SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

MONOAMMONIUM PHOSPHATE, MAP Date of revision 27.11.2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Chemical name: Ammonium Dihydrogenorthophosphate
CAS No: 7722-76-1
REACH Registration number: 01-2119488166-29-XXXX

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Fertilizer
Uses advised against: Not specified

1.3. Details of the supplier of the safety data sheet

Supplier: „Aurepio" Sp. z o. o.
Al. Jana Pawła II 11
00-828 Warszawa, Poland
Supplier's phone number: + 48 22 652 90 61 to 64
E-mail of person responsible for the safety data sheet: aurepio@aurepio.pl

1.4. Emergency telephone number

Emergency telephone number in Poland:
112 (24 h) or
+48 22 652 90 61 to 64 (Monday -Friday, at hours: 8 a.m. – 4 p.m.).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 as amended.

The substance does not meet the criteria for classification.

Human health effects

In case of significant dust concentrations or direct product penetration into eyes, irritation, redness, tearing, burning, itching may occur. Contact with the skin may cause itching, local redness. Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing. Swallowing may cause damage of mucous membrane of the digestive tract, vomiting and diarrhea.

Environmental effects
Large-scale release may lead to eutrophication of waterways.

Physical effects
Not known.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 as amended.

Pictograms: **Not required.**
Signal word: **Not required.**
Hazard statements: **Not required.**
Precautionary statements: **Not required**

2.3. Other hazards
The criteria described in Annex XIII (PBT and vPvB properties) do not apply to inorganic substances. When heated to decomposition (> 197 °C), releases toxic fumes containing ammonia and oxides of nitrogen.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product identifier: Ammonium Dihydrogenorthophosphate
CAS No: 7722-76-1, REACH Registration number: 01-2119488166-29-XXXX

Substance's name/ REACH Registration number	Index number	CAS number	EC Number	Mass fraction in %	Hazard classes and category codes	Hazard statement codes
Ammonium Dihydrogenorthophosphate* 01-2119488166-29-XXXX	-	7722-76-1	231-764-5	78 - 85	-	-
Impurities:						
Ammonium Sulphate* 01-2119455044-46-XXXX	-	7783-20-2	231-984-1	6 - 10	-	-
Diammonium Hydrogenorthophosphate* 01-2119490974-22-XXXX	-	7783-28-0	231-987-8	2 - 7	-	-

* Designated NDS for dusts

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: Move the injured person from the risk area, arrange a comfortable reclining or sitting position, ensure peace, heat. Call a doctor if necessary.

Skin contact: Take off immediately contaminated clothing and wash the skin thoroughly with lukewarm, running water. Call a doctor if necessary.

Eye contact: ` Rinse immediately with plenty of cold water, preferably running water for at least 15 minutes. Remove contact lenses. Avoid a strong water jet due to the risk of mechanical damage to the cornea. If irritation persists, get medical attention.

Gastrointestinal tract: If swallowed, do not induce vomiting. Rinse mouth with water and then give a large amount of water to drink. Consult a doctor if necessary.

4.2. Most important symptoms and effects, both acute and delayed

Significant dust concentrations or direct product penetration into eyes may cause irritation, redness, tearing, burning, itching. Contact with skin may cause itching, local redness. Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing. Swallowing may cause damage of mucous membrane of the digestive tract, vomiting and diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed

No special recommendations. Use symptomatic treatment.
In case of breathing difficulties administer oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: The product is not flammable. Use extinguishing media appropriate for materials that are burning in surrounding area.
Unsuitable extinguishing media: Full water jet.

5.2. Special hazards arising from the substance or mixture

In case of fire, nitrogen oxides, phosphorus oxides, ammonia may be released.

5.3. Advice for firefighters

Wear gas-tight protective clothing and breathing apparatus that is independent of ambient air. Requirements for protective clothing: EN 469.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protective equipment. Mark the hazard area and prevent access to unauthorized persons. Avoid raising dust.

6.2. Environmental precautions
Protect against penetration into sewers, surface and ground waters and soil.

6.3. Methods and material for containment and cleaning up
Place the damaged packaging in the replacement packaging. Collect the released product mechanically, avoiding dust collection, transfer into tightly closed containers and dispose for disposal. Rinse the contaminated surface with large amounts of water.

6.4. Reference to other sections
Follow the instructions given in section 7.
Detailed information on personal protective equipment is given in section 8.
Remove as directed in section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Take precautions to avoid contact with skin and eyes when working with the substance. Do not breathe dust. Do not eat, drink or smoke during use. Wash hands during breaks and after work. Remove contaminated clothing immediately, wash before re-use. Use in rooms with general ventilation and in areas particularly exposed to dust, also use local ventilation.

