

MONOAMMONIUM PHOSPHATE (MAP)

Rev.08/ April 2022

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY	
1.1 Product identifier	
Trade name:	Monoammonium phosphate (NH ₄ H ₂ PO ₄)
Other names:	Ammonium biphosphate, Phosphoric acid monoammonium salt, Ammonium diacid phosphate, Ammonium monobasic phosphate, Primary ammonium phosphate, Ammonium dihydrogen tetraoxophosphate
Chemical name:	Ammonium dihydrogenorthophosphate
INDEX number as listed in Annex VI of CLP:	Not listed in tables under Appendix VI / CLP.
ID number of the C&L inventory:	Not listed
CAS number:	7722 -76 -1
EC No	231 -764 -5
REACH registration no(s):	01-2119488166-29-0020
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Uses:	<p><u>Uses by workers in industrial settings:</u></p> <ol style="list-style-type: none"> 1: Manufacture of the substance, including loading and unloading, packaging, storage and laboratory agent. 2: Formulation and synthesis (including transfer from vessel to vessel, formulation of goods and mixtures). 3: Formulation of fertilizers, including mixing, packaging, dilution, loading and unloading activities and addition of trace elements. 4: For the production of solid / liquid fertilizers 5: Use as a fire retardant (UCN B45000) for textiles, furniture, wood, paper, matches, plastics and cellulose (including immersion and pouring of goods and Manual mixing by direct contact) 6: Production of powder for fire extinguishers (including mixing in batch processes for formulating mixtures and goods, transfer of solids at ambient temperature or preparation in small containers). 7: Nutrient for yeast and in many fermentation processes in food and pharmaceutical sectors (UCN 42300) 8: Manufacture of frits for enamel (UCN G15000) 9: Binder in refractory bricks, tiles [UCN code B20300: Other: binders. 10: Flux for soldering in the manufacture of metal products, electronics and electrical equipment (including mixing in batch processes to formulate mixtures and goods, transfer of the substance. 11: Material for castings in dental technology 12: Manufacture of washing and cleaning products 13: Manufacture of ammonium polyphosphates, fire retardants, paints and coatings, forest fire extinguishers

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	<p>14. Use as a laboratory chemical</p> <p>15. Use in plant protection products in industrial sites</p> <p>16. Use as a food additive in industrial sites</p> <p><u>Uses by professional workers:</u></p> <p>17: Formulation of fertilizers, including mixing, packaging, dilution, loading / unloading and addition of micronutrients and / or additives.</p> <p>18: Any formulation and synthesis</p> <p>19: Use of powder for fire extinguishers</p> <p>20: Use for NPK / PK fertilizers <input type="checkbox"/> Surface spreading or inclusion of open fields, in greenhouses and / or forests, parks, public lawns, sports and golf courses</p> <p>21: Use for liquid fertilizers <input type="checkbox"/> Surface spraying or piping in open fields, Leaf fertilization, parks, public lawns, sports and golf courses, greenhouses</p> <p>22: Dilution of liquid fertilizers</p> <p>23: Material for castings for dental technology</p> <p>24: Use of detergents and maintenance products</p> <p>25. Use in plant protection products - for professional workers.</p> <p>26. Use as a dietary supplement - for professional workers</p> <p><u>Consumer uses:</u></p> <p>27: Consumer use - powder for fire extinguishers</p> <p>28: Consumer use - use as solid fertilizer - surface spreading in garden areas</p> <p>29: Consumer use - dilution of liquid fertilizers - surface spreading in garden areas</p> <p>30: Consumer use - home use of detergents and cleaners</p> <p>31. Consumer use - dilution of liquid fertilizers - for potted plants</p> <p>32. Consumer use - use in plant protection products</p>
Uses advised against:	No information available.
1.3 Details of the supplier of the safety data sheet	
Manufacturer/Importer/Supplier:	AGROPOLYCHIM AD BULGARIA Industrial zone 9160, DEVNYA Tel: +359 / 519 97 419 URL website: www.agropolychim.bg
Person responsible for the Safety Data Sheet (with e-mail address)	Eng. Miroslava Tsvetkova AGROPOLYCHIM AD BULGARIA Industrial zone 9160, DEVNYA

