



## OJSC PhosAgro-Cherepovets

### SAFETY DATA SHEET

Conforms to Regulation (EU) №1907/2006, № 453/2010

**NPK 9:25:25, 10:26:26, 10:20:20, 15:15:15, 12:32:12, 12:30:12, 12:32:16, 13:19:19, 16:16:8, 8:24:24, 10:20:10, 13:13:21, 12:20:18, 6:20:30, 7:30:20, 8:20:30, 16:16:16**

#### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

##### 1.1 Product identifier

|             |   |
|-------------|---|
| Trade name  | <b>NPK 9:25:25, 10:26:26, 10:20:20, 15:15:15, 12:32:12, 12:30:12, 12:32:16, 13:19:19, 16:16:8, 8:24:24, 10:20:10, 13:13:21, 12:20:18, 6:20:30, 7:30:20, 8:20:30, 16:16:16</b> |
| Designation | <b>Fertilizer</b>   |

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

|                      |   |
|----------------------|---|
| Identified uses      | Surface spreading or incorporation at open field and /or forest fertilization. Fertilization of amenity (parks, public lawns, sport fields, golf courses) |
|                      | Surface spreading at home gardens   |
|                      | Surface spreading or incorporation through pipes at open field. Fertilization of amenity (parks, public lawns, sport fields, golf courses)                |
|                      | Indoor home fertilizer use  |
|                      | Leaf spray at open field  |
|                      | Greenhouse applications   |
|                      | Fertigation at open field   |
|                      | Blending of fertilizer and other compounds as compost and substrates and pesticides   |
|                      | Packaging of fertilizer   |
|                      | Dilution or suspension  |
|                      | Loading / unloading   |
|                      | Manufacturing of solid or liquid or suspension mineral fertilizers  |
|                      | Adding micronutrients and/or additives (anti-caking, fillers, coatings, colouring agent ...) in solid or liquid fertilizers                               |
| Uses advised against | There are no restrictions for using   |

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

|                       |   |
|-----------------------|---|
| Manufacturer/Supplier | <b>OJSC PhosAgro-Cherepovets</b><br>Russia, 162622, Severnoye Shosse str., 75,<br>Cherepovets, Vologda Region<br>Tel +7 (8202)5933-09, Fax +7 (8202)5550-34<br>E-mail: <a href="mailto:ammophos@phosagro.ru">ammophos@phosagro.ru</a>   |
| Only Representative   | <b>PHOSINT LIMITED</b><br>21 Vasili Michailidi<br>3026 Limassol, Cyprus<br>Postal Address;<br>P.O. Box 54708, CY-3727 Limassol Cyprus<br>Tel +357 – 25 – 508003, Fax +357 – 25 – 508004<br>E-mail: <a href="mailto:phosint@virtualoffice8.com">phosint@virtualoffice8.com</a> |

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### 1.4 Emergency Telephone Number

Manufacturer/supplier

**Phone No. +7 (8202) 59-35-15** (24 hours), **+7(8202) 59-33-09** (8.30 – 17.30 Moscow time)

European emergency number: **112** (24 hours)

Directory of poison centres

[http://www.who.int/gho/phe/chemical\\_safety/phe\\_poison\\_centres.xls](http://www.who.int/gho/phe/chemical_safety/phe_poison_centres.xls)

United Kingdom of Great Britain and Northern Ireland

Regional Medicines and Poisons Information Centre NI +44 892 0111 (24 hours)

Ireland

Poisons Information Centre of Ireland

+353 1 837 9964 (medical professionals) +353 1 809 2166 (public) (24 hours)

## SECTION 2. HAZARD IDENTIFICATION

### 2.1 Classification of the substance or mixture

NPK does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 (CLP) and according to Directive No. 1999/45/EEC.

### 2.2 Label Elements

No signal words, hazard and precautionary statements.

### 2.3 Other Hazards

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.

When mixture is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen release to environment. If the rules of handling are violated, NPK may cause the pollution of the environment.

## SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 Substances

According to the REACH Regulation the product is NOT a substance.

### 3.2 Mixtures

According to the REACH Regulation the product is a mixture of Ammonium Dihydrogenorthophosphate (MAP), Diammonium Hydrogenorthophosphate (DAP), Potassium Chloride, Diammonium Sulphate and conditioning additive containing Armeen XT.

