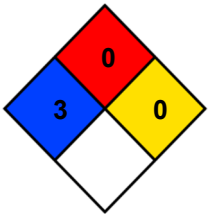
HUMA®

SAFETY DATA SHEET
Comol™

REV J 6/20/2023

HMIS	
HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PPE	E



SECTION 1: CHEMICAL PRODUCT & COMPANY IDENTIFICATION

PRODUCT IDENTIFIER:	**Comol™**	**Product# 513**
GENERAL USE:	Used as a part of a plant nutrition program.	
PRODUCT DESCRIPTION:	Clear to slightly hazy, dark blue liquid having a slight characteristic odor.	

SUPPLIER INFORMATION:
Huma, Inc.
1331 W Houston Avenue
Gilbert, AZ 85233

For Additional SDS call: **PHONE: (480) 961-1220**

EMERGENCY PHONE NUMBERS

CHEMTREC: **(In the USA) 800-424-9300**
(International) 703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

HAZARDS OVERVIEW: Clear to slightly hazy, dark blue liquid having a slight characteristic odor. The mists and liquid may cause severe irritation or burns to all tissues contacted. Phosphoric Acid may generate flammable Hydrogen gas on contact with many metals. **The NIOSH I.D.L.H. for Phosphoric Acid is: 1,000 mg/m³.**

CLASSIFICATION: SKIN CORROSION – CATEGORY 1A
SIGNAL WORD: DANGER
HAZARD STATEMENT: H314; causes severe skin burns and eye damage
PRECAUTIONARY STATEMENT: P260; Do not breathe dusts/mist/vapors. P280; Wear protective gloves/protective clothing/eye protection/face protection P264; Wash hands thoroughly after handling

CLASSIFICATION: HAZARD CATEGORY 4
SIGNAL WORD: WARNING
HAZARD STATEMENT: H302; Harmful if Swallowed
PRECAUTIONARY STATEMENT: P301+P317—If swallowed, get emergency medical help. P330; Rinse Mouth P264; Wash hands thoroughly after handling, P270; Do not eat, drink or smoke when using this product.

SECTION 3: COMPOSITION & INFORMATION ON INGREDIENTS

				ACGIH		OSHA	
COMPONENT	**CAS #**	**OSHA HAZARD**	**WT %**	**TLV(TWA)**	**STEL**	**PEL(TWA)**	**STEL**
Phosphoric Acid	7664-38-2	Corrosive; Lung Toxin	10 ± 2	1 mg/m³	3 mg/m³	1 mg/m³	None
Sodium Molybdate	7631-95-0	Moderate Eye Irritant; Slight Skin & Respiratory Irritant; May be Toxic by Ingestion or Inhalation	5 ± 1	0.5 mg/m³ (as Mo) Respirable Fraction (A3)	None	5 mg/m³ (as Mo)	None
Monoammonium Phosphate	7722-76-1	Eye, Ski & Respiratory Irritant; Central Nervous System toxin	3 ± 1	None	None	None	None
Cobalt Sulfate	10124-43-3	Eye, Skin & Respiratory Irritant; Toxic by Ingestion; Possible Human Carcinogen - IARC	2.5 ± 1	0.02 mg/m³ (as Co) (A3)	None	None	None

NDA = No Data Available N/A = Not Applicable

SECTION 4: FIRST AID MEASURES

INHALATION: If inhaled, immediately move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; use the Holger Nielsen method (back pressure-arm lift) or proper respiratory device. If breathing is difficult, give oxygen. Call a physician.

EYE CONTACT: In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower lids occasionally. Remove contact lenses, if worn. Get medical attention immediately.

SKIN CONTACT: In case of contact, immediately flush skin with plenty of clean running water for at least 15 minutes, while removing contaminated clothing and shoes. If burn or irritation occurs, call a physician.

INGESTION: If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give plenty of water to drink. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIANS: Phosphoric Acid solutions have a relatively low oral toxicity, but they can be severely irritating and/or corrosive to the eyes, skin and mucous membranes. If ingested, consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Treat exposure symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flashpoint and Method: This product does not flash.

