Nutrien
Feeding the Future™

SAFETY DATA SHEET

AMMONIUM POLYPHOSPHATE SOLUTION

Section 1. Identification

Product identifier : AMMONIUM POLYPHOSPHATE SOLUTION

Product code : POLY10, POLY11, 1522-32047, 2517-32048

SDS # : 216

Other means of identification : APP 10-34-0; APP 11-37-0; COMPEN; POLY

Product type : Liquid.

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

Identified uses
Fertilizer. Fertilizer blend component. For further manufacture of feed. Industrial use.

Uses advised against
Not to be used as an ingredient for human food.

Supplier's details : PCS Sales (Canada), Inc. (A Subsidiary of Nutrien Ltd.)
Suite 1700
211 - 19th Street East
Saskatoon SK S7K 5R6
Canada

Agrium Canada Partnership (A Subsidiary of Nutrien Ltd.)
13131 Lake Fraser Drive S.E.
Calgary AB T2J 7E8
Canada

Telephone no. : 1-800-524-0132

Email : sds@nutrien.com

Emergency telephone number (with hours of operation) : CHEMTREC (24 hrs) 1-800-424-9300 or +1-703-527-3887

Section 2. Hazard identification

Classification in accordance with the Hazardous Products Regulations (SOR/2015-17; SOR/2022-272)

Classification of the substance or mixture : EYE IRRITATION - Category 2B

GHS label elements

Hazard pictograms : Not applicable.

Signal word : Warning

Hazard statements : Causes eye irritation.

Precautionary statements

Prevention : Wash thoroughly after handling.

Section 2. Hazard identification

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage : Not applicable.

Disposal : Not applicable.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% (w/w)	CAS number
ammonium polyphosphate	70 - 72	68333-79-9
water	< 20	7732-18-5
ammonium dihydrogenorthophosphate	< 10	7722-76-1
diammonium hydrogenorthophosphate	< 10	7783-28-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if irritation occurs.

Inhalation : Remove person to fresh air. No known significant effects. Seek medical attention for any signs of wheezing and/or breathing difficulties. For additional advice call the medical emergency number on this SDS or your poison center or medical provider.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : May be harmful if swallowed. Over-exposure by ingestion is unlikely under normal working conditions.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
irritation
watering
redness

Section 4. First-aid measures

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. Decontamination measures may be necessary. Personnel and equipment must be checked and decontaminated prior to leaving the area.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
nitrogen oxides

Special protective actions for fire-fighters : No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Contain and collect the water used to fight the fire for later treatment and disposal.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment (see Section 9).

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

Small spill : Put on appropriate personal protective equipment (see Section 8). Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Dispose of via a licensed waste disposal contractor.

Large spill : Put on appropriate personal protective equipment (see Section 8). Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Recycle to process, if possible.
or
Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container or corrosive-resistant and/or lined container. May be corrosive to metals. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Use appropriate containment to avoid environmental contamination. Incompatible with: aluminum, copper, zinc and their alloys, including brass, bronze and galvanized materials. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Contact your personal protective equipment supplier to verify the compatibility of the equipment for the intended purpose.

Section 8. Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Use slip resistant footwear.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid.

Color : Green to Brown.

Odor : Odorless.

Odor threshold : Not available.

pH : 6

Melting point/freezing point : <-12°C (<10.4°F)

Boiling point, initial boiling point, and boiling range : Not available.

Flash point : Not applicable.

Flammability : Not available.

Lower and upper explosion limit/flammability limit : Not available.

Vapor pressure :

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Vapor Pressure at 20˚C			Vapor pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
water	17.5	2.3				

Relative vapor density : Not available.

Relative density : 1.45

Solubility in water : Soluble in water in any proportion.

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

Viscosity : Not available.

Particle characteristics

Median particle size : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Keep away from incompatible materials.

Incompatible materials : Aluminium, copper, zinc and their alloys, including brass, bronze and galvanized materials. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonium dihydrogenorthophosphate	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-
diammonium hydrogenorthophosphate	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male,	>2000 mg/kg	-

Section 11. Toxicological information

		Female		

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
diammonium hydrogenorthophosphate	Eyes - Cornea opacity	Rabbit	0	72 hours	-
	Skin - Edema	Rabbit	0	72 hours	-

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Eyes : Causes eye irritation.

Respiratory : No known significant effects or critical hazards.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
diammonium hydrogenorthophosphate	skin	Mouse	Not sensitizing

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
ammonium dihydrogenorthophosphate	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
diammonium hydrogenorthophosphate	OECD 471 Bacterial Reverse Mutation Test	Subject: Bacteria	Negative

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
ammonium dihydrogenorthophosphate	Negative	Negative	Negative	Rat - Male, Female	Oral: >1500 mg/kg	-
diammonium hydrogenorthophosphate	Negative	Negative	Negative	Rat - Male, Female	Oral: 1500 mg/kg	-

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonium dihydrogenorthophosphate	Negative - Oral	Rat - Male, Female	>1500 mg/kg	-

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Eye contact.

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : May be harmful if swallowed. Over-exposure by ingestion is unlikely under normal working conditions.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
watering
redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : See above.

Potential delayed effects : See below.

Long term exposure

Potential immediate effects : See above.

Potential delayed effects : See below.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
ammonium dihydrogenorthophosphate	Chronic NOAEL Oral	Rat - Male, Female	250 mg/kg	-
diammonium hydrogenorthophosphate	Chronic NOAEL Oral	Rat - Male, Female	250 mg/kg	-

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
AMMONIUM POLYPHOSPHATE SOLUTION	2500	N/A	N/A	N/A	N/A
ammonium dihydrogenorthophosphate	2500	N/A	N/A	N/A	N/A
diammonium hydrogenorthophosphate	2500	N/A	N/A	N/A	N/A

Other information : Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ammonium polyphosphate	Acute EC50 90890 µg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 >500 mg/l	Fish	96 hours
	Acute LC50 70000 µg/l Fresh water	Fish - *Oncorhynchus tshawytscha* - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
ammonium dihydrogenorthophosphate	Acute EC50 >97.1 mg/l	Aquatic plants	72 hours
	Acute LC50 1790 mg/l Fresh water	Daphnia	72 hours
	Acute LC50 >85.9 mg/l Fresh water	Fish	96 hours
diammonium hydrogenorthophosphate	Acute LC50 1700 mg/l Fresh water	Fish - *Cirrhinus mrigala/L. Rohita* - Fry	96 hours
	Acute LC50 26500 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours

Conclusion/Summary : May be harmful to the environment if released in large quantities. Excessive nutrient runoff to a body of water may result in eutrophication.

Persistence and degradability

Conclusion/Summary : Not persistent.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Polyphosphoric acids, ammonium salts	-	-	Readily
ammonium dihydrogenorthophosphate	-	-	Readily
diammonium hydrogenorthophosphate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
ammonium dihydrogenorthophosphate	<1	-	Low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: ammonia (total); ammonium dihydrogenorthophosphate; ammonia (total)

CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Section 15. Regulatory information

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Eurasian Economic Union : **Russian Federation inventory**: All components are listed or exempted.

Japan : **Japan inventory (CSCL)**: All components are listed or exempted.
Japan inventory (ISHL): Not determined.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : All components are listed or exempted.

Turkey : Not determined.

United States : All components are active or exempted.

Viet Nam : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 5/15/2024

Date of previous issue : 7/11/2023

Version : 4.2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
EYE IRRITATION - Category 2B	Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

Supply chain partners must ensure they pass this SDS, and all other relevant safety information to their customers.

DISCLAIMER AND LIMITATION OF LIABILITY

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