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| Substance name                       | Identifiers                        | Classification<br>67/548/EEC<br>1278/2008<br>(CLP) | REACH<br>Registration<br>No.  | Weight % content            |                 |                 |                 |                 |                |                |
|--------------------------------------|------------------------------------|--|---|-----------------------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
|                                      |                                    |  |   | NPK<br>9:25:25,<br>10:26:26 | NPK<br>10:20:20 | NPK<br>15:15:15 | NPK<br>12:32:12 | NPK<br>13:19:19 | NPK<br>8:24:24 | NPK<br>16:16:8 |
| Ammonium<br>Dihydrogenorthophosphate | EC 231-764-5;<br>CAS 7722-76-1     | Not classified                                     | 01-<br>2119488166-<br>29-XXXX   | 8-10                        | 3-16            | 7-9             | 13-17           | 7-10            | 29-37          | 7-9            |
| Diammonium<br>Hydrogenorthophosphate | EC 231-987-8;<br>CAS 7783-28-0     | Not classified                                     | 01-<br>2119490974-<br>22-XXXX   | 33-37                       | 19-31           | 18-19           | 37-44           | 24-28           | 2-10           | 19-22          |
| Potassium<br>Chloride                | EC 231-211-8;<br>CAS 7447-40-7     | Not classified                                     | Unregistrable<br>according<br>article 2 and<br>Annex V of<br>REGULATION<br>(EC) No<br>1907/2006 | 38-42                       | 24-26           | 23-25           | 18-21           | 28-31           | 38-41          | 13-14          |
| Diammonium<br>Sulphate               | EC 231-984-1;<br>CAS 7783-20-2     | Not classified                                     | 01-<br>2119455044-<br>46-XXXX   | 8-10                        | 10-13           | 46-47           | 7-8             | 27-32           | 10-15          | 50-52          |
| Armeen HT                            | EC 262-976-6;<br>CAS<br>61788-45-2 | Xn, Xi, R<br>37/38-41-48/22                        | 01-<br>2119473799-<br>15-XXXX   | < 0,004                     | < 0,004         | < 0,004         | < 0,004         | < 0,004         | < 0,004        | < 0,004        |

| Substance name                       | Identifiers                     | Classification<br>67/548/EEC<br>1278/2008<br>(CLP) | REACH<br>Registration<br>No.  | Weight % content |                 |                 |                 |                 |                 |                |
|--------------------------------------|---------------------------------|--|---|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
|                                      |                                 |  |   | NPK<br>12:30:12  | NPK<br>12:32:16 | NPK<br>12:20:18 | NPK<br>16:16:16 | NPK<br>13:13:21 | NPK<br>10:20:10 | NPK<br>6:20:30 |
| Ammonium<br>Dihydrogenorthophosphate | EC 231-764-5; CAS<br>7722-76-1  | Not classified                                     | 01-<br>2119488166-<br>29-XXXX   | 41-43            | 22-26           | 8-12            | 7-10            | 7-10            | 10-12           | 26-28          |
| Diammonium<br>Hydrogenorthophosphate | EC 231-987-8; CAS<br>7783-28-0  | Not classified                                     | 01-<br>2119490974-<br>22-XXXX   | 5-7              | 28-33           | 22-28           | 17-21           | 12-15           | 23-26           | 5-7            |
| Potassium<br>Chloride                | EC 231-211-8; CAS<br>7447-40-7  | Not classified                                     | Unregistrable<br>according<br>article 2 and<br>Annex V of<br>REGULATION<br>(EC) No<br>1907/2006 | 19-21            | 25-28           | 28-31           | 25-27           | 33-35           | 15-18           | 48-51          |
| Diammonium<br>Sulphate               | EC 231-984-1; CAS<br>7783-20-2  | Not classified                                     | 01-<br>2119455044-<br>46-XXXX   | 25-27            | 11-15           | 18-33           | 18-19           | 32-49           | 14-19           | 7-10           |
| Armeen HT                            | EC 262-976-6; CAS<br>61788-45-2 | Xn, Xi, R<br>37/38-41-<br>48/22                    | 01-<br>2119473799-<br>15-XXXX   | < 0,004          | < 0,004         | < 0,004         | < 0,004         | < 0,004         | < 0,004         | < 0,004        |

| Substance name                       | Identifiers                    | Classification<br>67/548/EEC<br>1278/2008<br>(CLP) | REACH<br>Registration<br>No.  | Weight % content |                |  |  |  |  |  |
|--------------------------------------|--------------------------------|--|-------------------------------|------------------|----------------|--|--|--|--|--|
|                                      |                                |  |                               | NPK<br>7:30:20   | NPK<br>8:20:30 |  |  |  |  |  |
| Ammonium<br>Dihydrogenorthophosphate | EC 231-764-5; CAS<br>7722-76-1 | Not classified                                     | 01-<br>2119488166-<br>29-XXXX | 37-43            | 7-9            |  |  |  |  |  |

