JSC Apatit

SAFETY DATA SHEET

Conforms to Regulation (EU) No.1907/2006, No. 453/2010, No 1272/2008, EEC Commission Directive 2015/830/EC

NPS 20:20+14(S)

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

1.1 Product Identification

Name	**NPS 20:20+14(S)** (hereinafter - NPS)
Designation	Fertilizer
Chemical Name *(IUPAC)*	Not available (see section 3)
EC No	Not available (see section 3)
CAS No	Not available (see section 3)
REACH Registration No	Not available (see section 3)
Synonyms	

1.2 Relevant Identified Uses of the substance, and uses advised against

Identified uses The description of relevant identified uses is given in Annex 1 to the Safety Data Sheet	Agriculture: surface spreading or incorporation at open field and/or forest fertilization, professional and consumer end-use (fertilization of amenity: parks, public lawn, sport field, golf courses).
	Surface spreading at home gardens.
	Solid or liquid: as such or in a mixture.
	Fertigation at open field: liquid fertilizer
	Blending of fertilizer and other compounds as compost and substrates and pesticides.
	Dilution or suspension
	Including, filling into containers or transfer from one container to another, packing.
	Transfer from one container to another, loading/unloading of liquid and solid fertilizer by industrial or professional
	Synthesis
	Co-formulant in PPPs
	Industrial Use
	Fermentation - Nutrient
Uses advised against	There are no restrictions for using.

1.3 Details of the Supplier of the SDS

Manufacturer/Supplier	JSC Apatit Balakovo branch of JSC Apatit: 413810, the Russian Federation, Saratov Region, Balakovo District, village Bikov Otrog, Proezd Chimikov, 1 Tel +7 (8453) 66 59 01, Fax +7 (8453) 62 48 72 E-mail:bmu@bmu.ru
Only Representative	**PHOSINT LIMITED** 21 Vasili Michailidi 3026 Limassol, Cyprus Postal Address; P.O. Box 54708, CY-3727 Limassol Cyprus Tel +357 – 25 – 508003, Fax +357 – 25 – 508004

	E-mail: phosint@virtualoffice8.com

1.4 Emergency Telephone Number

Manufacturer/supplier
+7 (8453) 66-02-77 (This telephone number is available 24 hours per day, 7 days per week.)

IRELAND (REPUBLIC OF) National Poisons Information Centre Beaumont Hospital: +35 318 37 99 64

UNITED KINGDOM National Poisons Information Service (Birmingham Centre) City Hospital: +44 870 60 062 66 (UK only)

Directory of poison centres http://www.who.int/gho/phe/chemical_safety/phe_poison_centres.xls

2 HAZARDS IDENTIFICATION

2.1 Classification of the Substance

Product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 (CLP) and according to Directive No. 67/548/EEC.

2.2 Label Elements

No signal words, hazard and precautionary statements.

2.3 Other Hazards

When substance is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen and sulfur (sulfur trioxide) release to environment. If the rules of handling are violated, product may cause the pollution of the environment.
High dust concentrations of air-borne material may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing.
To avoid respiratory tract irritation inhalation exposure should be kept to a minimum, by observing good work practice and ensuring good ventilation around work areas

3 COMPOSITION/INFORMATION ON INGREDIENTS

According to the REACH Regulation the product is a mixture.

Substance name	**Product identifier**	**% w/w**	**Classification according to Directive 67/548/EEC**
Main Constituent			
Diammonium Hydrogenorthophosphate	EC No 231-987-8 CAS No 7783-28-0 EC Index – REACH Reference No 01-2119490974-22-XXXX	20÷38	Not classified
Diammonium Sulphate	EC No 231-984-1 CAS No 7783-20-2 EC Index – REACH Reference No 01-2119455044-46-XXXX	53÷63	Not classified

Impurities			
Ammonium Dihydrogenorthophosphate	EC No 231-764-5 CAS No 7722-76-1 EC Index –	2.2÷14.0	Not classified