Flammable Limits (in air, % by volume) **Lower:** Not applicable **Upper:** Not applicable

Autoignition Temperature: Not applicable

GENERAL HAZARD: This product is not combustible, but it can generate flammable / explosive Hydrogen gas on contact with many metals. The Uniform Fire Code health hazard classification for this product is: **Corrosive (Acidic).** Dilute solutions of this product may also be corrosive. It may produce hazardous mists or hazardous decomposition products.

FIRE FIGHTING INSTRUCTIONS: **EXTINGUISHING MEDIA:** Water, foam, CO_2 or dry chemicals.
Use a water spray or fog to cool the containers exposed to the heat of a fire.

FIRE FIGHTING EQUIPMENT: Fire fighters should wear full protective equipment, including self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: When heated to dryness and decomposition, it emits toxic chloride fumes & Ammonia gas plus toxic oxides of phosphorus, molybdenum, cobalt, nitrogen and sodium, with trace or ultra-trace toxic oxide amounts, of iron, manganese, calcium, magnesium, potassium, sulfur, zinc and carbon.

SECTION 6: ACCIDENTAL RELEASE MEASURES

RELEASE TO LAND: Wearing recommended protective equipment and clothing, dike the spill and pick up the bulk of liquid using pumps or a vacuum truck, or absorb the liquid in sand or a commercial absorbent. Place in approved containers for recovery, disposal, or satellite accumulation. Neutralize the acidity, of the remaining liquid, using soda ash, lime, or other agent appropriate for neutralizing acidic liquids. Flush the spill area with water; collect the rinsates for disposal or sewer, as appropriate.

RELEASE TO WATER: Wear recommended protective equipment and clothing if contact with hazardous material can occur. Stop or divert water flow. Dike contaminated water and remove for disposal and/or treatment. As appropriate, notify all downstream users of possible contamination.

SECTION 7: HANDLING AND STORAGE

STORAGE TEMPERATURE: Ambient **STORAGE PRESSURE:** Ambient

GENERAL: Store in a cool, dry, well-ventilated area away from incompatible materials and products. Do not get this product in eyes, on skin or on clothing. Wear recommended personnel protective equipment when handling this product. Do not breathe mists, fumes or aerosols. Use only with adequate ventilation. Do not take internally. Keep the container tightly closed when not in use. Wash thoroughly after handling this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL MEASURES: Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, below an ACGIH-TLV, OSHA-PEL or those levels that may cause irritation.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATOR: For exposure above the ACGIH-TLV or OSHA-PEL, wear a NIOSH-approved full facepiece or half mask air-purifying cartridge respirator equipped with a good mist / particulate filter cartridge or supplied air.

For exposures to Phosphoric Acid greater than 25 mg/m^3, a supplied air respirator operated in the continuous flow mode is recommended.

For exposures to Phosphoric Acid greater than 50 mg/m^3, a full facepiece respirator with a high-efficiency particulate filter, a full facepiece supplied air respirator or a full facepiece self-contained breathing apparatus (SCBA) is recommended.

For exposures to Phosphoric Acid above 1,000 mg/m^3, a full facepiece (SCBA), operated in the positive pressure and pressure demand mode, is recommended by NIOSH. **Note:** Always consult the respirator manufacturer's data when determining the suitability of respiratory protective devices prior to use.

EYES: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full facepiece respirator is worn. **Note:** Always consult the protective eyewear manufacturer's data when determining the suitability of protective eyewear prior to use.

GLOVES: Wear Neoprene, Nitrile, Butyl Rubber or Natural Rubber gloves. **Note:** Always consult the glove manufacturer's permeation data when determining the suitability of gloves prior to use.

CLOTHING & EQUIPMENT: Wear a Neoprene, Nitrile, Butyl Rubber or Natural Rubber apron, or full protective clothing when handling this product. An eye wash station and safety shower should be available in the work area. **Note:** Always consult the clothing/equipment manufacturer's permeation data when determining the suitability of clothing/equipment prior to use.

