



SAFETY DATA SHEET
(according to Regulation (EC) No 1907/2006 (REACH), ANNEX II)

AMMONIUM SULPHATE

Revision date: 01.10.2024 Version 4.4

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY		
1.1 Product identifier		
Trade name:	Ammonium Sulphate	
Other names:	Sulfuric Acid Diammonium Salt	
Name IUPAC/international chemical name	Diammonium Sulphate/Ammonium Sulphate	
INDEX No. and name as listed in Annex VI of CLP:	Not listed	
CAS No.:	7783-20-2	
EINECS No.:	231-984-1	
REACH registration No.:	01-2119455044-46-0050	
Molecular formula:	H3N.1/2H2O4S	
1.2 Relevant identified uses of the subst	tance or mixture and uses advised against	
Relevant identified uses:	Fertilisers Intermediates Laboratory chemicals Manufacture of formulations – fertilizers Remarks: Generally the substance is used in industrial and/or professional settings	
Uses advised against:	None	
1.3 Details of the supplier of the safety of		
Only Representative:	Zangas Hoch-und Tiefbau GmbH Schwindgasse 5/1/4 1040 Vienna Austria Phone: +43 1 274 16 366 www.zangasgroup.com E-mail: info@zangasgroup.com	
Manufacturer:	PrJSC "AZOT" 72, Heroiv Kholodnoho Yaru Str., Cherkassy, Ukraine Phone: +38 0472 39-63-03	
E-mail address of the person responsible for this Safety Data Sheet:	PrJSC "AZOT" REACH Department onr@azot.ck.ua	
National contact:	Not available	
1.4 Emergency telephone number		
Emergency phone number:	Phone: +43 1 274 16 366 Opening hours: 9-18 (CET) Languages of the phone service: German, English Phone: + 38 (0472) 39 61 17 Opening hours: 0-24 Languages of the phone service: Ukrainian	
	SECTION 2: HAZARDS IDENTIFICATION	
2.1 Classification of the substance		
Remarks: May be harmful if swallowed. Co	us in accordance with Regulation 1272/2008 (CLP). bughing. Sore throat, shortness of breath/breathing difficulty	
2.2 Label elements	Al described to	
Hazard pictogram(s): Signal word: Hazard statements: Precautionary statements Prevention:	Not applicable No signal word Not applicable Not applicable Not applicable Not applicable	
Response:	Not applicable	
Storage: Disposal:	Not applicable	





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CONTRACTOR CONTRACTOR				
2.3 Other hazards:				
Substance meets the criteria for PBT according to Regulation (EC) No.1207/2006, Annex XIII	Not applicable			
Substance meets the criteria for vPvB according to Regulation (EC) No.1207/2006, Annex XIII	Not applicable			
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.			
SECTIO	N 3: COMPOSITION/INFORMATION ON ING	REDIENTS		
3.1 Substances				
According to the REACH Regulation the p	roduct is a mono-constituent			
Name	INDEX No. as listed in Annex VI of CLP	Weight % content (or range)		
Ammonium Sulphate	Not listed	Not less than 97 % (w/w)		
	SECTION 4: FIRST-AID MEASURES			
4.1 Description of first aid measures				
General notes:	Remove contaminated clothing.			
Following eye contact:		ter, occasionally lifting the upper and lower act lenses. Get medical attention if irritation		
Following skin contact:	Flush contaminated skin with plenty of shoes. Get medical attention if symptoms o			
Following ingestion:	comfortable for breathing. Do not induce vegersonnel. Get medical attention if symptom	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur		
Following inhalation:	After inhalation of dust: Fresh air. If difficulties occur: Seek medical attention. After inhalation of decomposition products: Keep patient calm, remove to fresh air, seek medical attention. The exposed person may need to be kept under medical surveillance for 48 hours.			
Self-protection for the first aider:	None			
4.2 Most important symptoms and effect	cts, both acute and delayed			
Potential acute health effects				
Eye contact:	may cause irritation of the eyes	e statutory or recommended exposure limits		
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure			
Skin contact:	No known significant effects or critical haza	rds		
Ingestion:	No known significant effects or critical haza	rds		
Over-exposure signs/symptoms				
Eye contact:	Adverse symptoms may include the followin irritation redness			
Inhalation:	Adverse symptoms may include the following respiratory tract irritation coughing			
Skin contact:	No specific data			
Ingestion:	No specific data. May be harmful if swallowed. Nausea, vomiting, diarrhoea.			
Delayed effects	Risk of pulmonary edema			
	If attention and special treatment needed decomposition products in a fire, symptoms munder medical surveillance for 48 hours.	ay be delayed.		
Treatment: No specific treatment.				
	SECTION 5: FIRE-FIGHTING MEASURES			
5.1 Extinguishing media	T.,			
Suitable extinguishing media:	Non-combustible. Use extinguishing media suitable for surrounding materials			
Unsuitable extinguishing media:	None			

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5.2 Special hazards arising from the substance or mixture		
Hazards from the substance or mixture:	Fine dust clouds may form explosive mixtures with air. At temperatures of 235°C can be emitted: ammonia	
Hazardous combustion products:	Decomposition products may include the following materials: nitrogen oxides sult	
5.3 Advice for firefighters		
Special precautions for fire-fighters:	No special measures required	
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. Clothing for firefighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents	

Remarks: References: SECTION 9: Physical and chemical properties

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment: Put on appropriate personal protective equipment.

