





MATERIAL SAFETY DATA SHEET

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
		<p>Not applicable</p>	 <p>Not Controlled</p>	 <p>Not Regulated</p>

Section 1: Product and Company Information

Product Name:	Ammonium Sulphate, 20.5-0-0-24
Product Use:	Agricultural industry, fertilizer.
Chemical Family:	Ammonium salt mixture with dust suppressants.
Synonyms:	20.5-0-2-24 Granular Ammonium Sulphate
Supplier:	Sherritt International Corporation P.O. Box 3388 Fort Saskatchewan, Alberta Canada T8L 2T3 sdsinfo@sherrittmetals.com
Phone Number:	(780) 992-7016
24-hour Emergency:	(780) 992-7444

Section 2: Composition and Ingredient Information

Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
Ammonium sulphate	7783-20-2	96 - 98	231-984-1	*	None
Aluminum sulphate	10043-01-3	2	233-135-0	*	None

Note: *This chemical substance is not classified in the Annex I of Directive 67/548/EEC. See Section 8 of this MSDS for exposure limit data for these ingredients. See Section 16 for the full text of the R-phrases above.

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Section 3: Hazards Identification

Preparation Hazards and Classification:

USA: This product is not a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Evaluation.

Canada: This product is not controlled under WHMIS.

European Communities (EC): This substance has not been classified in the Annex I of Directive 67/548/EEC.

Appearance, Color and Odor:

Solid, off-white granules; odourless

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls

Relevant Route(s) of Exposure:

Inhalation, Eye contact, Skin contact.

Inhalation:

Over-exposure to airborne dusts may cause irritation of the upper respiratory system. Symptoms may include coughing and shortness of breath. Decomposition at extreme high temperatures (>100°C) releases fumes that are severely irritating to the respiratory system.

Ingestion:

This substance may cause gastro-intestinal irritation. Symptoms may include stomach pain, nausea and diarrhea.

Skin:

Contact with the skin may cause moderate irritation when exposure is prolonged or repeated.

Eye:

Prolonged exposure to airborne dusts may cause eye irritation. Direct contact with the eyes will cause irritation.

Potential Health Effects:

CHRONIC (long term): see Section 11 for additional toxicological data

Prolonged or repeated skin contact causes irritation to the skin.

Medical Conditions Aggravated by Exposure:

Skin contact may aggravate an existing dermatitis. Inhalation of airborne dusts may aggravate pre-existing respiratory conditions.

Interactions With Other Chemicals:

When mixed with water, the aqueous solution forms a strong acid. Reacts with bases forming ammonia. Attacks metals. Hot product can react with nitrates, nitrites and chlorates.

Potential Environmental Effects:

This substance will promote algae growth in aquatic systems and may degrade water quality and taste.

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Section 4: First Aid Measures

<u>Inhalation:</u>	If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice.
<u>Eye Contact:</u>	Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye with lukewarm, gently flowing water for 5 minutes while holding the eyelids open. Obtain medical advice.
<u>Skin Contact:</u>	Remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes. If irritation persists, repeat flushing. Obtain medical advice. Completely decontaminate clothing, shoes and leather goods before re-use, or discard.
<u>Ingestion:</u>	If irritation or discomfort occur, obtain medical advice.

Section 5: Fire Fighting Measures

<u>Extinguishing Media:</u>	Use extinguishing media suitable for the surrounding fire.
<u>Unusual Fire and Explosion Hazards:</u>	Product is not flammable. When heated to decomposition this substance can release very toxic fumes of sulfur oxides, nitrogen oxides and ammonia. Sensitivity to mechanical impact: Not sensitive. Sensitivity to static discharge: Not sensitive.
<u>Fire Fighting Instructions:</u>	As for any fire, evacuate the area and fight the fire from a safe distance. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Wear a positive pressure, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance.
<u>Hazardous Combustion Products:</u>	During a fire products of combustion may include nitrogen oxides, sulfur oxides, ammonia, dense smoke and irritating or toxic fumes.

Section 6: Accidental Release Measures

<u>Personal Precautions:</u>	Isolate the area; keep all unprotected people away from the spill area. Ventilate the area. Wear all proper personal protective equipment as indicated in Section 8. Prevent all inhalation exposures, skin and possible eye contact. Ensure clean-up is conducted by trained personnel only. Do not touch the spilled material.
<u>Environmental Precautions:</u>	Prevent material from contaminating soil and from entering sewers or waterways.
<u>Methods for Containment:</u>	Isolate the spill area. Stop the spill if it is safe to do so.
<u>Methods for Clean-up:</u>	Clean up spills immediately. Scoop up spilled material into appropriate, labeled containers for reclamation or disposal.