7.2. Conditions for safe storage, including any incompatibilities
Store in original, properly labelled, tightly closed containers in a cool, well-ventilated place accessible only to authorized persons. Keep away from children. Protect against moisture. Do not store together with food, drinks and animal feeds. Do not store with incompatible materials - see section 10.
Suitable materials for packaging: polyethylene, polypropylene.

7.3. Specific end use(s)
No information on applications other than mentioned in subsection 1.2.

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according to REGULATION (EC) 1907/2006, as amended.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Recommended procedures for monitoring air cleanliness in the work environment:
EN 689 Air at workplaces. Guidelines for the assessment of inhalation exposure to chemical agents by comparison with limit values and measurement strategy
EN 1540 Air at workplaces. Terminology
PN-Z-04008-7: 2002 / Az1: 2004 and PN-Z-04008-7: 2002 - Polish version. Air purity protection - Sampling - Principles of air sampling in the work environment and interpretation of results

For Poland:

Component	CAS No.	Normative	Value	Unit	Legal base
Dusts not classified for toxicity					
- inhalable fraction	-	NDS	10	mg/m^3	O.J.2018.0.1286

$DNEL/DMEL_{worker}$ (inhalation, chronic toxicity, systemic effect) 6.1 mg/m^3
$DNEL/DMEL_{worker}$ (skin, chronic toxicity, systemic effect) 34,7 mg/kg body weight/day
$DNEL/DMEL_{consumer}$ (oral, chronic toxicity, systemic effect) 2.1 mg/kg body weight/day
$DNEL/DMEL_{consumer}$ (inhalation, chronic toxicity, systemic effects) 1.8 mg/m^3
$DNEL/DMEL_{consumer}$ (skin, chronic toxicity, systemic effects) 20.8 mg/kg body weight/day
$PNEC_{freshwater}$ 1.7 mg/l (extrapolation method)
$PNEC_{marine\ water}$ 0.17 mg/l (extrapolation method)
$PNEC_{sporadic\ release}$ 17 mg/l (extrapolation method)
$PNEC_{sewage\ treatment\ plant}$: 10 mg/l (extrapolation method)

8.2. Exposure controls

8.2.1. Appropriate engineering controls
Use efficient ventilation.

8.2.2. Individual protection measures, such as personal protective equipment

Respiratory system: In the event of a high concentration of dust, use respiratory protection with a particulate filter marked in white and P in accordance with EN 149 or EN 143.

Hands and skin: When handling large quantities, wear protective clothing made of natural materials, gloves made of rubber (thickness ≥ 0.4 mm ± 0.1 mm, breakthrough time > 480 min), protective footwear made of rubber or leather. Gloves must comply with the standard: EN 374. Requirements for protective clothing: ISO 13982

Eyes: Wear safety goggles according to EN 166.

Hygiene at work: ` Observe the general industrial hygiene provisions. Do not allow for to exceeded permissible normative concentrations at work. Remove contaminated clothing after work. Wash hands and face before breaks

at work. Wash the entire body thoroughly after work. Do not eat, drink or smoke during work. Do not breathe dust.

8.2.3. Environmental exposure controls
Secure against entering the municipal water, sewage system and watercourses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance	White, light gray or yellowish granules with dimensions < 1 mm: < 2%, 2 - 5 mm: > 90%, < 6 mm: 100%.
b) Odour	No odour
c) Odour threshold	Not applicable
d) pH	4 - 5 (1% solution)
e) Melting / freezing point	197°C (1013 hPa)
f) Initial boiling point and boiling range	It decomposes before reaching the boiling point.
g) Flash point	No data available.
h) Evaporation rate	No data available.
i) Flammability (solid, gas)	The substance is non-flammable.
j) Upper / lower flammability limit or upper / lower explosion limit	It does not pose an explosion hazard.
k) Vapor pressure	0.00147 Pa (20 °C)
l) Vapor density	No data available.
m) Relative density	1.81 (water=1) (20 °C)
n) Solubility	Solubility in water > 100 g/l (20 °C).
o) Partition coefficient: n-octanol / water	According to Annex VII (point 7.8) to Regulation (EC), 1907/2006 the study does not need to be conducted for inorganic substances.
p) Auto-ignition temperature	No data available

r) Decomposition temperature	> 197 °C (1013 hPa)
s) Viscosity	Not applicable.
t) Explosive properties	Not explosive.
u) Oxidizing properties.	No oxidizing properties.

