

Inhalation: Slightly hazardous in case of inhalation. Effects will depend on concentration 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) = >5000 mg/kg Rat
Acute	Dermal	(LD50) = >2000 mg/kg Rabbit

Irritant / Sensitization Effects:

Slightly hazardous in case of eye contact (irritant).

Non-irritant for skin. Non-sensitizer for skin.

Slightly hazardous in case of inhalation. Effects will depend on concentration 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, eyes.

Do not cause damage to the following organs: skin.

Other Health Effects:

None known. Negative in Ames Salmonella test with and without metabolic activation.

SECTION 6	<i>Environmental Toxicological Information</i>
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LC50 = 1.75 mg/l 96 hours Bluegill sunfish

LC50 = 0.33 mg/l 96 hours Rainbow trout

SECTION 7	<i>Physical and Chemical Properties</i>
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Appearance	Clear, pale amber. liquid
Odor	Slight.
Density	1.09 g/cm³
Flash Point	Closed cup: 100°C (212°F). (Pensky-Martens.)
Melting/Freezing Point	Not available.
Boiling Point	>100°C (212°F)
Solubility	Easily soluble in cold water. Easily soluble in hot water.
pH (Neat)	2.1 [Acidic.]
pH (100 ppm in water)	4-6
Vapor Pressure	Not available.
o/w Partition Coefficient	Not available.
Oxidizing/Reducing Properties .	Not available.
Viscosity	Not available.
Additional pH Information	Not available.

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8***Fire and Explosion Information***

Flammable Limits Not available.

Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Firefighting Procedures Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 9***Reactivity Information***

Stability Stable under normal conditions of use and storage.

Incompatibility None known.

Hazardous Decomposition Products Oxides of carbon and nitrogen.

SECTION 10***Handling Precautions***

Eye-wash fountains in the work place are recommended. Rubber gloves, protective eyewear, body protective clothing and shoes are recommended. 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. The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

National Sanitation Foundation (NSF): This product is listed by the NSF under NSF/ANSI Standard 60 for use in potable water applications as a coagulant and flocculant with the maximum allowable use rates: Concentrations of 2 - 5 mg/L can be used at the initiation of treatment for up to 21 days.

SECTION 11***Satisfactory Materials of Construction***

Teflon

PVC - flexible

PVC - rigid

Silicone rubber

304 Stainless steel

316 Stainless steel

Polyethylene - crosslink

Polyethylene - high density

Polyethylene - low density

Polypropylene

EPDM rubber

Neoprene

Viton

Buna-N rubber

Butyl rubber

Polyisoprene Rubber

ABS (Plastic)

Morton test liner (108 T 44LV)

Tygon F-4040

Tygon tubing R3603

Dow Sillastic Tube

FRP

Dow Sillastic Tube

Norprene Tubing

Pharmed Tubing

Polyurethane Tubing

Rehau Tubing

NOTE: With respect to all other materials not listed above, user should be aware that use of such materials with this product may be hazardous and result in damages to such materials and other property and personal injuries. No data concerning such materials not listed above should be implied by the user.

SECTION 12	<i>Spill, Leak, and Disposal Procedures</i>
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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 enclosed areas.

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

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 Classifications 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. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

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

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

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. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13***Transportation and Shipping Information******DOT Shipping Information:*****Not Regulated.*****IMO/IMDG Shipping Information:*****Not Regulated.*****IATA Shipping Information:*****Not Regulated.**

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 (Acute) 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****No components of this product are listed.****CWA (Clean Water Act) Listed Substances****No components of this product are listed.****FDA (Food and Drug Administration)****This product is approved under the following FDA (21 CFR) sections : 176.170.****National Sanitation Foundation (NSF)****This product is listed by the NSF under NSF/ANSI Standard 60 for use in potable water applications with the following maximum allowable use rates : Concentrations of 2-5 mg/ L can be used at the initiation of treatment for up to 21 days.****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 1 Flammability 1 Reactivity 1****NFPA Ratings Health 1 Flammability 1 Reactivity 1****State Regulations**

Various State Right To Know Acts ...

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. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

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 settle 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.