



## Safety Data Sheet

in accordance with 1907/2006/EC, Article 31

Version: 1.1  
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Date of issue: 17.06.2022  
Revision of: 21.08.2012

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

#### 1.1. Product identifier

Trade name: **GROW**  
Synonym(s): Growth phase  
UFI number: -

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

Use description: Liquid plant nutrient.  
Chemical Products Category 12 (PC12 Fertilizers),  
sector(s) of use: SU1 (Agriculture, forestry, fishery),  
life cycle stage(s): LCS PW (Widespread use by professional workers),  
LCS C (Consumer use).

#### 1.3. Details of the supplier of the safety data sheet

Manufacturer/supplier: Advanced Hydroponics of Holland B.V.  
Binnenweg 4 (office)  
Binnenweg 8 (warehouse)  
5683 PR Best  
The Netherlands  
Tel.: +31 (0) 499 830 261  
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#### Further information obtainable from:

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Working hours (business days): 08h30-16h30

#### 1.4. Emergency telephone number

The Netherlands:	National Poison Information Centre:	+31 (0) 88 755 80 00
Belgium:	Belgian Poison Centre:	+32 (0) 70 245 245
United Kingdom:	UWIC:	+44 (0) 29 204 16388

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Classification in accordance with Regulation (EC) no. 1272/2008  
Eye Irrit. 2 H319

#### 2.2. Label elements

Hazard pictograms:



Signal word:

Warning.

Hazard statements:

H319

Causes serious eye irritation.

Precautions:

P102

Keep out of reach of children.

P280

Wear protective gloves/protective clothing/eye protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact



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P337 + P313

lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

**Hazard-determining components for labelling:**

Ammonium nitrate.

## 2.3. Other hazards

Void.

**Results of PBT, vPvB and endocrine disrupting properties assessment**

**PBT:** No.

**vPvB:** No.

**Endocrine disrupting properties:** No.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

**Description:**

Preparation based on i.a. potassium nitrate, ammonium nitrate, magnesium sulphate heptahydrate, monopotassium phosphate and nitric acid.

**Hazardous ingredients or substances with an exposure limit (and carrier material)**

#### Potassium nitrate

CAS#: 7757-79-1

EC#: 231-818-8

Index#: -

REACH reg.#: 01-2119488224-35

Content (W/W): 20 - 50 %

Danger, 1272/2008/EC: Ox. Sol. 3; H272

Note: The classification Ox. Sol. 3; H272 is related to the crystal form, not to prills or granules.

#### Ammonium nitrate

CAS#: 6484-52-2

EC#: 229-347-8

Index#: -

REACH reg.#: 01-2119490981-27

Content (W/W): 10 - 30 %

Danger, 1272/2008/EC: Ox. Sol. 3; H272 - Eye Irrit. 2; H319

Note: Restriction according to REACH Annex XVII see section 15.

#### Magnesium sulphate heptahydrate

CAS#: 10034-99-8

EC#: 231-298-2

Index#: -

REACH reg.#: 01-2119486789-11

Content (W/W): 10 - 30 %

Danger, 1272/2008/EC: -

#### Monopotassium phosphate

Synonym: Potassium dihydrogenorthophosphate

CAS#: 7778-77-0

EC#: 231-913-4

Index#: -



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REACH reg.#: 01-2119490224-41  
Content (W/W): 10 - 20 %  
Danger, 1272/2008/EC: -

## Nitric acid 38 %

CAS#: 7697-37-2  
EC#: 231-714-2  
Index#: 007-004-00-1 (reference CLP/ATP07)  
REACH reg.#: 01-2119487297-23  
Content (W/W): 0.1 - 0.5 % (based on 100 % nitric acid)

Danger (100 %), 1272/2008/EC: Ox. Liq. 2; H272 - Skin Corr. 1A; H314 - EUH071  
Supplier: Met. Corr. 1; H290 - Acute Tox. 3; H331 (additional classification, reference registration dossier).

Note: Specific concentration limits:  
- Ox. Liq. 2; H272:  $C \geq 99 \%$ ;  
- Ox. Liq. 3; H272:  $65 \% \leq C < 99 \%$ ;  
- Skin Corr. 1A; H314:  $C \geq 20 \%$ ;  
- Skin Corr. 1B; H314:  $5 \% \leq C < 20 \%$ .

Note: Note B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations.

Note: Classification changes with delegated regulation (EU) 2020/1182 - CLP/ATP15 from 1 March 2022:

Index No: 007-030-00-3  
Chemical name: nitric acid... % [ $C \leq 70 \%$ ]  
Ox. Liq. 3; H272 - Acute Tox. 3; H331 - Met. Corr.1; H290 - EUH071  
Specific concentration limits, M-factors and ATE:  
- Ox. Liq. 3; H272:  $C \geq 65 \%$ ;  
- inhalation: ATE = 2.65 mg/l (vapours);  
- Skin Corr. 1A; H314:  $C \geq 20 \%$ ;  
- Skin Corr. 1B; H314:  $5 \% \leq C < 20 \%$ .

**Full text of H- and EUH-phrase(s): see section 16.**

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information:

Get medical attention if symptoms persist.

