



Safety Data Sheet

Better Chemistry. Better Business

MI-PHOS® Z-2

Revised: 3/22/21

1 IDENTIFICATION

Product Name: MI-PHOS® Z-2

Product Code :2202000

Recommended use of the chemical and restrictions on use:Industrial applications

Hubbard-Hall Inc.

563 South Leonard Street

Waterbury, CT 06708

Telephone: 203-756-5521

Fax number: 203-756-9017

Emergency Phone Number

CHEMTREC: 1 (800) 424-9300

International: 1 (703) 527-3887

2 HAZARDS IDENTIFICATION



Signal Word: DANGER

Hazard Category: Acute Toxicity-Oral Hazard Category 4

Corrosive to Metals Hazard Category 1

Skin Corrosion/Irritation Hazard Category 1A

Eye Damage/Irritation Hazard Category 1

Specific Target Organ Toxicity (Single Exposure) Hazard Category 2

Acute Aquatic Toxicity-Category 2

Carcinogenicity Hazard Category 1A

Hazard Statements: Harmful if swallowed.

Causes severe skin burns and eye damage.

May be corrosive to metals.

May cause damage to lungs and teeth through inhalation.

Very toxic to aquatic life with long lasting effects.

May cause cancer.

Prevention: Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Do not breathe dust, fumes, gas, mist, vapors or spray.

Use only outdoors or in well ventilated area.

In case of inadequate ventilation wear respiratory protection.

Wear protective gloves, chemical protective clothing, eye protective goggles and face shield for face protection.

Keep only in original container.

Obtain special instruction before use.

Avoid releases to the environment

Do not handle until all safety precautions have been read and understood.

Response: If swallowed: Immediately call poison center or doctor.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash contaminated clothing before reuse.

If inhaled: Remove person to fresh air and keep comfortable for breathing.

Immediately call poison center or doctor and explain the type of exposure to the chemical(s) and provide the name of the chemical(s).

Specific treatment - refer to poison center or doctor for advice.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of fire: Use water, foam, chemical extinguisher or carbon dioxide.

Absorb spillage to prevent material damage.

Collect spillage

If exposed or concerned: Get medical advice/attention.

Storage: Store locked up.

Store in corrosive resistant high density polyethylene container.

Store in well ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container in accordance with local, regional, national, or international regulations.

3 COMPOSITION INFORMATION

Chemical Name	Common Name And Synonyms	CAS No. and other Unique identifiers	Concentration %
Nitric Acid	Aqua Fortis	7697-37-2	Approx 8%
Phosphoric Acid	-	7664-38-2	Approx 30%
Sodium Nitrate	-	7631-99-4	Approx 7%
Zinc Chloride	-	7646-85-7	Approx 10%
Zinc Oxide	-	1314-13-2	Approx 7%
Nickel Carbonate	-	3333-67-3	Approx 0.5%

4 FIRST AID

After Inhalation:

Get medical attention immediately. Call a poison control center or physician. If suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If product vapor or mists cause respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Do not use the mouth to mouth method if the victim inhaled the substance; give artificial respiration with aid of a pocket mask equipped with a one-way valve or other proper respiratory device. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

After Skin Contact:

Immediately remove contaminated clothing under a safety shower. Flush all affected areas with large amounts of water for 15 minutes. DO NOT attempt to neutralize with chemical agents. Obtain medical advice.

After Eye Contact:

Immediately flush the eyes with large quantities of running water for 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyelids with water. DO NOT attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used. Continue rinsing for an additional 15 minutes if the physician is not available.

After Ingestion:

If swallowed: Rinse mouth. Do NOT induce vomiting.

Immediately call poison center or doctor and explain the type of exposure to the chemical(s) and provide the name of the chemical(s).

Most Important Symptoms/Effects

Inhalation:

Effects may be delayed. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of a spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis and upper airway obstruction caused by edema. Depending on the conditions, the vapors of fumes of nitric acid may actually be a mixture of nitric acid and various oxides of nitrogen. The composition may vary with temperature, humidity, and contact with other organic materials.

Eye:

Causes serious eye damage. Material is extremely destructive to the tissue and mucous membranes of the eye. Causes redness, pain, burning sensation and tearing. Direct contact with liquid may cause blindness or permanent eye damage.

Skin:

Causes severe skin burns. Causes irritation, pain, redness and blisters. May cause deep penetrating ulcers of the skin. Concentrated Nitric Acid turns human skin yellow on contact.

Ingestion:

May cause severe and permanent damage to the digestive tract. Causes severe burns to the gastrointestinal tract. May cause perforation of the digestive tract. May cause systemic effects. Causes severe mouth, throat, and abdominal pain upon ingestion.

5 FIRE FIGHTING MEASURES

Suitable and Unsuitable extinguishing media:	Will not burn or support combustion. Use extinguishing media appropriate for surrounding fire, such as water spray, dry chemical, foam or carbon dioxide.
Specific hazards arising from the chemical:	Closed containers of Nitric Acid may explode (due to pressure build-up) when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Hazardous decomposition products include nitrogen oxides, ammonia and amines. Symptoms may not be immediately apparent. Obtain medical attention.
Special protective equipment and precautions for firefighter	Fire fighters should enter area only if they are protected from all contact with the material. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms, and waist, should be worn. No skin surfaces should be exposed.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, & Emergency Proc	Wear appropriate chemical protection equipment such as gloves, face-shield, goggles and suitable body protection to prevent contamination of skin, eyes and personal clothing.
Methods and Materials for containment & cleaning up:	If trained in accordance 29 CFR 1910.120, leaks should be stopped. Spills should be contained and cleaned immediately. Persons performing clean up work should wear adequate personal protective equipment and clothing. Spills and releases should be reported, if required, to the appropriate local, state and federal regulatory agencies.

