



THE DOW CHEMICAL COMPANY MATERIAL SAFETY DATA SHEET



Product Name: AQUCAR(TM) 515 Water Treatment
Microbiocide
MSDS#: 1972

Effective Date: 07/14/2004

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Dow (hereinafter, and for purposes of this MSDS only, refers to The Dow Chemical Company and to Dow Chemical Canada Inc.) encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. Dow expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name AQUCAR(TM) 515 Water Treatment Microbiocide

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24-HOUR EMERGENCY TELEPHONE NUMBER: (989)636-4400.
Customer Information Number: 1-800-258-2436.

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2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Water	7732-18-5	<= 85%
Glutaraldehyde	111-30-8	15 %
Methanol	67-56-1	<= 0.15%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance Transparent colorless

Physical State Liquid

Odor Sharp, Fruity, Medicinal

Hazards of product CORROSIVE.
CAUSES IRREVERSIBLE EYE DAMAGE.
CAUSES SKIN IRRITATION.
HARMFUL IF INHALED.
HARMFUL IF SWALLOWED.
HARMFUL IF ABSORBED THROUGH SKIN.
PROLONGED OR FREQUENTLY REPEATED SKIN CONTACT MAY CAUSE ALLERGIC REACTIONS IN SOME INDIVIDUALS.

CAUSES ASTHMATIC SIGNS AND SYMPTOMS IN HYPER-REACTIVE INDIVIDUALS.
ASPIRATION MAY CAUSE LUNG DAMAGE.

3.2 POTENTIAL HEALTH EFFECTS

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Effects of Single Acute Overexposure

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 occur in people prone to respiratory disorders or other allergies. Symptoms may include coughing, tightness, and discomfort in the chest, difficulty breathing and headaches.

Eye Contact 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 Contact Brief contact may cause skin irritation with local redness. Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. Skin contact may cause an allergic skin reaction in a small proportion of individuals. Has caused allergic skin reactions when tested in guinea pigs. Has caused allergic skin reactions when tested in mice. 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. May stain skin.

|| Skin Absorption Harmful if absorbed through skin.

Swallowing Harmful if swallowed. Oral toxicity of glutaraldehyde increases with dilution. Drinking water following ingestion of concentrated glutaraldehyde solutions can enhance the toxicity of glutaraldehyde. 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, anesthesia, drowsiness, unconsciousness and other central nervous system effects, including death. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Chronic, Prolonged or Repeated Overexposure

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

Other Effects of Overexposure No information available.

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological Information.

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4. FIRST AID PROCEDURES

4.1 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.

4.2 EYE CONTACT

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.

4.3 SKIN CONTACT

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.

4.4 SWALLOWING

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.

4.5 NOTES TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist.

Maintain adequate ventilation and oxygenation of the patient.

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.

Treat bronchospasm with inhaled beta-2 agonist and oral or parenteral corticosteroids.

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.

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5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 EXTINGUISHING MEDIA

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

5.3 FIRE FIGHTING PROCEDURES

Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this MSDS.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, 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 SCBA. If this is not available, wear full chemical resistant clothing with SCBA and fight fire from a remote location. For protective equipment in post-fire or non-fire clean up situations, refer to the relevant sections.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

This material will not burn until the water has evaporated. Residue can burn.

5.6 HAZARDOUS COMBUSTION PRODUCTS

Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

Contain spilled material if possible. Collect in suitable and properly labeled containers. This product is toxic to fish. Avoid discharge to sewers and natural waterways. Very low concentrations (5 ppm or less of glutaraldehyde) can be degraded in a biological wastewater treatment system. Thus, small spills can be flushed with large quantities of water. Large quantities or 'slugs' can be harmful to the treatment system. Thus, large spills should be collected for disposal. It may also be possible to decontaminate spilled material by careful

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application of aqueous sodium hydroxide or sodium bisulfite. Depending on conditions, considerable heat and fumes can be liberated by the decontamination reaction. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. 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 7, Handling for additional precautionary measures.

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 12, Ecological Information.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not get in eyes, on skin, on clothing.

Avoid breathing vapor.

Do not swallow.

Wear goggles, protective clothing and butyl or nitrile gloves.

Remove contaminated clothing and wash before reuse.

Keep container closed.

Use adequate ventilation.

Wash thoroughly with soap and water after handling.

Ventilation

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. However, if vapors are strong enough to be irritating to the nose or eyes, the TLV is probably being exceeded and special ventilation and or respiratory protection may be required.