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	Tel.: +359 / 519 97 419, 553 Email: m.tsvetkova@agropolychim.bg	
1.4 Emergency telephone number		
Emergency phone number in the company: Emergency phone number in Bulgaria – Toxicology Clinique “Pirogov” Medical Institute: International emergency phone number	Tel: + 359 / 519 97 530 (24 hours / day) on the production site +359 2 9154 233; +359 2 9154 409 (24 hours / day) Toxicology Clinique, Pirogov National Institute, Sofia 112	
2. HAZARDS IDENTIFICATION		
2.1 Classification of the substance		
Classification in accordance with Regulation 1272/2008 (CLP)		
Hazard statement(s):	Not classified	---
2.2 Label elements		
Labelling in accordance with Regulation 1272/2008 (CLP)		
Hazard pictogram(s):	NA	
Signal word	NA	
Hazard statement(s):	Not classified	---
Precautionary statement(s):	Not classified	---
2.3 Other hazards		
PBT/vPvB criteria:	According to Annex XIII of Regulation (EC) № 1907/2006, it was not evaluated for PBT substances and vPvB was of inorganic origin.	
Endocrine disrupting properties:	This substance does not have endocrine disrupting properties in relation to non-target organisms, as it does not meet the criteria set out in Section B of Regulation (EC) № 2017/2100.	
Nanoforms:	This product does not contain nanoforms or nanoform-containing substances.	
Other hazards:	Not identified.	
3. COMPOSITION / INFORMATION ON INGREDIENTS		
Substance		
According to the REACH Regulation, ammonium dihydrogen orthophosphate is a single component substance of inorganic origin. None of the constituent compounds are classified according to the CLP Regulation or on their own as a result of an assessment in the preparation of a Chemical Safety Report.		

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Chemical name	CAS no.	EC no.	REACH Registration number	% content
Ammonium dihydrogenorthophosphate	7722-76-1	231 -764 -5	01-2119488166-29-0020	~ 88 %
Ammonium sulphate	7783-20-2	231-984-1	01-2119455044-46-0172	~ 6 %
Diammonium hydrogenorthophosphate	7783-28-0	231-987-8	01-2119490974-22-0016	~ 6 %

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Eye contact:	Wash thoroughly with plenty of water for at least 15 minutes. In case of eye irritation - seek specialized medical attention.
Skin contact:	Wash the affected area thoroughly with soap and water. If necessary, remove clothing and wash the affected area thoroughly. If irritation persists, seek medical attention.
Ingestion:	In case of ingestion of large quantities, seek medical advice immediately. If possible, do not leave the victim unattended.
Inhalation:	Remove from source of exposure to dusts. Obtain medical attention if ill effects occur.

4.2 Most important symptoms and effects

Acute effects	Not known
Delayed effects	Not known

4.3 Indication of any immediate medical attention and special treatment needed

Note to physician: Inhalation of gases resulting from fire or decomposition containing ammonia may cause respiratory irritation. Delayed lung effects are also possible

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	Use suitable extinguishing media. Avoid using too much water to prevent it from leaking into the sewer. Small fires: Water jet, foam, dry chemical or CO ₂ . Large fires: Water jet, fog or foam.
Unsuitable extinguishing media:	Not known

5.2 Special hazards arising from the substance or mixture

Heating above the decomposition point results in the formation of oxides of Nitrogen, Ammonia (NH₃) and Phosphorus oxides.

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5.3 Advice for firefighters

Use self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid walking on spilled product and exposure to dust. Avoid contact with eyes. Wear suitable protective clothing, including respiratory protection. Keep away from heat.

6.2 Environmental precautions

Avoid contamination of water sources and drainage, inform the authorities in case of accidental contamination of water reservoirs.