<u>Emergency procedures</u>: Avoid breathing dust. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. No flares, smoking or flames in hazard area.

6.1.2 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".

6.2 Environmental precautions:

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

- 6.3.1 For containment. Avoid creating dusty conditions and prevent wind dispersal.
- 6.3.2 For cleaning up: Vacuum or sweep up and place into approved containers for later disposal.
- 6.3.3 Other information: Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

<u>Protective measures</u>: Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust. Avoid contact with eyes. Avoid repeated or prolonged contact with skin or clothing.

Measures to prevent fire: Keep away from heat. Keep away from sources of ignition.

Measures to prevent aerosol and dust generation: Use with adequate ventilation and local exhaust extraction in work place.

Measures to protect the environment: Keep containers closed. Prevent dispersion of dust. Do not let the material enter sewage systems and waterways.

Advice on general occupational hygiene: Do not eat, drink or smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. 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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions:	Store under cool dry conditions. Protect against moisture. The substance/product may cake under the influence of moisture.
Packing materials:	Polypropylene
Requirements for storage rooms and vessels: Storage class:	13
Further information on storage conditions:	None
Incompatible products:	Strong reducing agents, strong acids, finely powdered metals, organic matter, chlorides (chlorates), combustible materials. Ammonium sulfate can react with sodium nitrite at temperatures as low as room temperature producing flames or even explosions. When alkaline substances (metal) are added, ammonia is liberated.
7.3 Specific end use(s):	None

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

- 8.1.1 National occupational exposure limit values: Not available
- 8.1.2 National biological limit values: Not available
- 8.1.3 PNEC (Predicted No Effect Concentration):

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Environmental protection target	<u>PNEC</u>	PNEC			
Aqua – freshwater	0.312 m	0.312 mg/L			
Aqua - marine water	0.0312	mg/L			
Aqua – intermittent releases	0.53 mg	ı/L			
Sediment	0.063 m	g/kg sediment dw			
Soil	62.6 mg	/kg soil dw			
Sewage treatment plant	16.18 m	ıg/L			
Food chain: oral (secondary poisoning)	relevant	exposure route.	,	dary poisoning is unlikely	
Air	(negligil	Due to the ionic nature of ammonium sulphate and its physical chemical properties (negligible vapor pressure and high solubility in water) the atmospheric compartment is considered to be of no relevance.			
			ACUTE		
		Route	Derived No Effect Level (DNEL)		
			Workers	General population	
		Oral	Not applicable	Not applicable	
		Dermal	Not applicable	Not applicable	
		Inhalation	Not applicable	Not applicable	
		LONG TERM (Systemic effects)			
8.1.4 DNEL:		Route	Derived No Effect Level (DNEL)		
		Route	Workers	General population	
		Oral	Not applicable	6.4 mg/kg bw/day	
		Dermal	42.667 mg/kg bw/day	12.8 mg/kg bw/day	
		Inhalation	11.167 mg/m ³	1.667 mg/m ³	
	Acute/short-term DNELs were not calculated as they are covered by calculation of long-				
		NELs. No local dermal	or irritating effects w	vere observed in repeate	ed dose
	studies				
8.1.5 Monitoring procedures: Not available					
8.2 Exposure controls					

8.2.1 Appropriate engineering controls:

<u>Substance/mixture related measures to prevent exposure during identified uses:</u> The usual precautions for the handling of chemicals must be observed. Before direct contact with the substance use personal protection equipment.

