SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: pHIX

Product Use: Agricultural fertilizer

Supplier: Omex Agriculture Inc.
Box 301
290 AgriPark Road
Oak Bluff, Manitoba, Canada
R0G 1N0
Web address: www.omex.com

Phone Number: (204) 477-4052

Section 2: Hazards Identification

WHMIS Classification	Transport Symbol	Personal Protective Equipment
 Corrosive		

Emergency Overview:

Appearance, Colour and Odour: Liquid emulsion, clear to slightly hazy, pink or blue, odourless.

Danger. Corrosive.
Causes severe skin burns and eye damage.
Harmful if swallowed.

Canada: This product is hazardous and controlled under WHMIS.

USA: This is a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Standard. Corrosive.

Potential Health Effects

ACUTE (short term):

Relevant Route(s) of Exposure: Skin Contact, Eye Contact, Inhalation

Inhalation: May be harmful by inhalation. Mists are severely irritating to the nose, throat and respiratory system.

Ingestion: Harmful if swallowed. Swallowing is expected to cause severe irritation to the lips, mouth, throat and stomach with nausea, and vomiting.

Skin: Corrosive to skin. Causes severe burns.

Eye: Corrosive to eyes. Causes severe eye burns and permanent eye damage.

CHRONIC (long term): see Section 11 for additional toxicological data

Chronic exposure by inhalation may cause scarring of the lungs. Prolonged or repeated overexposures by inhalation, skin or eye contact may result in severe irritation and corrosive effects.

Medical Conditions Aggravated by Exposure: Not available

Interactions With Other Chemicals: Reactive or incompatible with alkaline materials and many metals.

Potential Environmental Effects: This substance may be harmful to fish, livestock and wildlife. Prevent release of this product to natural waters. Contain any liquid run-off when handling this substance.

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Section 3: Composition / Information on Ingredients

Hazardous Ingredients:

Chemical Name	CAS No.	Wt.%
Monocarbamide dihydrogen sulfate	21351-39-3	60 - 80

Section 4: First Aid Measures

Inhalation: Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment, use the buddy system).
Remove source of contamination or move victim to fresh air. If breathing is difficult trained personnel should administer emergency oxygen. Do Not allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Immediately transport victim to an emergency care facility.

Eye Contact: Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 60 minutes, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. Do not interrupt flushing. If necessary, keep emergency vehicle waiting. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility

Skin Contact: Flush contaminated area with lukewarm, gently flowing water for at least 60 minutes. If irritation persists, repeat flushing. Do not interrupt flushing. If necessary, keep emergency vehicle waiting. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Transport victim to an emergency care facility immediately. Discard contaminated clothing, shoes and leather goods.

Ingestion: Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Rinse mouth with water again. Immediately transport victim to an emergency care facility.

Section 5: Fire Fighting Measures

Flammable Properties: Not applicable, product is not combustible.

Suitable extinguishing Media: Use extinguishing media appropriate for the surrounding fire. Dry chemical, water spray, chemical foam, carbon dioxide, water fog.

Unsuitable extinguishing Media: Not applicable

Explosion Data
Mechanical Impact: Not applicable
Static Discharge: Not applicable

Specific Hazards arising from the Chemical: Can vigorously decompose under high temperature conditions >110°C (>230°F) to release carbon dioxide gas. Small quantities of carbon dioxide will be released under normal storage conditions. If material is exposed to prolonged heat in a fire, oxides of carbon, nitrogen and sulfur may be formed.
Do not allow water to enter container because of violent reaction. Container explosion may occur under fire conditions or when heated. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Responders should consider the need for evacuation based on concentrations of emitted decomposition products. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

Protective Equipment and precautions for firefighters: Dike and collect water used to fight fire for later treatment and disposal.
Firefighters should wear full protective gear including self-contained breathing apparatus.

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Section 6: Accidental Release Measures

Personal Precautions: Corrosive liquid. Warn personnel to move away. Isolate area. Keep unnecessary and unprotected personnel from entering. Wear adequate personal protective equipment. Ventilate area.

Environmental Precautions: Do not allow product to reach natural waterways or ground water. Fertilizer products may be harmful to livestock and wildlife. Clean up any spilled fertilizer products immediately, particularly where bulk quantities of fertilizers are handled.

Methods for Containment: Stop leak if it can be done without risk.

Methods for Clean-up: Soak up the spilled liquid using a suitable inert absorbent (dry earth or sand). Dilute 3 to 1 with water. Spilled liquid can be neutralized by trained personnel, by slowly and carefully applying powdered limestone or sodium carbonate to spill. Allow time to neutralize. Use appropriate equipment to recover a corrosive liquid for disposal. Ensure disposal complies with government requirements and local regulations. Clean the spill area with plenty of water.

Section 7: Handling and Storage

Handling: Personnel handling this material should be well trained in the use of personal protective equipment, safe handling techniques, potential hazards and first aid requirements. Do not breathe fumes or mists. Avoid contact with eyes and skin. Keep away from incompatible materials. Do not eat, drink or smoke while handling this product. Ensure that an eyewash station and safety shower is near place of use.

Storage: Will corrode incompatible metals. Polyethylene, polypropylene or 316L stainless steel are acceptable materials of construction. Storage tanks should be designed to API Standard 650. Tanks should be vented and light coloured to reflect light and heat. Secondary containment is recommended and may be required in some jurisdictions.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

Consult local authorities for acceptable exposure limits.

Ingredient	Ontario TWAEV (mg/m^3)	ACGIH TLV (8-hr. TWA) (mg/m^3)	U.S. OSHA PEL (8-hr. TWA) (mg/m^3)
Monocarbamide dihydrogen sulfate	Not established	Not established	Not established
Manufacturer's recommended exposure limits: 1 mg/m^3 TWA / 3 mg/m^3 STEL			

Exposure Controls

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep concentrations below the exposure limits listed above.

