

# Safety Data Sheet

## according to Regulation (EC) No 1907/2006 (REACH)

Trade name: blended fertilizer  
Product №:  
Specification №:

Version: 2.1 / EN  
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Print date: 30th November 2012  
Revision date: 30th November 2010

### Blended fertilizer (grades A, B )

#### 1. Substance/blend identification and supplier information

##### 1.1. Chemicals identification

1.1.1. Technical name: Blended fertilizer  
A grade – ammonium nitrate content more than 70%;  
B grade – ammonium nitrate content less than 70%.

blended fertilizer (DBF)  
composition

##### Mechanical blend:

**Ammonium nitrate** (ammonium nitrate, magnesium nitrate).

**Azophoska** (ammonium nitrate, ammonium chloride,  
potassium nitrate, monoammonium phosphate,  
diammonium phosphate).

**Potassium chloride** (natural material)

Common chemical name N/A  
Synonyms N/A  
Chemical formula N/A  
EU index number N/A  
EC No N/A  
CAS No. N/A

REACH or National Product  
Registration No.

Ammonium nitrate - 01-2119490981-27-0044  
Magnesium nitrate – 01-2119491164-38-0013  
Potassium nitrate-01-2119488224-35-0021  
Ammonium chloride-01-2119489385-24-0016  
Monoammonium phosphate-01-2119488166-29-0032  
Diammonium phosphate-01-2119490974-22-0033  
Potassium chloride (natural mineral – registration not required)

1.2 Suitable identified uses of  
substance or blend and not  
recommended forms of use

The blended fertilizer is intended for use as compound fertilizer on all types of soil for all cultures.

The use of the substance should be limited to those specified in this MSDS. According to clause 8.3.2 and in accordance with conditions, specified in the annexes I, II, III and IV to this safety data sheet.

##### 1.3. Information on safety data sheet supplier

1.3.1. Organisation: AS BCT (Only Representative of JSC Dorogobuzh)  
1.3.2 Title: Specialist  
1.3.3 First name: Julia  
1.3.4 Last name: Smirnova  
1.3.5 Phone: +372 664 6507  
1.3.6 : Fax: +372 626 1100  
1.3.7. E-mail: j.smirnova@bct.ee  
1.3.8 Address: Narva mnt 7 D  
1.3.9 Town: Tallinn  
1.3.10 Country : Estonia  
1.3.11 Postal code: 10117  
1.4 Emergency telephone number 112

#### 2. Hazards identification

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**Fertilizer safety requirements as a whole are established on ammonium nitrate being the most hazardous component of the fertilizer**

2.1. Substance classification:

Grade A

(ammonium nitrate content more than 70%)

### Classification and labelling according to CLP / GHS

**Name: (Ammonium nitrate, magnesium nitrate, potassium nitrate, ammonium chloride)**

Implementation: EU

State/form of the substance: solid

### Classification

The substance is classified as follows:

- for physical-chemical properties:

Oxidising solids:	Oxid. Solid 3 (Hazard statement: H272: May intensify fire; oxidiser.)
• for health hazards:	
Serious damage/eye irritation:	Eye Irrit. 2 (Hazard statement: H319: Causes serious eye irritation.)

### Labelling

Signal word: Warning

Hazard pictogram:



GHS03: flame over circle



GHS07: exclamation mark

### Hazard statements:

H272: May intensify fire; oxidiser.

H319: Causes serious eye irritation.

### Precautionary statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P220: Keep/Store away from clothing/combustible materials / Organic substances, acids, alkali, sulfur, pyrites, bleaching powder, powder metals (zinc in particular).

P370+P378: In case of fire: Use water for extinction.

P264: Wash face and hands thoroughly after handling

P280: Wear protective gloves/protective clothing/eye protection/face 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.

Classification and labelling according to DSD / DPD

### Classification and labelling in Annex I of Directive 67/548/EEC

Self classification(s)

**Chemical name:** None (Fertilizer mixed)

Remarks: This substance is not classified in the Annex I of

Directive 67/548/EEC as such, but it may be included in one of the group entries.

### Classification according to Directive 67/548/EEC criteria

Endpoints	Classification	Reason for no classification	Justification for (non)
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			<b>classification can be found in section</b>
Oxidising properties	O; R8 Oxidising; Contact with combustible material may cause fire.		6.3
Irritation	Xi; R36 Irritant; Irritating to eyes.		5.3.4 and 5.4.3

## Labelling

### Indication of danger:

Xi - irritant

O – oxidising

### R-phrases:

R36 - irritating to eyes

R8 - contact with combustible material may cause fire

### S-phrases:

S2 - keep out of the reach of children

S17 - keep away from combustible material

S25 - avoid contact with eyes

S26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S46 - if swallowed, seek medical advice immediately and show this container or label

## Classification and labelling according to CLP / GHS

**Name:** (Ammonium nitrate, magnesium nitrate, potassium nitrate, ammonium chloride)

Implementation: EU

State/form of the substance: solid

### Classification

The substance is classified as follows:

• for health hazards:	
Serious damage/eye irritation:	Eye Irrit. 2 (Hazard statement: H319: Causes serious eye irritation.)

## Labelling

Signal word: Warning

Hazard pictogram:



GHS07: exclamation mark

### Hazard statements:

Causes serious eye irritation.

