



PURITAN PRODUCTS

Effective Date: 05/01/15

Replaces Revision: 04/01/15, 09/01/13

NON-EMERGENCY TELEPHONE
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE
800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: PHOSPHORIC-NITRIC-WATER BLEND

Synonyms: None

Chemical Formula: Not applicable to mixtures

Recommended Use of the Chemical and Restrictions On Use: Industrial Reagent

Manufacturer / Supplier: Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

Emergency Phone Number: 24-Hour Chemtrec Emergency Telephone 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:

Acute toxicity, Oral (Category 4)

Acute toxicity, Inhalation (Category 2)

Acute toxicity, Dermal (Category 5)

Oxidizing liquids (Category 3)

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Risk Phrases:

R8: Contact with combustible material may cause fire.

R35: Causes severe burns.

Label Elements:

Trade Name: PHOSPHORIC-NITRIC-WATER BLEND

Signal Word: Danger



Hazard Statements:

H272: May intensify fire; oxidizer.

H302: Harmful if swallowed.

H313: May be harmful in contact with skin.

H314: Causes severe skin burns and eye damage.

Precautionary Statements:

P220: Keep / Store away from clothing / combustible materials.

P260: Do not breathe dust / fume / gas / mist / vapors / spray.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P284: Wear respiratory protection.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present, and easy to do – continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

3. Composition / Information on Ingredients

CAS No.: Not applicable to mixtures

EC Number: Not applicable to mixtures

Index Number: Not applicable to mixtures

Molecular Weight: Not applicable to mixtures

Ingredient	CAS Number	EC Number	Percent	Hazardous	Chemical Characterization
Phosphoric Acid	7664-38-2	231-633-2	1 - 49%	Yes	Substance
Nitric Acid	7697-37-2	231-714-2	1 - 49%	Yes	Substance
Water	7732-18-5	231-791-2	2 - 98%	No	Mixture

4. First-aid Measures

In all cases, call a Physician immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. CALL A PHYSICIAN IMMEDIATELY.

Ingestion: DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. CALL A PHYSICIAN IMMEDIATELY.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse. CALL A PHYSICIAN IMMEDIATELY.

Eye Contact: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. CALL A PHYSICIAN IMMEDIATELY.

5. Fire-fighting Measures

Fire: Not considered to be a fire hazard. Contact with most metals causes formation of flammable and explosive Hydrogen gas.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. If water is used, use in abundance to control heat and acid build-up.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Do not let product enter drains. Neutralize with alkaline material (soda ash, lime,) then absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture, incompatibilities, and direct sunlight. Corrosive to mild steel. Store in rubber lined or 316 stainless steel designed for phosphoric acid. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product.

8. Exposure Controls / Personal Protection

Airborne Exposure Limits:

Phosphoric Acid :

OSHA Permissible Exposure Limit (PEL): 1 mg/m³ (TWA)

ACGIH Threshold Limit Value (TLV): 1 mg/m³ (TWA), 3 mg/m³ (STEL)

Nitric Acid:

OSHA Permissible Exposure Limit (PEL): 2 ppm (TWA)

ACGIH Threshold Limit Value (TLV): 2 ppm (TWA), 4 ppm (STEL)

Ventilation System: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded, a full face piece respirator with high efficiency dust / mist filter may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in Oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and / or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear, colorless liquid

Odor: Odorless

Odor Threshold: Not determined

pH: 1.5 (0.1 N aqueous solution)

% Volatiles by volume @ 21C (70F): 100

Melting Point: No information found

Boiling Point / Boiling Range: No information found

Flash Point: Not applicable

Evaporation Rate (BuAc=1): No information found

Flammability: Not applicable

Upper / Lower Flammability or Explosive Limits: Not applicable

Vapor Pressure (mm Hg): 0.3 kPa (@ 20°C)
Vapor Density (Air=1): 3.4 (Air = 1)
Relative Density: 1.6 g/cm³
Solubility: Miscible in all proportions in water
Partition Coefficient: n-octanol / water: No data available
Auto-ignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: No data available

10. Stability and Reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage. Substance can super-cool without crystallizing.

Possibility of Hazardous Reactions and Conditions to Avoid: Incompatibles.

Incompatible Materials: Liberates explosive Hydrogen gas when reacting with chlorides and stainless steel. Can react violently with Sodium Tetrahydroborate. Exothermic reactions with aldehydes, amines, amides, alcohols and glycols, azo-compounds, carbamates, esters, caustics, phenols and cresols, ketones, organophosphates, epoxides, explosives, combustible materials, unsaturated halides, and organic peroxides. Phosphoric Acid forms flammable gases with sulfides, mercaptans, cyanides and aldehydes. It also forms toxic fumes with cyanides, sulfide, fluorides, organic peroxides, and halogenated organics. Mixtures with Nitromethane are explosive.