6.3 Methods and material for containment and cleaning up

Any spillage of fertilizer product should be cleaned immediately, swept and collected in clean and labeled open containers for safe disposal, avoid dusting.

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Technical measures/ Precautions:	Avoid excessive dust generation. Avoid unnecessary exposure to the atmosphere to prevent the absorption of moisture. Avoid contamination with combustible (eg diesel) and lubricants) and / or other incompatible materials. When carrying out loading and unloading activities for a longer period of time, use protective equipment such as gloves and respiratory protection. Carefully clean the equipment and facilities before handing them in for repair and / or inspection.
General occupation hygiene:	Do not eat, drink or smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment when leaving contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/ Storage conditions:	<p>Store in accordance with national and local regulations.</p> <p>Keep away from heat and flame.</p> <p>Keep away from combustible materials and substances listed in section 10.</p> <p>Make sure the product is not stored near hay, grain, straw, diesel fuel, etc.</p> <p>When stored loose, take the necessary measures to avoid mixing it with other fertilizers.</p> <p>Ensure high standards of storage in warehouses.</p> <p>Do not allow smoking and the use of open lights in storage areas.</p> <p>It is advisable to limit the size of the piles and to keep at least 1 m distance around the piles and packaged products.</p> <p>Any building used for storage must be dry and well ventilated.</p>
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Packaging materials:	Synthetic plastic materials - PP / PPE bags and packaging. Avoid using Copper.																				
RECOMMENDATIONS FOR THE USERS	Minimum time for a person to stay in the warehouses!																				
Incompatible products:	Bases, strong acids, copper and its alloys.																				
8. EXPOSURE CONTROLS / PERSONAL PROTECTION																					
8.1 Control parameters																					
Regulated occupational exposure limit values:	Not known																				
Recommended exposure limits for the general public and consumers (as a result of the chemical safety assessment).	<table><tr><th>Exposure pattern</th><th colspan="2">Derived No Effect Level (DNEL)</th></tr><tr><th></th><th>Workers</th><th>General population</th></tr><tr><td>Oral¹</td><td>---</td><td>0,42 mg/kg bw/d</td></tr><tr><td>Dermal¹</td><td>8,3 mg/kg bw/day</td><td>4,17 mg/kg bw/day</td></tr><tr><td>Inhalation¹</td><td>5,9 mg/m³</td><td>1.45 mg/m³</td></tr><tr><td colspan="3"></td></tr></table>			Exposure pattern	Derived No Effect Level (DNEL)			Workers	General population	Oral ¹	---	0,42 mg/kg bw/d	Dermal ¹	8,3 mg/kg bw/day	4,17 mg/kg bw/day	Inhalation ¹	5,9 mg/m ³	1.45 mg/m ³			
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¹ : As no acute toxicity hazard leading to the Classification and Labeling of the substance has been identified, the long-term DNEL is considered sufficient to ensure that no acute effects of the substance exposure occur (according to the ECHA Guidance on required information and chemical safety assessment). : Chapter R.8: Dose characterization [concentration] - for human health, May 2008 and Part C: Hazard Assessment, Draft new Chapter B.8 Scope of the Exposure Assessment, March 2010).																					
8.2 Exposure controls																					
Appropriate engineering controls:	The use of adequate ventilation is good industrial practice. Avoid high dust concentrations and provide ventilation where necessary so as to maintain dust concentrations in accordance with national legislation.																				
Environmental exposure controls:	See section 6.																				
Individual protection measures, such as personal protective equipment																					
Respiratory protection:	If the dust concentration is high and / or the ventilation is inadequate, use suitable dust masks or a respirator with a suitable filter for the corresponding dust concentration (EN 143, 149, R / P filters).																				
Hands protection:	Suitable gloves (eg leather or rubber) when working with the product for a long time.																				
Eye protection:	Safety glasses with side shields (EN 166)																				
Dermal protection:	Protective work clothes																				
Hygiene measures:	Do not eat, drink or smoke while handling the product. Wash your hands after handling the product and before eating, smoking or using the toilet, as well as at the end of the working day.																				
RECOMMENDATIONS FOR THE USERS	Machine fertilization with closed doors and windows of the machine cabin is recommended.																				
9. PHYSICAL AND CHEMICAL PROPERTIES																					
9.1 Information on basic physical and chemical properties																					