### Precautionary statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P220: Keep/Store away from clothing/combustible materials / Organic substances, acids, alkali, sulfur, pyrites, bleaching powder, powder metals (zinc in particular).

P370+P378: In case of fire: Use water for extinction.

P264: Wash face and hands thoroughly after handling

P280: Wear protective gloves/protective clothing/eye protection/face 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.

Classification and labelling according to DSD / DPD

Classification and labelling in Annex I of Directive 67/548/EEC

Self classification(s)

**Chemical name:** None (Fertilizer mixed)

**Remarks:** This substance is not classified in the Annex I of Directive 67/548/EEC as such, but it

Grade B

(ammonium nitrate content less than 70%).

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may be included in one of the group entries.

**Table 1. Classification according to Directive 67/548/EEC criteria**

Endpoints	Classification	Reason for no classification	Justification for (non) classification can be found in section
Oxidising properties	O; R8 Oxidising; Contact with combustible material may cause fire.		6.3
Irritation	Xi; R36 Irritant; Irritating to eyes.		5.3.4 and 5.4.3

### Labelling

#### Indication of danger:

Xi - irritant

O - oxidising

#### R-phrases:

R36 - irritating to eyes

R8 - contact with combustible material may cause fire

#### S-phrases:

S2 - keep out of the reach of children

S17 - keep away from combustible material

S25 - avoid contact with eyes

S26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S46 - if swallowed, seek medical advice immediately and show this container or label

All chemicals are potentially hazardous.

Chemicals shall be handled by specially trained personnel only.

### 2.2 Other hazards

## 3. Composition (information on ingredients)

### 3.1. information on product as a whole

3.1.1. Chemical name: Blended fertilizer, grade A, B

### 3.2. Components

(name, CAS and EC numbers (if any), content, MACw.a. или ASLYw.a., class of hazard, data source references)

Components name	CAS number	EC number	Content, %	MACw.a., mg/m <sup>3</sup>	Classification
Ammonium nitrate	6484-52-2	229-347-8	35-80	<p><b>Dermal</b>                      DNEL 21.3 mg/kg bw/day.                      NOAEL: 255.6 mg/kg bw/day (based on AF of 12)                      DNEL 12.8 mg/kg bw/day.                      NOAEL: 256.0 mg/kg bw/day (based on AF of 20)</p> <p><b>Inhalation</b>                      DNEL 37.6 mg/m<sup>3</sup>.                      NOAEL: 451.2 mg/m<sup>3</sup> (based on AF of 12)                      DNEL 11.1 mg/m<sup>3</sup>                      NOAEL: 222.0 mg/m<sup>3</sup> (based on AF of 20)</p> <p><b>Oral</b>                      DNEL 12.8 mg/kg bw/day.                      NOAEL: 256.0 mg/kg bw/day (based on AF of 20)</p>	<p>Signal word: Warning                      GHS03: flame over circle                      GHS07: exclamation mark</p> <p>H272: May intensify fire; oxidiser.                      H319: Causes serious eye irritation</p> <p>P210: Keep away from heat/sparks/open flames/.../hot surfaces.... No smoking.                      P220: Keep/Store away from clothing/.../combustible materials.                      P370+P378: In case of fire: Use... for extinction.                      P264: Wash... thoroughly after handling.                      P280: Wear protective gloves/protective clothing/eye protection/face 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.</p>
Magnesium nitrate	10377-60-3	233-826-7	0,4-1,5	<p><b>Dermal</b>                      DNEL 20.8 mg/kg bw/day                      NOAEL: 1,497.6 mg/kg bw/day (based on AF of 72)                      DNEL 12.5 mg/kg bw/day                      NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p> <p><b>Inhalation</b>                      DNEL 36.7 mg/m<sup>3</sup>                      NOAEL: 2,642.4 mg/m<sup>3</sup> (based on AF of 72)</p>	<p>Signal word: Warning</p> <p>GHS03: flame over circle</p> <p>GHS07: exclamation mark</p> <p>H272: May intensify fire; oxidiser.                      H319: Causes serious eye irritation</p>

