

DIALD 15

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Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108
Phone 1-800-282-5626

24 Hour Emergency Phone**(901) 767-2722****SECTION 1*****OSHA HAZARD CLASSIFICATIONS***

DANGER! Keep out of reach of children. Causes severe eye burns. Causes skin burns. May cause allergic skin reaction. Potential respiratory sensitizer. Harmful if inhaled. Heated material produces harmful vapors. Causes respiratory tract irritation. May be harmful if swallowed. Aspiration hazard - can enter lungs and cause damage. Evacuate premises. Keep upwind of spill. Highly toxic to fish and/or other aquatic organisms.

SECTION 2***HAZARDOUS COMPONENTS***

<u>Chemical Name</u>	<u>CAS Number</u>	<u>% by Weight</u>	<u>TLV</u>
Glutaraldehyde	111-30-8	15	ACGIH (United States). CEIL: 0.2 mg/m ³ CEIL: 0.05 ppm

While some substances are claimed as trade secret in accordance with the provision of OSHA 29 CFR 1910.1200(i), all known hazards are clearly communicated within this document.

SECTION 3***FIRST AID INFORMATION***

Eye Exposure: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

Skin Exposure: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Inhalation: Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Ingestion: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person. Seek medical attention immediately.

Notes to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants and antitussives may be of help. Glutaraldehyde may transiently worsen reversible airways obstruction including asthma or reactive airways disease. Maintain adequate ventilation and oxygenation of the patient. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Inhalation of vapors may result in skin sensitization. In sensitized individuals, reexposure to very small amounts of vapor, mist, or liquid may cause a severe allergic skin reaction. If burn is present, treat as any thermal burn, after decontamination. First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection) No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Medical Conditions Aggravated by Exposure: Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

SECTION 4**PRIMARY ROUTES OF EXPOSURE****1. Effects from Acute Exposure:**

Eye Exposure: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin Exposure: Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin Sensitization: Skin contact may cause an allergic skin reaction in a small proportion of individuals. Contains component(s) which have caused allergic skin sensitization in guinea pigs. Contains component(s) which have demonstrated the potential for contact allergy in mice.

Inhalation: Vapor may cause severe irritation of the upper respiratory tract (nose and throat). Vapor from heated material may cause serious adverse effects, even death. Case reports and medical surveys link asthma and respiratory irritation to glutaraldehyde exposure, primarily in medical personnel. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. Asthma-like symptoms may occur in people prone to respiratory disorders or other allergies. **Respiratory Sensitization:** May cause allergic respiratory response in a small proportion of individuals.

Ingestion: Low toxicity if swallowed. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract. Swallowing may result in gastrointestinal irritation or ulceration. Excessive exposure may cause: Headache. Dizziness. Anesthetic effects. Drowsiness. Unconsciousness. Other central nervous system effects. **Aspiration hazard:** Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

2. Effects from Chronic Exposure:

In a NTP chronic 2-year inhalation study on glutaraldehyde, no carcinogenicity was seen in rats or in mice. An increase in large granular lymphocytes in Fischer rats dosed with glutaraldehyde for two years was random or a secondary carcinogenic effect due to a modifying influence on the occurrence of this common neoplasm in this rat strain.

Developmental Toxicity

Glutaraldehyde has been toxic to the fetus in lab animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

In animal studies, did not interfere with reproduction.

Genetic Toxicology

In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were predominantly negative.

Repeated skin contact may result in absorption of amounts which could cause death. May cause nausea and vomiting.

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

Acute	Oral	(LD50) = >900 mg/kg Rat
Acute	Dermal	(LD50) = >16000 mg/kg Rabbit

Irritant / Sensitization Effects:

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness.

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin Sensitization: Skin contact may cause an allergic skin reaction in a small proportion of individuals. Contains component(s) which have caused allergic skin sensitization in guinea pigs. Contains component(s) which have demonstrated the potential for contact allergy in mice.

Vapor may cause severe irritation of the upper respiratory tract (nose and throat). Vapor from heated material may cause serious adverse effects, even death. Case reports and medical surveys link asthma and respiratory irritation to glutaraldehyde exposure, primarily in medical personnel. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. Asthma-like symptoms may occur in people prone to respiratory disorders or other allergies.

Respiratory Sensitization: May cause allergic respiratory response in a small proportion of individuals.

Carcinogenic Potential:

Glutaraldehyde: Under the conditions of NTP 2-year inhalation studies, there was no evidence of carcinogenic activity of glutaraldehyde in male or female F344/N rats exposed to 250, 500, or 750 ppb. There was no evidence of carcinogenic activity in male or female B6C3F1 mice exposed to 62.5, 125, or 250 ppb.

Target Organs Effects:

May cause damage to the following organs: liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Health Effects:

Glutaraldehyde: Repeated dermal contact may produce sensitization. May cause asthmatics signs and symptoms in some hyper-reactive individuals.

This product contains 0.15% Methanol: Methanol causes narcotic effects. Symptoms of exposure include blurring of vision, photophobia, and conjunctivitis. There may be headache, dizziness, and a feeling of intoxication. Permanent damage to the eye can result from continuous or severe exposure.