Substance name	**Product identifier**	**% w/w**	**Classification according to Regulation (EC) No. 1272/2008 [CLP]**
Main Constituent			
Diammonium Hydrogenorthophosphate	EC No 231-987-8 CAS No 7783-28-0 EC Index – REACH Reference No 01-2119490974-22-XXXX	20÷38	Not classified
Diammonium Sulphate	EC No 231-984-1 CAS No 7783-20-2 EC Index – REACH Reference No 01-2119455044-46-XXXX	53÷63	Not classified
Impurities			
Ammonium Dihydrogenorthophosphate	EC No 231-764-5 CAS No 7722-76-1 EC Index –	2.2÷14.0	Not classified

Remarks:
Additive - Coating product Rimina or another similar for conditioning fertilizers to prevent caking and dusting thereof registered with ECHA by supplier in accordance with established procedure.
Products used are not subject to authorization as CMR and PBT.

4 First Aid Measures

4.1 Description of First Aid Measures удобрение обрабатывается смесью кондиционирующей

General information	Warning before intervention: When product is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen and sulfur (sulfur trioxide) release to environment.
Inhalation	Provide an access to fresh air. If breathing is difficult, give an oxygen. If not breathing, give artificial respiration. Remove from source of exposure to dusts. Seek medical advice.
Skin contact	Rinse immediately with plenty of water (for at least 15 minutes). Wash skin thoroughly with water and mild soap. Remove contaminated clothing and shoes. Wash clothing before re-using. Seek medical advice.
Eye contact	Immediately rinse the eyes with clean water within 10-15 minutes. If symptoms persist, consult with a doctor. Retract eyelids often. Seek immediate medical advice.
Ingestion	Give water to drink. Do not induce vomiting, if a patient is in an unconsciousness.

	If necessary, try to find the professional medical care and bring a patient to the hospital.
Note to physician	Inhalation of fire and thermal decomposition gases, containing ammonia, can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed.

4.2 Most Important Symptoms and Effects, both Acute and Delayed

Inhalation	Scratching in the throat, cough.
Eye contact	Can cause irritation of eyes due to dust, redness, pain.
Ingestion	Clinical picture of acute poisoning: general weakness, headache, nausea, vomiting, abdominal pain, diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

Risk of : Pulmonary edema. Symptoms may be delayed. Specific treatment is necessary. Pulmonary edema prophylaxis.

5 FIREFIGHTING MEASURES

5.1 Extinguishing Media

Any extinguishing media can be used: water, carbon dioxide, Alcohol resistant foam, dry powder.
Unsuitable Extinguishing Media: not available.

5.2 Special Hazards Arising from the Substance/Mixture

The product is not flammable.
When product is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen and sulfur (sulfur trioxide) release to environment.
Avoid breathing the fumes (toxic). Stand up-wind of the Fire.

5.3 Advice for Fire Fighters

Use self-contained breathing apparatus, total impervious protective suits for the whole body protection, gloves, goggles and boots must be worn.
Use extinguishing media appropriate for surrounding fire.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

For emergency and non-emergency personal	Wear appropriate personal protection equipment (see section 8). Keep away from incompatible products (see sections 7.2, 10.4). Keep public away from area

6.2 Environmental Precautions

Prevent entry to sewers and public waters.

6.3 Methods and Material for containment and cleaning up

Containment	Sweep or shovel the dry product into suitable containers and send for use, processing or disposal as restricted by local/national regulations (see section 13). Wash thoroughly after handling.
Cleaning up	Provide adequate ventilation. The affected area should be thoroughly washed and cleaned with water. Waste-water after washing and cleaning should be sent to sewage-treatment plant.

7 HANDLING AND STORAGE

7.1 Precautions for Safe Handling

To prevent fire	No special measures are required. The product is not flammable. Protect from heat
To prevent dust generation	Ensure adequate ventilation and dust level control at the workplace. Avoid excessive generation of dust.
To protect the environment	Prevent from getting into water bodies. Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses
Advice to general occupational hygiene	Use personal protective equipment (see section 8. 16.5). Avoid contact with skin and eyes. Avoid inhalation of product. Wash hands and other exposed parts of body with mild soap and water before eat, drink or smoke and when leaving work. Do not breathe dust.

