

SECTION 1

PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: Monocalcium Phosphate
 CASNUMBER: CAS No. 7758-23-8
 TRADE NAME: BIOFOS
 SYNONYMS: MCP, Calcium Phosphate Monobasic, Acid calcium phosphate, Calcium acid phosphate, Calcium biphosphate, Calcium superphosphate, & Monobasic calcium phosphate
 PRIMARY USE: Animal Feed ingredient. This product is not intended for direct consumption, but as part of a formulation.
 Pestell Minerals & Ingredients
 Distributed by: 141 Hamilton Road
 New Hamburg, Ontario - Canada N3A 2H1 Email; qa@pestell.com
 Emergency Response: EMERGENCY OVERVIEW
 24 Hour Emergency Telephone Number: call CANUTEC (1) 613-996-6666

SECTION 2

HAZARD IDENTIFICATION

GHS Classification: Not regulated as hazardous.
 Label Elements: Not required
 Hazards: Severe irritant. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Monocalcium phosphate and dicalcium phosphate are generally recognized as safe (GRAS) when used in accordance with good manufacturing practice and when used as intended.
 EMERGENCY OVERVIEW :
 Physical Hazards: Slippery when wet.
 Physical Form: Solid granules.
 Appearance: Light gray granules.
 Odor: Slight.
 Toxicity: None expected under normal use.

NFPA HAZARD CLASS		HMIS HAZARD CLASS		WHMIS HAZARD CLASS	
Health:	2	Health:	2	Symbol	N/A
Flammability:	0	Flammability:	0	Classification	Not WHMIS controlled
instability:	0	Physical Hazard:	0		
Special Hazard:	None	PPE:	Section VIII	Sub Class (N/A)	

POTENTIAL
HEALTH EFFECTS:

Eye: Continuous contact may cause severe eye irritation, eye burns, and permanent eye damage.

Skin: Contact may cause mild irritation including redness and a burning sensation. No information available. Studies by other exposure routes suggest a low degree of hazard by skin absorption.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of hazard by inhalation.

Ingestion (Swallowing) Signs and Symptoms: Low degree of toxicity by ingestion. Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, and diarrhea.

Cancer: No data available.

Target Organs: No data available.

Developmental: No data available.

Other Comments: This material contains iron compound(s). Chronic exposure to high concentrations of iron have been associated with hemosiderosis, hemochromatosis and in sever cases, liver cirrhosis. Typical occupational exposures to iron compounds are not expected to cause these effects. Chronic inhalation can produce "mottling" of the lungs (siderosis). This is considered a benign pneumoconiosis and does not normally lead to fibrosis or cause significant physiologic impairment.

Inorganic phosphates have been studied extensively due to their use as food additives. The JECFA (Joint FAO/WHO expert committee on food additives) determined that the acceptable dietary intake for humans would be 0 to 70 mg/kg. These doses and route of exposure are not considered relevant to occupational settings.

POTENTIAL
ENVIRONMENTAL
EFFECTS:

Pre-Existing Medical Conditions: None known.

May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen (This comment directed primarily to fresh and coastal water systems).

SECTION 3

COMPOSITION INFORMATION ON INGREDIENTS

FORMULA: $\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O} + \text{CaHP0}_4 \cdot 2\text{H}_2\text{O}$

COMPOSITION: Monocalcium Phosphate 56-60%
CAS No. 7758-23-8
Dicalcium Phosphate 28-29%
CAS No. 7757-93-9

Iron, Aluminum, Magnesium, Sodium, and Potassium Phosphates CAS No. (NA)	8-11%
Calcium and other Sulfates CAS No. (NA)	3-5%

SECTION 4

FIRST AID MEASURES

FIRST AID PROCEDURES:

Immediately move victim away from exposure and into fresh air. If irritation or redness develops, flush eyes with clean water and Seek immediate medical attention. For direct contact, immediately hold eyelids apart and flush the affected eye(s) with clean water for at least 30 minutes. Seek immediate medical attention.

Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

If large amounts are swallowed, seek emergency medical attention. If possible, do not leave victim unattended and observe closely for adequacy of breathing.

None known.