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition.

11. Toxicological Information

Emergency Overview: POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

Potential Health Effects:

Inhalation: Corrosive! May cause irritation of the nose, throat, and respiratory tract including coughing and choking. Higher concentrations or prolonged exposure to vapors of nitric acid may lead to pneumonia or pulmonary edema.

Ingestion: Corrosive. May cause sore throat, abdominal pain, nausea, and severe burns of the mouth, throat, and stomach. Severe exposures can lead to shock, circulatory collapse, and death.

Skin Contact: Corrosive. May cause redness, pain, and severe skin burns.

Eye Contact: Corrosive. May cause redness, pain, blurred vision, eye burns, and permanent eye damage.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) No data available.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Phosphoric Acid (7664-38-2)	No	No	None
Nitric Acid (7697-37-2)	No	No	None
Water (7732-18-5)	No	No	None

Acute Toxicity:

Phosphoric Acid (7664-38-2):

Oral rat LD50: 1530 mg/kg; investigated as a mutagen.

Nitric Acid (7697-37-2):

Oral (human) LDLo: 430 mg/kg

Inhalation, rat, LC50: 67 ppm (NO₂)/4H

Investigated as a mutagen, reproductive effector.

12. Ecological Information**Ecotoxicity:**

Phosphoric Acid (7664-38-2):

May be harmful to aquatic organisms due to the shift of the pH.

Nitric Acid (7697-37-2):

Oral (human) LDLo: 430 mg/kg

Inhalation, rat, LC50: 67 ppm (NO₂)/4H

Investigated as a mutagen, reproductive effector.

Persistence and Degradability:

Phosphoric Acid (7664-38-2): Expected to be readily biodegradable

Nitric Acid (7697-37-2): No data available

Bioaccumulative Potential:

Phosphoric Acid (7664-38-2): No data available

Nitric Acid (7697-37-2): No bioaccumulation expected

Mobility in Soil:

Phosphoric Acid (7664-38-2):

When spilled onto soil, phosphoric acid will infiltrate downward, the rate being greater with lower concentration because of reduced viscosity. During transport through the soil, phosphoric acid will dissolve some of the soil material, in particular, carbonate-based materials. The acid will be neutralized to some degree with adsorption of the proton and phosphate ions also possible. However, significant amounts of acid will remain for transport down toward the groundwater table. Upon reaching the groundwater table, the acid will continue to move in the direction of groundwater flow. *Information obtained from US National Library of Medicine.*

Nitric Acid (7697-37-2): No data available

Other adverse effects: US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

UN Number: UN3264

UN Proper Shipping Name: CORROSIVE LIQUID, ACIDIC. INORGANIC, N.O.S., (Phosphoric Acid, Nitric Acid)

Packing Group: II



DOT

IMDG

IATA

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 8

Maritime Transport IMDG/GGVSea

Transport Hazard Class(es): 8

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR

Transport Hazard Class(es): 8

Transport in Bulk (According to Annex II of MARPOL 73/78 and the IBC Code)

Special Precautions for User: No additional information

15. Regulatory Information

US federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Phosphoric Acid (7664-38-2)	Yes	Yes	Yes	Yes
Nitric Acid (7697-37-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Phosphoric Acid (7664-38-2)	Yes	Yes	No	Yes
Nitric Acid (7697-37-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List Chemical	Catg.
Phosphoric Acid (7664-38-2)	No	No	No	No
Nitric Acid (7697-37-2)	1000	1000	Yes	No
Water (7732-18-5)	No	No	No	No

Federal, State & International Regulations - Part 2

Ingredient	RCRA		TSCA	
	CERCLA	261.33	8(d)	
Phosphoric Acid (7664-38-2)	5000	No	No	
Nitric Acid (7697-37-2)	1000	No	No	
Water (7732-18-5)	No	No	No	

Chemical Weapons Convention: No		TSCA 12(b): No		CDTA: No
SARA 311/312:	Acute: Yes	Chronic: No	Fire: No	Pressure: No
Reactivity: No		Mixture / Liquid		

Australian Hazchem Code: 2PE

Poison Schedule: S6

16. Other Information

Effective Date: 05/01/15 – Removed Hazard Statement No. H330

Replaces Revision: 04/01/15, 09/01/13

Effective Date: 04/01/15 – Changed GHS02 symbol GHS03

Replaces Revision: 09/01/13 – GHS Compliant, 04/26/12– Initial Release

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