

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 1/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name **Ammonium nitrate** (prilled and granulated fertilizer; brand name: Genezis)
CAS number Not applicable (mixture)
EINECS number Not applicable (mixture)

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

Identified uses: fertilizer
Uses advised against: no uses advised against

1.3. Details of the supplier of the safety data sheet

Name of supplier
(manufacturer): NITROGÉNműVEK Zrt.
Address: Pétfürdő, Hősök tere 14.
8105 Pétfürdő, Pf. 450,
Hungary
Telephone: +36-88-620-100
Fax: +36-88-620-102
E-mail: sds@nitrogen.hu

1.4. Emergency telephone number

The UK National Poisons Emergency number +44 870 600 6266

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Oxidising Solids, Hazard Category 3 – H272
Serious eye damage/eye irritation, Hazard Category 2 – H319

2.2. Label elements

Signal word: Warning
Hazard pictograms:



Warning H statements:

H272 May intensify fire; oxidiser.

H319 Causes serious eye irritation.

Precautionary P statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

P370+P378 In case of fire: Use water to extinguish.

P264 Wash hands thoroughly after handling.

P280 Wear protective gloves/eye protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

The product does not meet the PBT or vPvB criteria.

No other hazards known.

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 2/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

The product is not a substance; therefore, it is not applicable.

3.2. Mixtures

Hazardous ingredient(s)

Name	CAS number	EC number	w/w%	Registration number
Ammonium nitrate	6484-52-2	229-347-8	94.5-98.5	01-2119490981-27-0082

Classification of ammonium nitrate:

Classification: Ox. Sol. 3, Eye Irrit. 2

Signal word: Warning

Pictograms:



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

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

The speed of action is important. Remove the affected person from further exposure. Give immediate first aid and call for medical help.

Skin contact

Wash the affected area with soap and water for at least 15 minutes. Remove contaminated clothing and shoes. In case of persistent irritation, obtain medical help.

Eye contact

Flush/wash eye with plenty of water for at least 15 minutes, with occasional blinking. If necessary and if easy to do so, remove contact lenses. In case of persistent eye irritation, obtain medical help.

Ingestion

Do not induce vomiting. Flush the mouth of the victim with plenty of water and give him plenty of water to drink. In case of persistent sickness, obtain medical help.

Inhalation

Remove the injured person from the exposition. Even in case of no symptoms, keep him warm and calm. If the breathing stops or in case of breathing difficulties, administer artificial respiration if qualified personnel is available. Avoid mouth to mouth resuscitation. In case of sickness, obtain medical help.

4.2. Most important symptoms and effects, both acute and delayed

Eyes, skin: Redness, pain.

Ingestion: In case of small quantities, the poisoning effect is unlikely. In case of ingestion of larger quantities may cause digestive abnormalities (abdominal pain, nausea, diarrhoea) and in extreme cases (especially if the affected person is very young) methaemoglobin formation ("blue baby symptom") or cyanosis (which is indicated by the bluish discoloration of area of the mouth) may occur.

Inhalation: The high airborne dust concentration may irritate the nose and the upper respiratory tract, which has symptoms like burning feeling in the throat and coughing.

4.3. Indication of any immediate medical attention and special treatment needed

In normal cases immediate medical help is not required, but in case of persistent symptoms, obtain medical help. May cause methaemoglobin formation.

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 3/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

If the fertilizer is not directly involved in the fire, any suitable extinguishing media can be used.

If fertilizer is involved in the fire, water spray is the suitable extinguishing medium. For safety reasons, other extinguishers (foam, sand, dust, halon, carbon dioxide) cannot be used.

5.2. Special hazards arising from the substance or mixture

The fertilizer is not combustible in itself, but it may promote the combustion even in the lack of air.

It melts in case of heating and further heating may cause degradation which happens with the liberation of toxic nitrogen oxides and ammonia. It may explode in closed areas and in the presence of strong initiating effects in case of sudden hit, pressure or high temperature. Avoid temperatures above 210 °C especially in closed or insufficiently ventilated areas, because explosion or thermal degradation may occur.