7.2 Conditions for Safe Storage, including any Incompatibilities

Technical measures and storage conditions	Packed or bulk product must be stored in closed storage spaces protected from atmospheric precipitation and humidity. In household: keep separately from foodstuffs, in places beyond the reach of children and pets. Store in dry, cool area. Prevent contact with incompatible substances: oxidising agents, alkalis and strong acid. Keep away from incompatible products (see section 10.4).
Requirements for storage rooms	Storage facilities should be adequately ventilated. Amount of product in storage is not restricted.
Packaging materials	Plastics (PP, PE).

7.3 Recommended Restrictions for Use

Follow the recommendations about dosage and application on different types of soil and agricultural crops given by agrochemical services.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Diammonium Hydrogenorthophosphate (CAS No 7783-28-0)

<table>
<tr><td>Occupational Exposure Limit values</td><td>Occupational Exposure Limit value for substance is not available. The workplace atmosphere monitoring must include dustiness control. Occupational Exposure Limit values for inhalable dust are given in this subsection.

Substance: Dust, inhalable
CAS No. -
<table>
<tr><th>Country</th><th>Limit value – Eight hours, mg/m³</th><th>Limit value – Short term, mg/m³</th></tr>
<tr><td>Austria</td><td>10</td><td>20</td></tr>
<tr><td>Belgium</td><td>10</td><td></td></tr>
<tr><td>Denmark</td><td>10</td><td>20</td></tr>
<tr><td>France</td><td>10</td><td></td></tr>
<tr><td>Germany (AGS)</td><td>10</td><td>20</td></tr>
<tr><td>Germany (DFG)</td><td>4</td><td></td></tr>
<tr><td>Hungary</td><td>10</td><td></td></tr>
<tr><td>Spain</td><td>10</td><td></td></tr>
<tr><td>Sweden</td><td>10</td><td></td></tr>
<tr><td>Switzerland</td><td>10</td><td></td></tr>
</table>
Remarks
1 France: Bold type: Restrictive statutory limit values
2 Germany (AGS): 15 minutes average value, insoluble particulates
3 Germany (DFG:) long term exposure level, insoluble particulates
Source: Based on GESTIS International Limit Values Database via:
http://limitvalue.ifa.dguv.de/WebForm_ueliste.aspx</td></tr>
<tr><td>Monitoring procedure</td><td>BS EN 14042:2003 Title identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.</td></tr>
<tr><td>No Observed Adverse Effect Level (Concentration) for workers</td><td>Long-term - systemic effects
dermal NOAEL 2498,4 mg/kg bw/day (based on AF of 72)
inhalation NOAEC 439,2 mg/m³ (based on AF of 72)</td></tr>
<tr><td>No Observed Adverse Effect Level (Concentration) for general population</td><td>Long-term - systemic effects
dermal NOAEL 2496,0 mg/kg bw/day (based on AF of 120)
inhalation NOAEC 216,0 mg/m³ (based on AF of 120)
Oral NOAEL 252,0 mg/kg bw/day (based on AF of 120)</td></tr>
<tr><td>Predicted No Effect Concentration (PNEC)</td><td>aqua (freshwater): 1,7 mg/L
aqua (marine water): 0,17 mg/L
aqua (intermittent releases): 17 mg/L
sewage treatment plant: 10 mg/L</td></tr>
<tr><td colspan="2">Diammonium Sulphate (CAS No 7783-20-2)</td></tr>
<tr><td>Occupational Exposure Limit values</td><td>Occupational Exposure Limit value for substance is not available. The workplace atmosphere monitoring must include dustiness control. Occupational Exposure Limit values for inhalable dust are given in this subsection.

Substance: Dust, inhalable
CAS No. – 7783-20-2</td></tr>
</table>

	Germany TRGS900	10 mg/m^3
	The Netherlands MAC TGG 8H	10 mg/m^3
	WEL TWA	10 mg/m^3

DNEL/PNEC

DNEL/DMEL			Exposure routs	Exposure freguency	Critical component	Remark
Worker		Consumer				
Industry	Professional					
N/A	N/A	N/A	Oral	Short term (acute)	N/A	None
N/A	N/A	6.4 mg/kg dw/day		Long term (repeated)		
N/A	N/A	N/A	Dermal	Short term (acute)		
42.67 mg/kg dw/day	N/A	12.8 mg/kg dw/day		Long term (repeated)		
N/A	N/A	N/A	Inhalation	Short term (acute)		
11.17 mg/m^3	N/A	1.67 mg/m^3		Long term (repeated)		