Substance is harmful to tissue after continuous contact. Rinsing immediately following exposure can limit injury.

#### After inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If the victim is not breathing, apply artificial respiration.

#### After skin contact:

Remove immediately all contaminated clothing.

Immediately wash with plenty of soap and water.

#### After eye contact:

Remove contact lenses, if present, and immediately rinse eyes while holding eyelids open for a sufficient period of time (at least 15 minutes) with lukewarm water.

Help the victim with the rinsing process.

Then immediately consult a physician/ophthalmologist.

#### After ingestion:

Rinse mouth immediately with water (if conscious), and then drink plenty of water. Do not induce vomiting. If the person feels unwell consult a physician or take victim to hospital (show packaging, label or SDS to physician). Place unconscious person on the side in the recovery position. Loosen tight clothing such as a shirt collar, tie, belt or waistband. Keep at rest.



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

##### **After inhalation:**

Exposure to vapour concentrations of component dusts higher than the MAC value can be harmful to the health. Potential health effects include: sore throat, coughing, difficulty breathing, dizziness, headache, nausea and weakness, chest pain. Effects may be delayed. Prolonged inhalation of aerosol and/or mist may cause pneumonia and/or lung oedema, but only after initial corrosive effects on the mucous membranes of the eyes and/or upper airways have become manifest. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations are inhaled.

##### **After skin contact:**

Tingling. Inflammation. Redness. Blistering. Open cuts, abraded or irritated skin should not be exposed to this material.

##### **After eye contact:**

May cause damage to the eyes. Redness. Pain. Inflammation.

##### **After ingestion:**

Contains potassium nitrate; ingestion may cause headache, fatigue, dizziness, bluish skin and lips, difficulty breathing, fainting, death. May act on the thyroid gland.

Contains ammonium salt(s); ingestion can cause nausea, stomach pain, blue skin. Large doses may produce diarrhoea and may be sufficiently absorbed to produce increased production of urine and systemic poisoning. Symptoms include weakening of facial muscle, tremor, anxiety, reduced muscle and limb control. May act on the thyroid gland.

Contains magnesium sulphate heptahydrate; sulphates are not well absorbed orally, but can cause diarrhoea. Contains monopotassium phosphate; patients with abnormal renal function get too high a potassium value as a result of reduced renal excretion after poisoning. Acute potassium poisoning after swallowing is rare, because vomiting usually occurs and renal excretion is fast. Potassium causes a slow, weak pulse, irregularities in heart rhythm, heart block and an eventual fall in blood pressure.

Contains nitrates which, if swallowed, can lead to blood damage (methemoglobinemia).

Contains nitric acid; ingestion may cause caustic, abdominal pain, burning sensation, bloody vomiting and/or diarrhoea, severe drop in blood pressure, unconsciousness.

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

Symptomatic treatment (decontamination, control of vital functions). To prevent pulmonary oedema from severe exposure: corticosteroid-containing dosing aerosol.

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin. Most produce a peak effect within 30 minutes. Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin. Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits. Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease. Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise, dopamine may be needed. Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected. Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2 - 4 hours of ingestion. Symptomatic patients with methaemoglobin levels over 30 % should receive methylene blue (cyanosis alone, is not an indication for treatment). The usual dose is 1 - 2 mg/kg of a 1 % solution (10 mg/ml) over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour (source: Ellenhorn and Barceloux: Medical Toxicology).

Contains magnesium; elevated magnesium levels may cause hypocalcaemia because of decreased parathyroid hormone activity and decreased end-organ responsiveness. Patients with severe hypermagnesemia may develop sudden respiratory arrest and must be watched closely for apnoea. Calcium is an antagonist of magnesium action and is an effective antidote when serum levels exceed 5 meq/L and the patient exhibits symptoms. The adult dose of calcium gluconate is 10 ml of a 10 % solution over several minutes (source: Ellenhorn and Barceloux: Medical Toxicology).

For acute or short-term repeated exposures to strong acids: airway problems may arise from laryngeal oedema and inhalation exposure. Treat with 100 % oxygen initially. Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling. Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise. Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues. At ingestion immediate dilution (milk or water) within 30 minutes post ingestion is recommended. Do not attempt to neutralise the acid since exothermic reaction may extend the corrosive injury. Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult. Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping. Deep second-degree burns may benefit from topical silver sulfadiazine. Eye injuries



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require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20 - 30 minutes. Do not use neutralising agents or any other additives. Cycloplegic drops, (1 % cyclopentolate for short-term use or 5 % homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury. Steroid eye drops should only be administered with the approval of a consulting ophthalmologist (source: Ellenhorn and Barceloux: Medical Toxicology).

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media:**

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water spray.

Foam.

Sand.

Adapt extinguishing measures to suit the environment.

**Unsuitable extinguishing media:**

Powerful water jet.

### 5.2. Special hazards arising from the substance or mixture

During heating or in case of fire, poisonous gases may be produced.

May be released in event of fire:

Sulphur oxides (SO<sub>x</sub>).

Phosphorus oxides (PO<sub>x</sub>).

Nitrogen oxides (NO<sub>x</sub>).

Metal oxide(s).