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|                                   |                              |                          |   |         |         |  |  |  |  |  |
|-----------------------------------|------------------------------|--------------------------|---|---------|---------|--|--|--|--|--|
| Diammonium Hydrogenorthophosphate | EC 231-987-8; CAS 7783-28-0  | Not classified           | 01-2119490974-22-XXXX   | 7-10    | 26-28   |  |  |  |  |  |
| Potassium Chloride                | EC 231-211-8; CAS 7447-40-7  | Not classified           | Unregistrable according article 2 and Annex V of REGULATION (EC) No 1907/2006 | 28-37   | 48-51   |  |  |  |  |  |
| Diammonium Sulphate               | EC 231-984-1; CAS 7783-20-2  | Not classified           | 01-2119455044-46-XXXX   | 3-4     | 7-10    |  |  |  |  |  |
| Armeen HT                         | EC 262-976-6; CAS 61788-45-2 | Xn, Xi, R 37/38-41-48/22 | 01-2119473799-15-XXXX   | < 0,004 | < 0,004 |  |  |  |  |  |

### SECTION 4. FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

|                     |  |
|---------------------|--|
| General information | Warning before intervention: When product is heated to decomposition temperature (above 155 °C), the toxic fumes of ammonia and oxides of nitrogen release to environment.       |
| Inhalation          | Provide an access to fresh air.<br>If breathing is difficult, give an oxygen.<br>Remove from source of exposure to dusts.<br>Seek medical advice.                                |
| Skin contact        | Wash skin thoroughly with water and mild soap. Remove contaminated clothing and shoes. Wash clothing before re-using.  |
| Eye contact         | Immediately rinse the eyes with clean water within 10-15 minutes. If symptoms persist, consult with a doctor.  |
| 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.  |
| 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

No specific data. Follow the instructions, given in Clause 4.1.

### SECTION 5. FIRE FIGHTING MEASURES

#### 5.1 Extinguishing Media

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SDS language: English

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

### 5.2 Special Hazards Arising from the Substance/Mixture

The product is not flammable.

When substance is heated to decomposition temperature (above 155 °C), toxic fumes of ammonia, oxides of nitrogen, phosphorus and sulphur release to environment.

Avoid breathing the fumes (toxic). Stand up-wind of the Fire.

### 5.3 Advice for Fire Fighters

Suitable respiratory equipment, Total impervious protective suits for the whole body protection, gloves, goggles and boots must be worn. Use a self-contained breathing apparatus if fumes are being entered.

## SECTION 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).<br>Organize monitoring and control of the NPK dust concentration in the air of work zone.<br>Keep away from incompatible products (see sections 7.2, 10.4).<br>Keep public away from area. |
| For employees of Service on emergency situations and the others |  |

### 6.2 Environmental Precautions

Prevent entry to sewers and public waters.

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

|                               |  |
|-------------------------------|--|
| Localization                  | Remove unauthorized persons. Keep windward side. Block off the emergency zone. Large scale spills near water should be blocked by an earth mound to avoid pollution of water-bearing horizons, sources of water and other important water objects. Collect spilled NPK into suitable containers and send for use, processing or disposal as restricted by local/national regulations (see section 13). |
| After spillage and/or leakage | Sweep or shovel the dry product into suitable containers. Wash thoroughly after handling.  |
| Cleaning                      | The affected area should be thoroughly washed and cleaned with water. Waste-water after washing and cleaning should be sent to sewage-treatment plant.   |

### 6.4 Reference to other sections

See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

## SECTION 7. HANDLING AND STORAGE

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### 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).<br>Avoid contact with skin and eyes.<br>Wash hands and other exposed parts of body with mild soap and water before eat, drink or smoke and when leaving work.<br>Do not breathe dust. |

### 7.2 Conditions for Safe Storage, including any Incompatibilities

|   |   |
|---|---|
| Technical measures and storage conditions | Packed or bulk NPK must be stored in closed storage spaces protected from atmospheric precipitation and humidity.<br>In household: keep separately from foodstuffs, in places beyond the reach of children and pets. Store in dry, cool area. |
| Requirements for storage rooms            | Storage facilities should be adequately ventilated.<br>Amount of product in storage is not restricted.  |
| Packaging materials                       | Plastics (PP, PE).  |
| Incompatible products                     | Prevent contact with incompatible substances: alkalis and strong acid. Keep away from incompatible products (see section 10.5).   |