Predicted No Effect Concentration (PNEC)	aqua (freshwater): 0.312 mg/L aqua (marine water): 0,0312 mg/L aqua (intermittent releases): 0.53 mg/L sewage treatment plant: 16.18 mg/L PNEC sediment: 0.063 mg/l PNEC soil: 62.6 mg/kg soil dw PNEC oral (secondary poisoning): No potential for bioaccumulation

8.2 Exposure Controls

Appropriate Engineering Controls	Production area must be adequately ventilated (general combined air suction and air supply ventilation system). Personal protection equipment should be available on site. The source of running water and shower should be provided on site.
Personal Protection	See section 16.5. Eyes and face: Wear safety goggles. Hands: Use rubber gloves Body: Wear wool or cotton protective suits; impervious rubber shoes or leather boots. Respiratory Organs: Approved dust mask should be used. Others: In case of emergency washing of eyes and skin, the source of running water should be provided.
Environmental Exposure Controls	Arrange control / monitoring of dust emissions to environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Appearance	Granulated product. Colour not specified
Odour	Weak odour
Odour threshold	Not applicable
pH (5 %-solution)	6,8 – 7,4
Melting Point/freezing point	155°C at 1013 hPa

Decomposition temperature	155°C at 1013 hPa
Initial Boiling Point and Boiling Range	Boiling point could not be determined before decomposition
Flash Point	Not applicable
Evaporation Rate:	Not applicable
Flammability	Non flammable
Upper/lower flammability or explosive limits	Non flammable
Vapour Pressure	0,0762 Pa at 20 °C
Vapour Density	Not applicable
Relative Density	1,62 ÷1,80 kg/m^3 at 19°C
Solubility(ies)	Water solubility >100 g/L at 20 °C
Partition Coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Product does not contain groups that may react with oxygen and therefore will not auto-ignite at temperatures between room temperature and melting
Viscosity	Not applicable
Explosive Properties	Non-explosive
Oxidizing Properties	No oxidizing properties

10 STABILITY AND REACTIVITY

10.1 Chemical Stability	Stable under recommended conditions of using and storage
10.2 Possibility of Hazardous Reactions	No known hazardous reactions
10.3 Conditions to Avoid	Heating up to more than 155ºC (see subsection 5.2). Atmospheric precipitation and humidity (see subsection 7.2).
10.4 Incompatible Materials	Alkalis cause product decomposition followed by ammonia emission. Strong Acids cause product decomposition followed by phosphoric acid emission.
10.5 Hazardous Decomposition Products	When product is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen and sulfur (sulfur trioxide) release to environment. Alkalis action - ammonia gas.

11 TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

	Diammonium Hydrogenorthophosphate (CAS No 7783-28-0)	**Diammonium Sulphate (CAS No 7783-20-2)**
Acute Toxicity, non-human information		
oral	LD_{50} (oral): >2000 mg/kg bw rat (Sprague-Dawley) male/female *OECD Guideline 425* *(Acute Oral Toxicity: Up-and-Down Procedure)*	2000-4250 mg/kg bw
Inhalation	LC_{50} (inhalation): air >5000 mg/m³ rat (Crl:WI(Han)) male/female *OECD Guideline 403* *(Acute Inhalation Toxicity)*	> 1000 mg/m³ (8h/day)