After the inhalation of degradation gases or degradation products, remove the injured person from the gas exposure. Even in case of no symptoms, keep him warm and calm. Give oxygen, especially if bluish discoloration can be observed around the mouth. Administer artificial respiration if the breathing has stopped. After the exposure the victim must be kept under medical surveillance for at least 48 hours, because delayed pulmonary oedema may occur.

5.3. Advice for firefighters

Do not inhale the combustion gases (toxic). Approach the fire from down-wind.

Due to the toxic degradation and combustion products, the use of self-contained breathing apparatus is recommended, and full protective suit has to be worn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. Use the recommended PPE during the cleaning of the spillage.

6.2. Environmental precautions

Avoid the contamination of drains and sewage. In case of large quantities gets into sewage, surface or subsurface water, inform the respective environmental protection authority, because it may cause eutrophication.

6.3. Methods and material for containment and cleaning up

All spilled fertilizer has to be cleaned up immediately, it has to be collected and has to be placed in clean and properly labelled containers till the safe disposal. Avoid dust formation during sweeping. Do not mix with sawdust or other combustible or organic materials.

6.4. Reference to other sections

Recommendations regarding personal protective equipment can be found in section 8, those regarding the handling of waste can be found in section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid excessive dust formation. The product should be used in well ventilated areas (local exhaust ventilation may be necessary). Avoid unnecessary contact with air because of the hygroscopic nature of the product.

Do not mix with combustible materials, reducing agents, strong acids, metallic powders and do not expose to high temperature.

Avoid contact with eyes and skin. In case of long-term handling of the product, use appropriate PPE (e.g. gloves, protective goggles, see section 8). Do not eat, drink or smoke when using this product. Wash your hands thoroughly after use. Remove the contaminated clothes and PPE before eating.

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 4/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

7.2. Conditions for safe storage, including any incompatibilities

Appropriate containers for storage are plastic sacks, steel and aluminium containers, barrels. Ammonium nitrate causes corrosion on untreated metal surfaces. Avoid using zinc and copper containers.

Keep order in the vicinity of the storage area. All storage area has to be cool, dry, safe from humidity and well ventilated.

Keep away from heat sources and fire. Keep away from combustible material and materials listed in section 10.3. In agricultural plantations ensure that the fertilizer is not stored near hay, straw, grain, diesel oil etc. It is prohibited to mix or store together with urea.

Do not use open flame and do not smoke in the vicinity of the storage area.

Keep in such circumstances which inhibit the crystallization of the product due to the product heat cycles (the fluctuation of temperatures within wide ranges). Recommended storage temperature between 5 and 30 °C. The product cannot be stored in direct sunshine.

Control the height of the strings of sacked product (observe local regulations) and keep at least 1 m distances amongst the strings.

7.3. Specific end use(s)

Manufacturing and industrial use

- production, packaging, loading, sampling
- preparation of mixtures of fertilizers, solutions, suspensions (mixtures, solutions, dilutions)

Duration and frequency of use: > 4 hours / day

Risk reducing measures in case of workers:

- Good labour practice: ensure local aspiration and / or ventilation.
- The necessary protective equipment is listed in section 8.2.2. Due to the eye irritating effect of the product the use of eye protection is obligatory, the use of work clothes and gloves is recommended. If necessary - in case of very dusty applications - the use of appropriate dust mask is recommended.
- The workers who is affected by the exposure should be trained to be aware of the method of the safe handling.

For professional use

- packing, repacking, loading, transport
- preparation of mixtures of fertilizers, solutions, suspensions (mixtures, solutions, dilutions)

Duration and frequency of use: > 4 hours / day

- automatic spreading of solid fertilizers
- field distribution of fertilizer solutions (drip irrigation)
- fertilization of outdoor crops
- fertilization of greenhouses

Duration and frequency of use: maximum 12 hours / day; 7 days / week; 2-3 months / year

Risk reducing measures in case of professional users:

- Recommended: use automated and / or closed systems.
- Avoid the formation and inhalation of inhalable powders and drops or spray.
- The necessary protective equipment is listed in section 8.2.2. If the mixture / solution produced and used contains ammonium nitrate in a concentration higher than 10 % and exposure cannot be excluded in any way, the use of safety glasses is mandatory. If the exposure cannot be avoided, use eye protection.