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Appearance:	White to grey crystals or granules.
Odour:	Odourless or slight ammonia odour
Melting temperature:	Melting point 197°C - 197,850C at 101,325 kPa, with decomposition immediately after melting.
Boiling temperature:	Not applicable, decomposes before boiling
Flash point:	Not applicable.
Flammability:	Not applicable.
Explosive properties:	Non explosive
Oxidizing properties:	No known oxidizing properties
Vapour pressure at 20°C	< 1.47 x 10 ⁻³ Pa
Relative density (D4 (20)):	1.81
pH (5 g, dissolved up to 100 g of water)	Min. 4,5
Solubility in water:	>100 g/l at 20°C
Partition coefficient n-octanol/water:	Not relevant as the substance is inorganic, considered to be low (based on high water solubility)
Viscosity:	Not applicable to solids
Specific conductivity:	No data
Auto flammability / self-ignition temperature:	Based on structure, use and transport information, not expected to be a self-heating substance.
Particle size distribution, 1 - 5 mm:	Over 99.5 %
Surface tension:	Not applicable (based on structure).

9.2 Other information

Molecular weight: 115.03; Inorganic, solid, one-component substance. The substance is not classified as a physical hazard.

10. STABILITY AND REACTIVITY

10.1 Reactivity: Corrosivity

It can be corrosive to iron and mild steels, aluminum, zinc and copper.

10.2 Chemical stability

Stable under recommended storage and handling conditions. Decomposes at 190 ° C.

10.3 Possibility of hazardous reactions

Avoid welding work on equipment that may contain residues of the product before it is cleaned and washed.

10.4 Conditions to avoid

Heating above 190 °C leads to decomposition. Contamination with incompatible materials. Sources of heat and fire nearby.

10.5 Incompatible materials

Bases, strong acids, copper and its alloys.

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10.6 Hazardous decomposition products	
Ammonia and oxides of nitrogen and phosphorus are released by reaction with strong bases or by heating to high temperatures (see sections 2 and 9).	
11. TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
ACUTE TOXICITY	
Acute oral toxicity:	LD50 rat: > 2000 mg/kg lw (OECD guideline 425)
Acute dermal toxicity:	LD50 rat: > 5000 mg/kg lw (OECD guideline 402)
Acute inhalation toxicity:	LC50 rat: > 5000 mg/m ³ (OECD 403, EC B.2 and EPA guideline)
CORROSION / SKIN IRRITATION	
Skin irritation:	Not scientifically justified due to the availability of adequate data from in vivo skin irritation tests. No irritating effects were observed.
Serious eye damage / Eye irritation:	Not scientifically justified due to the availability of adequate data from in vivo irritation tests. No irritating effects were observed.
Respiratory irritation:	No study available
RESPIRATORY AND SKIN SENSITIZATION	
Skin sensitization	Based on studies and scientific data on the substances involved in the reaction mixture, there are no indications of adverse effects. No negative effects were observed. Not considered to be sensitizing.
Respiratory sensitization	No available information
REPRODUCTIVE TOXICITY	
Effect on fertility:	NOAEL in rats (P and F) ≥ 1,500 mg / kg lw / day, reproductive toxicity; Human - oral exposure: no adverse effects were observed; dermal and inhalation exposure - no information available.
Effect on development:	NOAEL in rats (P and F) ≥ 1,500 mg / kg lw / day, reproductive toxicity; Human - oral exposure: no adverse effects were observed; dermal and inhalation exposure - no information available.
TOXICITY - REPEATED DOSE	
System effects:	Oral exposure: NOAEL (systemic, 90 days) = 250 mg / kg bw / day, rats (OECD Guideline 422), with effects on dental plaque at higher exposure levels. Dermal exposure: no studies available. Inhalation exposure: no studies available.
Local effects:	Dermal exposure - no data available. Inhalation exposure: no data available.
OTHER ADVERSE EFFECTS	