9.2. Other information
Molecular weight: 115 g / mol.

SECTION 10: Stability and reactivity

10.1. Reactivity
It polymerizes, hydrolyzes, oxidizes, reacts with acids and their anhydrides.

10.2. Chemical stability
The substance is stable under the recommended conditions of transport or storage.

10.3. Possibility of hazardous reactions
They are not known.

10.4. Conditions to avoid
Moisture, temperature > 197 °C (decomposition).

10.5. Incompatible materials
Strong acids, bases.

10.6. Hazardous decomposition products
Ammonia and nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity:
Based on available data, the classification criteria are not met.

LD_{50} - oral rat: > 2000 mg/kg (OECD 425)
LD_{50} - skin rat: > 5000 mg/kg (OECD 402)
LC_{50} - inhalation rat: > 5000 mg/m^3 (OECD 403)

Skin corrosion / irritation:
Based on available data, the classification criteria are not met (rabbit, OECD 404).
Respiratory or skin sensitization:
Based on available data, the classification criteria are not met (female-mouse, OECD 429).
Germ cell mutagenicity:
Based on available data, the classification criteria are not met (OECD 471, OECD 473, OECD 476).
Carcinogenicity:
Based on available data, the classification criteria are not met.
Reproductive toxicity:
Based on available data, the classification criteria are not met.
Effects on fertility and developmental toxicity:
NOAEL: ≥ 1500 mg/kg body weight/day (rat (male and female), orally, 6 weeks) (OECD422)
Specific target organ toxicity - single exposure
Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure
Based on available data, the classification criteria are not met.
NOAEL = 250 mg/kg body weight/day (rat (male and female), orally, 6 weeks) (OECD422)
Aspiration hazard:
Based on available data, the classification criteria are not met.

Health effects of local exposure

Inhalation:	Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing.
Eye contact:	Significant dust concentrations or direct product penetration into eyes may cause irritation, redness, tearing, burning, itching.
Skin contact:	It can cause itching, local redness.
Swallowing:	Contact with skin may cause itching, local redness. Swallowing may cause damage of mucous membrane of the digestive tract, vomiting and diarrhea.

SECTION 12: Ecological information

12.1. Toxicity
Based on available data, the classification criteria are not met.

LC_{50} - fish (Oncorhynchus mykkis) > 85.9 mg /l (96h) (OECD 203)
EC_{50} - invertebrates (Daphnia carinata) 1790 mg/l (72h)
EC_{50} - algae (Pseudokirchnerella subcapitata) > 100 mg/l (72h) (OECD 201)

12.2. Persistence and degradability
The study does not need to be conducted for inorganic substances.

In wastewater plant: in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20 °C is 52 g N/kg dissolved solid/day.

12.3. Bioaccumulative potential
Low bioaccumulation.

Octanol / water partition coefficient (Kow):	Not determined for inorganic substances.
Bioconcentration factor (BCF):	Low potential.

12.4. Mobility in soil
Low adsorption potential.

12.5. Results of PBT and vPvB assessment
The criteria described in Annex XIII (PBT and vPvB properties) do not apply to inorganic substances.

12.6. Other adverse effects
Large-scale release may lead to eutrophication of waterways.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product
Do not dispose together with municipal waste. Do not allow contamination of ground and surface water. If possible, use all amount of the product. Possible remnants should be given to an authorized waste recipient.

Package
Empty the packaging thoroughly. Reusable packaging can be reused after thoroughly cleaning. Disposable packaging (after thoroughly cleaning) can be recycled. Proceed in accordance with country and local regulations. Empty and clean packaging can be disposed to municipal waste stream.

Special precautions:
There are no special recommendations.

SECTION 14: Transport information

This product is not classified as dangerous within the meaning of transport regulations.
ADR/RID, IMDG, IATA

14.1. UN number	Not applicable.
14.2. UN proper shipping name	Not applicable.
14.3. Transport hazard class(es)	Not applicable.
14.4. Packing group	Not applicable.

14.5. Environmental hazards
The substance does not pose a risk to the environment in accordance with the criteria contained in the UN Model Regulations.

14.6. Special precautions for user
No special recommendations.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable.

SECTION 15: Regulatory information

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

Regulation of the Minister of Agriculture and Rural Development of 24 June 2002 on occupational health and safety in the use and storage of plant protection products as well as mineral and organic-mineral fertilizers (Dz.U.2002.99.896), as amended.
Regulation (EC) 1907/2006 of the European Parliament and of the Council of 18 December 2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94, as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000 / 21 / EC (OJ EU L series No. 396 of 30 December, 2006), as amended.
REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (EC) No 1272/2008 of 16 December 2008 on the classification, Labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006 (OJ EU L Series No. 353 of 31 December, 2008), as amended.

