



SAFETY DATA SHEET

1. Identification

Name of the substance or mixture (trade name)	Monoammonium Phosphate
Synonyms	Monoammonium dihydrogen phosphate, MAP
Product code	KF_NH4H2PO4_BZ_PR
Major recommended uses for the substance or mixture	Fertilizer.
Specific restrictions for use of the substance or mixture	Uses other than the recommended use.

Manufacturer/Importer/Distributor information

Company Name	Koch Fertilizer, LLC 4111 E 37th Street North PO Box 2219 Wichita, KS, 67201-2219 kochmsds@kochind.com 1-316-828-7672
Emergency	For Chemical Emergency Call CHEMTREC day or night Brazil - 0800 892 0479 (toll free) USA/Canada - 1.800.424.9300 Mexico - 1.800.681.9531 Outside USA/Canada - 1.703.527.3887 (collect calls accepted)

2. Hazards identification

Classification of the substance or mixture

The classification of the substance or mixture has been performed in accordance with ABNT NBR 14725.

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.

GHS labeling elements, including precautionary statements

Hazard symbol(s)	None.
Signal word	None.
Hazard statement(s)	The substance does not meet the criteria for classification.
Precautionary statement(s)	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification	None known.
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Supplemental information	None.
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Other information	The Safety Data Sheet of hazardous chemicals can be obtained via phone, email, or on the company's website.
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3. Composition/information on ingredients

Mixture

Common chemical name or technical name	CAS number	Concentration or concentration range
Monoammonium phosphate Classification: -	7722-76-1	80 - <100
Ammonium magnesium orthophosphate Classification: -	7785-21-9	5 - 10
Ammonium sulfate Classification: Acute Tox. 5;H303	7783-20-2	5 - 10
Diammonium hydrogen orthophosphate Classification: Acute Tox. 5;H303	7783-28-0	5 - 10

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

4. First-aid measures

First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Dusts may irritate the respiratory tract, skin and eyes. Exposure may cause temporary irritation, redness, or discomfort. Coughing.

Personal protection for first-aid responders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician Treat symptomatically.

5. Fire-fighting measures

Means of fire extinguishing

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special fire fighting procedures Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to cool unopened containers. Water runoff can cause environmental damage. Move container from fire area if it can be done without risk.

Protective measures taken by firefighting crews Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted. The product is non-combustible.

6. Control measures for spills and leaks

Personal precautions, protective equipment and emergency procedures

To be taken by those who are not involved in rendering emergency services Wear appropriate personal protective equipment.

To be taken by those who are involved in rendering emergency services Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent product from entering drains. Stop the flow of material, if this is without risk. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water. Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Emergency procedures	Ventilate the contaminated area. Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Wear appropriate protective equipment and clothing during clean-up. Prevent product from entering drains. Do not allow material to contaminate ground water system. Stop the flow of material, if this is without risk. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling	Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. Avoid contact with eyes, skin, and clothing.
Conditions for safe storage, including any incompatibilities	This product when stored in a confined, unventilated space/hold can give off ammonia or other odors and lead to the depletion of oxygen within this space and other confined spaces. Store in tightly closed container. Store in a cool, dry, well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Control parameters	Follow standard monitoring procedures.
Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.
Personal protective measures	
Eyes and face protection	Risk of contact: Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Risk of contact: Wear appropriate chemical resistant gloves.
Other	Normal work clothing (long sleeved shirts and long pants) is recommended.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Physical state	Solid.
Form	Granules.
Color	Gray to off-white.
Odor	Slight acidic.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flammability	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable, material is a solid.
Explosive limit - upper (%)	Not applicable, material is a solid.
Flash point	Not applicable, material is a solid.
Auto-ignition temperature	Not applicable, material is a solid.
Decomposition temperature	Not available.
pH	4.5 (1% solution) (5.4 - 10 (5% solution))
pH concentration	Not available.
Kinematic viscosity	Not applicable, material is a solid.
Solubility	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Vapor pressure	Not available.
Vapor pressure temp.	Not available.
Density and/or relative density	
Density	Not available.
Relative density	1.8
Relative density temperature	Not available.
Vapor density	Not available.
Particle characteristics	Not available.
Other physical and chemical parameters	
Bulk density	64 - 75 lb/ft3