**Safety Data Sheet**  
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				<p>DNEL 10.9 mg/m<sup>3</sup>                  NOAEC: 1,308.0 mg/m<sup>3</sup> (based on AF of 120)</p> <p><b>Oral</b>                  DNEL 12.5 mg/kg bw/day.                  NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p>	<p>P210: Keep away from heat/sparks/open flames/... /hot surfaces.... No smoking.                  P220: Keep/Store away from clothing/... /combustible materials.                  P370+P378: In case of fire: Use... for extinction.                  P264: Wash... thoroughly after handling.                  P280: Wear protective gloves/protective clothing/eye protection/face protection.                  P305+P351+P338: IF IN EYES: Rinse cautiously with for several minutes. Remove contact lenses, if present a to do. Continue rinsing.</p>
Potassium nitrate	7757-79-1	231-818-8	1,6-15,2	<p><b>Dermal</b>                  DNEL 20.8 mg/kg bw/day                  NOAEL: 1,497.6 mg/kg bw/day (based on AF of 72)                  DNEL 12.5 mg/kg bw/day                  NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p> <p><b>Inhalation</b>                  DNEL 36.7 mg/m<sup>3</sup>                  NOAEC: 2,642.4 mg/m<sup>3</sup> (based on AF of 72)                  DNEL 10.9 mg/m<sup>3</sup>                  NOAEC: 1,308.0 mg/m<sup>3</sup> (based on AF of 120)</p> <p><b>Oral</b>                  DNEL 12.5 mg/kg bw/day                  NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p>	<p>Signal word: Warning</p> <p>GHS03: flame over circle</p> <p>GHS07: exclamation mark</p> <p>H272: May intensify fire; oxidiser.                  H319: Causes serious eye irritation.</p> <p>P210: Keep away from heat/sparks/open flames/... /hot surfaces.... No smoking.                  P220: Keep/Store away from clothing/... /combustible materials.                  P370+P378: In case of fire: Use... for extinction.                  P264: Wash... thoroughly after handling.                  P280: Wear protective gloves/protective clothing/eye protection/face protection.                  P305+P351+P338: IF IN EYES: Rinse cautiously with for several minutes. Remove contact lenses, if present a to do. Continue rinsing.</p>
Ammonium chloride	12125-02-9	235-186-4	0,9-8,1	<p><b>Dermal</b>                  DNEL 190 mg/kg bw/day.                  NOAEL: 6,840 mg/kg bw/day (based on AF of 60)                  DNEL 114 mg/kg bw/day.                  NOAEL: 6,840 mg/kg bw/day (based on AF of 60)</p> <p><b>Inhalation</b>                  DNEL 9.9 mg/m<sup>3</sup>                  NOAEC: 594.0 mg/m<sup>3</sup> (based on AF of 60)</p> <p><b>Oral</b>                  DNEL 11.4 mg/kg bw/day.                  NOAEL: 684.0 mg/kg bw/day (based on AF of 60)</p>	<p>Signal word: Warning</p> <p>GHS07: exclamation mark</p> <p>H302: Harmful if swallowed.                  H319: Causes serious eye irritation.</p> <p>P264: Wash... thoroughly after handling.                  P270: Do not eat, drink or smoke when using this product.                  P280: Wear protective gloves/protective clothing/eye protection/face protection.                  P301+P312: IF SWALLOWED: Call a POISON CENT doctor/physician if you feel unwell.                  P305+P351+P338: IF IN EYES: Rinse cautiously with for several minutes. Remove contact lenses, if present a to do. Continue rinsing.                  P330: Rinse mouth.                  P337+P313: If eye irritation persists: Get medical advice/attention.</p>
Monoammonium phosphate	7722-76-1	231-764-5	2,5-15,9		Not classified
Diammonium phosphate	7783-28-0	231-987-8	0,2-1,4		Not classified
Potassium chloride	7447-40-7	231-211-8	8,4-31,2		European Union (Directive 2000/39/EC, D 2006/15/EC): potassium chloride is not listed.

Blended fertilizer can be treated with conditioner based on alkylamines and mineral oil, with dosage rate less than 0.1%.

Note: see section 2 for full text of phrases.

**4. First aid measures**

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### 4.1. First aid measures

- 4.1.1. Inhalation: Fresh air, rest, warmth.  
4.1.2. Skin contact: Remove contaminated clothing, wash with running water and soap. Apply neutral ointment.  
4.1.3. Eye contact: Flush for at least 15 minutes. Check for and remove contact lenses. Get medical attention if necessary.  
4.1.4. Ingestion: Plenty of drinking water, activated carbon, sodium sulfate (1 tablespoonful per 0.25 of glass of water).  
Get medical attention if necessary.  
4.1.5. Contra-indications: None.  
4.1.6. First aid kit: Activated carbon, sodium sulfate, neutral ointment, soap.

### 4.2. Symptoms observed

- 4.2.1. Inhalation: Causes mucous irritation, sneezing, coughing.  
4.2.2. Skin contact: Severe skin itch, reddening and burning pain.  
4.2.3. Eye contact: Mucous irritation, watering.  
4.2.4. Ingestion: Nausea, loss of consciousness, cyanosis, dilated pupils, spontaneous urination and defecation.

### 5. Fire precautions

- 5.1. General characteristics of fire and explosion hazards: Fire hazardous substance, oxidizer, prone to thermal and chemical self-ignition.  
5.2. Indications of fire and explosions hazard: Decomposes when heated up to 210 °C and in contact with sulphur, pyrite, acids, bleaching powder, powder metals (zinc, in particular) evolving toxic nitrogen oxides and oxygen. Oxygen being evolved may cause ignition of combustible materials and, as a result, fire. In case of fertilizer contamination by organic materials or in severe fire decomposition may be transformed into an explosion.  
5.3. Hazard caused by products of combustion and/or thermal destruction: Possibility of thermal destruction with release of toxic nitrogen oxides, ammonia, phosphorous oxides.  
5.4. Recommended extinguishing media: Plenty of water  
5.5. Prohibited extinguishing media: Use of any other media is not allowed.  
5.6. Individual protection gear for fire-extinguishing: Gas mask in accordance with national standards.  
For emergency team – full turnout gear in accordance with national standards. Gloves, special boots.  
5.7. Special fire-fighting procedure: Fire caused by combustible blends to be extinguished with water from maximum distance.