### 7.3 Specific end use(s)

Follow recommendations of agrochemical services about a dosage and application on different types of soils and crops.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control Parameters

|                                      |  |
|--------------------------------------|--|
| Occupational Exposure Limit values   | Occupational Exposure Limits : Not established (EH40, List of approved workplace exposure limits; GESTIS International Limit Values Database via:<br><a href="http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp">http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp</a> ).<br>Biological limit value: Not established (EH40, Biological Monitoring Guidance Values; GESTIS International Limit Values Database via:<br><a href="http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp">http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp</a> ). |
| Monitoring procedure                 | 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.  |
| No Observed Adverse Effect Level for | There is no high level adverse effect observed for inhalation and  |

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|   |  |
|---|--|
| workers   | dermal contact with the components.<br>MAP, DAP:<br>Long-term - systemic effects dermal DNEL 34,7 mg/kg bw/day (repeated dose toxicity); inhalation DNEL 6,1 mg/m <sup>3</sup> (repeated dose toxicity).<br>Diammonium Sulphate:<br>Long-term -systemic effects Dermal DNEL 42.667 mg/kg bw/day; Inhalation DNEL 11.167 mg/m <sup>3</sup>  |
| No Observed Adverse Effect Level for general population | There is no high level adverse effect observed for inhalation and dermal contact with the components.MAP, DAP:<br>Long-term - systemic effects dermal DNEL 20,8 mg/kg bw/day (repeated dose toxicity); inhalation DNEL 1,8 mg/m <sup>3</sup> (repeated dose toxicity); Oral DNEL 2,1 mg/kg bw/day (repeated dose toxicity).<br>Diammonium Sulphate:<br>Long-term -systemic effects Dermal DNEL 12,8 mg/kg bw/day; Inhalation DNEL 1.667 mg/m <sup>3</sup> ; Oral DNEL 6,4 mg/kg bw/day |
| Predicted No Effect (PNEC)                              | MAP, DAP:<br>aqua (freshwater): 1,7 mg/L<br>aqua (marine water): 0,17 mg/L<br>aqua (intermittent releases): 17 mg/L<br>sewage treatment plant: 10 mg/L<br>Diammonium Sulphate:<br>PNEC soil: 62.6 mg/kg soil dw<br>PNEC sewage treatment plant: 16,18 mg/L.  |

### 8.2 Exposure Controls

|                                  |   |
|----------------------------------|---|
| Appropriate Engineering Controls | Production area must be adequately ventilated (general combined air suction and air supply ventilation system).<br>Personal protection equipment should be available on site.<br>The source of running water and shower should be provided on site.                                       |
| Personal Protection Equipment    | See section 16.5.<br>Eyes and face: Wear safety glasses.<br>Hands: Use rubber gloves<br>Body: Wear wool or cotton protective suits; impervious rubber shoes or leather boots.<br>Respiratory Organs: Approved dust mask should be used if dust are generated when handling this material. |
| Environmental Exposure Controls  | Arrange control / monitoring of dust emissions to environment.  |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties

|            |   |
|------------|---|
| Appearance | Solid granulate of various colors.<br>Granules sized (ГОСТ 21560.1, MKXA № 1104-00209438-105, MKXA № 1104-00209438-104):<br>under 1 mm maximum 3%;<br>1 – 6 mm minimum 95%; |
|------------|---|

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|  |  |
|--|--|
|  | under 6 mm 100%.   |
| Odour  | Odourless or weak odour  |
| Odour threshold                              | Not applicable   |
| pH (5 %-solution)                            | 5.5 – 6.0  |
| Melting Point/freezing point                 | 155°C at 1013 hPa  |
| Initial Boiling Point and Boiling Range      | Boiling point could not be determined before decomposition   |
| Evaporation Rate                             | Not applicable   |
| Flammability                                 | Non flammable  |
| Upper/lower flammability or explosive limits | Non flammable  |
| Vapour Pressure                              | 0.00147 Pa at 20 °C  |
| Vapour Density                               | Not applicable   |
| Relative Density                             | 1.62 – 1.81 at 20°C  |
| Solubility(ies)                              | Water solubility >100 g/L at 20 °C   |
| Partition Coefficient: n-octanol/water       | Not applicable   |
| Auto-ignition temperature                    | NPK does not contain groups that may react with oxygen and therefore will not auto-ignite at temperatures between room temperature and melting |
| Decomposition temperature                    | >155 °C at 1013 hPa  |
| Viscosity                                    | Not applicable   |
| Explosive Properties                         | Non-explosive  |
| Oxidizing Properties                         | No oxidizing properties  |

### 9.2 Other information

No information available.

