

SAFETY DATA SHEET

Ammonium Sulphate, Granular, 20,2-0-0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Ammonium Sulphate, Granular, 20,2-0-0

EC number : 231-984-1

REACH Registration number

Registration number	Substance
01-2119531538-36-XXXX 01-2119455044-46-XXXX	Aluminium sulphate Ammonium sulphate

CAS number : Not applicable.

Product code : 4799-30227

Product description : EC FERTILISER Straight Fertiliser Sulphate of Ammonia, Granulated 20,2-0-0

Product type : Solid.

Other means of identification : Sulphuric acid, ammonium salt (1:2); Sulphuric acid, diammonium salt; Ammonium sulphate; Ammonium hydrogen sulphate; Diammonium sulphate; Ammonium sulphate (2:1) BR

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

Identified uses	
Professional use in formulation of preparations and end-use. Industrial use for the formulation of preparations, intermediate use, and end use in industrial settings.	
Uses advised against	Reason
Not applicable.	Risk assessment.

1.3 Details of the supplier of the safety data sheet

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1050 Bruxelles
Belgium
Tel : +32 (0)2 646 70 00
Fax : +32 (0)2 646 68 60
commercial@nutrien.eu

e-mail address of person responsible for this SDS : productsafety@nutrien.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : Nutrien Safety Data Sheets are available in many languages at <https://agproducts.nutrien.com/products/>
Physicians, Poison Centres, or the Public may contact Nutrien's Global Emergency Response Number 24/7/365 for service in many languages at +1 303 389 1654

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AZERBAIJAN +994 125 979 924
BELARUS +375 17 287 00 92
BELGIUM +32 70 245 245
BULGARIA +359 2 9154 378; +359 887 435 325
CROATIA +358 1 2348 342
CZECH REPUBLIC +420 22 49 192 93
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FINLAND +358 9 471977
FRANCE
Angers +33 (0)2 41 48 21 21
Bordeaux +33 (0)5 56 96 40 80
Lille 0800 59 59 59 (national callers)
Lyon +33 (0)4 72 11 69 11
Marseille +33 (0)4 91 75 25 25
Nancy +33 (0)3 83 22 50 50
Paris +33 (0)1 40 05 48 48
Rennes +33 (0)2 99 59 22 22
Strasbourg +33 (0)3 88 37 37 37
Toulouse +33 (0)5 61 77 74 47
GEORGIA +995 99 53 33 20
GERMANY
Berlin +49 30 192 40
Bonn +49 228 192 40
Erfurt +49 361 730 730
Freiburg +49 761 192 40
Goettingen +49 551 192 40
Homburg (Saar) +49 6841 192 40
Mainz +49 6131 192 40
Munich +49 89 192 40
GREECE +30 21 07 79 37 77
HUNGARY +36 80 20 11 99
ICELAND +354 543 22 22
IRELAND +353 1 837 9964 (medical professionals) +353 1 809 2166 (public)
ISRAEL +972 4 854 19 00
ITALY
Bergamo +39 800 883 300
Firenze +39 55 794 7819
Foggia +39 881 732 326
Genoa +39 10 563 62 45
Milan +39 02 6610 1029
Padova +39 49 827 50 78
Pavia +39 38 224 444
Rome +39 06 305 43 43
Turin +39 011 663 7637
KAZAKHSTAN +7 3272 925 868
LITHUANIA +370 5 236 20 52; +370 687 533 78
NETHERLANDS +31 30 274 88 88
NORWAY +47 22 59 13 00
POLAND
Gdansk +48 58 682 04 04
Krakow +48 12 411 99 99
Lodz +48 42 63 14 724
Sosnowiec +48 32 266 11 45
Warszawa +48 22 619 66 54
Wroclaw +48 71 343 30 08
PORTUGAL 808 250 143 (national callers)
ROMANIA +402 212 106 282
RUSSIAN FEDERATION
Ekaterinburg +7 343 229 98 57
Moscow +7 495 628 1687
Saint-Petersburg +7 921 757 3228
SERBIA +381 11 3608 440
SLOVAKIA +421 2 5477 4166
SLOVENIA +386 41 635 500
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TURKEY +90 0312 433 70 01 or 0 800 314 7900
UNITED KINGDOM
Belfast 844 892 0111
Birmingham 844 892 0111
Edinburgh 844 892 0111
Newcastle Upon Tyne +44 191 2606182; +44 191 2606180
Penarth 844 892 0111