### 6. Measures for prevention and elimination of extraordinary situations and their consequences

#### 6.1. Measures for prevention of adverse effects on humans, environment, buildings etc. in case of emergency.

- 6.1.1. Required actions of general nature: Danger area to be isolated within a radius of not less 800 m. Unauthorized persons to be removed.  
Wear protective clothing. Observe fire safety measures. **No smoking**. Render first aid to the injured.  
6.1.2. Safety measures and collective means of protection: Industrial premises where the fertilizer is handled should be equipped with supply and exhaust ventilation to ensure hazardous substances content the working area air within the limits not exceeding MAC. Use of machinery equipped with dusting control devices. Use personal protective equipment. Observe hygiene measures.  
(including fire-fighting system of measures)  
6.1.3. Personal protective equipment (emergency team and personnel): Filtering industrial gas mask, in case of emergency – self-contained breathing apparatus and special clothing.

#### 6.2. Environment protection:

Keep production equipment tightly closed to protect environment from fertilizer dust. Fertilizer remains should be taken away from fields and returned to warehouse to prevent fertilizer penetration into ground and surface water.

#### 6.3. Procedure in case of emergency

- 6.3.1. Actions in case of spillage (including precautions to protect environment): Services to be advised in accordance with national laws. Ставить в известность службы в соответствии с национальным законодательством.  
Danger area to be isolated within a radius of not less 800 m. Unauthorized persons to be removed.  
Wear protective clothing. Observe fire safety measures. **No smoking**. Render first aid to the injured.  
6.3.2. Actions in case of fire: Use water spray from maximum distance.

*Note: see section 8 for personal protective equipment and section 13 for waste disposal*

### 7. Regulations on chemicals storage and handling

#### 7.1. Safety measures while chemicals handling

- 7.1.1. Incompatible substances and materials: Organic substances, acids, alkali, sulfur, pyrites, bleaching powder, powder metals (zinc in particular).

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- 7.1.2. General recommendations: Avoid contact with substance.  
 Do not eat, drink, smoke during work. Warehouses and workplaces should be equipped with running water supply, soap, drinking water and first aid kits. Use personal protective equipment. Strictly observe safety instructions, personal hygiene measures.
- 7.2. Terms and conditions of safety storage: Guaranteed storage time – 6 months from manufacture date.
- 7.3. Recommendations for safety transportation: To be transported in good-order and clean means of transportation, protecting from moisture and contamination with foreign matters.
- 7.3.1. Recommended materials for tare and packing: Polyethylene bags (open or valve-type), polypropylene bags (open or valve-type), specialized flexible containers.
- 7.3.2. Safety measures and storage precautions in everyday life: According to clause 8.3
- See Section 8 for respective information.

### 8. Exposure controls and personal protection

8.1. Working area parameters subject to mandatory control (MACw.a. or ASLIw.a.):

Ammonium nitrate	<p><b>Dermal</b></p> <p>DNEL 21.3 mg/kg bw/day. NOAEL: 255.6 mg/kg bw/day (based on AF of 12)            DNEL 12.8 mg/kg bw/day. NOAEL: 256.0 mg/kg bw/day (based on AF of 20)</p> <p><b>Inhalation</b></p> <p>DNEL 37.6 mg/m<sup>3</sup>. NOAEC: 451.2 mg/m<sup>3</sup> (based on AF of 12)            DNEL 11.1 mg/m<sup>3</sup>. NOAEC: 222.0 mg/m<sup>3</sup> (based on AF of 20)</p> <p><b>Oral</b></p> <p>DNEL 12.8 mg/kg bw/day. NOAEL: 256.0 mg/kg bw/day (based on AF of 20)</p>
Magnesium nitrate	<p><b>Dermal</b></p> <p>DNEL 20.8 mg/kg bw/day. NOAEL: 1,497.6 mg/kg bw/day (based on AF of 72)            DNEL 12.5 mg/kg bw/day. NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p> <p><b>Inhalation</b></p> <p>DNEL 36.7 mg/m<sup>3</sup>. NOAEC: 2,642.4 mg/m<sup>3</sup> (based on AF of 72)            DNEL 10.9 mg/m<sup>3</sup>. NOAEC: 1,308.0 mg/m<sup>3</sup> (based on AF of 120)</p> <p><b>Oral</b></p> <p>DNEL 12.5 mg/kg bw/day. NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p>
Potassium nitrate	<p><b>Dermal</b></p> <p>DNEL 20.8 mg/kg bw/day. NOAEL: 1,497.6 mg/kg bw/day (based on AF of 72)            DNEL 12.5 mg/kg bw/day. NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p> <p><b>Inhalation</b></p> <p>DNEL 36.7 mg/m<sup>3</sup>. NOAEC: 2,642.4 mg/m<sup>3</sup> (based on AF of 72)            DNEL 10.9 mg/m<sup>3</sup>. NOAEC: 1,308.0 mg/m<sup>3</sup> (based on AF of 120)</p> <p><b>Oral</b></p> <p>DNEL 12.5 mg/kg bw/day. NOAEL: 1,500.0 mg/kg bw/day (based on AF of 120)</p>
Ammonium chloride	<p><b>Dermal</b></p> <p>DNEL 190 mg/kg bw/day. NOAEL: 6,840 mg/kg bw/day (based on AF of 60)            DNEL 114 mg/kg bw/day. NOAEL: 6,840 mg/kg bw/day (based on AF of 60)</p> <p><b>Inhalation</b></p> <p>DNEL 9.9 mg/m<sup>3</sup>. NOAEC: 594.0 mg/m<sup>3</sup> (based on AF of 60)</p> <p><b>Oral</b></p> <p>DNEL 11.4 mg/kg bw/day. NOAEL: 684.0 mg/kg bw/day (based on AF of 60)</p>

8.2. Measures providing hazardous substances allowable concentration: Working premises ventilation to observe MAC of working area. Regular monitoring of air. Special protection for skin and eyes – goggles, special clothing, respirators.