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Mutagenicity:	in vitro: Negative (OECD Guidelines 473 and 471), in vivo: No genotoxicity tests are required, as all in vitro ones show the absence of genotoxic properties.
Respiratory irritation:	No data available.
Carcinogenicity:	No data available.
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
Fish (acute):	96-h LC50:> 100 mg / l (OECD Guideline 203)
Fish (long-term):	No data available.
Daphnia carinata (acute):	Based on reliable studies performed with similar substances in the phosphate category, 48h-EC50 is> 100 mg / l.
Daphnia carinata (long-term):	No data
Algae:	EC50/LC50 fresh water: >100 mg/L
Observed NOEC concentration level:	EC10/LC10 or NOEC fresh water: 100 mg/L
12.2 Persistence and degradability	
Biodegradation:	Easily degradable by microorganisms.
Photolysis:	Does not photodegrade.
12.3 Bioaccumulative potential	
Octanol-water partition coefficient (K _{ow}):	Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Bioconcentration factor (BCF):	Not applicable
12.4 Mobility in soil	
Adsorption coefficient:	Low potential for adsorption (based on substance properties).
12.5 Results of PBT and vPvB assessment	
As Monoammonium phosphate is an inorganic substance, no assessment is required for PBT (resistance, bioaccumulation and toxicity) and vPvB (high resistance and bioaccumulation) according to Annex XIII.	
12.6. Endocrine disrupting properties	
There is no clinical evidence, that shows that MAP has endocrine disrupting properties.	
13. DISPOSAL CONSIDERATIONS	

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Waste from residues:	<p>Depending on the degree and type of pollution, treat either as a fertilizer for agriculture or as a raw material for the production of liquid fertilizer or treat in authorized facilities.</p> <p>Do not dispose of the material in the sewage system, treat the material and its packaging in a safe manner and in accordance with applicable local and national regulations.</p> <p>See classes 06 03 and 06 10 of the list of wastes (Commission Decision 2000/532 / EC)</p>
Packing / bags:	<p>Clean the emptied packages as well as possible by shaking them carefully.</p> <p>If permitted by local authorities, empty packages may be reused or returned for recycling.</p>

14. TRANSPORT INFORMATION

UN Number:	<p>ADR/RID: Non classified</p> <p>ADN/ADNR: Non classified</p> <p>IMDG: Non classified</p> <p>ICAO/IATA: Non classified</p>
Proper shipping name:	Ammonium dihydrogen orthophosphate
Transport hazard classes:	Not classified
Maritime transport of goods in bulk (MARPOL 73/78; IMO)	Not classified
Packaging group:	Not applicable
Special precautions:	Not identified

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:	Regulation EC 1907/2006 (REACH), European Regulation on fertilizing products
15.2 Chemical safety assessment:	The substance is not classified as dangerous according to the criteria of Regulation 1272/2008/EU on Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) and therefore according to Clause 14 (4)) of the REACH Regulation does not require exposure and chemical safety assessment.

16. OTHER INFORMATION

The information provided in this safety data sheet is accurate, using our best knowledge, beliefs and information as of the date of its publication. This information is provided only as a guide for the safe handling, use, processing, storage, transportation, disposal and discharge, and cannot be considered as a guarantee or quality specification. The information relates only to the specified specific material and may not be valid for such material used in combination with any other materials or derivatives, unless specified in the text.

Classification according to Regulation 1272/2008 as described in Annex VI:

The substance is not classified as dangerous according to Regulation on Classification, Labelling and

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Packaging of Substances and Mixtures CLP (1272/2008 / EU).

Classification according to Regulation 1272/2008, own classification based on the performed Chemical Safety Assessment CSA:

Not classified separately according to CSA.

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Created/Revised by:	"AGROPOLYCHIM"AD, Production Department