FOOTWEAR: Wear Neoprene, Nitrile, Butyl Rubber or Natural Rubber boots. **Note:** Always consult the footwear manufacturer's permeation data when determining the suitability of footwear prior to use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to slightly hazy, dark blue	**Bulk Density (pounds/ft^3):**	Not applicable
Physical State:	Liquid	**Vapor Pressure:**	No data available
Odor:	Slight, characteristic	**Vapor Density (air=1):**	No data available
Odor Threshold:	Not applicable	**Evaporation Rate (n-Butyl Acetate=1):**	No data available
Molecular Formula:	Mixture	**VOC Content / Organic Matter:**	No data available / 0.1%
Molecular Weight:	Not applicable	**% Volatile:**	No data available
Boiling Point:	Greater than 100° C. (212° F.)	**Solubility in H_2O:**	Complete
Freezing/Melting Point:	Less than 0° C. (32° F.)	**Octanol/Water Partition Coefficient:**	No data available
Specific Gravity:	1.16 @ 20° C.	**pH (as is):**	1.0 - 2.0
Density (pounds/gallon):	Approximately 9.68	**pH (1% solution):**	No data available

SECTION 10: STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

CONDITIONS TO AVOID: Do not store this product below 50° F (10° C) or above 90° F (30° C)

INCOMPATIBLE MATERIAL: Contact with most metals (e.g. mild steel, Aluminum, Magnesium, Zinc & Copper), alloys of these metals, caustics & alkali, sulfides, sulfites, cyanides and chlorine releasers.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to dryness and decomposition, it emits toxic chloride fumes & Ammonia gas plus toxic oxides of phosphorus, molybdenum, cobalt, nitrogen and sodium, with trace or ultra-trace toxic oxide amounts, of iron, manganese, calcium, magnesium, potassium, sulfur, zinc and carbon.

SENSITIVITY TO MECHANICAL IMPACT: This product is not sensitive to mechanical impact.

SENSITIVITY TO STATIC DISCHARGE: This product is not sensitive to static discharge.

SECTION 11: TOXICOLOGICAL INFORMATION

Components:	**Phosphoric Acid**	**Sodium Molybdate**
Eye Contact:	Rabbit: 119 mg; Severe	Rabbit: Mild Irritant
Skin Contact:	Rabbit: 595 mg/24 hours; Severe	Rabbit: Not an Irritant
Oral Rat LD_{50}:	1,530 mg/kg	2,810 mg/kg
Dermal Rabbit LD_{50}:	2,740 mg/kg	No data available
Inhalation Rat LC_{50}:	Greater than 850 mg/m^3/1 hour	No data available
Human Data:	Unreported Route Man LD_{Lo}: 220 mg/kg	No data available
Other Toxicological Data:	Oral Man TD_{Lo}: 1,286 uL/kg	Intraperitoneal Mouse LD_{50}: 257 mg/kg
Carcinogenicity:	No data available	No data available
Teratogenicity:	No data available	Intravenous Mouse TD_{Lo}: 968 mg/kg (8 Day pregnant)
Mutagenicity:	No data available	No data available
Synergistic Products:	None reported	None reported
Target Organs:	Eyes, Skin, Mucous membranes, Lungs & Gastrointestinal tract	Eyes, Skin & Mucous membranes
Medical Conditions Aggravated By Exposure:	Skin, Respiratory or Gastrointestinal disorders	Skin or Respiratory disorders