7 HANDLING AND STORAGE

Precautions for safe handling:	Use ventilation sufficient to keep personal exposure below the OSHA Permissible Exposure Limits (PEL) and or the ACGIH Threshold Limit Value (TLV) Time Weighted Average (TWA) exposure limits. Do not get in eyes, or on skin, or on clothing. Avoid breathing dust, fumes, gas, mist, vapors and sprays.
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Wear rubber protective gloves, chemical protective clothing, eye protective goggles and face shield for face protection.

Keep container tightly closed.

Keep only in original container.

**Conditions for safe storage,
inc any incompatibilities:**

Store in well ventilated place. Keep container tightly closed.

Store locked up and away from incompatible chemicals.

Container that have been opened must be carefully resealed and kept upright to prevent leakage.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Name	Std.	TWA-8hrs	STEL - 15 min.
Nitric Acid	ACGIH	2 ppm	4 ppm
Phosphoric Acid	ACGIH	1 mg/m3	3 mg/m3
Sodium Nitrate	not established		
Zinc Chloride	not established		
Zinc Oxide	ACGIH	10 mg/m3	-
Nickel Carbonate	ACGIH	0.2 mg/m3	-

ACGIH - American Control of Governmental Hygienists
OSHA - Occupational Safety and Health Administration

Ventilation: Use local exhaust to keep personal exposures below the OSHA Permissible Exposure Limit(s) (PEL) or the ACGIH threshold Limit Values (TLV)Time Weight Average (TWA).

Respiratory Protection: A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI 788.2 or applicable federal requirements must be followed whenever work place conditions warrant respirator use. NIOSH's Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Protective Gloves: Acid resistant rubber.

Eye Protection: Wear chemical safety goggles with face shield.

Other Protective Equipment: Wear chemical resistant boots.

Wear chemical resistant clothing.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear green colored liquid

Odor: Acid pungent

Odor Threshold: N/A

PH: 4% solution =2

Melting Point/Freezing Point: N/A

Initial Boiling Point and Boiling Range: N/A

Flash Point: N/A

Evaporation Rate: N/A

Flammability (solid, gas): N/A

Upper/Lower flammability or explosive limits: N/A

Vapor Pressure:	N/A
Vapor Density:	N/A
Relative Density:	1.60 @ 70 °C
Solubility (ies):	Complete in water
Partition Coefficient; n-octanol/water:	N/A
Auto-ignition Temperature:	N/A
Decomposition Temperature:	N/A
Viscosity:	N/A

10 STABILITY AND REACTIVITY

Chemical Stability:	Stable under recommended storage conditions. Decomposes in the presence of air, light or organic matter. Yellow/brown color is due to the release of nitrogen dioxide upon exposure to light.
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11 TOXICOLOGICAL INFORMATION

Oral Administration:	Nitric Acid -LD50->= 90 mg/kg (rat)
Oral Administration:	Phosphoric Acid-LD50-(Rat-female)-1.7 mL/100 g body weight
Oral Administration:	Sodium Nitrate-LC50 (rat)-1267 mg/kg ,LD50(rabbit)-2680 mg/kg
Oral Administration:	Zinc Chloride-LD50(rat)-350 mg/kg
Oral Administration:	Zinc Oxide-LD50(mouse)-7950 mg/kg
Inhalation:	Nitric Acid-LC50-30 min,-260 mg/m3(rat), LD50, 4 h-1302 mg/m3 (rat);LD50, 4 h-67 ppm NO2 (rat)
Delayed effects:	Severe irritation or burns to skin, eyes and respiratory system
Short term exposure:	Severe irritation or burns to skin, eyes and respiratory system
Cancer Hazard:	Nickel compounds Listed by NTP as Known Carcinogen, IARC Group 1 and under OSHA
Routes of Exposure	Eyes, Skin, Inhalation, Ingestion

12 ECOLOGICAL INFORMATION

Daphnia Magna,	Zinc Chloride-EC50-0.2 mg/L- 48 h
Abiotic degradability:	No data available
Bioaccumulation potential:	low
Soil/Sediment Result:	No data available

13 DISPOSAL CONSIDERATION

Dispose of in accordance with local, state and federal regulations.

14 TRANSPORT INFORMATION

UN Number:	3264
UN Proper Shipping Name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(PHOSPHORIC ACID, NITRIC ACID),
Transport Hazard Class (es):	8
Packing Group:	III
ERG:	154

15 REGULATORY INFORMATION

HMIS: Health: 2 Flammability: 0 Reactivity: 0

Cercla	Nitric Acid RQ=1000 lbs
Cercla	Zinc Chloride-Rq=1000 lbs
Cercla	Phosphoric Acid-RQ=5000 lbs

Sara Hazard Classification	Nickel Compounds-SARA 313 listed
Sara Hazard Classification	Nitric Acid-SARA 313 listed
Sara Hazard Classification	Nitrate compounds, water dissociable-SARA 313 listed
Sara Hazard Classification	Zinc Compounds-SARA 313 listed
Proposition 65	WARNING! This product contains a chemical known in the State of California to cause cancer. Nickel compounds.
TSCA Inventory Status	All components of this product are on the TSCA inventory or are exempt from TSCA inventory requirements .

16 OTHER INFORMATION

Disclaimer:	The information is based on our knowledge to date but does not constitute an assurance of product properties and does not imply a legal contractual relationship.
Date Prepared:	10/23/14