## SECTION 10. STABILITY AND REACTIVITY

|  |  |
|--|--|
| <b>10.1 Reactivity</b>                         | React with acids and alkalis   |
| <b>10.2 Chemical Stability</b>                 | Stable under recommended conditions of using and storage   |
| <b>10.3 Possibility of Hazardous Reactions</b> | No known hazardous reactions   |
| <b>10.4 Conditions to Avoid</b>                | Moisture, High temperature. Heating up to more than 155 °C (see subsection 5.2).   |
| <b>10.5 Incompatible Materials</b>             | Magnesium, Strong acids, Bases/Alkalis. Alkalis cause decomposition of substance followed by ammonia emission. Strong Acids cause NPK decomposition followed by phosphoric acid emission |
| <b>10.6 Hazardous Decomposition Products</b>   | Does not decompose when used for intended uses. When heated to decomposition (above 155 °C), emits toxic fumes of ammonia and oxides of nitrogen. Alkalis action - ammonia gas           |

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### 11.1.1 Substances

Not applicable

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SDS language: English

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### 11.1.2 Mixtures

Information for NPK is not applicable. Information on Toxicological Effects are given for constituents: Ammonium Dihydrogenorthophosphate (MAP), Diammonium hydrogenorthophosphate (DAP) and Diammonium Sulphate.

|                                   |  |
|-----------------------------------|--|
| <b>Acute toxicity</b>             | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>   |
| oral                              | MAP, DAP:<br>LD <sub>50</sub> (oral): >2000 mg/kg bw rat (Sprague-Dawley) male/female<br><i>OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)</i><br>Diammonium Sulphate:<br>LD <sub>50</sub> (oral): 4250 mg/kg bw rat (Gassner) male/female<br><i>OECD Guideline 401 (Acute Oral Toxicity)</i> |
| inhalation                        | MAP, DAP:<br>LC <sub>50</sub> (inhalation): >5000 mg/m <sup>3</sup> air rat (CrI:WI(Han))<br>male/female <i>OECD Guideline 403 (Acute Inhalation Toxicity)</i><br>Diammonium Sulphate:<br>LC <sub>50</sub> (inhalation): 1000 mg/m <sup>3</sup> air rat  |
| dermal                            | MAP, DAP:<br>LD <sub>50</sub> (dermal): >5000 mg/kg bw rat (Sprague-Dawley)<br>male/female <i>OECD Guideline 402 (Acute Dermal Toxicity)</i><br>Diammonium Sulphate:<br>LD <sub>50</sub> (dermal): 2000 mg/kg bw rat and mouse male/female<br><i>OECD Guideline 434 (Acute Dermal Toxicity)</i>                |
| Acute Toxicity, human information | This information is not available  |
| <b>Irritation</b>                 | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>   |
| skin                              | MAP, DAP, Diammonium Sulphate:<br>not irritating - rabbit (Vienna White)<br><i>OECD Guideline 404 (Acute Dermal Irritation / Corrosion)</i>  |
| Eye                               | MAP, DAP, Diammonium Sulphate:<br>not irritating - rabbit (Vienna White)<br><i>OECD Guideline 405 (Acute Eye Irritation / Corrosion)</i>   |
| <b>Corrosivity</b>                | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>   |
| <b>Sensitization</b>              | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>   |
| skin                              | MAP, DAP:<br>not sensitizing - mouse (CBA) female <i>OECD Guideline 429 (Skin Sensitization: Local Lymph Node Assay)</i><br>Diammonium Sulphate:<br>not sensitising - guinea pig (Pirbright-White) female <i>EPA 540/9-82-025</i>  |
| respiratory system                | This information is not available  |
| <b>Repeated dose toxicity</b>     | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>   |
| oral                              | MAP, DAP:<br>NOAEL: 250 mg/kg bw/day (subacute; rat)<br>Diammonium Sulphate:   |