For consumer use

- automatic spreading of solid fertilizers
- trickle irrigation with fertilizer solution
- fertilization of gardens and greenhouses (with manual sprayer)

Duration and frequency of use: < 4 hours / day; 1-3 times / year

Risk reducing measures in case of consumers:

- Avoid the formation and inhalation of inhalable powders and drops or spray.
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SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 5/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

- The necessary protective equipment is listed in section 8.2.2. If the mixture / solution produced and used contains ammonium nitrate in a concentration higher than 10 % and exposure cannot be excluded in any way, the use of safety glasses is mandatory. If the exposure cannot be avoided, use eye protection. The use of protective gloves is recommended. Wash hands thoroughly after handling and remove the work clothes.

(Plant special dosing information is available in the website: www.genezispartner.hu)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational exposure limit values

There are no officially established limits.

Maximum powder concentration recommended by ACGIH 10 mg/m³.

8.1.2. Recommended exposure controls

It is advisable to frequently control the concentration of dust in the work area depending on the technological stability.

8.1.3. Occupational exposure limits in case of generation of air-polluting material

In case of intended use of the product, no air-polluting materials are generated.

8.1.4. DNEL and PNEC values

DNEL values defined for ammonium nitrate:

DNEL (long term)	worker	general population
dermal	21.3 mg/kg/day	12.8 mg/kg/day
inhalation	37.6 mg/m ³	11.1 mg/m ³
ingestion	-	12.8 mg/kg/day

PNEC values for fresh water: 0.45 mg/l

8.1.5. Information supporting risk management

No other data supporting risk management is available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Avoid high dust concentration and apply ventilation if necessary.

8.2.2. Personal protective equipment

In case of long-term handling, use protective clothes, appropriate gloves (plastic, rubber or leather) and protective glasses (EN 166). In case of high dust concentration, wear respiratory device against dust (EN143, 149, filters P2, P3).

Wash hands after handling the product and take care of personal hygiene.

8.2.3. Environmental exposure controls

Prevent water contaminated by the product entering the sewer system. The leaked product must be collected.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

State	solid
Appearance	white or slightly coloured granules or particles.
Odour	odourless
Odour threshold	not applicable (odourless)
pH	>4.4 (in 1% aqueous solution)
Melting point	169.6 °C at 1013 hPa
Boiling point (15 hPa)	>210 °C (degrades)
Flash point	not applicable (not combustible, inorganic)
Evaporation rate	not applicable (solid)
Flammability (solid, gas)	not combustible (based on molecular structure)

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 6/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

Upper/lower flammability or explosive limits:	not applicable (non-combustible, non-explosive inorganic material); In case of strong closure (e.g.: in pipes or drains) the heating leads to violent reactions or explosion, especially in that case if it is contaminated with the materials listed in section 10.3.
Vapour pressure	not applicable (solid)
Vapour density	not applicable (solid)
Density	1720 kg/m ³ at 20 °C (for ammonium nitrate, as a substance)
Solubility(ies)	in water 1920 g/l (20 °C) hygroscopic, quickly absorbs moisture from the air.
Partition coefficient n-octanol/water:	not required (inorganic) log Kow (Pow): -3.1 (for ammonium nitrate, as a substance)
Auto-ignition temperature	not applicable (not combustible, inorganic)
Decomposition temperature	>170 °C
Viscosity	not applicable (solid)
Explosive properties	not explosive in itself, but oxidizing The ADR classification of ammonium nitrate fertilizer is UN 2067 (see section 14). In case of strong closure (e.g.: in pipes or drains) the heating leads to violent reactions or explosion, especially in that case if it is contaminated with the materials listed in section 10.3.
Oxidizing properties	may support combustion and oxidation (H272; UN 2067)

9.2. Other information

Bulk density 900 - 1100 kg/m³

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The product is stable under normal storage, handling and use conditions.

10.2. Chemical stability

The product is stable under normal storage, handling and use conditions.

10.3. Possibility of hazardous reactions

In case of strong heating it melts and degrades while forming toxic gases (ammonia, nitrogen oxides), the heating of fertilizer in strong closure (e.g.: in pipes or drains) may lead to violent reactions or explosions, especially if it is contaminated with the materials listed in section 10.3.