Personal Protection:

Eye/Face Protection: Wear chemical splash goggles. Where splashing is possible wear a face-shield.

Skin Protection: Wear impervious gloves, boots and a chemical protective suit or apron made of materials appropriate for low pH solutions.

Respiratory Protection: In workplaces where airborne levels of the mists exceed the exposure limits, wear an appropriate respirator. A positive pressure supplied-air respirator should be worn when concentrations are unknown or in other circumstances where air purifying respirators may be inadequate.

A respiratory protection program that meets Canadian Standards Association (CSA) Standard Z94.4-2002 or OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

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Section 8: Exposure Controls/Personal Protection, continued

Other Protective Equipment: In workplaces where this product is handled in bulk quantities, have a safety shower and eyewash fountain readily available in the work area.

General Hygiene Measures: Avoid contact with eyes and skin. Wash hands thoroughly after handling and before smoking or eating.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Flash Point & method:**	Not applicable
Appearance, Colour and Odour:	Clear, pink or blue, odourless	**Autoignition Temperature:**	Not applicable
Odour Threshold:	Not available	**Flammability Limits in Air:**	Not applicable
pH:	1	**Vapour Pressure:**	Not available
Relative Density: (water = 1)	1.52 Bulk density: 1 520 kg/m^3	**Vapour Density: (Air = 1)**	Not available
Partition coefficient: (n-octanol/water)	Soluble or dispersible in water	**Evaporation Rate: (n-Butyl Acetate = 1)**	Not applicable
Solubility:	Easily soluble in cold and hot water	**Boiling Point/Range:**	Decomposes @ 110°C
Volatility	24% (w/w)	**Freezing Point:**	5°C

Section 10: Stability and Reactivity

Chemical Stability: Stable

Conditions to Avoid: Avoid high temperatures.

Incompatible Materials: Reactive or incompatible with hypochlorites, sulfides, alkaline materials and many metals. Toxic or flammable gases may be formed or unacceptable corrosion may result
Extremely corrosive to copper, aluminum and zinc. Corrosive to mild steel, especially when diluted. Slightly corrosive to 304 stainless steel. Non-corrosive to fiberglass, CPVC, polyethylene, polypropylene or 316L stainless steel. Consult a metallurgical specialist to ensure compatibility with handling equipment.
Reacts vigorously with water, especially when water is added to the product. Care must be taken to prevent excessive heating or spatter.
Do not allow water to enter container because of violent reaction. Container explosion may occur under fire conditions or when heated.
Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.
Use caution when mixing this product with other agricultural chemicals. Some chemicals may be incompatible. Contact Omex Agriculture Inc. for further information.

Hazardous Decomposition Products: When heated above 110°C, will decompose to produce carbon dioxide.

Possibility of Hazardous Reactions: Not available

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Section 11: Toxicological Information

Acute Toxicity Data

Component Substance	LD_{50} Oral (mg/kg)	LD_{50} Dermal (mg/kg)	LC_{50} Inhalation (4 hrs.)
Monocarbamide dihydrogen sulfate	350 (rat)	Not available	>2 000 (rabbit)

Other Toxicity Data

Carcinogenicity: This mixutre does not contain any component that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA or NTP (National Toxicology Program).

Irritation: Direct contact causes severe eye irritation and skin irritation. Mists and vapours are severely irritating to the respiratory tract. Severely irritating if swallowed.

Corrosivity: Corrosive. Causes severe eye and skin burns. May cause permanent eye damage. Causes burns to the mouth, throat and digestive tract if swallowed.

Sensitization: Not available

Neurological Effects: Not available

Genetic Effects: Not available

Reproductive Effects: Not available

Developmental Effects: Not available

Target Organ Effects: Not available

Section 12: Ecological Information

Ecotoxicity: May be harmful to fish, livestock and wildlife. Dissolved mineral salts may cause irritation of the digestive tract. Aquatic/Marine Toxicity: A toxic hazard to fish. Avoid spills or release to watercourses. U.S. D.O.T.: This material is not listed as a marine pollutant.

Persistence/Degradability: Nonpersistent.

Bioaccumulation/Accumulation: Non-cumulative when applied using normal agricultural practices. The product itself and its products of degradation (nitrogen oxides and sulfur oxides) are not harmful under normal conditions of careful and responsible use.

Mobility: Highly soluble. Will disperse with current. Release to watercourses may cause effects down stream from the point of release.

Section 13: Disposal Considerations

Waste Disposal Method: Do not contaminate lakes, streams, ponds, estuaries, oceans or other waters by discharge of waste effluents or equipment washwaters. Container contents should be completely used and the containers rinsed prior to discard. Rinsate should be treated as a corrosive material. Consult local waste regulators for proper disposal.
Follow municipal, provincial / state and federal laws and regulations, for proper disposal of fertilizer, where they apply.

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Section 14: Transport Information:

Canadian Transportation of Dangerous Goods (TDG): UN1760, CORROSIVE LIQUID N.O.S. (Monocarbamide dihydrogen sulphate), Class 8, PG III

U.S. Hazardous Materials Regulation (DOT 49CFR): UN1760, CORROSIVE LIQUID N.O.S. (Monocarbamide dihydrogen sulphate), Class 8, PG III

Section 15: Regulatory Information

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the SDS contains all the information required by the *Controlled Products Regulations*.

WHMIS Classification: E-Corrosive

Registration: Fertilizer product, subject to the regulations under the Fertilizers Act.

NPRI Substances: Not applicable

USA

OSHA Hazards: Immediate (acute) health hazard – corrosive.

Section 16: Other Information

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