Components:	**Monoammonium Phosphate**	**Cobalt Sulfate**
Eye Contact:	No data available	No data available
Skin Contact:	No data available	No data available
Oral Rat LD_{50}:	5,750 mg/kg	80 mg/kg
Dermal Rabbit LD_{50}:	Greater than 7,940 mg/kg	No data available (Subcutaneous Rabbit LD_{Lo}: 200 mg/kg)
Inhalation Rat LC_{50}:	No data available	No data available
Human Data:	No data available	Oral Child TD_{Lo}: 48 mg/kg; Toxic Effects; Behavioral – Anorexia (human); Endocrine – Thyroid (goiter)
Other Toxicological Data:	No data available	Dermal Rat LD_{Lo}: 2 gm/kg; Toxic Effects: Nutritional and gross metabolic – Weight loss or decreased weight gain
Carcinogenicity:	No data available	Subcutaneous Rat TD_{Lo}: 400 mg/kg/19 Days – I; Toxic Effects: Tumorigenic – Carcinogenic by RTECS criteria; Tumors at site of application
Teratogenicity:	No data available	Oral Rat TD_{Lo}: 11 mg/kg (female 1-22 Days pregnant); Effects on Fertility – Post-implantation mortality
Mutagenicity:	No data available	Human DNA Inhibition, HeLa cell: 1 mmol/Liter
Synergistic Products:	None reported	None reported
Target Organs:	Eyes, Skin, Lungs & Central Nervous System	Eyes, Skin, Mucous membranes & Lungs
Medical Conditions Aggravated By Exposure:	Skin or Respiratory disorders	Skin or Respiratory disorders

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

This product is heavier than water, completely soluble in water and will affect the pH of the water. Inorganic phosphates, in contact with soil, sub-surface or surface waters, may be taken up by plants and utilized as essential nutrients. Phosphates may also form precipitates, usually with Calcium or Magnesium. The resultant compounds are insoluble, becoming part of the soil.

ENVIRONMENTAL CONSIDERATIONS:

The aquatic toxicity for this product is related to the pH of the water. For Rainbow trout, the reported LC_{50} is about a pH of 4.0 for a 7 day bioassay. Other species may vary a bit from this pH level, but all susceptible to acidic pH conditions.

SECTION 13: DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 CLASSIFICATON: Corrosive Waste

U.S. EPA WASTE NUMBER/DESCRIPTION: D002

If this product is disposed of as shipped, it meets the criteria of a hazardous waste as defined under 40 CFR 261 due to its corrosivity. If this product becomes a waste, it will be a hazardous waste, which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly. As a hazardous liquid waste, it must be disposed of in accordance with local, state, and federal regulations in a permitted hazardous waste treatment, storage, and disposal facility.

SECTION 14: TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: **Phosphoric Acid Solution**

Hazard Class: 8 **UN Number:** UN1805 **Packing Group:** III

Primary Label: Corrosive **Subsidiary Label(s):** None

Primary/Subsidiary Placards: Corrosive

DOT Reportable Quantity (RQ): 5,000 pounds (H_3PO_4) **RQ for Product:** 50,000 pounds (5,121 gallons)

Marine Pollutant: No

2012 North American Emergency Response Guidebook No.: **154**

TDG PROPER SHIPPING NAME: **Phosphoric Acid Solution**

Hazard Class: 8 **UN Number:** UN1805 **Packing Group:** III

Primary Label: Corrosive **Subsidiary Label(s):** None

Primary/Subsidiary Placards: Corrosive

TDG Reportable Quantity (RQ): * At least 5kg or 5 liters

TDG Schedule XII: Not listed

Regulated Limit (RL): ** 230kg (H3PO4) **RL for Product:** 2,300 kg (1,965.8 liters)

Other Shipping Information: None

* Canadian Transportation of Dangerous Goods Regulations (TDGR), Part IX, Table I, Quantities or levels for Immediate Reporting: releases of reportable quantities, RQ, that meet the definition of a "dangerous occurrence" (a threat to life, health, property, or the environment) must be reported to the appropriate authorities as outlined in TDGR 9.13(1) and 9.14(1). ** Reporting to Environment Canada is required for any releases exceeding the regulated limits, RL, of 9.2 materials (primary or secondary). The regulated limits are found in Schedule XIII of the TDGR.