Supplier

Telephone number : Nutrien Europe SA
EMERGENCY TELEPHONE NUMBERS:
Transportation: 00-1-303-389-1654
Medical: 00-1-303-389-1654

Hours of operation : 24/7/365

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Eye Irrit. 2, H319

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements

Prevention : P280.6 Wear eye or face protection.
P264 Wash hands thoroughly after handling.

Response : P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical attention.

Storage : Not applicable.

Disposal : Not applicable.

Hazardous ingredients : Aluminium sulphate

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Special packaging requirements

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SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII : Not applicable.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : Not applicable.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.1 Substances : Mono-constituent substance

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Ammonium sulphate	REACH #: 01-2119455044-46-XXXX EC: 231-984-1 CAS: 7783-20-2	>95	Not classified.	[A]
Aluminium sulphate	REACH Reg.#: 01-2119531538-36-XXXX EC : 233-135-0 CAS: 10043-01-3	2.9	Met. Corr. 1, H290 Eye Irrit. 2, H319 See Section 16 for the full text of the H statements declared above.	[C]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[A] Constituent

[B] Impurity

[C] Stabilising additive

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Begin eye irrigation immediately. Exposures to eye irritants may require medical evaluation following decontamination if pain or irritation persists. Immediately rinse eyes with large quantities of water or saline for a minimum of 15 minutes. If possible, remove contact lenses being careful not to cause additional eye damage. If the initial water supply is insufficient, keep the affected area wet with a moist cloth and transfer the person to the nearest place where rinsing can be continued for the recommended length of time. For additional advice call the medical emergency number on this SDS or your poison center or physician.

SECTION 4: First aid measures

- Inhalation** : Remove person to fresh air and keep comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- 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. If unconscious, place in recovery position and get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : 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 Nutrien products, telephone the Nutrien global 24 hour Emergency Number: 00-1-303-389-1654
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : No specific fire or explosion hazard.
- Hazardous combustion products** : Decomposition products may include the following materials:
nitrogen oxides
sulfur oxides

SECTION 5: Firefighting measures

5.3 Advice for firefighters

- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
- Additional information** : Contain and collect the water used to fight the fire for later treatment and disposal.

SECTION 6: Accidental release measures

6.1 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. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised 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 adverse impacts (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

- Small spill** : Use personal protective equipment as required. Move containers from spill area. Avoid dust generation. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Recycle to process, if possible. Dispose of via a licensed waste disposal contractor.
- Large spill** : Put on appropriate personal protective equipment (see Section 8). Move containers from spill area. Avoid dust generation. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Recycle to process, if possible. Dispose of via a licensed waste disposal contractor.

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. 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.

7.2 Conditions for safe storage, including any incompatibilities

SECTION 7: Handling and storage

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.

7.3 Specific end use(s)

- Recommendations** : Fertiliser. Fertiliser Blend Component
- Industrial sector specific solutions** : See Annex to the Safety data sheet for additional information in the Exposure Scenario(s).

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
No exposure limit value known.	Check your local regulations to determine if exposure limits exist for soluble dusts. (Inhalable fraction or Respirable fraction)

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Ammonium sulphate	DNEL	Long term Inhalation	11,2 mg/m ³	Workers	Systemic

- DNEL/DMEL Summary** : Not considered to be toxic to humans.

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
Ammonium sulphate	Fresh water	0,53 mg/l	Assessment Factors

- PNEC Summary** : Slightly harmful to aquatic organisms.