### 5.3. Advice for firefighters

**Special protective clothing:**

Wear self-contained breathing apparatus.

**Other information:**

No specific requirements.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure sufficient ventilation.

Wear personal protective equipment.

Avoid drying of the spilled material and dust formation of the material after drying.

### 6.2. Environmental precautions

Do not allow large quantities of product to reach sewage/surface water/groundwater in concentrated form.

Notify competent authorities in case of release of large quantities into the environment.

### 6.3. Methods and material for containment and cleaning up

Soak up immediately with absorbent material (sand, dry earth).

Recycle, if possible.

Collect in suitable containers for disposal.

Then flush away residue with plenty of water.

### 6.4. Reference to other sections

Information regarding safe handling – see section 7.

Information regarding personal protective equipment – see section 8.

Information regarding disposal – see section 13.





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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Handling:**

Open and handle packaging with care.  
Wear suitable protective clothing.  
Ventilation is recommended.  
Do not smoke, eat or drink when using this product.

**Information about fire - and explosion protection:**

No specific requirements.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage:**

Close containers after each use.  
Handle empty containers as if they were full.  
Do not reuse packaging.

**Requirements to be met by storerooms and receptacles:**

Preferably keep in the original packaging.  
Keep in a dark place.

Store in a frost-free environment.

Protect against heat and direct sunlight.

Suitable packaging material: Original container, polyethylene.

Suitable material for tanks and pipelines: Stainless steel, PVC.

**Information about storage in one common storage facility:**

Install partitions in the drip tray to prevent acidic and alkaline fertilisers from coming into contact with one another.

**Further information about storage conditions:**

Recommended storage temperature 5 - 35 °C.

### 7.3. Specific end use(s)

No further relevant information available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Ingredients with limit values that require monitoring at the workplace:**

Product information: CAS#: 7757-79-1	Potassium nitrate	
TWA 8 h.	mg/m <sup>3</sup> (ppm)	5 (-) inhalable dust
Product information: CAS#: 7697-37-2	Nitric acid	
TWA 8 h.	mg/m <sup>3</sup> (ppm)	5 (2) Denmark 5.2 (2) Canada - Quebec - (2) Canada - Ontario 1.3 (0.5) Finland, Sweden 1.4 (-) Poland 5 (2) Switzerland, USA (OSHA, NIOSH), Norway
TWA 15 min.		2.6 (1) European Union, Austria, Belgium, Finland, France, Germany (AGS), Italy, Hungary, Latvia, Poland, Denmark, Romania, Spain, United Kingdom, Sweden 5 (2) Switzerland



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		10 (4) USA (NIOSH) - (4) Canada - Ontario 10 (4) Canada - Quebec 1.3 (-) The Netherlands
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## Dangerous ingredients with DN(M)EL:

Product information: Potassium nitrate CAS#: 7757-79-1	Workers				Consumers			
Route of exposure L = Local, S = Systemic - = No data NH = No hazard identified NE = No exposure expected H-NoDL = Hazard identified but no DNEL available	Short-term (acute)		Long-term (chronic)		Short-term (acute)		Long-term (chronic)	
	L	S	L	S	L	S	L	S
Oral mg/kg bw/day						NH		NH
Inhalation mg/m <sup>3</sup>	NH	NH	NE	NE	NH	NH	NE	NE
Dermal mg/kg bw/day	NH	NH	NH	NH	NH	NH	NH	NH
Hazard for the eyes (L)	NH				NH			

## Dangerous ingredients with DN(M)EL:

Product information: Ammonium nitrate CAS#: 6484-52-2	Workers				Consumers			
Route of exposure L = Local, S = Systemic - = No data NH = No hazard identified NE = No exposure expected H-NoDL = Hazard identified but no DNEL available	Short-term (acute)		Long-term (chronic)		Short-term (acute)		Long-term (chronic)	
	L	S	L	S	L	S	L	S
Oral mg/kg bw/day						NH		2.56
Inhalation mg/m <sup>3</sup>	NE	NH	NE	36	-	NH	NE	8.9
Dermal mg/kg bw/day	NH	NH	NH	5.12	NH	NH	NH	2.56
Hazard for the eyes (L)	Low hazard - no threshold derived				Low hazard - no threshold derived			

## Dangerous ingredients with DN(M)EL:

Product information: Magnesium sulphate heptahydrate CAS#: 10034-99-8	Workers				Consumers			
Route of exposure L = Local, S = Systemic - = No data NH = No hazard identified NE = No exposure expected MH = Medium hazard - no threshold derived H-NoDL = Hazard identified but no DNEL available	Short-term (acute)		Long-term (chronic)		Short-term (acute)		Long-term (chronic)	
	L	S	L	S	L	S	L	S
Oral mg/kg bw/day						-		12.8
Inhalation mg/m <sup>3</sup>	-	-	-	37.6	-	-	-	11.1
Dermal mg/kg bw/day	-	-	-	21.3	-	-	-	12.8
Hazard for the eyes (L)	-				-			