### 8.3. Personal protection equipment

- 8.3.1. Respiratory protection: Respirators, industrial filter gas mask in accordance with national standards.
- 8.3.2. Protective clothing (material, type): Cotton or cloth suit, leather or rubber boots, cotton or cloth headwear. Dust goggles, cotton or cloth gloves.
- 8.3.3. Personal protection equipment in everyday life: Respirators, dust goggles, cotton gloves, headwear.

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### 9. Physical and chemical properties

	<b>Ammonium nitrate</b>	<b>Magnesium nitrate</b>	<b>Potassium nitrate</b>	<b>Ammonium chloride</b>
9.1. Physical state:				
Aggregative state:	Solid	Solid	Solid	Solid
Odor:				
Color:	Transparent/white deliquescent crystals (orthorombic at room temperature) or white granules. Hygroscopic.	Colourless or white, cubic crystals. Hygroscopic.	Colorless or white crystals, powder pearls or granules.	Colourless crystals, crystalline masses or white granular powder.
9.2. Parameters characterizing basic properties of chemicals, primarily hazardous:				
Melting / freezing point	169.6 °C at 1013 hPa	>100-129°C at 1013 hPa	335 °C at 1013 hPa	338 - 340°C
Relative density	1.72 at 20°C	2.3 at 20°C	2.1 at 20°C	1.5 at 20°C
Water solubility	>100 g/L at 20 °C	10 g/L at 20 °C	>100 g/L at 25 °C	283 g/L at 25 °C
Flammability	non flammable	non flammable	non flammable	non flammable
Explosive properties	non explosive	non explosive	non explosive	non explosive
Oxidising properties	yes	yes	yes	no
Boiling point or range	-			
Vapour pressure	slight	<0.00001 Pa at 20 °C		
Dissociation constant				pKa at 20°C: 9.25

	<b>Monoammonium phosphate</b>	<b>Diammonium phosphate</b>
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9.1. Physical state:		
Aggregative state:	Solid	Solid
Odor:		
Color:	white tetrahydral crystals or white crystalline powder.	white crystals or crystalline powder
9.2. Parameters characterizing basic properties of chemicals, primarily hazardous:		
Melting / freezing point	197 °C at 1013 hPa	
Relative density	1.81 at 20°C	1.62 at 20°C
Water solubility	>100 g/L at 20 °C	>100 g/L at 20 °C
Flammability	non flammable	non flammable
Explosive properties	non explosive	non explosive
Oxidising properties	no	no
Boiling point		
Vapour pressure	0.00147 Pa at 20 °C	0.0762 Pa at 20 °C
Dissociation constant	Parameters for dry blended fertilizer.	
Granulometry*	Granules size 1-4 mm content, %, not less than 90.	

### 10. Stability and reactivity

10.1. Reactivity:	Reacts with acids and alkalis
10.2. Chemical stability: (specify products of decomposition for unstable product)	Prone to thermal and chemical self-ignition.
10.3. Conditions to avoid	High temperature, impacts
10.4. Materials to avoid	Organic substances, acids, alkalis, sulfur, pyrites, bleaching powder, powder metals (zinc in particular).
10.5. Hazardous decomposition products	Nitrogen oxides, ammonia, phosphorous oxides.



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### 11. Toxicological information

11.1. Toxicokinetics, metabolism and distribution

*Toxicokinetics:* probability of harm is considered to be low if the product is used in accordance with application recommendations. Causes irritation of mucous membranes and skin.  
*Metabolism:* no information available.

*Distribution:* no information available.

Substance	Method	Results	Remarks
<b>Ammonium nitrate</b>	no guideline as it is an expert statement	Based on low MW, high water solubility, assumed low logPow high absorption is expected. However, the ion formation of the substance immediately when in contact with a fluid decreases the absorption. Therefore, 50% absorption is taken for oral, dermal and inhalation exposure.	2 (reliable with restrictions) key study expert statement
<b>Magnesium nitrate</b>	no guideline as it is an expert statement	Main ADME results: absorption: 50% absorption is taken for oral, dermal and inhalation exposure.	2 (reliable with restrictions) key study expert statement
<b>Potassium nitrate</b>	no guideline as it is an expert statement	Main ADME results: absorption: 50% absorption is taken for oral, dermal and inhalation exposure.	2 (reliable with restrictions) key study expert statement
<b>Ammonium chloride</b>		Main ADME results: Ammonium chloride is rapidly absorbed and almost complete	2 (reliable with restrictions) supporting study statement

11.2. Exposure routes:

(inhalation, ingestion, skin and eyes contact)

In case of inhalation, ingestion, eyes and skin contact

11.3. Human organs, tissues and systems being affected:

Central nervous system, upper respiratory tracts, gastrointestinal tract, liver, blood

11.4. Information on hazardous to health effects in case of direct contact with substance as well as consequences of these effects: (irritation of upper respiratory tracts, eyes, skin, including skin-resorptive effect; sensitization)

Skin irritation / corrosion: corrosive  
 Eye irritation: highly irritating  
 Respiratory irritation: irritating  
 not sensitizing  
 Fertilizer dust causes irritation of eyes, nose, upper respiratory tracts mucous membranes.  
 May cause chronic gastritis, cholecystitis and hepatitis. Ammonium nitrate is met-hemoglobin forming substance.

