

BUCKMAN LABORATORIES, INC.

MATERIAL SAFETY DATA SHEET



PHOS 9

LESS IRON, KEETROL, STAIN & SCALE,
DE-QUEST, IRON CHECK, D IRON,
DIAMOND CONTROL, KEETROL PLUS

Revision date: 3/20/2002

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1

OSHA HAZARD CLASSIFICATIONS

Corrosive to eyes and skin. Avoid breathing vapors or spray mists.

SECTION 2

HAZARDOUS COMPONENTS

<u>Chemical Name</u>	<u>CAS Number</u>	<u>% by Weight</u>	<u>TLV</u>
1) Z-phosphono-1,2,4-butanetricarboxylic acid	37971-36-1	50	Not available.

The remainder of the components comprise proprietary information.

SECTION 3

FIRST AID INFORMATION

Eye Exposure: Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.

Skin Exposure: Wash exposed area with plenty of soap and water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.

Inhalation: If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.

Ingestion: DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.

SECTION 4

PRIMARY ROUTES OF EXPOSURE

1. Effects from Acute Exposure:

Eye Exposure: Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Exposure: Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation: May be harmful if inhaled. Do not breathe spray mists of the undiluted product. Effects will depend upon solution strength and length of time of exposure.

Ingestion: Ingestion is not expected to be a primary route of exposure.

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5	<i>Toxicological Information</i>
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Acute Effects:

Acute Oral (LD50) =>2000 mg/kg Rat

Irritant / Sensitization Effects:

Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.

Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

May be harmful if inhaled. Do not breathe spray mists of the undiluted product. Effects will depend upon solution strength and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

None known, not tested by Buckman Laboratories.

SECTION 6	<i>Environmental Toxicological Information</i>
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LC50 =>100 mg/l 48 hours Daphnia magna

LC50 = 1000 mg/l 96 hours Rainbow trout

SECTION 7	<i>Physical and Chemical Properties</i>
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<i>Appearance</i>	Light yellow liquid
<i>Odor</i>	Slight.
<i>Density</i>	1.28 g/cm3
<i>Flash Point</i>	CLOSED CUP: >100°C (212°F). (Pensky-Martens.)
<i>Melting/Freezing Point</i>	Not available.
<i>Boiling Point</i>	Not available.
<i>Solubility</i>	Soluble in cold water. Soluble in hot water.
<i>pH (Neat)</i>	<1 [Acidic.]
<i>pH (100 ppm in water)</i>	Not available.
<i>Vapor Pressure</i>	Not available.
<i>o/w Partition Coefficient</i>	Not available.
<i>Oxidizing/Reducing Properties</i> .	Not available.
<i>Viscosity</i>	Not available.
<i>Additional pH Information</i>	<2 (10% aqueous)

Last revision .. 3/20/2002

PHOS 9

Page 3

SECTION 8*Fire and Explosion Information*

<i>Flammable Limits</i>	Not available.
<i>Extinguishing Media</i>	Water fog, carbon dioxide, foam, dry chemical.
<i>Special Firefighting Procedures</i>	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 9*Reactivity Information*

<i>Stability</i>	Stable under normal conditions of use and storage.
<i>Incompatibility</i>	Steel, strong bases, strong oxidizers and strong alkali.
<i>Hazardous Decomposition Products</i>	Oxides of carbon, phosphoric acid and other unidentified combustible products..

SECTION 10*Handling Precautions*

Provide dilution ventilation to control vapor and/or mist level. When misting may occur in the work area, a NIOSH/MSHA approved respirator may be required. Use a respirator approved for the material and level of exposure. A comprehensive respiratory protection program is needed when respirators must be used. Eye wash fountains in the work place are **STRONGLY** recommended. Chemical resistant gloves, indirect ventilation goggles, body-protective clothing, and chemical resistant safety shoes are required. If splashing can occur, a face shield is advisable.

SECTION 11*Satisfactory Materials of Construction*

This product has not been tested for Materials of Construction data. This Material Safety Data Sheet will be updated after this product is tested.

SECTION 12*Spill, Leak, and Disposal Procedures***SPILL AND LEAK RESPONSE GUIDELINES:**

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of affected areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722. Collect calls are accepted

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g., water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Information section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management.

Container Disposal: If assistance is needed, contact your Buckman sales representative.

SECTION 13

Transportation and Shipping Information

DOT Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (2-Phosphono-1,2, 4-butanetricarboxylic acid), Class 8, UN 3265, P.G. III, (ERG GUIDE 153)

IMO/IMDG Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (2-Phosphono-1,2, 4-butanetricarboxylic acid), Class 8, UN 3265, P.G. III, (EmS No. 8-15, MFAG Table No. 760, ERG Guide 153, HazMat Code 4931255)

IATA Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (2-Phosphono-1,2, 4-butanetricarboxylic acid), Class 8, UN 3265, P.G. III, (ERG Guide 153, ERG Code 8L)

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14

Regulatory Information

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate Health Hazard

SARA 313 Toxic Chemicals List ...

No components of this product are present above the de minimus levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the de minimus levels.

RCRA (Resource Conservation and Recovery Act) Listed Hazardous Waste

When disposed of, this product may be regulated as a RCRA Hazardous Waste with the characteristic of corrosivity due to the pH of the neat material.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is not approved for food contact uses.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is not a registered pesticide.

HMIS/NPCA Rating ... Health 3 Flammability 1 Reactivity 1

NFPA Ratings Health 3 Flammability 1 Reactivity 1

State Regulations

Various State Right To Know Acts ...

Last revision .. 3/20/2002

PHOS 9

Page 5

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including **NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE**. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.