dermal	LD_{50} (dermal): >5000 mg/kg bw rat (Sprague-Dawley) male/female *OECD Guideline 402 (Acute Dermal Toxicity)*	
		LD_{50} (dermal): > 2000 mg/kg bw rabbit
Acute Toxicity, human information	No information is available	No information is available
Skin Corrosion/Irritation	not irritating rabbit (Vienna White) *OECD Guideline 404 (Acute Dermal Irritation / Corrosion) - equivalent or similar*	not irritating
Serious Eye Damage/Irritation	not irritating rabbit (Vienna White) *OECD Guideline 405 (Acute Eye Irritation / Corrosion) - equivalent or similar*	not irritating
Respiratory or Skin Sensitization		
skin	not sensitizing mouse (CBA) female *OECD Guideline 429 (Skin Sensitization: Local Lymph Node Assay)*	not sensitizing
respiratory system	Information is not required	
Germ Cell Mutagenicity		
bacterial reverse mutation assay (Ames test) (gene mutation)	Negative S. typhimurium TA 1535, TA 1537, TA 98 and TA 100 (met. act.: with and without) E. coli WP2 uvr A (met. act.: with and without) *OECD Guideline 471 (Bacterial Reverse Mutation Assay)*	Evaluation of results: negative Test results: negative for S. typhimurium TA 1535, TA 1537, TA 98 and TA 100(all strains/cell types tested); met. act.: with and without; cytotoxicity: no, but tested up to limit concentrations S. typhimurium TA 1535, TA 1537, TA 98 and TA 100 (met. act.: with and without) Doses: 20, 100, 500, 2500, 5000 µg/plate OECD Guideline 471 (Bacterial Reverse Mutation Assay)
mouse lymphoma L5178Y cells (met. act.: with and without)	Negative for mouse lymphoma L5178Y cells (strain/cell type: Test system L5178Y/TK+/-3.7.2C); met. act.: with and without; cytotoxicity: no *OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)*	Evaluation of results: negative Test results: Genotoxicity: negative (male); toxicity: no effects micronucleus assay (chromosome aberration) mouse (ddY) male intraperitoneal 62.5, 125, 250, 500 mg/kg bw (single dosing) 31.3, 62.5, 125, 250 mg/kg bw/d (multiple dosing) The maximum doses of the test compounds were determined by pilot experiments using the

		multisampling at multi-dose levels method according to Hayashi M et al (1984). A pilot experiment for the micronucleus test. The multi-sampling at multi-dose levels method. Mutat Res 141:, 165.
in vitro mammalian chromosome aberration test	Negative. Chinese hamster Ovary (CHO) (met. act.: with and without) *OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)*	Evaluation of results: negative Test results: negative for lymphocytes: human(all strains/cell types tested); met. act.: without lymphocytes: human (met. act.: without) Doses: ca. 423 mg/ml (3.2 M) equivalent or similar to OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Carcinogenicity	In accordance with column 2 of REACH Annex X, no carcinogenicity study needs to be proposed as product is not genotoxic	There is no need to classify ammonium sulfate for carcinogenicity according to the Directive 67/548/EC or GHS criteria (Regulation (EC) N° 1907/2006).

Reproductive Toxicity		**Diammonium Hydrogenorthophosphate (CAS No 7783-28-0)**	**Diammonium Sulphate (CAS No 7783-20-2)**
fertility	NOAEL (P and F): (actual dose received) rat (Sprague-Dawley) male/female (combined repeated dose and reproduction / developmental screening) *OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)*	≥1500 mg/kg bw/day	≥1500 mg/kg bw/day
developmental toxicity	NOAEL (developmental toxicity): (actual dose received) rat (Sprague-Dawley) male/female *OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)*	≥1500 mg/kg bw/day	≥1500 mg/kg bw/day
Specific Target Organ Toxicity (STOT) – single and repeated exposure		No STOT	No STOT
Aspiration Hazard	See section 4		
Health Effects	Potential health effects/symptoms - see subsection 4.2		