8.2 Exposure controls

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

Individual protection measures

SECTION 8: Exposure controls/personal protection

- 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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- 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: safety glasses with side-shields Possible: chemical splash goggles.
- 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- 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.
- Other skin protection** : 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.
- Respiratory protection** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid. [Crystals. Granular solid.]
- Colour** : White.
- Odour** : Odourless.
- Odour threshold** : Not available.
- pH** : 5 to 6 [Conc. (% w/w): 10%]
- Melting point/freezing point** : Decomposition temperature: 235°C
- Initial boiling point and boiling range** : Not available.
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not applicable.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Not applicable.
- Vapour pressure** : 0 kPa [room temperature]
- Vapour density** : Not available.
- Relative density** : 1.78
- Solubility(ies)** : Easily soluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.

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SECTION 9: Physical and chemical properties

- Auto-ignition temperature** : Not applicable.
Decomposition temperature : 235.01°C
Viscosity : Not available.
Explosive properties : May react explosively when mixed with chlorinated materials such as hypochlorites.
Oxidising properties : Not applicable. No oxidising ingredients present.

9.2 Other information

- Solubility in water** : 767 g/l

No additional information.

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** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Absorbs moisture on long-term storage under high humidity conditions. Store in a well-ventilated, dry place. Protect from moisture.
- 10.5 Incompatible materials** : Incompatible with:
strong acids
strong alkalis
Incompatible with copper alloys, copper, and zinc.
Incompatible with halogens, hydrogen peroxide, chlorinated hydrocarbons, fluorine, nitric acid, oxidising agents and sulphuric acid.
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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

- Conclusion/Summary** : Very low toxicity to humans or animals. Effects are not sufficient for classification as hazardous.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ammonium sulphate	Skin	Rabbit	0	20 hours	24 hours
	Eyes - Redness of the conjunctivae	Rabbit	1.6	-	72 hours

Conclusion/Summary

- Skin** : Non-irritating to the skin.
Eyes : May cause eye irritation.
Respiratory : Non-irritating to the respiratory system.

Sensitisation

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SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result
Ammonium sulphate	Skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Not sensitizing

Respiratory : Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Ammonium sulphate	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 mutagenic effect.

Carcinogenicity

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

Conclusion/Summary : No carcinogenic effect.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
Ammonium sulphate	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 sulphate	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 likely routes of exposure : Skin contact
Inhalation

Potential acute health effects

Eye contact : Causes serious eye irritation.

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

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SECTION 11: Toxicological information

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Causes serious eye irritation.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium sulphate	Chronic NOAEL Oral	Rat - Male, Female	256 mg/kg	52 weeks; 7 days per week

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

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Ammonium sulphate	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 mykiss	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks

Conclusion/Summary : Very low acute toxicity to fish.

12.2 Persistence and degradability

Conclusion/Summary : Not persistent.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

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

SECTION 12: Ecological information

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.
P: Not available. B: Not available. T: Not available.

vPvB : Not applicable.
vP: Not available. vB: Not available.

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

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised 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.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
06 10 02*	wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture wastes containing hazardous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	ICAO
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.

Ammonium Sulphate, Granular, 20,2-0-0

SECTION 14: Transport information

Additional information	-	-	-	-
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14.6 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.

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

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso III Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

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SECTION 15: Regulatory information

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.
United States	: All components are listed or exempted.