SECTION 6***Environmental Toxicological Information***

Data for active ingredient, Glutaraldehyde

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1mg/L in the most sensitive species tested). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Fish Acute & Prolonged Toxicity

For the active ingredient(s): LC50, Pimephales promelas (fathead minnow), 96 h: 5.4 mg/l

Aquatic Invertebrate Acute Toxicity

For the active ingredient(s): LC50, Daphnia magna (Water flea), 48 h, immobilization: 0.345 mg/l

Aquatic Plant Toxicity

For the active ingredient(s): ErC50, Pseudokirchneriella subcapitata (green algae), Growth rate inhibition, 72 h: 1.32 mg/l

Toxicity to Micro-organisms

EC50, OECD 209 Test; activated sludge: > 50 mg/l

EC50; Bacteria, 16 h: 17 - 25 mg/l

Toxicity to Above Ground Organisms

oral LD50, Anas platyrhynchos (Mallard duck): 408 - 466 mg/kg

dietary LC50, Colinus virginianus (Bobwhite quail): > 5,000 ppm

dietary LC50, Anas platyrhynchos (Mallard duck): > 5,000 ppm

SECTION 7***Physical and Chemical Properties***

Appearance Transparent colorless liquid

Odor Fruity.

Density 1.042 g/cm³

Flash Point None

Melting/Freezing Point -7°C (19.4°F)

Boiling Point 100.7°C (213.3°F)

Solubility 100% in water

pH (Neat) 3.1 to 4.5 [Acidic.]

pH (100 ppm in water) Not available.

Vapor Pressure..... 0.3 mm of Hg (@ 20°C)

o/w Partition Coefficient -0.333

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 **To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.**

Special Firefighting Procedures **Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.**

Keep people away. Isolate fire and deny unnecessary entry. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.

SECTION 9***Reactivity Information***

Stability **Stable under normal conditions of use and storage. Store material at less than 100F. Preferable maximum storage temperature is 80F for long term. Avoid sources of ignition. Protect from freezing.**

Incompatibility **strong acids strong bases, strong oxidizers amines Ammonia. metals (Aluminum. Copper. Carbon steel iron Mild steel.)**

Hazardous Decomposition Products **Oxides of carbon.**

SECTION 10***Handling Precautions***

Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator. Use a full-face respirator when material is heated or when aerosols/mists are generated. Eye wash fountain should be located in immediate work area.

Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly. Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. This product is a respiratory irritant. If discomfort is experienced; ventilation is not adequate and an approved full face air-purifying respirator is recommended. If vapors are strong enough to be irritating to the nose, or eyes, the OEL is probably being exceeded. Special ventilation or respiratory protection may be required. For operations such as spraying and other conditions such as emergencies where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus. For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained

breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Full-face Organic vapor cartridge with a particulate pre-filter.

Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Keep container closed. Use with adequate ventilation. Wear goggles, protective clothing and butyl or nitrile gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Do not spray or aerosolize the undiluted form of the product. Full personal protective equipment (including skin covering and full-face SCBA respirator) is required for dilutions or mixtures of the product used in a spray application. Do not store in aluminum, carbon steel, copper, mild steel, and iron.

SECTION 11*Satisfactory Materials of Construction*

Not available.

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

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Refer to Section 10, Handling Precautions, for additional precautionary measures and appropriate safety equipment.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 6, Environmental Toxicological Information.

Methods and materials for containment and cleaning up: Avoid making contact with spilled material; glutaraldehyde will be absorbed by most shoes. Always wear the correct protective equipment, consisting of splashproof monogoggles, or both safety glasses with side shields and a wraparound full-face shield, appropriate gloves and protective clothing. A self-contained breathing apparatus or respirator and absorbents may be necessary, depending on the size of the spill and the adequacy of ventilation. Small spills: Wear the correct protective equipment and cover the liquid with absorbent material. Collect and seal the material and the dirt that has absorbed the spilled material in polyethylene bags and place in a drum for transit to an approved disposal site. Rinse away the remaining spilled material with water to reduce odor, and discharge the rinsate into a municipal or industrial sewer.

Large spills: In case of nasal and respiratory irritation, vacate the room immediately. Personnel cleaning up should be trained and equipped with a self-contained breathing apparatus, or an officially approved or certified full-face respirator equipped with an organic vapor cartridge, gloves, and clothing impervious to glutaraldehyde, including rubber boots or shoe protection. Deactivate with sodium bisulfite (2-3 parts (by weight) per part of active substance glutaraldehyde), collect the neutralized liquid and place in a drum for transit to an approved disposal site.

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. **AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 2: Hazardous Components.** FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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

Neat Product: Contact your Buckman representative

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

SECTION 13***Transportation and Shipping Information******DOT Shipping Information:***

UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (Glutaraldehyde) , Class 8, P.G. III ,
(ERG Guide 153)

IMO/IMDG Shipping Information:

UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (Glutaraldehyde) , Class 8, P.G. III ,
(EmS No. F-A, S-B , ERG Guide 153, HazMat Code 4931466)

IATA Shipping Information:

UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., (Glutaraldehyde) , Class 8, P.G. III ,
(ERG Guide 153, ERG Code 8L)

DOT "RQ": NONE (Material does not meet concentration requirements for hazardous substances as defined in 49 CFR 171.8)

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, Delayed (Chronic) 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 allowed under the following FDA (21 CFR) sections :173.320 (Limitation: as a single additive in beet-sugar mills at a level not higher than 250 ppm); 175.105; 176.170 & 176.180 (Limitation: as an antimicrobial agent in pigment and filler slurries not to exceed 300 ppm by weight of the slurry solids); and 176.300.

Bundesinstitut für Risikobewertung (BfR) (The Federal Institute for Risk Assessment)

Not available.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory. Registered pesticides are exempt from the requirements of TSCA.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is a registered pesticide. EPA Reg. No. 1448-423

HMIS/NPCA Rating ... Health 3 Flammability 1 Reactivity 0

NFPA Ratings Health 3 Flammability 1 Reactivity 0

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.