12 Ecological information

12.1 Toxicity

	Diammonium Hydrogenorthophosphate (CAS No 7783-28-0)	**Diammonium Sulphate (CAS No 7783-20-2)**
Short-term toxicity to fish	LC_{50} for freshwater fish (96 h):1700 mg/L Cirrhinus mrigala/L. Rohita *Standard Methods for the Examination of Water and wastewater (APHA-1985)*	Acute harmful to fish. > 53 mg/l (96 hours) Oncorhynchus mykiss freshwater various lowest SMAV for salmonoid species among the 29 fish species as given in U.S. EPA (1999), adjusted to pH 8
Long-term toxicity to fish	No data. The study is not considered necessary	EC10 (30 d): 5.29 mg/L test mat. Lepomis macrochirus freshwater early-life stage: reproduction, (sub)lethal effects flow-through lowest species mean chronic value (SMCV) as given in U.S. EPA (1999), adjusted to pH 8 and 25°C
Short-term toxicity to aquatic invertebrates	EC_{50}/LC_{50} for freshwater invertebrates: 1790 mg/L Daphnia carinata (water flea) *Standard methods for the examination of water and wastewater. 14th ed., American Public Health Association, New York (1975)*	EC50 (48 h): 121.7 mg/L test mat. Ceriodaphnia acanthina freshwater static lowest SMAV as given in U.S. EPA (1999), adjusted to pH 8
Long-term toxicity to aquatic invertebrates	No data. The study is not considered necessary	EC10 (10 wk): 3.12 mg/L test mat. Hyalella azteca freshwater semi-static lowest species mean chronic value (SMCV) as given in U.S. EPA (1999), adjusted to pH 8 and 25°C
Algae and aquatic plants	EC_{50}/LC_{50} for freshwater algae: >100 mg/L EC_{10}/LC_{10} or NOEC for freshwater algae: 100 mg/L Pseudokirchnerella subcapitata (reported as Selenastrum capricornutum) (algae) *OECD Guideline 201 (Algae, Growth Inhibition Test)*	With high probability acute not harmful to algae EC50 (18 d): 2700 mg/L test mat. (nominal) based on: cell number Chlorella vulgaris (algae) freshwater static other: 18 day batch test
Sediment organisms	No data. The study is not considered necessary	EC10 (10 wk): 3.12 mg/L test mat. (Ammonium sulphate) (nominal) based on: reproduction
Other aquatic organisms	No information available	**PNEC water:** PNEC aqua (freshwater): 0.312 mg/L; PNEC aqua (marine water): 0.0312 mg/L; PNEC aqua (intermittent releases): 0.53 mg/L.

		PNEC sediment: PNEC sediment (freshwater): 0.063 mg/kg sediment dw
Soil macro-organisms except arthropods	No data. The study is not considered necessary	LC50 (14 d): ca. 201 mg/kg soil dw test mat. (nominal) based on: mortality Eisenia fetida (annelids) short-term toxicity (laboratory study) Substrate: artificial soil EPA/600/3-88/029 (1988)
Terrestrial arthropods	No data. The study is not considered necessary	No data. The study is not considered necessary
Terrestrial plants	No data. The study is not considered necessary	No data. The study is not considered necessary
Soil micro-organisms	No data. The study is not considered necessary	Nitrogen fixation and total soil biomass (but not soil base respiration rate) can be affected by ammonium sulfate applied at 82.5kg/ha or more.
Microbiological activity in sewage treatment systems: toxicity to aquatic micro-organisms	EC_{50}/LC_{50} for aquatic micro-organisms: >100 mg/L EC_{10}/LC_{10} or NOEC for aquatic micro-organisms: 100 mg/L Activated sludge of a predominantly domestic sewage *OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)*	The inhibition of the degradation activity of activated sludge is not anticipated when introduced in appropriate low concentrations. EC50 (30 min): 1618 mg/L test mat. (nominal) based on: respiration rate activated sludge, domestic freshwater static OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)

12.2 Persistence and Degradability

Abiotic degradation	Not applicable. The substance is inorganic.
Biotic degradation	In wastewater plant: During the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite to nitrate. The average biodegradation value in wastewater plant at 20°C is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N_2, N_2O and NH_3, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day. In aqueous solution, ammonium sulfate is completely dissociated into the ammonium ion (NH^{4+}) and the sulfate anion (SO_4^{2-}). Hydrolysis of ammonium sulfate does not occur.

12.3 Bioaccumulative Potential

Product has a low bioaccumulative potential.
Due to the water solubility and the ionic nature, product is not expected to be bioaccumulative.

12.4 Mobility in Soil

Due to the water solubility and the ionic nature product is not expected to be adsorbed by soil and volatilize from soil. In soil, nitrification and de-nitrification processes occur as well as in secondary wastewater treatment processes. Sulfate can also be retained in soil, both by incorporation into organic

matter (e. g. as sulfate esters of humic acids) and adsorbed tosoil particles such as hydrous iron and aluminum sesquioxides (EPA, 2002).