SECTION 15: REGULATORY INFORMATION

COMPONENTS:	**Phosphoric Acid**	**Sodium Molybdate**	**Monoammonium Phosphate**	**Cobalt Sulfate**
OSHA Target Organs:	Eyes, Skin, Mucous membranes, Lungs & Gastrointestinal tract	Eyes, Skin & Mucous membranes	Eyes, Skin, Lungs & Central Nervous System	Eyes, Skin, Mucous membranes & Lungs
Carcinogenic Potential:				
Regulated by OSHA:	No	No	No	No
Listed on NTP Report:	No	No	No	No
Listed by IARC:	No	No	No	Yes
IARC Group:	Not applicable	Not applicable	Not applicable	Group 2B
ACGIH Appendix A:	Not listed	Yes (A3)	Not listed	Yes (A3)
A1 Confirmed Human:	Not applicable	Not applicable	Not applicable	Not applicable
A2 Suspected Human:	Not applicable	Not applicable	Not applicable	Not applicable

U.S. EPA Requirements

Release Reporting				
CERCLA (40 CFR 302)				
Listed Substance:	Yes	Not listed	Not listed	Not listed
Reportable Quantity:	5,000 pounds	Not applicable	Not applicable	Not applicable
Category:	D	Not applicable	Not applicable	Not applicable
RCRA Waste No.:	Not listed	Not applicable	Not applicable	Not applicable
Unlisted Substance:	Not applicable	Not applicable	Not applicable	Not applicable
Reportable Quantity:	Not applicable	Not applicable	Not applicable	Not applicable
Characteristic:	Not applicable	Not applicable	Not applicable	Not applicable
RCRA Waste No.:	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION (Continued from page 5)

COMPONENTS:	Phosphoric Acid	Sodium Molybdate	Monoammonium Phosphate	Cobalt Sulfate
SARA TITLE III				
Section 302 & 303 (40 CFR 355):				
Listed Substance:	Not listed	Not listed	Not listed	Not listed
Reportable Quantity:	Not applicable	Not applicable	Not applicable	Not applicable
Planning Threshold:	Not applicable	Not applicable	Not applicable	Not applicable
Section 311 & 312 (40 CFR 370):				
Hazard Categories (**product**):	**Fire: N**	**Sudden Release of Pressure: N**	**Reactive: N**	**Acute Health: Y** **Chronic Health: Y**
Planning threshold:	10,000 pounds	10,000 pounds	10,000 pounds	10,000 pounds
Section 313 (40 CFR 372):				
Listed Toxic Chemical:	No (Delisted in 2000)	Not listed	Yes (Aqua Ammonia)	Yes (Cobalt compounds)
Reporting Threshold:	Not applicable	Not applicable	10,000 pounds	10,000 pounds
U.S. TSCA Status				
Listed (40 CFR 710):	Yes	Yes	Yes	Yes
State Regulations				
State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):				
Carcinogen:	No	No	No	No
Reproductive Toxin:	No	No	No	No

Other Regulations

State Right To Know Laws: MA, NJ, PA,CA

Canadian Regulations

Product Information:

Controlled Product:	**Yes**
WHMIS Hazard Symbols:	**Material Causing Other Toxic Effects; Corrosive Material**
WHMIS Class & Division:	**D.2A; E**

Ingredient Information:

IDL Substance:	Yes	Yes	No	Yes
DSL or NDSL Lists:	DSL	DSL	DSL	DSL

SECTION 16: OTHER INFORMATION

EPA Registration number: Not applicable

Approved Product Uses: Used as part of a plant nutrition program.

Special Notes:

This product is not formulated to contain any material, which the State of California has found to cause cancer and/or birth defects or other reproductive harm. However, as it contains very small amounts of mined minerals, this product may contain trace (parts per million) or ultra-trace (parts per billion) amounts of elements known to the State of California to cause cancer, birth defects or other reproductive harm.

Special Instructions:

When making solutions, always add Comol™ to water, or other solutions, with adequate mixing to ensure a uniform solution.

Do not add this product to hypochlorite bleaches, chlorine sanitizers or chlorinated cleaners as this liberates toxic, corrosive Chlorine gas. Do not add this product to strong alkali or caustic materials and products as this may liberate a large amount of heat and some toxic Ammonia gas.

SDS Revision Information: Revised Date: 6/20/2023

SDS Distributed by: Huma, Inc.

Prepared By:	Anna Carpenter	Date Prepared:	October 20, 2014