1. Identification of the substance/preparation and of the company/undertaking

<table>
<thead>
<tr>
<th>Commercial product name</th>
<th>Mono ammonium phosphate (NH4H2PO4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common chemical name</td>
<td>Ammonium dihydrogenorthophosphate/Monoammonium phosphate</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Ammonium biphosphate, Phosphoric acid monoammonium salt, Ammonium diacid phosphate, Ammonium monobasic phosphate, Primary ammonium phosphate, Ammonium dihydrogen tetraoxophosphate</td>
</tr>
<tr>
<td>Chemical formula</td>
<td>NH4H2PO4</td>
</tr>
<tr>
<td>EU index number (Annex 1)</td>
<td>Not listed in Annex 1</td>
</tr>
<tr>
<td>ID number in Appendix VI / CLP</td>
<td>Not listed in tables under Appendix VI / CLP.</td>
</tr>
<tr>
<td>CAS No.</td>
<td>7722 - 76 - 1</td>
</tr>
<tr>
<td>REACH registration Number</td>
<td>01-2179488166-29-0020</td>
</tr>
</tbody>
</table>

2. Use of the substance/preparation

| INDUSTRIAL SETTINGS | Manufacture of the substance, formulation and synthesis (all types), formulation of fertilizers, manufacture of solid and liquid fertilizers, Manufacturing of fire extinguisher powder, Use as Flame retardant agent (UCN B45000) for textiles, furnitures, wood, paper, matches, plastics & cellulotics, Nutrient for yeast and in many fermentation processes in food and pharmaceutical sectors (UCN 423000), manufacture of frits for enamel (UCN G15000), binder in refractory bricks, tiles [UCN code B20300: Other binding agents, Manufacture of washing and cleaning products, Dental Investment Casting Material, Flux for soldering for the manufacture of metal products, electronic and electrical equipment, Manufacture of Ammonium polyphosphates, Flame retardants, Paints and Coatings, Wild Fire eraser, Use as laboratory chemical. USES BY PROFESSIONAL WORKERS: Formulations of fertilizers including blending, packaging, dilution., Use of solid fertilizers NPK:PK: Surface spreading or incorporation at open fields and/or forest fertilization; Use of liquid fertilizers: Surface spreading or incorporation through pipes at open field; Dilution of liquid soluble fertilizers; Casting Material; Dental Investment; Use of detergents and maintenance products. |
| CONSUMER USES | use of fire extinguisher powder; Use of solid fertilizers: surface spreading at home gardens; dilution and use of liquid fertilizers: surface spreading at home gardens; dilution and use of liquid fertilizers : indoor home; Use of detergents and clearing agents |

3. Composition/information on ingredients

### Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS no.</th>
<th>EINEC no.</th>
<th>% (w/w)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### IUPAC name

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS no.</th>
<th>EINEC no.</th>
<th>% content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium dihydrogenorthophosphate</td>
<td>7722-76-1</td>
<td>231 -764 -5</td>
<td>85,80%</td>
</tr>
<tr>
<td>Ammonium sulphate</td>
<td>7783-20-2</td>
<td>231-984-1</td>
<td>7,10%</td>
</tr>
<tr>
<td>Ammonium peroxy sulphate</td>
<td>7727-54-0</td>
<td>231-786-5</td>
<td>7,10%</td>
</tr>
</tbody>
</table>

4. First aid measures

**Company name**

AGROPOLYCHIM AD

**Company address**

9100 DEVNYA - BULGARIA

**Company telephone**

+359 / 519 97 419

**Company e-mail for eSDS**

VASILEVA@AGROPOLYCHIM.BG

**Emergency telephone**

+359 / 519 97 530 (24 hours/d at the company area), +359 / 2 9154 409 - National health institute PIROGOV (poisoning centre), 24 h/day, 7 days/week

**Health hazards**

MAP is basically harmless when handled correctly. However, the following points should be noted.

- **Skin contact**
  - May cause some irritation on prolonged or repeated contact.
- **Eye contact**
  - May cause some irritation on prolonged or repeated contact.
- **Ingestion**
  - Small quantities are unlikely to cause toxic effect; large quantities may give rise to gastro-intestinal disorders.
- **Inhalation**
  - 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.

**Environmental hazards**

Possible eutrophication in confined surface waters in case of massive spillage.

**Other**

NO
## General

In some cases medical attention necessary (see below).

## Inhalation

Remove from source of exposure to dusts. Obtain medical attention if ill effects occur.

## Ingestion

Do not induce vomiting. Rinse mouth and then give water or milk to drink. Obtain medical attention if more than a small quantity has been swallowed.

## Skin contact

Wash the affected area with soap and water.

## Eye contact

Flush/irrigate eyes with copious amounts of water for at least 10 minutes. Obtain medical attention if eye irritation persists.