Other Precautions

This product in its undiluted form must not be used in a spray or aerosol application. If dilutions or mixtures of this product are used in a spray application, full personal protective equipment is strongly recommended to prevent exposure.

7.2 STORAGE

Please refer to Dow publication: GLUTARALDEHYDE. Safe Handling and Storage Guide; Form No. 253-01338.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin. Form
Glutaraldehyde	0.05 ppm CEILING ACGIH	activated and unactivated
Methanol	200 ppm TWA8 ACGIH	Yes
	250 ppm STEL ACGIH	Yes
	200 ppm TWA8 OSHA	
	260 mg/m3 TWA8 OSHA	

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION

Respiratory Protection:

Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air purifying respirator. The respirator should contain an organic vapor sorbent. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

Ventilation:

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. However, if vapors are strong enough to be irritating to the nose or eyes, the TLV is probably being exceeded and special ventilation and or respiratory protection may be required.

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- Eye Protection:** Use splashproof monogoggles or safety glasses with side shields in conjunction with a face shield.
If exposure causes eye discomfort, use a full-face respirator.
Eye wash fountain should be located in immediate work area.
- Protective Gloves:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.
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.
- Other Protective Equipment:** Use chemical protective clothing resistant to this material.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Transparent colorless

Odor: Sharp, Fruity, Medicinal

Flash Point - Closed Cup: *Tag Closed Cup ASTM D 56* None.

Flammable Limits In Air:

Lower *Not Determined, Aqueous System*
Upper *Not Determined, Aqueous System*

Autoignition Temperature: *Not currently available.*

Vapor Pressure: **0.2 mmHg** 20 °C Based on glutaraldehyde

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Boiling Point (760 mmHg): ~ 100.5 °C ~ 213 °F As product.

Vapor Density (air = 1): 0.7

Specific Gravity (H₂O = 1): 1.042 20 °C / 20 °C

Freezing Point: -7 °C 20 °F

Melting Point: *Not applicable.*

Solubility in Water (by weight): 100 % 20 °C

pH: 3.1 - 4.5

Molecular Weight: 100.11 g/mol

Octanol/Water Partition Coefficient - Measured: -0.333

Evaporation Rate (Butyl Acetate = 1): 0.8

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable.

Conditions to Avoid: Active ingredient decomposes at elevated temperatures.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases.

Thermal Decomposition: Decomposition products depend upon temperature, air supply and the presence of other materials.

10.2 HAZARDOUS POLYMERIZATION

Will not occur.

11. TOXICOLOGICAL INFORMATION

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ACUTE TOXICITY

Peroral

For this family of materials:
Rat; LD50 = > 900 mg/kg

Percutaneous

For this family of materials:
Rabbit; LD50 = > 16000 mg/kg

SENSITIZATION (ANIMAL AND HUMAN STUDIES)

Has caused allergic skin reactions when tested in guinea pigs., Has caused allergic skin reactions when tested in mice.

DEVELOPMENTAL TOXICITY

For glutaraldehyde:, Did not cause birth defects in laboratory animals., Has been toxic to the fetus in lab animals at doses toxic to the mother.

REPRODUCTIVE TOXICITY

For glutaraldehyde:, In animal studies, did not interfere with reproduction.

CHRONIC TOXICITY AND CARCINOGENICITY

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., In a NTP chronic 2-year inhalation study on glutaraldehyde, no carcinogenicity was seen in rats or in mice.

GENETIC TOXICOLOGY

In Vitro

For glutaraldehyde:, In vitro genetic toxicity studies were negative in some cases and positive in other cases.

In Vivo

For glutaraldehyde:, Animal genetic toxicity studies were predominantly negative.

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

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

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12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

Based largely or completely on information for glutaraldehyde. expressed on a 100% active ingredient basis. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. The rate constant for the vapor phase reaction with photochemically produced hydroxyl radicals at 25C is estimated to be: 4.69E-11 cm³/molecule-sec.

BOD (% Oxygen consumption)

	Day 5	Day 10	Day 15	Day 20	Day 28/30
	28 %	57 - 63 %		72 - 74 %	

DOC die-away test (OECD 301A) (% dissolved organic carbon disappearance)

	Day 7	Day 14	Day 21	Day 28
				83 %

12.2 ECOTOXICITY

Based largely or completely on information for glutaraldehyde., expressed on a 100% active ingredient basis., Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested)., Inhibitory concentration (IC50) in OECD Activated Sludge Respiration Inhibition Test (OECD Test No. 209) is:, >50 mg/L.