12.5 Results of PBT and vPvB Assessment

According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since product is inorganic.

12.6 Other Adverse Effects

Not mentioned

13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/packaging disposal:	Depending on degree of contamination, use the fertilizers as raw material for liquid fertilizer, or send to an authorized disposal facility in accordance with local/national regulations. Utilize contaminated empty packages in a safe way and in accordance with local and national regulations.
Wastewater utilization – relevant information	See subsection 6.3.

14 TRANSPORT INFORMATION

14.1 General Information

Product, packed or bulk, may be transported by railway, cars, trucks and/or sea transport.
Packing: PE or PP bags (50 kg);
flexible containers (500-1000 kg).
Packages and transport vehicles must be tight enough and well sealed to prevent dust scattering into the environment. Open transport vehicles must be supplied with special covers (canopies, curtains).
Measures to prevent damage of packaging should be taken during transportation.

14.2 Transportation Classification

Product is not classified to be a dangerous good for any mode of transport.

UN Number	None
Road Transport ADR	Not regulated
Railway Transport RID	Not regulated
Air Transport ICAO and IATA	Not regulated
Sea Transport IMDG	Not regulated
Group according to the BC Code	Does not apply
Medical first aid (MFAG))	Not applicable
Marine pollutant	No

15 REGULATORY INFORMATION

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

EU Regulations	Commission Regulation (EU) 2015/830 of 28 May 2015 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures. Regulation (EC) №2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilizers.
Other Documents	Guidance for the storage, handling and transportation of solid mineral fertilizers, EFMA, April 2007. Guidance for Safe and Secure Storage of Fertilizers on Farms, EFMA, 2009.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.
Exposure scenario is not required.

16 OTHER INFORMATION

16.1 Date of Previous SDS

Previous revision was issued at 01.05.2014. Reason for revision: rename of OJSC "Apatit" to JSC "Apatit".
This Safety Data Sheet has been developed for the first time in accordance with requirements of EC Regulations 1907/2006 (REACH), 1272/2008 (CLP) & 453/2010 on the basis of registration data (IUCLID 5 dossier and CSR).
Previous revision 3.0 was issued at 06.03.2014.
Reason for revision: reorganization of CJSC "Balakovo Mineral Fertilizers" in the form of merger with OJSC "Apatit".

16.2 Abbreviations:

ADR – *European Agreement concerning the International Carriage of Dangerous Goods by Road*
BC Code – *Code of Safe Practice for Solid Bulk Cargoes (BS Code IMO)*
CMR – *Carcinogenicity, Mutagenicity and Toxicity for reproduction*
DNEL – *Derived no-effect level*
EC10 – *Effective Concentration for 10% of the response under test*
EC50 – *Effective Concentration (Median) for 50% of the response under test*
EFMA – *European Fertilizer Manufacturers' Association*
IATA – *International Air Transport Association*
ICAO – *International Civil Aviation Organization*
IMDG – *International Maritime Dangerous Goods (Code)*
LC_{10} – *Lethal Concentration for 10% of the population under test*
LC_{50} – *Lethal Concentration (Median) for 50% of the population under test*

LD_{50} – *Lethal Dose for 50% the population under test*
MFAG– – *The IMO/WHO/ILO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods. Chemicals Supplement to the International Medical Guide for Ships (IMGS)*
NOAEL – *No Observed Adverse Effect Level*
NOEC – *No Observed Effect Concentration*
OECD – *Organization for Economic Cooperation & Development*
PBT – *Persistent, Bioaccumulative and Toxic*
PE – *polyethylene*
PP – *polypropylene*
RID – *Regulations Concerning the International Carriage of Dangerous Goods by Rail*
vPvB – *very Persistent, very Bioaccumulative*

16.3 References and Other Sources of Information

1. Chemical Safety Report "Diammonium hydrogenorthophosphate (DAP)" (Consortium FARM, Lead Registrant - Prayon).
2. Safety Data Sheet "Ammonium sulfate" received from supplier.
3. EFMA Recommendations.

16.4 S-phrases (Annex IV of European Union Directive 67/548/EEC)

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

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