15.2 Chemical safety assessment : Complete.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms :

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data :

- REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 18 DECEMBER 2006, with successive adaptations, amendments, and corrigenda.
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 16 DECEMBER 2008, with successive adaptations, amendments, and corrigenda.
- ECHA, European Chemicals Agency, Classification and Labelling Database
- DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 4 JULY 2012 on the control of major-accident hazards involving dangerous substances
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), latest revision.
- Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, with successive amendments.
- REGULATION (EC) No 2003/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 13 OCTOBER 2003 RELATING TO FERTILISERS, with successive adaptations, amendments, and corrigenda.
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, latest edition.
- Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers
- ERG 2016 Emergency Response Guidebook
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. The Fertilizer Institute, Toxicity Testing Results, March 2003

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Irrit. 2, H319	Calculation method

Full text of abbreviated H statements

H319	Causes serious eye irritation.
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Full text of classifications [CLP/GHS]

Ammonium Sulphate, Granular, 20,2-0-0

SECTION 16: Other information

Eye Irrit. 2, H319

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2

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Version : 2.4

Notice to reader

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Product definition : Mono-constituent substance
Identification of the substance or mixture
Code : 4799-30227
Product name : Ammonium Sulfate, Granulated, 20,2-0-0

Section 1 - Title

Short title of the exposure scenario : The Exposure Scenario for Workers using H319 Eye Irritants
List of use descriptors : **Identified use name:** Industrial use for the formulation of preparations, intermediate use, and end use in industrial settings.
Process Category: PROC05, PROC08a, PROC08b, PROC09, PROC26
Substance supplied to that use in form of: As such
Sector of end use: SU01, SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02, ERC06a, ERC08c, ERC08f
Market sector by type of chemical product: PC12
Article category related to subsequent service life: Not applicable.
Environmental contributing scenarios : **Not applicable.**
Health Contributing scenarios : **Bulk transfers** - PROC05, PROC08a, PROC08b, PROC09, PROC26
Clean-down and maintenance of equipment - PROC05, PROC08a, PROC08b, PROC09, PROC26
Mixing operations (open systems) - PROC05, PROC08b
Product packaging - PROC09
Storage - PROC26

Number of the ES : 1
Processes and activities covered by the exposure scenario : Applicable to all identified Process Categories.
An environmental assessment has not been done as the substance does not meet the criteria for being classified as dangerous for the environment.

Section 2 - Exposure controls

Contributing exposure scenario controlling environmental exposure for 1: Not applicable.
Not applicable. Not classified as dangerous to the environment.

Contributing exposure scenario controlling worker exposure for 1: Bulk transfers
Product Characteristics : Solid, low dustiness.
Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%
Physical state : Solid beads.
Dust : Solid, low dustiness.
Amounts used : Variable, from day to day.
Frequency and duration of use : Use duration (h/d): >4
Human factors not influenced by risk management : Not applicable.
Other operational conditions affecting worker exposure : Indoor or outdoor use Amounts used
Area of use: : Indoor and outdoor use.

Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Process control/change measures	: Not applicable.
Technical conditions and measures to control dispersion from source towards the worker	: Use appropriate containment to avoid environmental contamination. Provide enhanced general ventilation by mechanical means.
Engineering controls	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Ventilation control measures	: Provide adequate ventilation and, if possible, use or install internal exhaust systems.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: A washing facility or water for eye and skin cleaning purposes should be present. Brush off contaminated clothing. Ensure good industrial hygiene. Provide eye shower and mark its location conspicuously.
Personal protection	: If operating conditions cause high dust concentrations to be produced, use dust goggles.
Respiratory protection	: If ventilation is inadequate, use respirator that will protect against dust/mist.

Contributing exposure scenario controlling worker exposure for 2: Clean-down and maintenance of equipment