NOTE TO PHYSICIAN:

SECTION 5

FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flash Point:	Not applicable – BIOFOS® is non-flammable
OSHA Flammability Class:	Not applicable
LEL/UEL:	LEL: / UEL: Not applicable
Auto-Ignition Temperature:	Not applicable

EXTINGUISHING MEDIA:

Use extinguishing agent suitable for type of surrounding fire. Avoid excessive water to minimize runoff.

PROTECTION OF
FIREFIGHTERS:

Positive pressure, self-contained breathing apparatus is required for all fire fighting activities involving hazardous materials. Full structural fire fighting (bunker) gear is the minimum acceptable attire. The need for proximity, entry, flashover and/or special chemical protective clothing (see Section 8) needs to be determined for each incident by a competent fire fighting safety professional.

Water used for fire suppression and cooling may become contaminated. Discharge to sewer system(s) or the environment may be restricted, requiring containment and proper disposal of water.

SECTION 6

ACCIDENTAL RELEASE MEASURES

RESPONSE
TECHNIQUES:

BIOFOS® is a feed ingredient that is similar to crop nutrients and plant foods; however, large spills can harm or kill vegetation.

Stay upwind and away from spill (dust hazard)

Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8)

Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways.

Notify appropriate federal, state, and local agencies as may be required (see Section 15).

Minimize dust generation.

Sweep up and package appropriately for disposal.

RELEASE NOTES :

If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or land transportation-related spill notify: CHEMTREC IN North America at 800-424-9300 and from other countries at (International code) +0-703-527-3887 (collect).

SECTION 7

HANDLING AND STORAGE

HANDLING:

The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 3 and 8). Wash thoroughly after handling. Wash contaminated clothing or shoes. Use good personal hygiene practices.

STORAGE:

Keep container(s) tightly closed. Use and store this material in cool, dry, well ventilated areas. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING
CONTROLS:

If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required.

PERSONAL
PROTECTIVE
EQUIPMENT (PPE):

Eye/Face:

Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended.

Skin:

The use of cloth or leather work gloves is advised to prevent skin contact; possible irritation and absorption (see glove manufacturing literature for information on permeability).

	Respiratory:	Use a dust mask or other appropriate respiratory protection where engineering controls are not feasible or during operations that generate airborne concentrations exceeding the relevant standards. A source of clean water should be available in the work area for flushing eyes and skin.
	Other:	Impervious clothing should be worn as needed.
GENERAL HYGIENE CONSIDERATIONS:	Wash thoroughly after handling Wash contaminated clothing Use adequate ventilation Use good personal hygiene practice	
EXPOSURE GUIDELINES:	OSHA Permissible Exposure Limits (PEL): ACGIH Threshold Limit Value (TLV):	Particulates Not Otherwise Specified: 5 mg/m ³ TWA (respirable) Calcium and other sulfates: 15 mg/m ³ TWA (total dust) Iron, Aluminum, Magnesium, Sodium and Potassium Phosphates: 1 mg/m ³ TWA

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Flash Point:	Not applicable
Flammability/ Explosive Limits (%):	LEL: / UEL: Not applicable
Auto-Ignition Temperature:	Not applicable
Appearance:	Light gray granules
Physical State:	Solid granules
Odor:	Slight
pH:	3.6 (in a 1% solution)
Vapor Pressure (mm Hg):	Not applicable
Vapor Density (air=1):	Not applicable
Boiling Point:	Not applicable
Freezing/Melting Point:	Not applicable
Solubility in Water:	Moderately soluble; Cold water 1.8 g/100 cc @ 30°C; decomposes in hot water.
Specific Gravity:	2.22 @ 18°C/4°C
Volatility:	Not applicable
Bulk Density:	Loose 57 – 59 lbs/ft ³ (913- 945 kg/m ³)

SECTION 10

STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions of storage and handling; decomposes at approx. 200°C.
Conditions to Avoid:	None known.
Incompatible Materials:	None known.

Hazardous Decomposition Products: Combustion can yield oxides of sulfur when heated above 1000*f (538°C).
Corrosiveness: No data.
Hazardous Polymerization: Will not occur.