## Dangerous ingredients with DN(M)EL:

Product information: Monopotassium phosphate CAS#: 7778-77-0	Workers				Consumers			
Route of exposure L = Local, S = Systemic - = No data NH = No hazard identified NE = No exposure expected MH = Medium hazard - no threshold derived H-NoDL = Hazard identified but no DNEL	Short-term (acute)		Long-term (chronic)		Short-term (acute)		Long-term (chronic)	
	L	S	L	S	L	S	L	S



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available									
Oral	mg/kg bw/day						NH		70
Inhalation	mg/m <sup>3</sup>	NH	NH	NH	14.82	NH	NH	NH	6.35
Dermal	mg/kg bw/day	NH	NH	NH	NH	NH	NH	NH	NH
Hazard for the eyes (L)		MH				MH			

## Dangerous ingredients with DN(M)EL:

Product information: Nitric acid CAS#: 7697-37-2		Workers				Consumers			
Route of exposure L = Local, S = Systemic - = No data NH = No hazard identified LH = Low hazard - no threshold derived MH = Medium hazard - no threshold derived HH = High hazard - no threshold derived NE = No exposure expected H-NoDL = Hazard identified but no DNEL available		Short-term (acute)		Long-term (chronic)		Short-term (acute)		Long-term (chronic)	
		L	S	L	S	L	S	L	S
Oral mg/kg bw/day							-		LH
Inhalation mg/m <sup>3</sup>		2.6	LH	2.6	LH	1.3	LH	1.3	LH
Dermal mg/kg bw/day		HH	-	HH	LH	HH	LH	HH	LH
Hazard for the eyes (L)		HH				HH			

## Hazardous ingredients with PNEC:

Product information: Potassium nitrate CAS#: 7757-79-1	Value	Unit	Compartment
PNEC	-	mg/l	Fresh water
PNEC	-	mg/l	Fresh water - intermittent releases
PNEC	-	mg/l	Marine water
PNEC	18	mg/l	STP (sewage treatment plant)
PNEC	-	mg/kg dw	Sediment fresh water
PNEC	-	mg/kg dw	Sediment marine water
PNEC	-	-	Air
PNEC	-	mg/kg ww	Soil
PNEC	No bioaccumulation	mg/l	Oral (foodstuffs)

## Hazardous ingredients with PNEC:

Product information: Ammonium nitrate CAS#: 6484-52-2	Value	Unit	Compartment
PNEC	-	mg/l	Fresh water
PNEC	-	mg/l	Fresh water - intermittent releases
PNEC	-	mg/l	Marine water
PNEC	18	mg/l	STP (sewage treatment plant)
PNEC	-	mg/kg dw	Sediment fresh water
PNEC	-	mg/kg dw	Sediment marine water
PNEC	-	-	Air
PNEC	-	mg/kg ww	Soil
PNEC	No bioaccumulation	mg/l	Oral (foodstuffs)

## Hazardous ingredients with PNEC:

Product information: Magnesium sulphate heptahydrate CAS#: 10034-99-8	Value	Unit	Compartment
PNEC	0.68	mg/l	Fresh water
PNEC	-	mg/l	Fresh water - intermittent releases





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PNEC	0.068	mg/l	Marine water
PNEC	10	mg/l	STP (sewage treatment plant)
PNEC	-	mg/kg dwt	Sediment fresh water
PNEC	-	mg/kg dwt	Sediment marine water
PNEC	-	-	Air
PNEC	-	mg/kg ww	Soil
PNEC	No bioaccumulation	mg/l	Oral (foodstuffs)

## 8.2. Exposure controls

### Personal protective equipment:

Avoid contact with eyes

Wash hands thoroughly after handling this product.

### General protective and hygienic measures:

Keep away from foodstuffs and beverages.

Do not eat, drink or smoke when using this product.

Provide the presence of water to rinse eyes or skin.

The usual precautionary measures are to be adhered to when handling chemicals.

### Eye/face protection:

Tight fitting safety goggles (EN 166).

Eye shower.

Full facemask with splash/spatter risk.



### Skin protection:

#### Skin and body:

Wear suitable protective work clothing (in case of splash risk e.g. EN13034 type PB [6]).

Remove immediately contaminated clothing.



#### Hands:

Wear protective gloves if prolonged skin contact may occur (EN 374), with prolonged or repeated contact, use gloves: (e.g. for penetration time > 480 minutes, level 6, polychloroprene (0.5 mm), nitrile rubber (0.35 mm), butyl rubber (0.5 mm), fluorocarbon rubber (0.4 mm), polyvinyl chloride (0.5 mm)). Contaminated gloves should be replaced.

Do not rub eyes with dirty hands.

#### Glove material:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

#### Penetration time of glove material:

The exact break through time can be obtained from the manufacturer of the protective gloves and has to be observed.



### Respiratory protection:

No respiratory protection required for normal (intended) use.

Normal ventilation is sufficient.

### Thermal hazards:

No thermal hazards related to specific protective equipment.

### Measuring procedures:

In order to establish compliance with an exposure limit and to establish that exposure is properly controlled, it may be necessary to determine the concentration of the substances in the inhalation zone or in the general workspace.

### Environmental exposure controls:

Leakage of the material and concentrated solution must be stopped.

Leakage of large quantities into sewage, surface waters and groundwater must be avoided because the material contains substance(s) which may lead to eutrophication.