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|  |   |
|--|---|
|  | NOAEL: 256 mg/kg bw/day (chronic; rat)  |
| inhalation   | Diammonium Sulphate:<br>NOAEC: 300 mg/m <sup>3</sup> (subacute; rat)  |
| <b>Carcinogenicity</b>                                       | In accordance with column 2 of REACH Annex X, no carcinogenicity study needs to be proposed as MAP, DAP, Diammonium Sulphate is not genotoxic   |
| <b>Mutagenicity</b>  | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>  |
| bacterial reverse mutation assay (Ames test) (gene mutation) | For MAP, DAP, Diammonium Sulphate:<br>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) <i>OECD Guideline 471 (Bacterial Reverse Mutation Assay)</i>  |
| mouse lymphoma L5178Y cells (met. act.: with and without)    | MAP, DAP:<br>Negative for mouse lymphoma L5178Y cells (strain/cell type: Test system L5178Y/TK+/-3.7.2C); met. act.: with and without; cytotoxicity: no <i>OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)</i>  |
| in vitro mammalian chromosome aberration test                | MAP, DAP, Diammonium Sulphate:<br>Negative. Chinese hamster Ovary (CHO) (met. act.: with and without) <i>OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)</i>   |
| <b>Reproductive toxicity</b>                                 | <b>Not classified. Reason for no classification: Conclusive but not sufficient for classification.</b>  |
| fertility  | MAP, DAP, Diammonium Sulphate:<br>NOAEL (P and F): ≥1500 mg/kg bw/day (actual dose received) rat (Sprague-Dawley) male/female (combined repeated dose and reproduction / developmental screening) <i>OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)</i>   |
| developmental toxicity                                       | MAP, DAP:<br>NOAEL (developmental toxicity): ≥1500 mg/kg bw/day (actual dose received) rat (Sprague-Dawley) <i>OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)</i><br>Diammonium Sulphate:<br>mouse (ICR) - NOAEL (maternal toxicity): >2800 mg/kg bw/day (actual dose received); NOAEL (teratogenicity): >2800 mg/kg bw/day (actual dose received); NOAEL(embryo-/fetotoxicity): > 2800 mg/kg bw/day (actual dose received) |
| <b>Health effects</b>  | Potential health effects/symptoms - see subsection 4.2.   |

### 11.2 Other information

No information available.

## SECTION 12. ECOLOGICAL INFORMATION

Information for NPK is not applicable. Information on Toxicological Effects are given for constituents: Ammonium Dihydrogenorthophosphate (MAP), Diammonium hydrogenorthophosphate (DAP) and Diammonium Sulphate.

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### 12.1 Toxicity

|  |  |
|--|--|
| Short-term toxicity to fish:                 | <p>MAP:<br/>LC<sub>50</sub> for freshwater fish (96 h): &gt; 85,9 mg/L <i>Oncorhynchus mykiss</i> <i>OECD Guideline 203 (Fish, Acute Toxicity Test)</i></p> <p>DAP:<br/>LC<sub>50</sub> for freshwater fish (96 h): 1700 mg/L <i>Cirrhinus mrigala</i>/L. <i>Rohita</i> <i>Standard water and waste water analysis methods (APHA-1985)</i></p> <p>Diammonium Sulphate:<br/>LC<sub>50</sub> (96 h): 53 mg/L <i>Oncorhynchus mykiss</i> test mat. (meas. (not specified))<br/>LC<sub>50</sub> (96 h): 57.2 mg/L <i>Prosopium williamsoni</i> test mat. (meas. (not specified))</p>             |
| Long-term toxicity to fish                   | <p>MAP, DAP:<br/>No data. Chemical Safety Reports indicate that further assessment of toxicity to fish is not required. According to the mentioned data MAP (DAP) and other phosphates have minor toxicity.</p> <p>Diammonium Sulphate:<br/>EC<sub>10</sub> (30 d): 5.29 mg/L <i>Lepomis macrochirus</i> test mat. (meas. (not specified))</p>   |
| Short-term toxicity to aquatic invertebrates | <p>MAP, DAP:<br/>EC<sub>50</sub>/LC<sub>50</sub> for freshwater invertebrates: 1790mg/L <i>Daphnia carinata</i> (water flea) <i>Standard methods for the examination of water and wastewater. 14th ed., American Public Health Association, New York (1975)</i></p> <p>Diammonium Sulphate:<br/>EC<sub>50</sub> (48 h): 121.7 mg/L <i>Ceriodaphnia acanthine</i> test mat. (meas. (not specified)) based on mobility<br/>EC<sub>50</sub> (48 h): 169 mg/L test <i>Daphnia magna</i> mat. (meas. (not specified)) based on: mobility</p>  |
| Long-term toxicity to aquatic invertebrates  | <p>MAP, DAP:<br/>No data. Chemical Safety Reports indicate that further assessment of toxicity to fish is not required. According to the mentioned data MAP (DAP) and other phosphates have minor toxicity.</p> <p>Diammonium Sulphate:<br/>EC<sub>10</sub> (10 wk): 3.12 mg/L <i>Hyaella azteca</i> test mat. (Ammonium sulphate) (meas. (not specified)) based on: reproduction</p>  |
| Algae and aquatic plants                     | <p>MAP, DAP:<br/>EC<sub>50</sub>/LC<sub>50</sub> for freshwater algae: &gt;100 mg/L<br/>EC<sub>10</sub>/LC<sub>10</sub> or NOEC for freshwater algae: 100 mg/L <i>Pseudokirchnerella subcapitata</i> (reported as <i>Selenastrum capricornutum</i>) (algae) <i>OECD Guideline 201 (Algae, Growth Inhibition Test)</i></p> <p>Diammonium Sulphate:<br/>EC<sub>50</sub> (18 d): 2700 mg/L <i>Chlorella vulgaris</i> (algae) test mat. (nominal) based on: cell number<br/>EC<sub>50</sub> (5 d): ca. 1605 mg/L <i>Chlorella vulgaris</i> (algae) test mat. (nominal) based on: growth rate</p> |
| Sediment organisms                           | MAP, DAP:  |