## 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.

### Fire-fighting measures

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>If fertilizer is not directly involved in the fire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use the best means available to extinguish the fire.</td>
</tr>
<tr>
<td></td>
<td>If fertilizer is involved in the fire</td>
</tr>
<tr>
<td></td>
<td>Use plenty of water, foam or dry chemical</td>
</tr>
</tbody>
</table>

### Extinguishing media not to be used

None

### Specific hazards

Heating to decomposition gives toxic fumes

### Hazardous thermal decomposition and combustion

Ammonia and possibly oxides of phosphorus

### Special fire-fighting procedures

Open doors and windows of the store to give maximum ventilation. Avoid breathing the fumes (toxic): stand up-wind of the fire.

### Special protective equipment for fire-fighters

Use a self-contained breathing apparatus if fumes are being entered.

## Exposure limit values

<table>
<thead>
<tr>
<th>Exposure pattern</th>
<th>Derived No Effect Level (DNEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>General population</td>
</tr>
</tbody>
</table>

- **Inhalation**
  - Workers: 6.1 mg/m³
  - General population: 1.8 mg/m³

- **Dermal**
  - Workers: 34.7 mg/kg bw/day
  - General population: 20.8 mg/kg bw/day

- **Oral**
  - Not applicable

### Exposure limit values

- **ACGIH** recommended value for nuisance dust for inhalable particulates: TLV/TWA: 10 mg/m³.
- **Recommended occupational and consumer exposure limit values** (following from the performed CSA):

<table>
<thead>
<tr>
<th>Exposure pattern</th>
<th>Derived No Effect Level (DNEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>General population</td>
</tr>
</tbody>
</table>

- **Inhalation**
  - Workers: 6.1 mg/m³
  - General population: 1.8 mg/m³

1: As an acute toxicity hazard leading to Classification and Labelling of the substance has not been identified, the long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment: Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter B.8 Scope of Exposure Assessment, March 2010).

## Accidental release measures

### Personal precautions

Avoid walking through spilled product and exposure to dust.

### Environmental precautions

Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.

### Methods for cleaning up

Any spillage of fertilizer should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.

### Remarks

See section 8 for personal protective equipment and section 13 for waste disposal.

## Handling and storage

### Handling

Avoid excessive generation of dust. Avoid unnecessary exposure to the atmosphere to prevent moisture pick-up. Avoid contamination by combustible (e.g. diesel oil, grease, etc.) and/or other incompatible materials. Carefully clean all equipment prior to maintenance and repair.

### Storage

Store in compliance with national and local regulations. Locate away from the sources of heat or fire. Keep away from combustible materials and substances mentioned under Section10. On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc. Ensure high standard of housekeeping in the storage area. Do not permit smoking and the use of naked lights in the storage areas. It is recommended to restrict the stack size and to keep at least 1 m distance around the stacks of bagged products. Any building used for the storage should be dry and well ventilated.

### Specific use(s)

No

### Packaging materials

Plastic synthetic materials, steel and aluminum are suitable. Avoid use of copper.

## Exposure controls / Personal protection

### Exposure limit values

- **No specific official EU limit.**
- **ACGIH** recommended value for nuisance dust for inhalable particulates: TLV/TWA : 10mg/m³.
- Recommended occupational and consumer exposure limit values (following from the performed CSA):
  - **Exposure pattern Derived No Effect Level (DNEL)**
    - Workers
    - General population
  - **Inhalation**
    - Workers: 6.1 mg/m³
    - General population: 1.8 mg/m³

### Engineering measures

Avoid high dust concentration and provide ventilation where necessary.

### Hygienic measures

When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period.

### Personal protection

#### Respiratory system

If dust concentration is high and/or ventilation is inadequate, use suitable dust mask or respirator if dust concentration with an appropriate filter (EN 143, 149, filters P2, P3).

#### Skin and body

Working clothes.

#### Hands

Wear suitable gloves (e.g. plastic, rubber or leather) when handling the product over long periods.

#### Eyes

Safety glasses with side shields (EN 166).