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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	Liquid.
Colour:	Auburn.
Odour:	Odourless (odour threshold: not determined).
Melting point/freezing point:	Not determined (based on the component water $\leq 0$ °C).
Boiling point or initial boiling point and boiling range:	Not determined (based on the component water $\geq 100$ °C).
Flammability:	Not determined (expected to be higher than decomposition).
Lower and upper explosion limit:	Not determined (no explosion limits have been established for the main components).
Flash point:	$> 93$ °C.
Auto-ignition temperature:	Not determined (the main components have no auto-ignition temperature).
Decomposition temperature:	Not determined (for monopotassium phosphate approx. 253 °C, for ammonium nitrate approx. 170 °C).
pH:	Not determined.
Kinematic viscosity:	6 cP (20 °C).
Solubility:	Completely soluble in water.
Partition coefficient n-octanol/water (log value):	Not applicable (mixture, inorganic components).
Vapour pressure:	Not determined (based on the water component 2.33 kPa at 20 °C).
Density and/or relative density:	Ca. 1.25 (water = 1).
Relative vapour density:	Not determined (based on the component water $> 1$ (air = 1)).
Particle characteristics:	No solid.

### 9.2. Other information

#### Information with regard to physical

hazard classes:	The product is not classified for any physical hazard class.
Oxidising liquids:	Contains oxidising solids in aqueous solution. The solution is not classified as an oxidising liquid (see section 16, relevant literature).
Other safety characteristics:	No further relevant information available.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No decomposition if used as prescribed.

### 10.2. Chemical stability

The product is stable if stored and handled as prescribed.

#### Thermal decomposition/Conditions to be avoided:

Avoid storing at high temperatures ( $> 35$  °C) to prevent degradation of the material or pressure build-up. Avoid low temperatures ( $< 5$  °C) to prevent crystallization from occurring.

Material is susceptible to frost.

Above 253 °C decomposition of monopotassium phosphate.

Above 400 °C decomposition of potassium nitrate into potassium nitrite.

Above 170 °C (exothermic) decomposition of ammonium nitrate.

### 10.3. Possibility of hazardous reactions

Contact with strong reducing agents (and bases).

### 10.4. Conditions to avoid

Avoid heat, sparks, open flames, and other sources of ignition.

Prevent evaporation in a non-ventilated environment.



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Protect against heat and direct sunlight.  
Protect against frost.

### 10.5. Incompatible materials

Chlorine trifluoride, bromine trifluoride, reducing agents, strong acids, organic substances, combustible materials, heavy metals, phosphides, sodium acetate, lead nitrate, tartrates, trichloroethylene, calcium silicide, titanium, antimony, germanium or zirconium powders, antimony trisulfide, barium sulphide, calcium sulphide, arsenic disulphide, titanium disulphide, germanium mono-sulphide, molybdenum disulphide, powdered carbon, arsenic, white or red phosphorus, boron phosphide, copper phosphides, sodium phosphonate, sodium acetate, sodium thiosulfate, thorium dicarbide, aluminium, magnesium, chromium nitride.  
(Mildly) corrosive for metals.  
Attacks some plastics, rubber and coatings.

### 10.6. Hazardous decomposition products

No hazardous decomposition products are formed if stored under normal conditions. In case of heating or combustion, irritating or poisonous vapours may be released such as sulphur oxides, phosphorus oxides, nitrogen oxides and metal oxide(s).

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### LD/LC50 values relevant for classification:

Product information: ATE mixture	GROW	
Oral	LD50	> 2000 mg/kg
Inhalation	LC50	8.9 mg/l
Dermal	LD50	> 2000 mg/kg

#### Acute toxicity from the components.

Product information: CAS#: 7757-79-1	Potassium nitrate Source: ECHA registration dossier	
Oral	LD50	> 2000 mg/kg (rat) (OECD 425)
Inhalation	LC50 (4 h)	> 0.527 mg/l (rat) (OECD 403 - dust particles and mists, practical test limit, no intoxication or mortality, ATE calculation value 5 mg/l)
Dermal	LD50	> 5000 mg/kg (rat) (OECD 402)

Product information: CAS#: 6484-52-2	Ammonium nitrate Source: ECHA registration dossier	
Oral	LD50	2950 mg/kg (rat) (OECD 401)
Inhalation	LC50 (4 h)	> 88.8 mg/l (rat) (OECD 403)
Dermal	LD50	> 5000 mg/kg (rat) (OECD 402)

Product information: CAS#: 10034-99-8	Magnesium sulphate heptahydrate Source: ECHA registration dossier	
Oral	LD50	> 2000 mg/kg (rat) (OECD 425)
Inhalation	LC50	-
Dermal	LD50	> 2000 mg/kg (rat) (OECD 402)

Product information: CAS#: 7778-77-0	Monopotassium phosphate Source: ECHA registration dossier	
Oral	LD50	> 2000 mg/kg (rat) (OECD 425)
Inhalation	LC50 (4 h)	> 0.83 mg/l (rat) (OECD 403 - dust particles and mists, practical test limit, no intoxication or mortality, ATE calculation value 5 mg/l)



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Dermal	LD50	> 2000 mg/kg (rat) (OECD 402)
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Product information: CAS#: 7697-37-2	Nitric acid Source: ECHA registration dossier	
Oral	LD50	430 mg/kg (human) (literature)
Inhalation	LC50 (4 h)	> 2.65 mg/l (rat) (OECD 403)
Dermal	LD50	-

The following health risk assessment is based on an assessment of the various ingredients in the product.