Ammonia gas is formed in case of contact with such alkali materials as lime. See sections 2 and 9.

10.4. Conditions to avoid

Heating to temperature above 170 °C (degradation during gas formation). Vicinity of heat source or fire. Welding or other heat related tasks on such equipment or site which may be contaminated with fertilizer, without washing for the removal of all fertilizer.

Unnecessary contact with air.

Contamination with incompatible materials (see section 10.3).

10.5. Incompatible materials

Combustible materials, organic materials, reducing agents, agricultural products, seeds, hay, straw, strong acids and bases, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, phosphor, metallic powders and other substances containing metals as copper, nickel, cobalt, zinc, cadmium, lead, bismuth, chromium, magnesium, sodium, potassium, aluminium and their alloys.

Spontaneous reaction with the mixture of acetic acid anhydride and nitric acid, with the mixture of ammonium sulphate and potassium, with iron(II)-sulphide, with copper, with sawdust, with carbamide and with barium nitrate.

With alkali metals it forms explosive reaction products.

10.6. Hazardous decomposition products

Ammonia, oxides of nitrogen.

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 7/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

We hereby give information about the results of the conducted toxicological studies about pure ammonium nitrate, about other nitrates and ammonium salts.

Acute toxicity

Test substance	CAS number	Exposure route	Species	Result
Ammonium nitrate	6484-52-2	oral	rat	LD50: 2950 mg/kg
		dermal	rat	LD50: > 5000 mg/kg
		inhalation	rat	LC50: > 88.8 mg/l

Skin irritation

Test substance	CAS number	Species	Result
Ammonium nitrate	6484-52-2	rabbit	non-irritating

Eye irritation

Test substance	CAS number	Species	Result
Ammonium nitrate	6484-52-2	rabbit	irritating

Skin sensitization

Test substance	CAS number	Species	Result
Ammonium calcium nitrate	15245-12-2	mouse	non-sensitizing

Target organ toxicity after repeated exposure

Test substance	CAS number	Exposure route	Species	Result
Ammonium sulphate	7783-20-2	ingestion	rat	NOAEL: 256 mg/kg/day (52-week test)
Potassium nitrate	7757-79-1	ingestion	rat	NOAEL \geq 1500 mg/kg/day (28-day test)
Ammonium nitrate	6484-52-2	inhalation	rat	NOAEC \geq 185 mg/m ³

Carcinogenicity

No data.

Mutagenicity

Test substance	CAS number	Test type	Cell type	Result
Ammonium calcium nitrate	15245-12-2	Bacterial reverse mutation assay	S. typhimurium; E. coli	negative
		In vitro chromosome mutation assay conducted in mammals	Human peripheral lymphocyte	negative
Potassium nitrate	7757-79-1	Mammal cell gene mutation assay	Mouse lymphoma	negative

Reproductive toxicity

Test substance	CAS number	Exposure route	Species	Result
Potassium nitrate	7757-79-1	ingestion	rat	NOAEL: \geq 1500 mg/kg bw/day

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 8/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

Information on likely routes of exposure

The most probable route of exposures is skin and eye exposure, which can be reduced to minimal with the use of PPE. The inhalation exposure is only possible if during the use of the product dust is formed and no sufficient ventilation is available. In case of normal circumstances ingestion is not likely, only accidental ingestion is possible. The possible symptoms are listed in section 4.2.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

We hereby give information about the results of the conducted toxicological studies about pure ammonium nitrate and about other nitrates.

Tested substance	CAS number	Test	Species/group of animals	Result
Ammonium nitrate	6484-52-2	Short term toxicity in fish	carp (<i>Cyprinus carpio</i>)	LC50 (48 h): 447 mg/l
Potassium nitrate	7757-79-1	Toxicity for invertebrates	water flea (<i>Daphnia magna</i>)	EC50 (48 h): 490 mg/l
Potassium nitrate	7757-79-1	Test conducted on algae and aquatic plants	sedimentary diatomaceous algae	EC50 (10 d): > 1700 mg/l

In large quantities it causes eutrophication in natural waters.