### Environmental exposure

See Section 6

## Physical and chemical properties
### Appearance
White to grey crystals or granules.

### Odour
Odourless or slight ammonia odour

### pH
pH of water solution (0.1 M) approx. 4.2.

### Boiling point or range
Decomposes (190 °C).

### Melting point or range
Decomposes at 190 °C.

### Flash point
Not applicable

### Flammability
Not applicable

### Auto-ignition temperature
Not combustible

### Decomposition temperature
Approx. 190 °C

### Minimum ignition energy
Not applicable

### Oxidising properties
No known oxidizing properties

### Critical temperature
Not applicable

### Relative density
1.81

### Density
1800 kg/m³ for main ingredient MAP as solid material

### Loose bulk density
Approximately 1000 kg/m³, depends on granulometry

### Vapour pressure at 20°C
< 1.47 x 10⁻³ Pa = < 1.10 x 10⁻⁵ mm Hg.

### Vapour density
Not applicable

### Evaporation rate
Not applicable

### Partition coefficient (n-octanol/water)
Not available

### Viscosity
Not applicable, as it is solid substance

### Mean particle size
1 - 5 mm above 99.5%

### Water solubility
Pure MAP: 328 g/l at 20°C

### Miscibility
Not applicable

### Fat solubility
Not available

### Conductivity
Not available

### Gas group
Not applicable

### Remarks
Molecular weight 115 (MAP)

### Stability and reactivity

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

#### Conditions to avoid
- Heating above 190 °C (decomposes).
- Contamination by incompatible materials.
- Sources of heat or fire close to the product.
- Heating under confinement.
- Welding or hot work on equipment or plant which may have contained fertilizer without first washing thoroughly to remove all fertilizer.

#### Materials to avoid
Alkalis, strong acids, copper and its alloys.

#### Hazardous decomposition products
For fire situation: see Section 5. Ammonia is released upon reaction with strong bases or when strongly heated. (See also Section 2 and 9)

### Toxicological information

#### Toxicokinetics, metabolism and distribution
In general, about two thirds of the ingested phosphate is absorbed from the gastrointestinal tract in adults. Absorbed phosphate is almost entirely excreted into the urine.

#### Acute effects
<table>
<thead>
<tr>
<th>Test</th>
<th>Species</th>
<th>Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono ammonium phosphate</td>
<td>Rat</td>
<td>Oral</td>
<td>&gt; 2000-3252 mg/kg</td>
</tr>
<tr>
<td>Mono ammonium phosphate</td>
<td>Rat</td>
<td>Dermal</td>
<td>&gt;5000 mg/kg</td>
</tr>
</tbody>
</table>

#### Sensitisation
Not sensitizing

#### Chronic toxicity
Not toxic

#### Carcinogenicity
Non carcinogenic

#### Mutagenicity
Non mutagenic

#### Reproductive toxicity
Non toxic

#### Remarks
WO

### Ecological information

#### Ecotoxicity
<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono ammonium phosphate</td>
<td>LC50</td>
<td>Oncorhynchus mykiss</td>
<td>96 h</td>
<td>&gt; 85.9 mg/l</td>
</tr>
</tbody>
</table>

#### Mobility
Phosphates, whether water or citrate soluble, are translocated in the soil only over very short periods and are then immobilised. Land-applied phosphate and ammonium are adsorbed to soil particles. Soil half-life: 1-2 weeks

#### Persistence and degradability
<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono ammonium phosphate</td>
<td>Not available</td>
<td>Not susceptible to photodegradation</td>
<td>Readily</td>
</tr>
</tbody>
</table>

#### Bioaccumulative potential
<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Kow or LogPow</th>
<th>Bioconcentration factor</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono ammonium phosphate</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

#### Results of PBT assessment
Not available

#### Other adverse effects
Soil bacteria will convert ammonium to nitrate, which can be taken up by plants or denitrified by micro-organisms to nitrogen and nitrous oxide gas. In water, ammonium and phosphate ions may cause eutrophication possibly resulting in increased algal growth. Decomposition of the algae may reduce dissolved oxygen which if significant could suffocate other aquatic organisms.
Methods of disposal
Depending on degree and nature of contamination dispose of by use as fertilizer on farm, as raw material for liquid fertilizer, or to an authorised waste facility.
Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations. See chapters 06.03 and 06.10 of the list of wastes (Commission decision 2000/532/EC).

Package waste disposal
Empty the bag by shaking to remove as much as possible of its contents.
If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling.

Note: see section 7 for safe handling and storage

14 Transport information

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Proper shipping name</th>
<th>Class</th>
<th>Packing group</th>
<th>Label</th>
<th>Other applicable information</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/RID</td>
<td>Not classified</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>ADN/ADNR</td>
<td>Not classified</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not classified</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>Not classified</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
</tbody>
</table>

15 Regulatory information

Hazard symbol Not applicable
R and S phrases Not applicable
Other regulations Regulation EC 1907/2006 (REACH), EC 2003/2003

16 Other information

Training advice Not applicable
Version / date: 4 / June 2015
References EFMA Guidance documents, YF1HPV data, NOTOX gap analysis

Disclaimer
The information in this Safety Data Sheet is given in good faith and belief in its accuracy based on the knowledge of the substance/preparation concerned at the date of publication. It does not imply the acceptance of any legal liability or responsibility whatsoever by AGROPOLYCHIM JSCo for the consequences of its use or misuse in any particular circumstances.

Note: see section 7 for safe handling and storage

Empty the bag by shaking to remove as much as possible of its contents.
If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling.