

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Ammonium nitrate solution

Version 4.0

Revision Date: 30.09.2019

Former date: 04.12.2014

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

1.1 Product identifier

Trade name : Ammonium nitrate solution 51%, Ammonium nitrate solution 52%, Ammonium nitrate solution 60%

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

Use of the Substance/Mixture : Fertilizers, Adhesives and/or sealants, Intermediate, Water treatment chemical

Recommended restrictions on use : Consumer uses

1.3 Details of the supplier of the safety data sheet

Supplier : Borealis L.A.T GmbH
St.-Peter-Strasse 25, 4021 Linz, Austria
Telephone: +43 732 6915-0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (NCEC Carechem 24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Supplemental Hazard Statements : EUH210 Safety data sheet available on request.

2.3 Other hazards

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Ammonium nitrate	6484-52-2 229-347-8 01-2119490981-27	Ox. Sol. 3; H272 Eye Irrit. 2; H319	>= 45 - <= 65

Remarks : Mixtures are not classified as irritating to eyes (OECD 405 and OECD 437 studies done on similar mixtures).
REACH Registration Numbers:
www.borealisgroup.com , Company - REACH - Registered substances

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled : Move to fresh air.
Keep patient warm and at rest.
Give oxygen or artificial respiration if needed.
Seek medical advice.

In case of skin contact : Remove/Take off immediately all contaminated clothing.
Wash off with plenty of water.
Get medical attention immediately if irritation develops and persists.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention if irritation develops and persists.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Do NOT induce vomiting.
Get medical advice/ attention if you feel unwell.

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4.2 Most important symptoms and effects, both acute and delayed

Symptoms	: Ingestion may provoke the following symptoms: Gastrointestinal disturbance The absorption of this product into the body may lead to the formation of methaemoglobine that, in sufficient concentration, causes cyanosis. Inhalation of decomposition fumes may provoke the following symptoms: Risk of delayed pulmonary oedema. Effects of repeated or prolonged skin contacts may include: Discomfort Eye contact: May irritate eyes.
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4.3 Indication of any immediate medical attention and special treatment needed

Treatment	: Keep under medical supervision for at least 48 hours. Treat symptomatically. There is no specific antidote available.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Water spray jet
Unsuitable extinguishing media	: Foam Dry powder Halons Carbon dioxide (CO ₂) Do not smother with steam or sand.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	: Hazardous decomposition products formed under fire conditions. Nitrogen oxides (NO _x) Ammonia Potential explosion hazard when heated under strong confinement (e.g. tubes and drains) especially if contaminated with incompatible material. See chapter 10.
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5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Complete suit protecting against chemicals

Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
Contact the proper local authorities.

Ensure doors and windows are opened.
Avoid inhalation of decomposition fumes.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
Eliminate all ignition sources if safe to do so.

6.2 Environmental precautions

Do not allow contact with soil, surface or ground water.
Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.
Allow to solidify, use mechanical handling equipment.
Scrape up.
Shovel into suitable container for disposal.
After cleaning, flush away traces with water.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Ensure adequate ventilation.
Avoid inhalation of vapour or mist.
The pump should be rinsed with water before each start-up due to safety reasons.
Rinse the pump with water also after shutdown to avoid

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formation of solid residues.
Drain down and flush system prior to equipment opening or maintenance.
Keep away from incompatible materials.

Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition. Keep away from combustible material. Keep away from heat.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice for diagnostics. Regular cleaning of equipment, work area and clothing. Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in a dry, cool and well-ventilated place.

Suitable materials for containers: Plastics Stainless steel
Aluminium

Unsuitable materials for containers: Copper Zinc

Further information on storage conditions : Avoid unprotected outdoor storage. Keep in a dry place.
Storage temperature: 15 - 35 °C

Advice on common storage : Do not store near combustible materials.
Keep away from incompatible materials.
See chapter 10.
Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ammonium nitrate	Workers	Skin contact	Long-term, Systemic	5,12 mg/kg bw/day

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	Workers	Inhalation	Long-term, Systemic	36 mg/m3
	Consumers	Skin contact	Long-term, Systemic	2,56 mg/kg bw/day
	Consumers	Inhalation	Long-term, Systemic	8,9 mg/m3
	Consumers	Ingestion	Long-term, Systemic	2,56 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Ammonium nitrate	Sewage treatment plant	18 mg/l

8.2 Exposure controls

Engineering measures

Avoid inhalation of vapour or mist.

Provide adequate ventilation.

Use specific dispensers and pumps specifically designed to prevent splashes/spills/exposure to occur.

Before working with fire and hot materials on containers and apparatus remains of products must be removed through efficient cleaning with water.

Personal protective equipment

Eye protection : Safety goggles
(EN 166)

Hand protection

Material : Nitrile rubber
Break through time : >= 480 min
Glove thickness : >= 0,11 mm
Directive : Equipment should conform to EN 374

Remarks : For prolonged or repeated contact use protective gloves.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Skin and body protection : Wear suitable protective clothing.
Chemical resistant protective suit
Apron
Boots

Respiratory protection : Suitable respiratory equipment:
(K or ABEK-filter)
Respiratory protection complying with EN 143 / EN 149.

Protective measures : Appropriate personal protective equipment (PPE) shall be worn in accordance with Regulation (EU) 2016/425.

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Environmental exposure controls

General advice : Do not allow contact with soil, surface or ground water. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : colourless, pale yellowish

Odour : ammoniacal

Odour Threshold : Not applicable

pH : 5,0 - 6,5

Melting point : 2 - 11 °C

Boiling point/boiling range : No data available

Flash point : Not applicable, (inorganic)
Other information: The product is not flammable.