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Section 7: Handling and Storage

Handling

Do not get on skin or in eyes. Do not ingest or inhale. Avoid generation of dusts from this product. Handle this product with adequate ventilation. Wear all personal protective equipment as described in Section 8. Keep away from extreme heat. Do not use with incompatible materials such as strong oxidizing agents (see Section 10). Wash all exposed skin thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse.

Storage:

Keep containers closed when not in use. Store product in an appropriate container and provide adequate exposure controls and personal protection and protection from weather. Have suitable emergency equipment for fires, spills and leaks readily available.

Section 8: Exposure Controls and Personal Protection

Exposure Limits

<u>Ingredient</u>	<u>ACGIH TLV</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>	<u>U.S. OSHA PEL</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>	<u>Ontario (Canada)</u> <u>TWAEV</u> <u>(mg/m³)</u>	<u>UK OEL</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>
Ammonium sulphate	Not established	Not established	Not established	Not established
Aluminum soluble salts	2	2	2	2
Ammonia	25 ppm 35 ppm STEL	35 (50 ppm)	17 (25 ppm) 24 (35 ppm) STEV	18 (25 ppm) 25 (35 ppm) STEL
Particulates Not Otherwise Classified/Regulated	3 (respirable) 10 (inhalable)	5 (respirable) 15 (total dust)	3 (respirable) 10 (inhalable)	Not available

Exposure Controls

Engineering Controls:

Provide adequate ventilation, to prevent over-exposure to dust and fumes from this product.

Personal Protection:

Respiratory Protection:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 or Canadian Standards Association (CSA) Standard Z94.4-93 must be followed whenever workplace conditions warrant a respirator's use.

Where occupational exposure limits are exceeded, workers should wear an approved respirator. Consult with respirator manufacturer to determine respirator selection, use and limitations.

Skin Protection:

Wear appropriate protective gloves when handling this product. Wear clean body-covering clothing as needed to prevent skin irritation.

Eye Protection:

Wear safety glasses with side shields.

Other Protective Equipment:

Have a safety shower and eye-wash fountain readily available in the immediate work area for emergency use.

Hygiene Measures:

Wash thoroughly after exposure to product and at the end of the work-shift. Workers whose clothing has been contaminated by product should change into clean clothing promptly. Do not eat, smoke or drink where product is handled, processed, or stored. Wash hands carefully before eating, drinking or smoking. Maintain good housekeeping.

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Section 9: Physical and Chemical Properties

<p><u>Physical State:</u> Solid</p> <p><u>Appearance:</u> Off-white granules;</p> <p><u>pH:</u> 4 (10% aqueous solution)</p> <p><u>Specific gravity:</u> <u>(water = 1)</u> 1.769</p> <p><u>Boiling Point:</u> Decomposes</p> <p><u>Melting Point:</u> 235°C</p> <p><u>Viscosity:</u> Not applicable</p> <p><u>Oxidizing Properties:</u> Not available</p> <p><u>Flash Point and Method (°C):</u> Not flammable</p>	<p><u>Vapor Pressure:</u> Not applicable</p> <p><u>Vapor Density:</u> <u>(Air = 1)</u> Not applicable</p> <p><u>Solubility in Water:</u> Ammonium sulphate fraction is easily soluble in hot water, soluble in cold water.</p> <p><u>Water / Oil distribution coefficient:</u> Not available</p> <p><u>Odor Type:</u> Odourless. Decomposition may release ammonia</p> <p><u>Odor Threshold:</u> 17 ppm for ammonia</p> <p><u>Evaporation Rate:</u> <u>(n-Butyl Acetate = 1)</u> Not available</p> <p><u>Auto Ignition Temperature:</u> Not applicable</p> <p><u>Flammability Limits (%):</u> Not applicable</p>
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Section 10: Stability and Reactivity

<u>Stability:</u>	Stable under normal conditions of storage and use.
<u>Conditions to Avoid:</u>	Avoid conditions which generate ammonia vapours.
<u>Incompatible Materials:</u>	Oxygen, oxidizers such as peroxides, potassium chlorate, potassium nitrate, sodium nitrate, potassium nitrate, metal chlorates and strong bases.
<u>Hazardous Decomposition Products:</u>	When heated to decomposition this substance emits very toxic and corrosive fumes of sulfur oxides, ammonia and nitrogen. Pure Ammonium sulphate decomposes at temperatures above 280°C.
<u>Possibility of Hazardous Reactions:</u>	Not available

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Section 11: Toxicological Information

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u> (mg/kg)	<u>LD₅₀ Dermal</u> (mg/kg)	<u>LC₅₀ Inhalation</u> (ppm, 4 hrs.)
Ammonium sulphate	2 840 – 4 540 (rat)	Not available	Not available
Aluminum sulphate	>980 (mouse)	Not available	Not available

Chronic Toxicity Data

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Ammonium sulphate	Not listed	Not listed	Not listed	Not listed
Aluminum sulphate	Not listed	Not listed	Not listed	Not listed

Carcinogenicity Designations:

ACGIH: American Conference of Governmental Industrial Hygienists
 IARC: International Agency for Research on Cancer
 NTP: National Toxicity Program
 OSHA: Occupational Safety and Health Administration

Irritation: Over-exposure to airborne dusts may cause irritation of the upper respiratory system. Contact with the skin may cause moderate irritation when exposure is prolonged or repeated. Direct contact with the eyes will cause irritation. Prolonged exposure to airborne dusts may cause eye irritation.

Target Organ: Skin, eyes, lungs

Sensitization: Not available

Neurological Effects: Not available

Teratogenicity: Not available

Reproductive Toxicity: Not available

Mutagenicity (Genetic Effects): Not available

Toxicologically Synergistic Materials: None known.

Section 12: Ecological Information

Ecotoxicity:
 96-hour LC₅₀ *Leuciscus idus* – 460-1 000 mg/L
 96-hour LC₅₀ *Brachydanio rerio* – 250 mg/L
 96-hour LC₅₀ *Cyprinus carpio* – 18 mg/L
 96-hour LC₅₀ *Pimphales promelas* - >100 mg/L
 48-hour EC₅₀ *Daphnia magna* – 14 mg/L

Mobility: This substance will disperse in water.

Persistence and degradability: Products of biodegradation include oxides of nitrogen and sulphur. In water the substance releases ammonium ions, a toxicity hazard for aquatic organisms.

Bioaccumulative potential: Not available

Other adverse effects: This substance will promote algae growth in aquatic systems and may degrade water quality and taste.

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Section 13: Disposal Considerations

<u>Waste Disposal Method:</u>	Store material for disposal as indicated in Section 7 Handling and Storage. Do not discharge directly to municipal sewers, drains or surface water streams.
<u>Canada:</u>	Dispose of in accordance with local, provincial and federal laws and regulations.
<u>EC:</u>	Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.
<u>USA:</u>	Dispose of in accordance with local, state and federal laws and regulations.

Section 14: Transport Information:

<u>Canadian Transportation of Dangerous Goods (TDG):</u>	Not regulated
<u>ADR/RID:</u>	Not regulated
<u>IMDG:</u>	Not regulated
<u>Marine Pollutants:</u>	Ammonium sulphate is not listed as a marine pollutant.
<u>ICAO/IATA:</u>	Not regulated
<u>U.S. Hazardous Materials Regulation (DOT 49CFR):</u>	Not regulated

Section 15: Regulatory Information

<u>Canada</u>	This product has been classified in accordance with the hazard criteria of the <i>Controlled Products Regulations</i> and the MSDS contains all the information required by the <i>Controlled Products Regulations</i> .
<u>WHMIS Classification:</u>	Not controlled
<u>NSNR Status:</u>	Ammonium sulfate and Aluminum sulfate are listed on the Canadian Domestic Substances List (DSL).
<u>NPRI Substances:</u>	Ammonia
<u>EC Classification for the Substance:</u>	
<u>Symbol:</u>	Not applicable
<u>Risk Phrases:</u>	Not applicable
<u>Safety Phrases:</u>	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<u>USA</u>	
<u>NFPA Hazard Rating:</u>	
<u>TSCA Status:</u>	Sulfuric acid, diammonium salt and aluminum sulfate are listed in the TSCA inventory

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SARA Title III:

Sec. 302/304: Not applicable
Sec: 311/312: Not applicable
Sec. 313: Not applicable
CERCLA RQ: Not applicable

EPA: Designated Generic Categories, Ammonium sulfate – NH3 Equivalent Wt. % = 25.78

California Prop. 65: Not applicable

Other International Inventories:

Australia: Inventory of Chemical Substances (AICS): Sulfuric acid, diammonium salt, and aluminum sulphate are present.

China: Inventory – Sulfuric acid, diammonium salt and aluminum sulphate are present.

Japan: Inventory - Existing and New Chemical Substances (ENCS): Ammonium sulfate is present, 1-400. Aluminum sulfate is present 1-25.

Korea: Inventory - Existing and Evaluated Chemical Substances: Ammonium sulfate is present, KE-01743. Aluminum sulfate is present KE-01042.

Philippines: Inventory - Philippines - Inventory of Chemicals and Chemical Substances (PICCS): Ammonium sulfate and Aluminum sulfate are present.

Section 16: Other Information

Full Text of R-phrases appearing in Section 2: Not applicable

Preparation Information:

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