SECTION 11

TOXICOLOGICAL INFORMATION

Acute Oral Toxicity See Section 15 under Food and Drug Administration (FDA) notes

Acute inhalation Toxicity No definitive information available for this product

Acute Dermal Toxicity No definitive information available for this product

Mutagenesis No definitive information available for this product

Target Organ No definitive information available for this product

Developmental Toxicity No definitive information available for this product

Carcinogenicity At the time of the IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2006, no data were available to assess the carcinogenic potential of this agent.

SECTION 12

ECOLOGICAL INFORMATION

ECOTOXICOLOGY: May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen (primarily fresh and coastal water systems). At extremely high concentrations, this may be hazardous to fish or other marine organisms. Release to watercourses may cause effects downstream.

SECTION 13

DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not a RCRA "listed" or "characteristic" hazardous waste. Contamination may change the characterization and subject it to hazardous waste regulations. Properly characterize all waste materials to plan for proper disposal. Consult federal provincial/state and local regulations regarding the proper disposal of this material.

SECTION 14

TRANSPORTATION INFORMATION

Regulatory Status Not listed in the hazardous materials shipping regulations (49 CFR, Table 172.101) by the U.S. Department of Transportation, or in the Transport of Dangerous Goods (TDG) Regulations Canada.

Proper Shipping Name Not applicable

Hazard Class Not applicable

Packing Group Not applicable

identification Number	Not applicable
Guide Number	Not applicable
MARPOL	<p>Based on the United Nations Globally Harmonized System for Classification and Labeling of Chemicals (UN GHS) this product is not harmful to the marine environment (non-HME) based on not exceeding the parameters or criteria below¹:</p> <ul style="list-style-type: none"> • Acute Aquatic Toxicity Category 1; and/or • Chronic Aquatic Toxicity Category 1 or 2; and/or • Carcinogenicity² Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or • Mutagenicity² Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or • Reproductive Toxicity² Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or • Specific Target Organ Toxicity Repeated Exposure² Category 1 combined with not being rapidly degradable and having high bioaccumulation; and/or • Solid bulk cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets (this includes materials that are shredded, milled, chopped or macerated or similar materials). <p>Notes: 1) The criteria are based on UN GHS, fourth revised edition (2011). For specific products (e.g. metals and inorganic metal compounds) guidance available in UN GHS, annexes 9 and 10 are essential for proper interpretation of the criteria and classification and should be followed. 2) Products that are classified for Carcinogenicity, Mutagenicity, reproductive toxicity or Specific Target Organ Toxicity Repeated Exposure for oral and dermal hazards or without specification of the exposure route in the hazard statement.</p>

SECTION 15

REGULATORY INFORMATION

FDA:	Phosphate compounds are Generally Recognized As Safe (GRAS) by the U.S. Food and Drug Administration (21 CFR 582.1141; Bhat and Ramaswamy 1993) which allows them to be used as food and color additives. Mono basic calcium phosphate used as a sequestrant in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice. (21 CFR 582.6215 (4/1/90). Calcium phosphate (mono-, di-, and tribasic) used as a general purpose food additive in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice. /Calcium phosphate (mono-, di-, and tribasic)/(21 CFR 582.1217 (4/1/90))
CERCLA:	Product is not listed with an RQ (reportable quantity)
RCRA 261.33:	Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof are not listed as hazardous waste
SARA TITLE III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or for quantities of less than 10,000 pounds on-site.)	SARA – 311/312: Acute: Yes; Chronic: No; Fire: No; Pressure: No; Reactivity: No SARA -313: Not Listed
NTP, IARC, OSHA:	SARA -302/304: Not Listed This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

Canada DSL and NDSL: This product is registered in Canada under the Feeds Act and is thus exempt from the New Substances Notification Requirements in the Canadian Environmental Protection Act (CEPA) per subsection 26(3).

TSCA: All ingredients are listed in the TSCA Inventory or are exempt from listing.

WHMIS: This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all of the information required by the CPR. This product does not contain any bovine, ruminant or other animal by-products

CBSA: CA Proposition 65: (Health & Safety Code Section 25249.5) Warning: This product contains a chemical(s) known to the State of California to cause: cancer; and/or birth defects or other reproductive harm.

SECTION 16

OTHER INFORMATION

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Pestell Minerals & Ingredients and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

References: MARPOL Annex V; TOXNET, Merck Index, CRC Handbook 72™ Edition

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