safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Ammonium nitrate ≥98 %, extra pure

article number: **X988**
Version: **1.0 en**

date of compilation: 2015-11-04

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

1.1 Product identifier

Identification of the substance	**Ammonium nitrate**
Article number	X988
Registration number (REACH)	This information is not available.
EC number	229-347-8
CAS number	6484-52-2

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

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS

Section	Hazard class	Hazard class and category	Hazard statement
2.14	oxidising solids	(Ox. Sol. 3)	H272
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319

Remarks
For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Warning**

Pictograms

Hazard statements

H272	May intensify fire; oxidiser.
H319	Causes serious eye irritation.

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/eye protection/face protection.

Precautionary statements - 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.
P371+P380+P375	In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Labelling of packages where the contents do not exceed 125 ml
Signal word: **Warning**
Symbol(s)

2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Ammonium nitrate
EC number	229-347-8
CAS number	6484-52-2
Molecular formula	NH_4NO_3
Molar mass	80,04 $^{g}/_{mol}$

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Diarrhoea, Nausea, Irritation, Vomiting

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Oxidising property. Non-combustible.

Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NOx)

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Do not breathe dust. Avoid contact with skin, eyes and clothes. Control of dust.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal.

Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide adequate ventilation.

• Measures to prevent fire as well as aerosol and dust generation

Take any precaution to avoid mixing with combustibles. Keep away from heat.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

not relevant

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	5,12 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
DNEL	36 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	18 mg/l	sewage treatment plant (STP)	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm.

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).
Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (crystalline)
Colour	colourless
Odour	odourless
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	4,5 - 7 (water: 100 $^{g}/_{l}$, 20 °C)
Melting point/freezing point	170 °C at 1.013 hPa
Initial boiling point and boiling range	This information is not available.
Flash point	not applicable
Evaporation rate	no data available
Flammability (solid, gas)	Non-flammable
Explosive limits	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	This information is not available.
Density	1,72 $^{g}/_{cm^3}$
Vapour density	2,8 air = 1
Bulk density	850 $^{kg}/_{m^3}$
Relative density	2,8 air = 1
Solubility(ies)	
Water solubility	1.877 $^{g}/_{l}$ at 20 °C
Partition coefficient	
n-octanol/water (log KOW)	-3,1
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	210 °C
Viscosity	not relevant (solid matter)

Explosive properties	none
Oxidising properties	oxidiser

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

oxidising property

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Exothermic reaction with:
Danger of explosion: Alkali (lye), Carbide, Reducing agents, Acids, Chlorates

10.4 Conditions to avoid

Keep away from heat, UV-radiation/sunlight, Humidity, Decompostion takes place from temperatures above: 210 °C

10.5 Incompatible materials

combustible materials

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	2950 $^{mg}/_{kg}$	rat	OECD Guideline 401	ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure
Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard
Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed
data are not available

• If in eyes
data are not available

• If inhaled
data are not available

• If on skin
data are not available

Other information
Cardiac arrhythmias. Headache. Dyspnoea. Blood pressure drop. Spasms. Cyanosis (blue coloured blood).

SECTION 12: Ecological information

12.1 Toxicity
acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LC50	447 $^{mg}/_{l}$	common carp (Cyprinus caprio)	ECHA	48 hours

12.2 Process of degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
Does not significantly accumulate in organisms.

n-octanol/water (log KOW) -3,1

12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 Other adverse effects
Slightly hazardous to water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	**1942**
14.2	UN proper shipping name	**AMMONIUM NITRATE**
	Hazardous ingredients	Ammonium nitrate
14.3	Transport hazard class(es)	
	Class	5.1 (oxidizing substances)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

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

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1942
Proper shipping name	AMMONIUM NITRATE
Particulars in the transport document	UN1942, AMMONIUM NITRATE, 5.1, III, (E)
Class	5.1
Classification code	O2
Packing group	III
Danger label(s)	5.1

Special provisions (SP)	306, 611
Excepted quantities (EQ)	E1
Limited quantities (LQ)	1 kg
Transport category (TC)	3
Tunnel restriction code (TRC)	E
Hazard identification No	50

• International Maritime Dangerous Goods Code (IMDG)

UN number	1942
Proper shipping name	AMMONIUM NITRATE
Particulars in the shipper's declaration	UN1942, AMMONIUM NITRATE, 5.1, III
Class	5.1
Packing group	III
Danger label(s)	5.1

Special provisions (SP)	952, 967
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-H, S-Q
Stowage category	C
Segregation group	2 - Ammonium compounds

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

• Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
Not listed.

• Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
Not listed.

• Regulation 850/2004/EC on persistent organic pollutants (POP)

Not listed.

• List of substances subject to authorisation (REACH, Annex XIV)

not listed

• Seveso Directive

96/82/EC (Seveso II)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes)		Notes
15.3	ammonium nitrate (technical grade)	350	2.500	03)

Notation

03) This applies to ammonium nitrate and mixtures of ammonium nitrate in which the nitrogen content as a result of the ammonium nitrate is
- between 24,5 % and 28 % by weight, and which contain not more than 0,4 % combustible substances,
- more than 28 % by weight, and which contain not more than 0,2 % combustible substances.
It also applies to aqueous ammonium nitrate solutions in which the concentration of ammonium nitrate is more than 80 % by weight

2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
03	ammonium nitrate (technical grade)	350	2.500	03)

Notation

03) This applies to ammonium nitrate and mixtures of ammonium nitrate in which the nitrogen content as a result of the ammonium nitrate is
- between 24,5 % and 28 % by weight, and which contain not more than 0,4 % combustible substances,
- more than 28 % by weight, and which contain not more than 0,2 % combustible substances.
It also applies to aqueous ammonium nitrate solutions in which the concentration of ammonium nitrate is more than 80 % by weight

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

National inventories

Substance is listed in the following national inventories:

- EINECS/ELINCS/NLP (Europe)
- REACH (Europe)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant)
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H272	may intensify fire; oxidiser
H319	causes serious eye irritation

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.