<b>Acute toxicity:</b>	Not classified for acute toxicity.
<b>Skin corrosion/irritation:</b>	Not classified as irritating to the skin.
<b>Serious eye damage/irritation:</b>	Irritating to eyes.
<b>Respiratory or skin sensitisation:</b>	Not classified as a respiratory sensitiser. Not classified as a skin sensitiser.
<b>Germ cell mutagenicity:</b>	Not classified for mutagenicity or genotoxicity.
<b>Carcinogenicity:</b>	Not classified as a carcinogen. Contains nitrates classified by IARC as - Group 2A: Probably carcinogenic to humans (nitrate or nitrite (ingested) under conditions resulting in endogenous nitrosation).
<b>Reproductive toxicity:</b>	Not classified for reprotoxicity or developmental toxicity.
<b>STOT-single exposure:</b>	Not classified.
<b>STOT-repeated exposure:</b>	Not classified.
<b>Aspiration hazard:</b>	Not classified as a respiratory hazard. ATE value higher than the specific limit for nitric acid (2.65 mg/l).
<b>Other information:</b>	No further relevant information available.

## 11.2. Information on other hazards

Contains no substances for which endocrine disrupting (health) properties have been established.

## SECTION 12: Ecological information

### 12.1. Toxicology information

#### Test results.

#### Ecotoxicity from the components.

Product information: CAS#: 7757-79-1	Potassium nitrate Source: ECHA registration dossier	
Fish	LC50 (96 h)	> 100 mg/l (oncorhynchus mykiss) (OECD 203)
Water flea	EC50 (48 h)	490 mg/l (daphnia magna)
Algae	EC50 (10 d)	> 1700 mg/l (benthic diatoms)
Bacteria	EC50 (3 h)	> 1000 mg/l (activated sludge) (OECD 209)

Product information: CAS#: 6484-52-2	Ammonium nitrate Source: ECHA registration dossier	
Fish	LC50 (96 h)	447 mg/l (cyprinus carpio)
Water flea	EC50 (48 h)	490 mg/l (daphnia magna)
Algae	EC50 (10 d)	> 1700 mg/l (benthic diatoms)
Bacteria	EC50 (3 h)	> 1000 mg/l (activated sludge) (OECD 209)

Product information: CAS#: 10034-99-8	Magnesium sulphate heptahydrate Source: ECHA registration dossier	
Fish	LC50 (96 h)	680 mg/l (read across)
Water flea	EC50 (48 h)	720 mg/l (read across)
Algae	EC50 (18 d)	2700 mg/l (read across)
Bacteria	EC50 (0.5 h)	84 g/l (photobacterium phosphoreum)



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Product information: CAS#: 7778-77-0	Monopotassium phosphate Source: ECHA registration dossier	
Fish	LC50 (96 h)	> 100 mg/l (oncorhynchus mykiss) (OECD 203)
Water flea	EC50 (48 h)	> 100 mg/l (daphnia magna) (OECD 202)
Algae	EC50 (72 h)	> 100 mg/l (desmodesmus subspicatus) (OECD 201)
Bacteria	EC50 (3 h)	> 1000 mg/l (activated sludge) (OECD 209)

Product information: CAS#: 7697-37-2	Nitric acid Source: ECHA registration dossier	
Fish	LC100 (96 h)	3 - 3.5 mg/l (leporinus macrochirus)
Water flea	EC50 (48 h)	pH 4.4 (ceriodaphnia dubia)
Algae	NOEC	6.75 mmol/L (i.e. 419 mg nitrate/l) (benthic diatoms)
Bacteria	EC50 (3 h)	> 1000 mg/l (read across)

The following ecological risk assessment is based on an assessment of the various ingredients in the product.

## 12.2. Persistence and degradability

For the potassium nitrate component:

- persistence - water/soil: low;
- persistence - air: low.

For the ammonium nitrate component:

- persistence - water/soil: no data. For ammonia: Biodegrades rapidly to nitrate, producing a high oxygen demand. Ammonia is strongly adsorbed by the soil. Ammonia is not persistent in water (half-life of 2 days) and is moderately toxic to fish under normal temperature and pH conditions;
- persistence - air: no data. For ammonia: Ammonia is persistent in the air.

For the magnesium sulphate heptahydrate component:

- persistence - water/soil: high;
- persistence - air: high.

For the monopotassium phosphate component: no data, inorganic.

For the nitric acid component: no data.

## 12.3 Bioaccumulative potential

For the potassium nitrate component: low (logKow = 0.209).

For the ammonium nitrate component: no data. For ammonia: Ammonia in low concentrations is harmful to aquatic organisms, but does not accumulate in the food chain.

For the magnesium sulphate heptahydrate component: low (logKow = -2.200).