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|   |   |
|---|---|
|   | No data. The study is considered not necessary, Chemical Safety Reports indicate that further assessment of toxicity to fish is not required. According to the mentioned data MAP (DAP) and other phosphates have minor toxicity.<br>Diammonium Sulphate:<br>EC <sub>10</sub> (10 wk): 3.12 mg/L <i>Hyaella azteca</i> test mat. (Ammonium sulphate) (nominal) based on: reproduction<br>EC <sub>10</sub> (10 wk): 0.66 mg/L element (N) (nominal) based on: reproduction |
| Other aquatic organisms   | No information available  |
| Soil macro-organisms except arthropods  | MAP, DAP:<br>No data. The study is not considered necessary. The available data indicates that MAP and DAP have low toxicity level.<br>Diammonium Sulphate:<br>LC <sub>50</sub> (14 d): ca. 201 mg/kg <i>Eisenia fetida</i> (annelids) soil dw test mat. (nominal) based on: mortality  |
| Terrestrial arthropods  | MAP, DAP:<br>No data. The study is considered not necessary. The available data indicates that MAP and DAP have low toxicity level.<br>Diammonium Sulphate: No information available  |
| Terrestrial plants:   | MAP, DAP:<br>No data. The study is considered not necessary. The available data indicates that MAP and DAP have low toxicity level.<br>Diammonium Sulphate:<br><i>Allium cepa</i> : LOEC (84 d): 1880 mg/kg soil dw test mat. (nominal) based on: growth<br><i>Allium cepa</i> : NOEC (84 d): 626 mg/kg soil dw test mat. (nominal) based on: growth<br><i>Avena sterilis</i> : LOEC (21 d): 5000 mg/l test mat. (nominal) based on: germination                          |
| Soil micro-organisms  | MAP, DAP:<br>No data. The study is considered not necessary. The available data indicates that MAP and DAP have low toxicity level.<br>Diammonium Sulphate: No information available  |
| Microbiological activity in sewage treatment systems: toxicity to aquatic micro-organisms | MAP, DAP:<br>EC <sub>50</sub> /LC <sub>50</sub> for aquatic micro-organisms: >100 mg/L<br>EC <sub>10</sub> /LC <sub>10</sub> or NOEC for aquatic micro-organisms: 100 mg/L<br>Activated sludge of a predominantly domestic sewage<br><i>OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)</i><br>Diammonium Sulphate: No information available   |

### 12.2 Persistence and degradability

|                     |  |
|---------------------|--|
| Abiotic degradation | Not applicable   |
| Biotic degradation  | MAP, DAP: In wastewater plant:<br>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. |

### 12.3 Bioaccumulative potential

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Constituents of mixtures has a low bioaccumulative potential. Due to the water solubility and the ionic nature, constituents of mixtures are not expected to be bioaccumulative.

### 12.4 Mobility in soil

Due to the water solubility and the ionic nature constituents of mixtures are 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.

### 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 constituents of mixtures are inorganic.

### 12.6 Other adverse effects

Not mentioned

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

|   |   |
|---|---|
| European Waste Code                           | 06 10 99 - wastes not otherwise specified (wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture)  |
| 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.   |

## SECTION 14. TRANSPORT INFORMATION

|  |   |
|--|---|
| 14.1 UN Number   | None  |
| 14.2 UN proper shipping name   | None  |
| 14.3 Transport hazard class(es)  | Non hazardous   |
| 14.4 Packing group   | Not applicable  |
| 14.5 Environmental hazards   | No available data   |
| 14.6 Special precautions for user  | See subsection 7.1  |
| 14.7 Transport in bulk (according to Annex II of MARPOL 73/78 and the BC Code) | Transport name of a bulk cargo - FERTILIZERS WITHOUT NITRATES ITRATES (non hazardous)<br>The group on <i>BS Code IMO</i> – C.<br>Klass of danger on <i>BS Code IMO</i> – None |
| 14.8 Additional information  | No specific information   |