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions. Decomposes at high temperatures giving ammonia and polyphosphoric acid.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	High temperatures. Contact with incompatible materials. Avoid dust formation.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases. Magnesium.
Hazardous decomposition products	Phosphorus oxides. Nitrogen Oxides. Ammonia.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system. Prolonged inhalation may be harmful.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms	Dusts may irritate the respiratory tract, skin and eyes. Exposure may cause temporary irritation, redness, or discomfort. Coughing.	
Acute toxicity	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Large quantities: May cause effects on the calcium metabolism, resulting in cardiac disorders and impaired functions. However, ingestion is not likely to be a primary route of occupational exposure.	
Components	Species	Test Results
Ammonium sulfate (CAS 7783-20-2)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
<i>Dust</i>		
LC50	Rat	> 1000 mg/m ³ , 8 Hours
Oral		
LD50	Rat	2000 - 4250 mg/kg
Diammonium hydrogen orthophosphate (CAS 7783-28-0)		
<u>Acute</u>		
Dermal		
LD50	Sprague-Dawley rat	> 5000 mg/kg
Inhalation		
LC50	Rat	> 5000 mg/m ³ , 4 hours
Oral		
LD50	Sprague-Dawley rat	> 2000 mg/kg
Monoammonium phosphate (CAS 7722-76-1)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Rat	> 2000 mg/kg
Skin irritation and corrosion	May cause irritation through mechanical abrasion.	
Serious eye damage/eye irritation	May cause eye irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classifiable as to carcinogenicity to humans.	
Toxic to reproduction	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.	
Other information	No other specific acute or chronic health impact noted.	

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
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Components	Species		Test Results
Ammonium sulfate (CAS 7783-20-2)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 100 mg/l, 96 Hours
Fish	LC50	Pimephales promelas	> 100 mg/l, 96 Hours
Chronic			
Fish	NOEC	Pimephales promelas	300 mg/l, 10 days
Diammonium hydrogen orthophosphate (CAS 7783-28-0)			
Aquatic			
Algae	EC50	Selenastrum capricornutum	> 97.1 mg/l, 72 hours
Crustacea	LC50	Daphnia	1790 mg/l, 96 hours
Fish	LC50	Carp, hawk fish (Cirrhinus mrigala)	1700 mg/l, 96 hours
Monoammonium phosphate (CAS 7722-76-1)			
Aquatic			
Acute			
Fish	LC50	Oncorhynchus mykiss	> 85.9 mg/l, 96 Hours
Persistence and degradability	No data is available on the degradability of this product.		
Bioaccumulative potential	The product is not expected to bioaccumulate.		
Partition coefficient n-octanol / water (log Kow)	Not available.		
Bioconcentration factor (BCF)	Not available.		
Mobility in soil	This product is water soluble and may disperse in soil.		
Other adverse effects	Fertilizers, particularly those containing nitrogen and/or phosphorus, can stimulate weed and algal growth in static surface waters. Nitrogen fertilizers may contain or form nitrate which can contaminate surface and ground-water. High nitrate concentrations may render the water unsuitable for human and livestock consumption.		

13. Considerations on final disposal

Recommended methods for final destination

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

National regulations

ANTT

Not regulated as dangerous goods.

International regulations

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Federal regulations

This chemical product safety data sheet was prepared in accordance with the Brazilian Standard (ABNT NBR 14725: (Safety data sheet for chemicals (SDS))). The Safety Data Sheet of the hazardous chemical can be obtained from a supplier. This product is not classified for Transportation in accordance with Resolution ANTT Resolution 5998, of November 3, 2022, as amended.

Chemical Products Controlled by the Federal Police (Ordinance No. 240)

Not applicable.

Chemical Products for the Manufacture and Synthesis of Narcotics and Psychotropic Subject to Control of the Ministry of Justice (Resolution No. 169 of 15 August 2017, Annex I, List D2)

Not listed.

Controlled products that must be reported to the Army (Decree No. 3655, Annex 1, as amended)

Not applicable.

Ozone depleting substances (Decree No. 99.280, Annexes A, B, C and E, as amended)

Not applicable.

POPs (Decree No. 5.472 promulgates the Stockholm Convention on persistent organic pollutants)

Not listed.

Use and physiological effects of chemical products (Decree No. 3665, Annex 3)

Not applicable.

International regulations

Montreal Protocol

Not listed.

Stockholm Convention

Not listed.

Rotterdam Convention

Not listed.

Kyoto protocol

Not listed.

Basel Convention

Not listed.

16. Other information

Significant information, yet not specifically related to the previous sections Not available.

References

IARC Monographs. Overall Evaluation of Carcinogenicity
ECHA: European Chemical Agency.

Legends and abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists.
ANTT: National Agency of Land Transport.
CAS: Chemical Abstract Service.
IARC: International Agency for Research on Cancer.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MARPOL: International Convention for the Prevention of Pollution from Ships.
STEL: Short term exposure limit.
TWA: Time Weighted Average.

Disclaimer

NOTICE: The information contained in this document is based on data considered to be accurate as of the preparation date of this Safety Data Sheet (SDS) and was prepared pursuant to applicable Government regulation(s). This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the above data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided about any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. Purchasers and users of the product are responsible for determining that this product is suitable for the intended use and application. No responsibility can be assumed by vendor for any damage or injury resulting from failure to adhere to recommended uses, or from any hazards inherent to the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product should explicitly advise their employees, agents, contractors and customers who will use the product of this SDS.