11.5. Information on long-term consequences of human exposure: (effect on reproduction, carcinogenicity, cumulativeness etc.)

Genetic toxicity: negative (*Mutagenic effect, is not confirmed. In vivo – not confirmed.*)  
 Carcinogenicity – not confirmed.  
 Reproduction and toxicity connected with development – not confirmed.  
 Neurotoxicity, immunotoxicity – no data available.

### 12. Environmental exposure information

12.1. Acute toxicity data:

Acute toxicity:

**Ammonium nitrate**  
 LD50: oral, rat - 2950 mg/kg bw  
 LD50: oral, rat - 2800 mg/kg bw  
 LD50: oral, rat - 2462 mg/kg bw  
 LD50: oral, mouse - 2085 mg/kg bw  
 LC50 : inhalation, rat - > 88.8 mg/L  
 LD50: dermal, rat - > 5000 mg/kg  
**Magnesium nitrate**  
 LD50: oral, rat - > 2000 mg/kg bw  
 LD50: dermal, rat - > 5000 mg/kg bw  
**Potassium nitrate**  
 LD50: oral, rat - > 2000 mg/kg bw  
 LD50: oral, rat - 3750 mg/kg bw  
 LD50: : oral, rabbit - 1900 mg/kg bw  
 LD50: dermal, rat - > 5000 mg/kg bw  
**Ammonium chloride**  
 LD50: oral, rat - 1410 mg/kg bw  
 LD50: oral, mouse - 1300 mg/kg bw  
 LD50: dermal, rat - > 2000 mg/kg bw  
**Ammonium nitrate**  
 NOAEL: oral, rat - >= 1500 mg/kg bw/day  
 NOAEL: oral, rat - 256 mg/kg bw/day(male)

12.1.2. Repeated dose toxicity:

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NOAEL: 284 mg/kg bw/day (female)  
NOAEL: oral, rat- 886 mg/kg bw/day (male)  
NOAEL: 1975 mg/kg bw/day (female)  
NOAEC (systemic):  $\geq$  185 mg/m<sup>3</sup> air (male)

### **Magnesium nitrate**

NOAEL (P): oral, rat -  $\geq$  1500 mg/kg bw/day

### **Potassium nitrate**

NOAEL: oral, rat -  $\geq$  1500 mg/kg bw/day

### **Ammonium chloride**

NOAEL (P and F): oral, rat  $\geq$  1500 mg/kg bw/day

## 12..2 Stability and degradability

### **Ammonium nitrate, Magnesium nitrate, Potassium nitrate**

#### PNEC aqua (freshwater)

For the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term toxicity are available. Therefore the lowest L(E) C50 observed from all conducted studies, a 96h-LC50 of 447 mg/L for cyprinus carpio with ammonium nitrate is used for the derivation of the PNEC. An AF of 1000 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC aqua (freshwater): 0.45 mg/L**

#### PNEC aqua (marine water)

For the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term toxicity are available. No studies with species in marine water are available, therefore the lowest L(E) C50 observed from all fresh water conducted studies, a 96h-LC50 of 447 mg/L for cyprinus carpio with ammonium nitrate used for the derivation of the PNEC. An AF of 10000 is then used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC aqua (marine water): 0.045 mg/L**

#### PNEC (intermittent releases)

For the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term toxicity are available. Therefore the lowest L(E) C50 observed from all conducted studies, a 96h-LC50 of 447 mg/L with ammonium nitrate for cyprinus carpio used for the derivation of the PNEC. An AF of 100 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC (intermittent releases): 4.5 mg/L**

The substance is inorganic, therefore no ready biodegradability test is available. A study on toxicity to micro-organisms is available showing no respiratory inhibition at 1000 mg/L (EC50), with a NOEC of 180 mg/L. An AF of 10 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC STP: 18 mg/L**

### **Ammonium chloride**

For the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term toxicity are available with ammonium chloride, with the lowest L/EC50 determined the 101 mg/L 48 hr EC50 value in daphnia magna. In marine water a 10d EC50 in diatoms was determined to be 90.4 mg/L, however a 96 hr LC50 in fish was 174 mg/L and seems more appropriate considering the exposure time as required in guidelines. Also for 3 trophic levels (fish, invertebrates, algae) studies on long term toxicity are available with the lowest NOEC being the 28 -day NOEC of 11.8 mg/L in fish. In marine species only fish was tested for long term toxicity resulting in a 28 -d NOEC of 8 mg/L. In a respiration inhibition test the EC50 was determined to be 1618 mg/L. In the only soil organism study with earthworms the 14 d LC50 is 163 mg/kg soil.