## SECTION 15. REGULATORY INFORMATION

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

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|                 |  |
|-----------------|--|
| EU Regulations  | Regulation (EC) No. <b>1907/2006</b> of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).<br>COMMISSION REGULATION (EU) No <b>453/2010</b> of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)<br>Regulation (EC) No. <b>1272/2008</b> of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.<br>Regulation (EC) № <b>2003/2003</b> of the European Parliament and of the Council of 13 October 2003 relating to fertilizers.<br>COMMISSION REGULATION (EU) No <b>223/2012</b> of 14 March 2012 amending Regulation (EC) No 2003/2003 of the European Parliament and of the Council relating to fertilisers for the purposes of adapting Annexes I and IV thereto to technical progress |
| Other Documents | Guidance for the storage, handling and transportation of solid mineral fertilizers, EFMA, April 2007.<br>Guidance for Safe and Secure Storage of Fertilizers on Farms, EFMA, 2009.   |

### 15.2 Chemical Safety Assessment

Chemical Safety Assessment (CSA) has been carried out for the following substances: Ammonium Dihydrogenorthophosphate, Diammonium Hydrogenorthophosphate, Diammonium Sulphate [CSRs, 2010]. Since the substances are not classified as hazardous CSA does not include exposure assessment/estimation and risk characterization in accordance with Art. 14 of EC Regulation REACH. Exposure scenarios are not required. No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16. OTHER INFORMATION

### 16.1 Indication of changes

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).

The Safety Data Sheet (rev. 2, date of issue 01.07.2012) was revised in connection with the reorganization of OJSC Ammophos in the form of merging with the OJSC Cherepovetskiy Azot with the formation of OJSC PhosAgro-Cherepovets.

The Safety Data Sheet (rev. 2.1, date of issue 01.08.2013) was revised in connection with diversification of product range.

### 16.2 Abbreviations

BC Code – *Code of Safe Practice for Solid Bulk Cargoes (BS Code IMO)*

CMR – *Carcinogenicity, Mutagenicity and Toxicity for reproduction*

DAP – *Diammonium Hydrogenorthophosphate*

DNEL – *Derived no-effect level*

EC<sub>10</sub> – *Effective Concentration for 10% of the response under test*

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EC<sub>50</sub> – Effective Concentration (Median) for 50% of the response under test

EFMA – European Fertilizer Manufacturers' Association

LC<sub>10</sub> – Lethal Concentration for 10% of the population under test

LC<sub>50</sub> – Lethal Concentration (Median) for 50% of the population under test

LD<sub>50</sub> – Lethal Dose for 50% the population under test

MAP - Ammonium Dihydrogenorthophosphate

NOAEL – No Observed Adverse Effect Level

NOEC – No Observed Effect Concentration

NPK - nitrogen-phosphorus-potassium granulated fertilizer

OECD – Organization for Economic Cooperation & Development

PBT – Persistent, Bioaccumulative and Toxic

PE – polyethylene

PP – polypropylene

vPvB – very Persistent, very Bioaccumulative

### 16.3 References and Other Sources of Information:

1 Chemical Safety Report “Ammonium dihydrogenorthophosphate (MAP)” (Consortium FARM, Lead Registrant - Prayon)

2 Chemical Safety Report “Diammonium hydrogenorthophosphate (DAP)” (Consortium FARM, Lead Registrant - FERTIBERIA, S.A)

3 Chemical Safety Report “Diammonium sulphate (AS)” (Consortium FARM, Lead Registrant - BASF SE)

4 EFMA Recommendations

### 16.4 List of descriptions of identified uses to the expanded Safety Data Sheet:

Annex 1. Identified Uses of Ammonium Dihydrogenorthophosphate – pages 15-32;

Annex 2. Identified Uses of Diammonium Hydrogenorthophosphate – pages 33-43;

Annex 3. Identified Uses of Diammonium Sulphate – pages 44-63.

### 16.5 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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#### Disclaimer:

*This product is not classified as hazardous. It does not contain the hazardous components according to Directive 1999/45/EC. In this connection, the development of SDS is not required in the view of legislation in accordance with the requirements of Regulation No 1907/2006 (Clause 31.2) and Regulation No 453/2010. This Safety Data Sheet is issued by product supplier on voluntary basis to provide the customer by the sufficient information, allowing to undertake the necessary measures concerning the safety, health and environment protection.*