For the monopotassium phosphate component: no data, the potential for bioaccumulation is minimal.

For the nitric acid component: no data.

## 12.4. Mobility in soil

Soluble in water.

For the potassium nitrate component: low (KOC = 14.3).

For the ammonium nitrate component: no data.

For the magnesium sulphate heptahydrate component: low (KOC = 6.12).

For the monopotassium phosphate component: no data.

For the nitric acid component: no data, expected to be mobile.

## 12.5. Results of PBT and vPvB assessment

The mixture does not meet all of the assessment criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

## 12.6. Endocrine disrupting properties

Contains no substances for which endocrine disrupting (environmental) properties have been established.

## 12.7. Other adverse effects

### Further ecological information

General information.

Water hazard class 1 (German regulation) (Self-assessment): slightly hazardous to water.





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Do not discharge (undiluted) product into groundwater, surface water or sewage system.

### Greenhouse gases

None of the known components are included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014).

### Ozone Depletion Potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Contains substances that contribute to eutrophication: Nitrates.

### Nitrates:

Nitrates form from nitrate or ammonium ions by micro-organisms in soil, water, sewage and the digestive tract. The concern with nitrate in the environment is related to its conversion to nitrite. Nitrate/nitrites do not evaporate into the air; however, any nitrites released into the air slowly oxidize to nitrates. Due to its high solubility and weak retention by soil, nitrates/nitrites are very mobile in soil, moving at approximately the same rate as water, and have a high potential to migrate to ground water. The substances can contaminate groundwater to unacceptable levels. Excessive levels of nitrate in drinking water have caused serious illness. Nitrates are converted to nitrites by the body, which can interfere with the oxygen-carrying capacity of the blood, (methemoglobinemia). Children are much more sensitive to this effect than adults. Other health concerns relate to the production of nitrosamines following the reaction of food nitrites and secondary amines. Nitrosamines produce liver damage, hemorrhagic lung lesions, convulsions and coma in rats, and interfere with embryo development in experimental animals. The N-nitroso class of compounds includes potent carcinogens and mutagens. Nitrate/nitrites can be toxic to amphibians.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Recommendation:

May be brought to a supervised incineration plant in compliance with local regulations.

#### EC Regulation for Disposal of Waste (EWC):

06 10 02\* WASTES FROM INORGANIC CHEMICAL PROCESSES, wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture; waste containing dangerous substances.

#### Uncleaned packaging

##### Recommendation:

Disposal must be made according to official regulations. Empty the packaging with care. Do not contaminate soil, water or environment with the waste container. Comply with local regulations with regard to the recovery or disposal of waste.

#### EC Regulation for Disposal of Waste (EWC); packaging:

15 01 02. WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED, packaging (including separately collected municipal packaging waste); plastic packaging.

## SECTION 14: Transport information

### 14.1. UN number or ID number

-

### 14.2. UN proper shipping name

-

### 14.3. Transport hazard class(es)





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-

#### 14.4. Packing group

-

#### 14.5. Environmental hazards

-

#### 14.6. Special precautions for user

-

#### 14.7. Maritime transport in bulk according to IMO instruments

No further relevant information available.

##### Land transport ADR/RID (cross-border)

ADR/GGVSEB class: Not a dangerous good according to the transport regulations.  
Hazard identification number: -  
UN number: -  
Packing group: -  
Label: -  
Special marking: -  
UN proper shipping name: -  
Tunnel restriction code: -

##### Inland shipping ADN/ADR

ADN/R-class: -  
UN number: -  
Subsidiary risk  
Environmental hazards: -  
CMR properties: -  
Buoyancy: -

##### Maritime transport IMDG

IMDG-class: -  
UN number: -  
Label: -  
Packing group: -  
EMS number: -  
Marine pollutant: -  
Proper shipping name: -

##### Air transport ICAO-TI and IATA-DGR

ICAO/IATA-class: -  
UN number: -  
Label: -  
Packing group: -  
Proper shipping name: -

## SECTION 15: Regulatory information

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

#### National regulations:

EU Exit regulation 2019 No. 720 (The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) Regulations 2020).  
EU Exit regulation 2020 No. 1540 (Waste and Environmental Permitting).



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EU Exit regulation 2020 No. 1577 (Reach).  
EU Exit regulation 2020 No. 998, 2021 No. 207 (Fertilisers and Ammonium Nitrate Material).