#### PNEC aqua (freshwater)

For all the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term and long term toxicity are available. Therefore the lowest NOEC observed from all conducted studies, a 28 -d NOEC of 11.8 mg/L for fish with ammonium chloride is used for the derivation of the PNEC. An AF of 10 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC aqua (freshwater): 1.2 mg/L**

#### PNEC aqua (marine water)

For all the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term and long term toxicity are available. Studies with species in marine water are available, but not an additional taxonomic group. Therefore the lowest NOEC observed from all conducted studies, a 28 -d NOEC of 11.8 mg/L for fish with ammonium chloride is used for the derivation of the PNEC. An AF of 100 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC aqua (freshwater): 0.12 mg/L**

#### PNEC (intermittent releases)

For all the 3 trophic levels (fish, invertebrates (Daphnia) and algae), several studies on the short-term and long term toxicity are available. Therefore the lowest NOEC observed from all conducted studies, a 28 -d NOEC of 11.8 mg/L for fish with ammonium chloride is used for the derivation of the PNEC. An AF of 10 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC aqua (freshwater): 1.2 mg/L**

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The substance is inorganic, therefore no ready biodegradability test is available. A study on toxicity to micro-organisms is available with an EC50 of 1618 mg/L for respiratory inhibition. An AF of 100 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC STP: 16.2 mg/L**

### PNEC Soil

One short term toxicity study with soil organisms, earthworms, is available, having an LC50 of 163 mg/kg soil. An AF of 1000 is used in accordance with the "Guidance on information requirements and chemical safety assessment, Chapter R.10".

**PNEC Soil: 0.163 mg/kg soil**

### **Ammonium nitrate**

#### **Biodegradation**

Studies do not need to be conducted since the substance is inorganic (Annex VII REACH). In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20 degrees Celsius is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N<sub>2</sub>, N<sub>2</sub>O and NH<sub>3</sub>, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day.

#### **Bioaccumulation**

##### **Aquatic bioaccumulation**

Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation

##### **Terrestrial bioaccumulation**

Given the low potential for bioaccumulation in aquatic organisms the potential in terrestrial organisms is also assumed to be low.

### **Magnesium nitrate**

#### **Biodegradation**

In aqueous solution, magnesium nitrate is completely dissociated into the magnesium ion (Mg<sup>2+</sup>) and the nitrate anion (NO<sub>3</sub><sup>-</sup>). Hydrolysis of magnesium nitrate does not occur.

Readily biodegradation study does not need to be conducted since the substance is inorganic (Annex VII REACH). In addition, biodegradation of nitrate can occur under anaerobic conditions, both under natural conditions and as a controlled process in many wastewater treatment plants, resulting in degradation products like nitrite, oxide of nitrogen, nitrogen, or ammonia. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N<sub>2</sub>, N<sub>2</sub>O and NH<sub>3</sub>, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day.

#### **Bioaccumulation**

##### **Aquatic bioaccumulation**

Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

##### **Terrestrial bioaccumulation**

Given the low potential for bioaccumulation in aquatic organisms the potential in terrestrial organisms is also assumed to be low.

### **Potassium nitrate**

#### **Biodegradation**

In aqueous solution, potassium nitrate is completely dissociated into the potassium ion (K<sup>+</sup>) and the nitrate anion (NO<sub>3</sub><sup>-</sup>). Hydrolysis of potassium nitrate does not occur.

Readily biodegradation study does not need to be conducted since the substance is inorganic (Annex VII REACH). In addition, biodegradation of nitrate can occur under anaerobic conditions, both under natural conditions and as a controlled process in many wastewater treatment plants, resulting in degradation products like nitrite, oxide of nitrogen, nitrogen, or ammonia. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N<sub>2</sub>, N<sub>2</sub>O and NH<sub>3</sub>, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day.

#### **Bioaccumulation**

##### **Aquatic bioaccumulation**

Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

##### **Terrestrial bioaccumulation**

Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

### **Ammonium chloride**

#### **Biodegradation**

In aqueous solution, ammonium chloride is completely dissociated into the ammonium ion (NH<sub>4</sub><sup>+</sup>) and the chloride anion (Cl<sup>-</sup>). Hydrolysis of ammonium chloride does not occur.

Studies do not need to be conducted since the substance is inorganic (Annex VII REACH). In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20 degrees Celsius is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N<sub>2</sub>, N<sub>2</sub>O and NH<sub>3</sub>, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day.

#### **Bioaccumulation**

##### **Aquatic bioaccumulation**

## 12.3 Bioaccumulation potential

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Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

### Terrestrial bioaccumulation

Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

12.4. Mobility in soil:

Dry blended fertilizer is highly soluble in water. See section 9 for physical state information.

