NH4+ — CAS RN 14798-03-9) in solution, expressed as ammonia.

CEPA Toxic substances : This material is not listed.

Canada inventory : This material is listed or exempted.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Section 15. Regulatory information

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

China : All components are listed or exempted.

Europe : This material is listed or exempted.

Japan : All components are listed or exempted.

Malaysia : Not determined.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Turkey : Not determined.

U.S. Federal Regulations: : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

TSCA 8(b) inventory:: This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed.

Clean Air Act Section 602 Class I Substances : Not listed.

Clean Air Act Section 602 Class II Substances : Not listed.

DEA List I Chemicals (Precursor Chemicals) : Not listed.

DEA List II Chemicals (Essential Chemicals) : Not listed.

SARA 302/304 Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Ammonium sulfate, compacted 20.5-0-0: Aqueous ammonia from ammonium salts and other sources, dissociable in water; 10 percent of the total aqueous ammonia is reportable under this listing.	7783-20-2	100
Supplier notification	See above	See above	98.9

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

Section 15. Regulatory information

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is listed.

California Prop. 65 : Not listed.

Section 16. Other information

History

Date of issue/Date of revision : 7/1/2017

Date of previous issue : 6/1/2017

Version : 2.3

Indicates information that has changed from previously issued version.

This Safety Data Sheet has been revised to comply with Hazcom 2012 and WHMIS 2015 requirements.

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Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations
HPR = Hazardous Products Regulations

Procedure used to derive the classification

Classification	Justification
Not classified.	Weight of evidence

References : Transportation of Dangerous Goods Act and Clear Language Regulations, current edition at time of (M)SDS preparation, Transport Canada;
Hazardous Products Act and Regulations, current revision at time of (M)SDS preparation, Health Canada;
Domestic Substances List, current revision at time of (M)SDS preparation, Environment Canada;
29 CFR Part 1910, current revision at time of SDS preparation, U.S. Occupational Safety and Health Administration;
40 CFR Parts 1-799, current revision at time of SDS preparation, U.S. Environmental Protection Agency;
49 CFR Parts 1-199, current revision at time of SDS preparation, U.S. Department of Transport;
Threshold Limit Values for Chemical Substances, current edition at time of SDS preparation, American Conference of Governmental Industrial Hygienists;
NFPA 400, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
NFPA 704, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers;
ERG 2016, Emergency Response Guidebook, U.S. Department of Transport, Transport Canada, and the Secretariat of Transportation and Communications of Mexico
Hazardous Substances Data Bank, current revision at time of SDS preparation, National Library of Medicine, Bethesda, Maryland

Section 16. Other information

Integrated Risk Information System, current revision at time of SDS preparation, U. S. Environmental Protection Agency, Washington, D.C.
Pocket Guide to Chemical Hazards, current revision at time of SDS preparation, National Institute for Occupational Safety and Health, Cincinnati, Ohio ;
Agency for Toxic Substances and Disease Registry Databank, current revision at time of SDS preparation, U.S. Department of Health and Human Services, Atlanta, Georgia
National Toxicology Program, Report on Carcinogens, Division of the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.
Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio
The Fertilizer Institute, Product Toxicology Testing Program Results, TFI, Washington , D.C., 2003

Notice to reader

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