## EU regulations and directives which affect this mixture (not yet directly or indirectly mentioned – including UK EU exit regulations):

Decision 2000/532/EC Regarding the list of wastes (EWC: European Waste Catalogue).  
Directive 89/686/EEC Personal protective equipment (< 21.04.2023).  
Directive 98/24/EC Risks related to chemical agents at work.  
Regulation (EC) 2003/2003 Concerning fertilisers (< 16.07.2022). The material is an EC FERTILIZER classified as type NPK fertilizer, liquid - nitrogen (N) + potassium (K) + magnesium oxide (MgO) + sulphur trioxide (SO<sub>3</sub>) - fertilizer, NPK: 2-1-7 + 0.7 MgO + 3.5 SO<sub>3</sub>.  
Regulation (EC) 1907/2006 Annex XVII  
58. Ammonium nitrate (AN) CAS No 6484-52-2 EC No 229-347-8:  
1. Shall not be placed on the market for the first time after 27 June 2010 as a substance, or in mixtures that contain more than 28 % by weight of nitrogen in relation to ammonium nitrate, for use as a solid fertiliser, straight or compound, unless the fertiliser complies with the technical provisions for ammonium nitrate fertilisers of high nitrogen content set out in Annex III to Regulation (EC) No 2003/2003 of the European Parliament and of the Council (OJ L 304, 21.11.2003, p. 1).  
2. Shall not be placed on the market after 27 June 2010 as a substance, or in mixtures that contain 16 % or more by weight of nitrogen in relation to ammonium nitrate except for supply to:  
(a) downstream users and distributors, including natural or legal persons licensed or authorised in accordance with Council Directive 93/15/EEC (OJ L 121, 15.5.1993, p. 20);  
(b) farmers for use in agricultural activities, either full time or part time and not necessarily related to the size of the land area.  
For the purposes of this subparagraph:  
(i) 'farmer' shall mean a natural or legal person, or a group of natural or legal persons, whatever legal status is granted to the group and its members by national law, whose holding is situated within Community territory, as referred to in Article 299 of the Treaty, and who exercises an agricultural activity;  
(ii) 'agricultural activity' shall mean the production, rearing or growing of agricultural products including harvesting, milking, breeding animals and keeping animals for farming purposes, or maintaining the land in good agricultural and environmental condition as established under Article 5 of Council Regulation (EC) No 1782/2003 (OJ L 270, 21.10.2003, p. 1);  
(c) natural or legal persons engaged in professional activities such as horticulture, plant growing in greenhouses, maintenance of parks, gardens or sport pitches, forestry or other similar activities.  
3. However, for the restrictions in paragraph 2, Member States may until 1 July 2014, for socioeconomic reasons, apply a limit of up to 20 % by weight of nitrogen in relation to ammonium nitrate for substances and mixtures placed on the market within their territories. They shall inform the Commission and other Member States thereof.  
Regulation (EC) 2008/1272 On classification, labelling and packaging of substances and mixtures.  
Regulation (EU) 2016/425 Note B: Nitric acid 0.2 %.  
Regulation (EU) 2019/1009 On personal protective equipment.  
Regulation (EU) 2020/878 Concerning EU fertilising products.  
Commission regulation of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

## 15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.



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## SECTION 16: Other information

This information is based on the current state of our knowledge. It should not be construed as any guarantee of product characteristics, nor does it establish a legally valid contractual relationship.

### List of relevant H- and EUH-phrases from sections 2 and 3

H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
EUH071	Corrosive to the respiratory tract.
Acute Tox.	Acute toxicity.
Eye Irrit.	Serious eye irritation.
Met. Corr.	Substance or mixture corrosive to metals.
Skin Corr.	Skin corrosion.
Ox. Sol.	Oxidising solid.

**Note:**

- relevant literature:
- 1. Guidance for the compatibility of fertilizer blending materials, Fertilizers Europe, 2014;
- 2. Guidance for UN transport classification of ammonium nitrate based substances, Fertilizers Europe, 2011;
- 3. Clarification of the classification of ammonium nitrate based fertilizers – proposal for a new Section 39 in the Manual of Tests and Criteria, UN ST/SG/AC.10/C.3/2016/66, 6 September 2016;
- 4. Manual of Test and Criteria, UN ST/SG/AC.10/11/Rev. 7, 2019;
- 5. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans - VOLUME 94 Ingested Nitrate and Nitrite, and Cyanobacterial Peptide Toxins, 2010.

Classification according to Regulation (EC) No 1272/2008: -

### Document history

<b>Printed on:</b>	12 July 2022.
<b>Previous edition:</b>	21.08.2012, version 1.0.
<b>Version:</b>	1.1.
<b>Modification:</b>	Update to legislation and classification.

### Abbreviations and acronyms:

ADR:	Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:	Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG:	International Maritime Code for Dangerous Goods
IATA:	International Air Transport Association
IATA-DGR:	Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO:	International Civil Aviation Organization
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS:	Globally Harmonized System of Classification and Labelling of Chemicals
CAS:	Chemical Abstracts Service (division of the American Chemical Society)
EC50:	Half maximal effective concentration
LC50:	Lethal concentration, 50 percent
LD50:	Lethal dose, 50 percent
OEL:	Occupational Exposure Limit
NOEC:	No Observed Effect Concentration
vPvB:	Very Persistent and Very Bioaccumulative
PBT:	Persistent, Bioaccumulative and Toxic substance
EWC:	European Waste Catalogue
TWA:	Time-Weighted Average
DNEL:	Derived No-Effect Level
DMEL:	Derived Minimal Effect Level
PNEC:	Predicted No-Effect Concentration



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log KOW:

KOC:

SVHC:

UFI:

IARC:

Logarithm of the partition coefficient of a substance between the n-octanol and water phases

Normalized organic carbon absorption coefficient

Substance of Very High Concern

Unique formula identifier (EU)

International Agency for the Research on Cancer