12.2. Persistence and degradability

Not persistent, its components are inorganic materials. The ammonium nitrate dissociates for its ions in water. It degrades in the natural nitrification/denitrification cycle. The ammonium ion transforms to nitrites and then nitrates with the help of bacteria both in natural and controlled circumstances (sewage treatment technologies). The biological degradation time in sewage treatment plants is 52 g N/kg dissolved solid material/day in 20 °C. The nitrate both degrades within natural and controlled circumstances (sewage treatment technologies). The decomposition products of the anaerobe degradation: dinitrogen oxide, nitrogen, ammonia. The biological degradation time in sewage treatment plants is 70 g N/kg dissolved solid material/day in 20 °C.

12.3. Bioaccumulation potential

Not bioaccumulating, because its components are inorganic materials, and their partition coefficient are low.

12.4. Mobility in soil

Inorganic compound, well water-soluble, with low tendency to absorption.

12.5. Results of PBT and vPvB assessment

Non PBT and vPvB, because its components are inorganic materials.

12.6. Other adverse effects

No other adverse effects known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Depending on the extent and the type of the contamination, it can be used as fertilizer or can be disposed via licensed waste management company. Recommended codes according to the List of Waste:

06 03 14 solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

15 02 03 absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

Information regarding the disposal of the packaging

The sacks, containers which are thoroughly cleaned with water - with the permission of the local authorities - can be disposed or recycled as non-hazardous waste (Do not remove the label from the container before cleaning). Recommended code according to the List of Waste:

15 01 02 plastic packaging

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 9/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

SECTION 14: TRANSPORT INFORMATION

14.1. UN number: 2067

14.2. UN proper shipping name:

AMMONIUM NITRATE BASED FERTILIZER

14.3. Transport hazard class(es): 5.1 (ADR/RID land transport, IMDG/CGV sea transport)



14.4. Packaging group: III.

14.5. Environmental hazards: not environmentally hazardous

14.6. Special precautions for user: not necessary

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:
not applicable

SECTION 15: REGULATORY INFORMATION

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

Directive 2012/18/EU (SEVESO III) on the control of major-accident hazards involving dangerous substances	Ammonium nitrate (lower tier: 1250 t, upper tier: 5000 t)
Regulation 2003/2003/EC relating to fertilisers	The product is an EC fertilizer with high nitrogen content (A.1 fertilizer type – nitrogen fertilizer)
ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road	UN 2067 – see section 14.
Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), restrictions according to Annex XVII	The N-content of the product is >16% and can therefore be marketed only to downstream users, distributors, farmers and professional users (e.g. horticulture, parkours, forestry).
Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), authorization	The product does not contain any substances of very high concern.
Regulation 1272/2008/EC on classification, labelling and packaging of substances and mixtures (CLP)	Classification of the product according to CLP – see section 2.

Related regulations:

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

Page: 10/10

Number and date of revision: 1.0/EN; 11.03.2019

Ammonium nitrate fertilizer "Genezis"

15.2. Chemical safety assessment

Chemical safety assessment has been performed for ammonium nitrate.

SECTION 16: OTHER INFORMATION

Important changes in the safety data sheet:

No information.

Version:

Version number: 1.0/EN

Date of issue: 11.03.2019

Abbreviations:

- LD50 – Lethal dose resulting in 50 % mortality
- EC50 – Effective concentration, 50 %
- DNEL – Derived-No-Effect-Level
- LC50 – Lethal concentration resulting in 50 % mortality
- NOAEL – No Observed Adverse Effect Level
- NOAEC – No Observed Adverse Effect Concentration
- PBT – Persistent, bioaccumulative and toxic
- vPvB – very persistent and very bioaccumulative

Most important references:

- Chemical safety assessment of ammonium nitrate, 2016
- International Chemical Safety Cards ICSC 0216, 2001
- Hommel: Hazardous substances, 1989
- Safety Data Sheet for Ammonium nitrate (Fertilizer grade): Substance, Fertilizer Europe, 2011 October

Method of evaluation of data:

Test results for substances or materials for cross-referencing, as well as the method based on the general concentration limits for mixtures set out in Annex I of CLP.