Product Characteristics	: Solid, low dustiness.
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Physical state	: Solid beads.
Dust	: Solid, low dustiness.
Amounts used	: Not applicable.
Frequency and duration of use	: Use duration (h/d): >4
Human factors not influenced by risk management	: Not applicable.
Other operational conditions affecting worker exposure	: Indoor or outdoor use
Area of use:	: Indoor and outdoor use.
Technical conditions and measures at process level (source) to prevent release	: Restrict access while emptying or maintaining the unit. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Since the emptied containers retain product residue, follow product insert warnings even after container is emptied.
Process control/change measures	: These controls may include segregation of areas, access only to authorised persons, permit to work systems, confined space working procedures, and hazard awareness training.
Technical conditions and measures to control dispersion from source towards the worker	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Engineering controls	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Ventilation control measures	: Provide adequate ventilation and, if possible, use or install internal exhaust systems.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: A washing facility or water for eye and skin cleaning purposes should be present. Brush off contaminated clothing. Pay attention to good general hygiene and housekeeping. Provide eye shower and mark its location conspicuously. When using do not eat or drink.
Personal protection	: If operating conditions cause high dust concentrations to be produced, use dust goggles.
Respiratory protection	: If ventilation is inadequate, use respirator that will protect against dust/mist.

Contributing exposure scenario controlling worker exposure for 3: Mixing operations (open systems)

Product Characteristics	: Solid, low dustiness.
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Physical state	: Solid beads.
Dust	: Solid, low dustiness.
Amounts used	: Not applicable.
Frequency and duration of use	: Use duration (h/d): >4
Human factors not influenced by risk management	: Not applicable.
Other operational conditions affecting worker exposure	: Indoor use
Area of use:	: Indoor
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Process control/change measures	: Not applicable.
Technical conditions and measures to control dispersion from source towards the worker	: Use appropriate containment to avoid environmental contamination. Provide enhanced general ventilation by mechanical means.
Engineering controls	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Ventilation control measures	: Provide adequate ventilation and, if possible, use or install internal exhaust systems.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Goggles, face shield or other full-face protection should be worn if there is a risk of direct exposure to dust.

Contributing exposure scenario controlling worker exposure for 4: Product packaging

Product Characteristics	: Solid, low dustiness.
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Physical state	: Solid beads.
Dust	: Solid, low dustiness.
Amounts used	: Not applicable.
Frequency and duration of use	: Use duration (h/d): >4
Human factors not influenced by risk management	: Not applicable.
Other operational conditions affecting worker exposure	: Indoor use
Area of use:	: Indoor
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Process control/change measures	: Not applicable.
Technical conditions and measures to control dispersion from source towards the worker	: Ensure the area is organised, well lit and ventilated with enough space to deal with spills easily.
Engineering controls	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Ventilation control measures	: Ensure sufficient ventilation when re-packing damaged packages. Only use product in a well-ventilated area.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: A washing facility or water for eye and skin cleaning purposes should be present. Brush off contaminated clothing. When using do not eat or drink.
Personal protection	: If operating conditions cause high dust concentrations to be produced, use dust goggles.

Contributing exposure scenario controlling worker exposure for 5: Storage

Product Characteristics	: Solid, low dustiness.
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Physical state	: Solid beads.
Dust	: Solid, low dustiness.
Amounts used	: Not applicable.
Frequency and duration of use	: Use duration (h/d): >4
Human factors not influenced by risk management	: Not applicable.

Other operational conditions affecting worker exposure	: Indoor use
Area of use:	: Indoor
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Process control/change measures	: Not applicable.
Technical conditions and measures to control dispersion from source towards the worker	: Use appropriate containment to avoid environmental contamination. Provide enhanced general ventilation by mechanical means.
Engineering controls	: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Ventilation control measures	: Provide adequate ventilation and, if possible, use or install internal exhaust systems.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: If operating conditions cause high dust concentrations to be produced, use dust goggles.

Section 3 - Exposure estimation and reference to its source

Website:	: Qualitative approach used to conclude safe use.
Exposure estimation and reference to its source - Environment: 5: Not applicable.	
Exposure assessment (environment):	: Qualitative approach used to conclude safe use.
Exposure estimation	: Not available.
Exposure estimation and reference to its source - Workers:1: Bulk transfers	
Exposure assessment (human):	: Qualitative approach used to conclude safe use.
Exposure estimation	: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Exposure estimation and reference to its source - Workers:2: Clean-down and maintenance of equipment	
Exposure assessment (human):	: Qualitative approach used to conclude safe use.
Exposure estimation	: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Exposure estimation and reference to its source - Workers:3: Mixing operations (open systems)	
Exposure assessment (human):	: Qualitative approach used to conclude safe use.
Exposure estimation	: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Exposure estimation and reference to its source - Workers:4: Product packaging	
Exposure assessment (human):	: Qualitative approach used to conclude safe use.
Exposure estimation	: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Exposure estimation and reference to its source - Workers:6: Storage

Exposure assessment (human): : Qualitative approach used to conclude safe use.