Technical measures to prevent exposure: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits

8.2.2 Personal protection equipment:

8.2.2.1 Respiratory protection:	Wear dust protection mask, suitable protective equipment
8.2.2.2 Eye and face protection:	Safety glasses with side shields, suitable protective equipment
8.2.2.3 Skin protection: Hand protection: Other skin protection:	4-8 hours (breakthrough time): Butyl rubber. PVC
	Working clothes
8.2.2.4 Thermal hazards:	None
8.2.3 Environmental exposure controls:	Dispose of rinse water in accordance with local and national regulations

Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual exposure situation

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties		
Appearance	Solid crystals or granules, white	
Odour:	Odourless	
Odour threshold:	Not available	
pH:	Not available	
Melting/Freezing point:	> 235 °C (decomposes)	
Initial boiling point and boiling range:	Not applicable, decomposes before the boiling point is reached	
Evaporation rate:	Not available	





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Flash-point:	Not applicable, the substance is inorganic and solid.
Flammability (solid, gas):	Non-flammable
Auto-ignition temperature	Not applicable, the substance is a solid and self-heating of the substance up to 400° C is excluded.
Upper/lower flammability or explosive limits	Not applicable.
Oxidising properties	None
Vapour pressure:	0.00000004053 hPa at 25°C
Vapour density:	Not available
Relative density:	1.77 at 25°C
Solubility in water:	767 g/l at 25°C
Partition coefficient n-octanol/water:	Not applicable
Decomposition temperature:	Not available
Viscosity:	Not applicable
Explosive properties:	Non explosive. There are no chemical groups associated with explosive properties present in the molecule.

9.2 Other information

Molecular weight: 132.14 g/mole

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.3 Possibility of hazardous reactions

No hazardous reaction when handled and stored according to these provisions (see section 7, handling and storage).

10.4 Conditions to avoid

Excess moisture and heat, aerosols and dust generation.

10.5 Incompatible materials

Oxidizing substances and bases. Alkali metals, chlorates, nitrites (potassium chlorate, potassium nitrite, potassium nitrate, ammonium nitrate).

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. However, oxides of sulfur, nitrogen oxides (NOx) and ammonia (NH₃) can be emitted.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Acute toxicity

Route of exposure	Species	Method	Effective dose	Exposure time	Results
Oral:	rat (Gassner) male/female	oral: gavage equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)	-	1	LD ₅₀ : 4250 mg/kg bw
Dermal:	rat (Wistar) male/female, mouse (ddY) male/female	Coverage: open OECD Guideline 434 (Acute Dermal Toxicity – Fixed Dose Procedure)	_	I	LD ₅₀ : 2000 mg/kg bw
Inhalation:	rat (Sprague- Dawley) male	inhalation: aerosol (nose only) equivalent or similar to OECD Guideline 433 (Acute Inhalation Toxicity: Fixed Concentration Procedure)	-	8 h/d	LC ₅₀ : 1000 mg/mi air
11.1.2 Skin corrosio	n/irritation:	Not irritating			
11.1.3 Serious eye damage/irritation:		Not irritating			
11.1.4 Respiratory or skin sensitization:		Not sensitizing			
11.1.5 Germ cell mutagenicity:		Negative			
11.1.6 Reproductive toxicity:		Negative			
11.1.7 Carcinogenicity:		Not carcinogenic			
11.1.8 Aspiration hazard:		Reason for no classification: data lacking			



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11.1.9 STOT-single exposure	Not available		
11.1.10 STOT-repeated exposure	Not available		
aproximation of the contract o	SECTION 12: ECOLOGICAL INFORMATION		
12.1 Toxicity			
Fish (freshwater, short-term):	Acute harmful to fish		
Fish (freshwater, long-term):	EC20 = 1.35 mg N/L EC10 = 1.12 mg N/L = 5.29 mg/l		
Freshwater invertebrates (short-term):	With high probability acute not harmful to aquatic invertebrates		
Freshwater invertebrates (long-term):	EC10 of 3.12 mg/l		
Freshwater algae:	With high probability acute not harmful to algae		
Terrestrial plants:	The substance is widely used as a plant nutrient (N-source) in fertilizer, hence toxicity is unlikely		
Soil macro-organisms:	The substance is widely used as a plant nutrient (N-source) in fertilizer, hence toxicity is unlikely		
Birds:	No information on acute or chronic effects on birds is available. However, since the substance exhibits a low log Pow, secondary poisoning is unlikely to be a relevant exposure route.		
Mammals:	Not available		
12.2 Persistence and degradability			
Abiotic degradation			
Hydrolysis:	According to structural properties, hydrolysis is not expected/probable.		
Phototransformation/photolysis			
Phototransformation in air:	Degradation by photolytic processes can be excluded.		
Phototransformation in water:	Due to the rapid ionization in aqueous solution, phototransformation in water is not expected.		
Phototransformation in soil:	Due to the rapid ionization in aqueous solution, phototransformation in soil is not expected.		
Biodegradation:	Inorganic substance, biodegradation testing is not applicable		
12.3 Bioaccumulative potential			
Due to the low log Kow value ammonium s	ulphate is not likely to undergo bioaccumulation		
12.4 Mobility in soil	T		
Known or predicted distribution to environmental compartments:	Based on the physico-chemical properties of ammonium sulfate, water is expected to be the main target compartment. Based on the high water solubility a low geoaccumulation potential and high mobility in soil is to be expected. However, due to ion-ion interactions it is to be expected that mobility in soil is significantly reduced. Ammonium sulfate will not volatilise from soil.		
Surface tension	Based on chemical structure, no surface activity is to be expected.		
Adsorption/Desorption	Adsorption to solid soil phase is possible.		
12.5 Results of PBT and vPvB assessme	ent		
The PBT and vPvB criteria of Annex XIII to	the Regulation do not apply to inorganic substances.		
12.6 Other adverse effects: None			
12.7 Additional information: None			
	SECTION 13: DISPOSAL CONSIDERATIONS		
13.1 Waste treatment methods			
13.1.1 Product / Packaging disposal:	Empty containers or liners may retain some product residues. This material and i container must be disposed of in a safe way. Disposal of this product, solutions and ar by-products should at all times comply with the requirements of environment protection and waste disposal legislation and any regional local authority requirements.		
Waste codes / waste designations according to LoW (Commission Decision 2001/118/EC):	06 10 99 Wastes not otherwise specified		
13.1.2 Waste treatment-relevant	The generation of waste should be avoided or minimized wherever possible. Dispose of		
information: 13.1.3 Sewage disposal-relevant	surplus and non-recyclable products via a licensed waste disposal contractor. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and		
information: 13.1.4 Other disposal recommendations:	sewers. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by ELL Directive 91/680/EEC.		
,	waste, as defined by EU Directive 91/689/EEC.		