Act of 25 February 2011 on chemical substances and mixtures (Book of Acts 2011.63.322), as amended.
Regulation of the Minister of Health of 30 December, 2004 on occupational health and safety connected with chemical agents at work (Book of Acts 2005.11.86), as amended.
Regulation of the Minister of Health of 2 February, 2011 on the testing and measurement of agents harmful to health in the work environment (Book of Acts 2011.33.166).
The Act of 14 December 2012 on waste (Book of Acts 2013.0.21), as amended.
Act of 13 June 2013 on the management of packaging and packaging waste (Book of Acts 2013.0.888), as amended.
Regulation of the Minister of Labor and Social Policy of 14.03.2000 on the safety and hygiene of work on manual transport work (Book of Acts 2000.26.313), as amended.
Regulation of the Minister of Labor and Social Policy of 6 June, 2014 on the highest allowable concentrations and intensities of agents harmful to health in the work environment (Book of Acts 2018.0.1286.
REGULATION (EC) No 2003/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 October 2003 on fertilizers, as amended.
Act of 10 July 2007 on fertilizers and fertilization, Book of Acts 1997, No.147.1033, as amended.
Regulation of the Minister of Agriculture and Rural Development of 16 April 2008 on the detailed method of fertilizer application and conducting training in the field of their application, Dz.U.2008.80.479, as amended..
Regulation of the Minister of Economy of 8 September 2010 on the method of packaging mineral fertilizers, placing information on fertilizer components on these packaging, the method of testing mineral fertilizers and types of lime fertilizer, Dz.U.2010.183.1229.
Regulation of the Minister of Agriculture and Rural Development of 18 June 2008 on the implementation of certain provisions of the Act on fertilizers and fertilization, OJ 2008.119.765, as amended.

15.2. Chemical safety assessment

A chemical safety assessment for this substance has been carried out.

SECTION 16: Other information

Sources:

- Safety Data Sheet, date of compilation: 04.12.2017

Recommendations for training

As a minimum there is recommended a safety training. Prior to working with the product the user is required to know the safety rules for safe handling of chemicals, and above all, hold appropriate workplace training.

SAFETY DATA SHEET
according to REGULATION (EC) 1907/2006, as amended.

Abbreviations:
NDS - Highest permissible concentration - value of weighted average of concentration, which impact on the employee during an 8-hour daily and average weekly working time, during the duration of its professional activity should not cause negative changes in his state of health and the health of the future generations
DNEL - level that does not cause harm to human health - the level of exposure to the substance not causing harmful effects to human health
PNEC - predicted concentration causing changes in the environment - the concentration of the substance below which there are no expected adverse effects on the environment
vPvB - substance very persistent and very bioaccumulative
PBT – substance persistent, bioaccumulative and toxic
NOAEL — *Highest dose* at which there *was not* an observed toxic or adverse effect.
DMEL - Derived Minimal Effect Level
LD_{50}: Lethal Dose 50 %. The LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval.
LC_{50}: Lethal Concentration 50 %. The LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval.
EC_{50}: Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50% changes in response (e.g. on growth) during a specified time interval.
BCF - bioconcentration factor - the ratio of the concentration of substances in the body to its concentration in water at equilibrium
ADR- Agreement on Dangerous Goods by Road
RID - Regulations Concerning the International Transport of Dangerous Goods by Rail
IMDG - International Maritime Dangerous Goods Code
IATA - International Air Transport Association
CAS - number assigned to a chemical substance on the list of Chemical Abstracts Service
EC - the reference number used in the European Union in order to identify hazardous substances, in particular, registered in the European Inventory of Existing Commercial Chemical Substances (EINEC) or the European List of Notified Chemical Substances (ELINCS) or the list of chemical substances listed in the publication of "No-longer polymers"
UN number - four-digit identification number of the material in the list of dangerous materials of the United Nations, based on the "UN Model Regulations", which classified material is an individual, mixture or article

The information contained in this safety data sheet are based on the current state of knowledge and data from a supplier. They are not a guarantee of specific properties of the product and does not relieve users of responsibility for the appropriate use of this information. The supplier will not be liable for any damages or losses that might arise from the use of this product.

Changes
Changes to the previous version are marked with a vertical bold line on the left of the text.