Upper explosion limit : Not applicable

Lower explosion limit : Not applicable

Vapour pressure : No data available

Density : 1,220 - 1,280 g/cm³ (20 °C)

Solubility(ies)
Water solubility : completely soluble

Partition coefficient: n-octanol/water : Not applicable (inorganic)

Decomposition temperature : 210 °C

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

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9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Contact with strong bases liberates ammonia.
Contact with strong acids liberates nitrous gases.

10.4 Conditions to avoid

Conditions to avoid : Decomposes on heating.
Risk of explosion if heated under confinement.

10.5 Incompatible materials

Materials to avoid : Reducing agents
Strong acids and strong bases
Powdered metals
Combustible material
Copper
Copper alloys
Chlorates
Chromates
Nitrites
sulphur
permanganates

10.6 Hazardous decomposition products

|| Nitrogen oxides (NO_x), Ammonia

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

Components:

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Ammonium nitrate:

Acute oral toxicity : LD50 (Rat): 2.950 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50: > 88,8 mg/l
Method: No information available.

Acute dermal toxicity : LD50: > 5.000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Information given is based on tests on mixtures with similar compositions.

Components:

Ammonium nitrate:

Species: Rabbit
Method: OECD Test Guideline 405
Result: Irritating to eyes.

Respiratory or skin sensitisation

Skin sensitisation: Based on available data, the classification criteria are not met.

Respiratory sensitisation: Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.
Test substance: Calcium ammonium nitrate
Read-across (Analogy)

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:

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Ammonium nitrate:

Genotoxicity in vitro

- : Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative
Test substance: Ammonium calcium nitrate
- : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Test substance: Ammonium calcium nitrate
- : Test Type: In vitro gene mutation study in mammalian cells
Method: OECD Test Guideline 476
Result: negative
Test substance: Potassium nitrate

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Remarks: No significant adverse effects were reported

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Effects on fertility

- : Species: Rat
NOAEL: > 1.500 mg/kg,
Method: OECD Test Guideline 422
Test substance: Potassium nitrate

STOT - single exposure

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Assessment: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Species: Rat
NOAEL: 0,185 mg/l

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Application Route: Inhalation
Exposure time: 14 d
Method: OECD Test Guideline 412
Test substance: Ammonium nitrate

Aspiration toxicity

Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Ammonium nitrate:

- Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 447 mg/l
Exposure time: 48 h
Test Type: Short term
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 490 mg/l
Exposure time: 48 h
Test Type: Short term
Test substance: Potassium nitrate
Remarks: Fresh water
- Toxicity to algae : EC50 : > 1.700 mg/l
Exposure time: 10 d
Test substance: Potassium nitrate
Remarks: Marine water
- Toxicity to bacteria : EC50 : > 1.000 mg/l
Exposure time: 180 min
Test Type: Respiration inhibition of activated sludge
Test substance: Sodium nitrate
Method: OECD Test Guideline 209
- Toxicity to fish (Chronic toxicity) : Remarks: study scientifically unjustified
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50: 555 mg/l
Exposure time: 7 d
Species: Bullia digitalis (prosobranch gastropod)

12.2 Persistence and degradability

Components:

Ammonium nitrate:

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Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Components:

Ammonium nitrate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

Ammonium nitrate:

Mobility : Medium: Water
Remarks: completely soluble

: Medium: Soil
Remarks: (NO₃-), Not expected to adsorb on soil.

: Medium: Soil
Remarks: (NH₄+), After release, adsorbs onto soil.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : Remarks: Do not allow product to reach ground water, water bodies or sewage system.
Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Can be landfilled or incinerated, when in compliance with local regulations.
Depending on the degree of contamination, dispose of by use

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as fertilizer on farm or as raw material for an authorised waste facility.

Do not allow product to reach ground water, water bodies or sewage system.

Do not dispose of together with household waste.

European waste code:

06 10 99: wastes not otherwise specified

Contaminated packaging : Empty remaining contents.
Dispose of in accordance with local regulations.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : No specific instructions needed., Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR

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

Ship type : 2

Pollution category : Z

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Ammonium nitrate (Number on list 58)

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Restricted to professional users.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

Other regulations:

Regulation (EU) No 98/2013 of the European Parliament and of the Council of 15 January 2013 on the marketing and use of explosives precursors:

Annex II

All suspicious transactions, significant disappearances and thefts shall be reported to the national appointed bodies (https://ec.europa.eu/home-affairs/what-we-do/policies/crisis-and-terrorism/explosives/explosives-precursors_en).

Regulation (EC) No 2003/2003 relating to fertilizers

15.2 Chemical safety assessment

no

SECTION 16: Other information

Full text of H-Statements

H272 : May intensify fire; oxidizer.
H319 : Causes serious eye irritation.

Full text of other abbreviations

Eye Irrit. : Eye irritation
Ox. Sol. : Oxidizing solids

Further information

Training advice : Provide adequate information, instruction and training for operators.

Other information : Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments.
Changes since the last version are highlighted in the margin.
This version replaces all previous versions.

Issuer : Borealis, Group Product Stewardship / Steffen Pfeiffer

Sources of key data used to compile the Safety Data Sheet : Chemical Safety Report, Ammonium Nitrate. FARM REACH Consortium, 2015
EFMA / Fertilizers Europe Guidance documents

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