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SECTION 14: TRANSPORT INFORMATION

Ammonium sulphate is not classified as a dangerous substance when carried by road (ADR), train (RID) or maritime (IMDG)

7 minorial sulphate is not diassified as a dangerous substance when carried by road (1201), train (110) or mantime (1100)				
	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	Not regulated	Not regulated	Not regulated	Not regulated
14.2 UN proper shipping name	_	_	_	_
14.3 Transport hazard class(es)	_	_	_	_
14.4 Packing group	_	_	_	_
14.5 Environmental hazards	No	No	No	No
14.6 Special precautions for user	Not available	Not available	Not available	Not available
Additional information	_	_	_	_

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

EU Regulations

authorisation

Authorisations and\or restrictions on use:
Authorisation:
EU Regulation (EC) No. 1907/2006
(REACH)

Annex XIV - List of substances subject to

Substances of very high concern

None of the components are listed

Restrictions on use:

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable

National regulations (country): Not available

15.2 Chemical safety assessment:

In accordance with REACH Article 14 a Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

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 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 proceed, unless specified in the text.

v. 3.0: Changes were made to comply with the Guidance on the compilation of safety

data sheets (version 1.1)

v. 3.1: Changes were made to comply with Article 61 (CLP)

v. 4.0: Change of contact details

v. 3.0: Page header; 1.1; 1.3; 1.4; 3.1; 4.1; 6.1; 6.3; 7.1; 7.2; 7.3; 8.1; 8.2; 9.1; 11.1; 12.2; 12.4; 12.6; 12.7; 13.1; 15.1

v. 3.1: Page header; 2.1; 16.2

16.1 Indication of changes:

v. 4.0: Page header; 1.3

v. 4.1: Page header; 1.3

v. 4.2: Page header; 1.3

v. 4.3: Page header; 1.3, 1.4

v. 4.4: Page header; 1.4

16.2 Abbreviations and acronyms:

- ADN European Agreement concerning the International Carriage of Dangerous Goods on Inland Waterway
- ADNR ADN Rhine
- ADR Agreement on Dangerous Goods by Road
- CAS Chemical Abstracts Service
- CLP Classification, Labelling and Packaging of chemicals
- EC European Commission
- EC10 10% of maximal effective concentration
- EC20 20% of maximal effective concentration
- EINECS European Inventory of Existing Commercial Chemical Substances

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- EU European Union
- IATA International Air Transport Association
- IBC Code International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
- IMDG International Maritime Dangerous Goods
- IUPAC International Union of Pure and Applied Chemistry
- LC50 Lethal Concentration
- LD50 Lethal Dose
- LoW List of Wastes
- MARPOL International Convention for the Prevention of Pollution From Ships
- OECD Organization for Economic Co-operation and Development
- PBT Persistent, bioaccumulative, toxic chemical
- PJSC Public Joint-Stock Company
- PVC Polyvinyl chloride
- REACH Registration, Evaluation, Authorisation and Restriction of Chemicals
- RID International Rule for Transport of Dangerous Substances by Railway
- STOT Specific Target Organ Toxicity
- UN United Nations
- vPvB very persistent, very bioaccumulative

16.3 Key literature references and sources for data: CSR (Chemical Safety Report), Guidance on safe use etc.		
16.4 Training advice: In accordance with the local regulations		
16.5 Further information: None		