12.5. Ecotoxicity data:

#### Ammonium nitrate

LC50 for freshwater fish: 447 mg/L  
EC50/LC50 for freshwater invertebrates: 490 mg/L  
EC50/LC50 for freshwater algae: 1700 mg/L  
EC10/LC10 or NOEC for freshwater algae: 1700 mg/L

#### Magnesium nitrate

LC50 for freshwater fish: 1378 mg/L  
EC50/LC50 for freshwater invertebrates: 490 mg/L  
EC50/LC50 for freshwater algae: >1700 mg/L  
EC10/LC10 or NOEC for freshwater algae: 1700 mg/L

#### Potassium nitrate

LC50 for freshwater fish: 1378 mg/L  
EC50/LC50 for freshwater invertebrates: 490 mg/L  
EC50/LC50 for freshwater algae: >1700 mg/L  
EC10/LC10 or NOEC for freshwater algae: 1700 mg/L

#### Ammonium chloride

EC10/LC10 or NOEC for freshwater fish: 11.8 mg/L  
EC10/LC10 or NOEC for marine water fish: 8 mg/L  
EC50/LC50 for freshwater invertebrates: 101 mg/L  
EC50/LC50 for freshwater algae: 1300 mg/L  
EC50/LC50 for marine water algae: 90.4 mg/L  
EC10/LC10 or NOEC for marine water algae: 26.8 mg/L

### 13. Recommendations on waste (traces) disposal

13.1. Safety precautions during handling with waste from application, storage, transportation etc.  
13.2. Information on places and ways of deactivation, recovery or disposal of substance (material), including packaging:  
13.3. Recommendations on disposal of waste from product application in everyday life

Observe safety precautions and use protective equipment. See Section 8 herein.  
Product spillages are used by application. Spoiled product to be removed to industrial waste dump. Containers being in handling can be used only for storage and transportation of mineral fertilizers. Do not use for food. Damaged containers should be burnt at specialized areas or recovered.  
Product spillage is used by application. Spoiled product to be removed to industrial waste dump. Containers to be recovered (do not use for food).

### 14. Transport information

14.1. UN number:  
(as per UN recommendations on dangerous goods transportation (model regulations), latest edition)  
14.2. Proper shipping name and/or transport name:

Grade A - 2067  
Grade B - 2071  
blended fertilizer

14.3. Transport hazard classes

**Grade A**  
For fertilizer with ammonium nitrate content more than 70 %:  
Emergency card number

Class 5, subclass 5.1, classification code 5113.  
Hazard sign as per drawing 5  
☒ 509

**Grade B**  
For fertilizer with ammonium nitrate content less than 70 %:  
Emergency card number

Class 9, subclass 9.1, category 916, classification code 9163  
Hazard sign as per drawing 9  
☒ 905

14.3.1. Transport marking  
14.4. Packaging group:

Handling signs "Protect from moisture", drawing 3, "Protect from sunlight" drawing 2.  
II-III

### 14.5. Environmental hazards

14.6. Hazard information for international transportation:

Classified as not environmentally hazardous substance. Causes minimum harm to aqueous environment.

#### General

For transportation Grade A blended fertilizer is dangerous cargo, class 5, sub-class 5.1 – oxidizing substance.  
For transportation Grade B blended fertilizer is dangerous cargo, class 9 – other dangerous cargoes and substances.






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	UN Number	Proper shipping name	Class	Packing group	Label	Other applicable information
<b>ADR/RID</b>	2067	Ammonium nitrate based fertilizer	5.1	III	5.1 	Hazard code: 50 Classification code: O2  Special transport provisions: CW24, VW8 Limited quantities: LQ12
	2071	Ammonium nitrate based fertilizer	9	None	None	Not classified for the given transport types. Non-hazardous cargo.
<b>ADN/ADNR</b>	2067	Ammonium nitrate based fertilizer	5.1	III	5.1 	Classification code: O2
	2071	Ammonium nitrate based fertilizer	9	None	None	Classification code: M11
<b>IMDG</b>	2067	Ammonium nitrate based fertilizer	5.1	III	5.1 	Marine pollutant (MP): None Emergency situation codes: F-H, S-Q
	2071	Ammonium nitrate based fertilizer	9	III	9 	Marine pollutant (MP): None Emergency situation codes: F-H, S-Q
<b>ICAO/IATA</b>	2067	Ammonium nitrate based fertilizer	5.1	III	Oxidizing 	Transport in limited quantities. Packing instruction PAX 516, CAO 518.
	2071	Ammonium nitrate based fertilizer	9	None	Other dangerous cargoes	Transport in limited quantities. Packing instruction PAX 909, CAO 909.

### 15 Regulatory information

15.1. legislation on safety, health and environment  
 15. Chemical safety assessment

### 16. Additional information

16.1. Information on revision (reissue) of safety data sheet:

16.2. Training advice

### Acronyms / Акронимы

Carried out by components of dry blended fertilizer

Fertilizer is used as universal compound fertilizer on all types of soil for all cultures. Dosage and preparation application time – according to agrochemical parameters of soil.

Registration number and date of registration, labeling elements, exposure scenarios (Annexes I, II, III and IV) are attached, sections 1, 2, 3, 4, 8, 9, 11, 12, 15, 16 are modified/updated.

Personnel handling fertilizer should be aware of its hazard properties, principles of health and environment protection and first aid measures.

STEL – short-term exposure limit. Limit value above which exposure must not occur, correlates with 15 minutes period.

TWA – average on time. Measured or calculated in accordance with accounting period of 8 hours being average on time.

LC<sub>50</sub> – median lethal concentration, causes death of 50% of test organisms within a definite observation period.

LC<sub>100</sub> – substance concentration, causes death of all test organisms within a definite observation period.

NOEC – no observed effect concentration, not leading to visible changes.

### Disclaimer

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To the best of our knowledge, the information on substance/preparation contained herein is accurate as of the publication date. This does not imply that the **Company AS BCT** assumes any legal liabilities or responsibility for consequences of its use or improper use under certain circumstances.