Exposure estimation : Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES

Environment : No additional risk management measures required.

Health : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH CSA

Environment : Use containment as appropriate. Good hygiene practices and housekeeping measures

Health : Not available.

Product definition : Mono-constituent substance

Identification of the substance or mixture

Code : 4799-30227

Product name : Ammonium Sulfate, Granulated, 20,2-0-0

Section 1 - Title

Short title of the exposure scenario : The Exposure Scenario for Professionals using H319 Substances Irritating to the Eye

List of use descriptors : **Identified use name:** Professional use in formulation of preparations and end-use.
Process Category: PROC03, PROC08a, PROC08b, PROC09, PROC26
Substance supplied to that use in form of: As such
Sector of end use: SU01, SU03, SU10, SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02, ERC08b, ERC08e
Market sector by type of chemical product: PC11, PC12, PC19, PC21, PC37

Environmental contributing scenarios : **An environmental assessment has not been done as the substance does not meet the criteria for being classified as dangerous for the environment.**

Health Contributing scenarios : **All process categories are addressed by this contributing scenario as all Operational Conditions and Risk Management Measures are identical.**

Number of the ES : 2

Processes and activities covered by the exposure scenario : Applicable to all identified Process Categories.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: An environmental assessment has not been done as the substance does not meet the criteria for being classified as dangerous for the environment.

Not applicable.

Contributing scenario controlling worker exposure for 1: All process categories are addressed by this contributing scenario as all Operational Conditions and Risk Management Measures are identical.

Product characteristics : Solid, low dustiness.

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Physical state : Solid beads.

Dust : Solid, low dustiness.

Amounts used : Variable.

Frequency and duration of use : >4 Hours per shift

Human factors not influenced by risk management : Not applicable.

Other conditions affecting workers exposure : Indoor or outdoor use

Area of use: : Indoor and outdoor use.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical conditions and measures to control dispersion from source towards the worker	: Use containment as appropriate. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Engineering controls	: Provide adequate ventilation.
Ventilation control measures	: Provide adequate ventilation and, if possible, use or install internal exhaust systems.
Product substance-related measures	: Avoid contact with eyes.
Organisational measures to prevent/limit releases, dispersion and exposure	: Not applicable.
Conditions and measures related to personal protection and hygiene	
Advice on general occupational hygiene	: Avoid contact with eyes. Ensure good industrial hygiene. If operating conditions cause high dust concentrations to be produced, use dust goggles.
Personal protection	: Use suitable eye protection. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Section 3 - Exposure estimation and reference to its source

Website: : Qualitative approach used to conclude safe use.

Exposure estimation and reference to its source - Environment: 2: An environmental assessment has not been done as the substance does not meet the criteria for being classified as dangerous for the environment.

Exposure assessment (environment): : Not applicable.

EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE : Not available.

Exposure estimation and reference to its source - Workers:1: All process categories are addressed by this contributing scenario as all Operational Conditions and Risk Management Measures are identical.

Exposure assessment (human): : Qualitative approach used to conclude safe use.

EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE : Not available.

Section 4 - GUIDANCE TO DU TO EVALUATE WHETHER HE WORKS INSIDE THE BOUNDARIES SET BY THE ES

Environment : Not applicable.

Health : No additional risk management measures required.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Use containment as appropriate. Ensure control measures are regularly inspected and maintained. Pay attention to good general hygiene and housekeeping.