Toxicity to Micro-organisms

Bacterial Growth Inhibition; 16 h; EC50
Result value: (17 - 25) mg/L

Toxicity to Aquatic Invertebrates

water flea (Daphnia magna); Acute LC50
Result value: 5.0 mg/L

Toxicity to Aquatic Invertebrates

grass shrimp (Palaemonetes pugio); Acute LC50
Result value: 41 mg/L

Toxicity to Aquatic Invertebrates

copepod Acartia tonsa; Acute LC50
Result value: 0.11 mg/L

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Toxicity to Aquatic Invertebrates

saltwater mysid (*Mysidopsis bahia*); Acute LC50

Result value: 7.1 mg/L

Toxicity to Aquatic Invertebrates

eastern oyster (*Crassostrea virginica*); Shell deposition inhibition; EC50

Result value: 0.78 mg/L

Toxicity to Aquatic Invertebrates

mussel *Mytilus edulis*; Acute EC50

Result value: 0.2 mg/L

Toxicity to Aquatic Plants

alga (*Scenedesmus* sp.); Growth inhibition; EC50

Result value: 0.97 mg/L

Toxicity to Aquatic Plants

green alga *Selenastrum capricornutum*; Growth inhibition; EC50

Result value: 0.81 mg/L

Toxicity to Aquatic Plants

diatom *Skeletonema costatum*; Growth inhibition; EC50

Result value: 0.61 mg/L

Toxicity to Fish

fathead minnow (*Pimephales promelas*); Acute LC50

Result value: 5.4 mg/L

Toxicity to Fish

bluegill (*Lepomis macrochirus*); Acute LC50

Result value: (9.4 - 11) mg/L

Toxicity to Fish

rainbow trout (*Oncorhynchus mykiss*); Acute LC50

Result value: 11 mg/L

Toxicity to Fish

sheepshead minnow (*Cyprinodon variegatus*); Acute LC50

Result value: 32 mg/L

12.3 FURTHER INFORMATION

Based largely or completely on information for glutaraldehyde. expressed on a 100% active ingredient basis. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for

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mobility in soil is high (Koc between 50 and 150). Soil organic carbon/water partition coefficient (Koc) is estimated to be: 120 - 500. Henry's Law Constant (H) is estimated to be: 3.3E-08 atm-m³/mole. The hydrolysis half-life is pH9 - 46 days 25°C Acute oral LD50 in mallard (Anas platyrhynchos) is 408 - 466 mg/kg. Dietary LC50 in bobwhite (Colinus virginianus) is >5000 ppm. Dietary LC50 in mallard (Anas platyrhynchos) is >5000 ppm. 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).

Theoretical Oxygen Demand (THOD) - calculated:: 1.92 mg/mg

Octanol/Water Partition Coefficient - Measured: -0.333

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

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. DOW HAS 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 MSDS SECTION 2 (Composition/ Information on Ingredients). FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred option is to contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. The preferred option in other jurisdictions is to contact the regulatory authority for this product for guidance. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details .

14. TRANSPORT INFORMATION

14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

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BULK

Proper Shipping Name : NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

OSHA HAZARD COMMUNICATION STANDARD

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 313

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA) SECTION 103

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 302

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

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SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : Yes
Fire Hazard : No
Immediate (Acute) Health Hazard : Yes
Reactive Hazard : No
Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)

The components of this product are on the EINECS inventory or are exempt from EINECS inventory requirements.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA HAZARDOUS SUBSTANCES LIST AND/OR PENNSYLVANIA ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Glutaraldehyde	111-30-8	<= 15.0000%

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PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Not applicable.

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION

16.1 ADDITIONAL INFORMATION

ADDITIONAL INFORMATION: There may be additional product safety information on this product, which may be obtained by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 3 F - 1 R - 0

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These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

This product in its undiluted form must not be used in a spray or aerosol application. If dilutions or mixtures of this product are used in a spray application, full personal protective equipment is strongly recommended to prevent exposure.

FOR INDUSTRY USE ONLY.

16.4 REVISION

Version: 5.0

Revision: 07/14/2004

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

16.5 LEGEND

Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
IHG	Industrial Hygiene Guideline
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
R	Reactivity
TS	Trade secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

NOTICE: Dow urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given., Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure

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that its activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of Dow, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product., Due to the proliferation of sources for information such as manufacturer-specific MSDSs, Dow is not and cannot be responsible for MSDSs obtained from any source other than Dow. If you have obtained a Dow MSDS from a non-Dow source or if you are not sure that a Dow MSDS is current, please contact Dow for the most current version.