SAFETY DATA SHEET

AQUCAR™ GA 50 Water Treatment Microbiocide

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	05/02/2024	203000021703	Country / Language: US / EN

SECTION 1. IDENTIFICATION

Product name : AQUCAR™ GA 50 Water Treatment Microbiocide

Product code : 000000000062632647

EPA registration number : 464-704

Manufacturer or supplier's details

Company : LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15275-1112

Responsible Department : (800) LANXESS
(412) 809-1000
lanxesshes@lanxess.com

Emergency telephone : CHEMTREC (800) 424-9300 or
(703) 527-3887 (Outside U.S.A) and mention CCN12916.
Lanxess Emergency Phone (800) 410-3063.

Recommended use of the chemical and restrictions on use

Recommended use : Biocide for industrial application

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 3

Skin corrosion : Category 1B

Serious eye damage : Category 1

Respiratory sensitization : Category 1

Skin sensitization : Sub-category 1A

Specific target organ toxicity : Category 3 (Respiratory system)

- single exposure

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Toxic if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.

Precautionary Statements :

Prevention:

Avoid breathing mist or vapors.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
In case of inadequate ventilation wear respiratory protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
If skin irritation or rash occurs: Get medical advice/ attention.
If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Chemical nature : glutaraldehyde

Substance name : glutaral

Components

Chemical name	CAS-No.	Concentration (% w/w)
glutaral	111-30-8	50
methanol	67-56-1	0.5

SECTION 4. FIRST AID MEASURES

General advice : First Aid responders should pay attention to self-protection and use the recommended protective clothing

If inhaled : Get medical attention immediately.
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If unconscious, place in recovery position and get medical attention immediately.
Maintain open airway.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

In case of skin contact : Get medical attention immediately.
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Continue to rinse for 30 minutes.
Chemical burns must be treated promptly by a physician.
Wash contaminated clothing before reuse.

In case of eye contact : Get medical attention immediately.
In case of contact, flush eyes with plenty of water for at least 30 minutes. Use fingers to ensure that eyelids are separated

and that the eye is being irrigated.
Remove contact lenses, if present and easy to do. Continue rinsing.
Chemical burns must be treated promptly by a physician.

If swallowed : Rinse mouth with water.
Do not induce vomiting unless directed to do by medical personnel.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
If unconscious, place in recovery position and get medical attention immediately.
Never give anything by mouth to an unconscious person.
Maintain open airway.
Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms : Acute overexposure to this product may cause dizziness, headache, drowsiness, malaise, abdominal pain.
Eye: Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.
Skin: Reddening, burning, and possible permanent damage.
Skin: Causes irritation with symptoms of reddening, itching, and swelling.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Effects : Toxic if swallowed or if inhaled.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
Causes severe burns.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing : None known.

media

Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses. Toxic to aquatic life with long lasting effects. This material will not burn until the water has evaporated. Residue can burn.
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 dioxide (CO2) Carbon monoxide
Further information	:	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 SDS.
Special protective equipment for fire-fighters	:	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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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. Put on appropriate personal protection equipment.
Environmental precautions	:	Prevent from entering into soil, ditches, sewers, waterways

and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

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 quantities:
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.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : 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 swallow.
Avoid prolonged or repeated contact with skin.
Use only outdoors or in a well-ventilated area.

Contaminated work clothing should not be allowed out of the workplace.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Do not get on skin or clothing.
Avoid breathing mist or vapors.
Keep container closed.
Wear goggles, protective clothing and butyl or nitrile gloves.
Wash thoroughly with soap and water after handling.
Remove contaminated clothing and wash before reuse.

Conditions for safe storage : Do not store in:
Aluminum
Copper
steel
Iron

Further information on storage conditions : Keep in a dry, cool and well-ventilated place.

Materials to avoid : Keep away from food, drink and animal feedingstuffs.
Keep away from oxidizing agents, strongly acid or alkaline materials and amines.

Further information on storage stability : Stable under recommended storage conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
glutaral	111-30-8	C	0.05 ppm	ACGIH
methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		TWA	200 ppm 260 mg/m3	OSHA Z-1

Engineering measures : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

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 equipped with an organic vapor sorbent and a particle filter. For operations such as spraying/misting and other conditions such as emergencies where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

Hand protection

Remarks : Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: butyl-rubber Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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.

Eye protection : Tightly fitting safety goggles
If exposure causes eye discomfort, use a full-face respirator.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and con-

centration of the dangerous substance at the work place.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Appropriate techniques should be used to remove potentially contaminated clothing.
Wash contaminated clothing before reusing.
Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Physical state	:	liquid
Color	:	clear
Odor	:	fruity
Odor Threshold	:	< 1 ppb Method: Literature Data
pH	:	3.1 - 4.5 (68 °F / 20 °C) Concentration: 100 % Method: ASTM E 70
Melting point/range	:	Not applicable to liquids
Freezing point		-0.40 °F / -18 °C Method: OECD Test Guideline 102
Boiling point/boiling range	:	213.3 °F / 100.7 °C Method: OECD Test Guideline 103
Flash point	:	Method: ASTM D 56, closed cup none
Evaporation rate	:	1.0 Method: Literature Data (Butyl Acetate=1.0)
Flammability (solid, gas)	:	Not applicable to liquids
Upper explosion limit / Upper flammability limit	:	No data available

Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	0.399 hPa (68 °F / 20 °C) Method: OECD Test Guideline 104 Active ingredient
Relative vapor density	:	1.1 Method: Literature Data (Air = 1.0)
Relative density	:	1.129 (68 °F / 20 °C) Method: OECD Test Guideline 109
Density	:	1.13 g/cm3 (68 °F / 20 °C) Method: OECD Test Guideline 109
Solubility(ies)		
Water solubility	:	not determined
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -0.333 Method: measured
Ignition temperature	:	725 °F / 385 °C (1,004 hPa) Method: 92/69/EEC A15 spontaneous ignition temperature
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	15.4 cps (77 °F / 25 °C) (Brookfield Viscosity - @ 100 rpm, #0 spindle)
Viscosity, kinematic	:	20.2 mm2/s (68 °F / 20 °C) Method: Literature Data
Explosive properties	:	Not explosive Method: EEC A14
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Surface tension	:	No data available
Molecular weight	:	No data available

Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Chemical stability	:	Thermally stable at typical use temperatures.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use. Polymerization will not occur.
Conditions to avoid	:	Heat, flames and sparks. Active ingredient decomposes at elevated temperatures.
Incompatible materials	:	Avoid contact with: Amines Ammonia Strong acids Strong alkalies Strong oxidizing agents Avoid contact with metals such as: Aluminum Copper Steel. Iron
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Toxic if swallowed or if inhaled.

Product:

Acute oral toxicity	:	Remarks: Moderate toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat. Typical for this family of materials. Headache Dizziness Anesthetic or narcotic effects.

Unconsciousness
other central nervous effects

LD50 (Rat, male and female): 200 mg/kg
Remarks: Product

Acute inhalation toxicity : Remarks: Vapor from heated material or mist may cause respiratory irritation.
Vapor may cause severe irritation of the upper respiratory tract (nose and throat).
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.
Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Acute toxicity estimate: 0.5569 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Components:

glutaral:

Acute oral toxicity : LD50 (Rat, male and female): 100 mg/kg
Method: OECD Test Guideline 401
GLP: Yes
Remarks: Active ingredient

Acute inhalation toxicity : LC50 (Rat, female): 0.28 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: No

LC50 (Rat, male): 0.35 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

GLP: No

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: Yes
Assessment: The substance or mixture has no acute dermal toxicity

methanol:

Acute oral toxicity : (Human): Assessment: The component/mixture is toxic after single ingestion.

Acute toxicity estimate: 100 mg/kg
Method: Expert judgment

Acute inhalation toxicity : (Human): Assessment: The component/mixture is toxic after short term inhalation.

Acute toxicity estimate: 0.501 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

Acute dermal toxicity : (Human): Assessment: The component/mixture is toxic after single contact with skin.

Acute toxicity estimate: 300 mg/kg
Method: Expert judgment

Skin corrosion/irritation

Causes severe burns.

Components:

glutaral:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Causes burns.
GLP	:	No information available.

methanol:

Species	:	Rabbit
Result	:	No skin irritation

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

glutaral:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	Draize Test
GLP	:	No

methanol:

Species	:	Rabbit
Result	:	No eye irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Product:

Assessment	:	The product is a skin sensitizer, sub-category 1A.
Assessment	:	May cause sensitization by inhalation.

Components:

glutaral:

Routes of exposure	:	Inhalation
Species	:	Human
Result	:	May cause sensitization by inhalation.
Test Type	:	Open epicutaneous test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	May cause sensitization by skin contact.
Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Skin contact
Species	:	Mouse
Result	:	The product is a skin sensitizer, sub-category 1A.

methanol:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitization on laboratory animals.
GLP	:	No

Germ cell mutagenicity

Not classified due to lack of data.

Components:

glutaral:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: Yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: Yes

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: Yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative
GLP: Yes

Test Type: unscheduled DNA synthesis assay
Species: Rat (male)
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486

Result: negative
GLP: Yes

Test Type: The sex-linked recessive lethal (SLRL) test.
Species: Drosophila melanogaster (vinegar fly) (male)
Result: negative

methanol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: No information available.

Test Type: HPRT test
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: No information available.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
GLP: No information available.

Carcinogenicity

Not classified due to lack of data.

Components:

glutaral:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	2 Years
Dose	:	100 - 500 - 2000 parts per million
NOAEL	:	100 ppm
Method	:	OECD Test Guideline 451
Result	:	negative
GLP	:	Yes

methanol:

Species	:	Rat, male and female
Application Route	:	Inhalation
Exposure time	:	24 month(s)
Dose	:	0,013 - 0,13 - 1,3 mg/l
Frequency of Treatment	:	20 h daily
NOAEC	:	>= 1.3 mg/l
Method	:	OECD Test Guideline 453
Result	:	negative
GLP	:	No information available.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Components:

glutaral:

Effects on fertility	:	Test Type: Two-generation study Species: Rat, male and female Application Route: Oral Dose: 100 - 500 - 2000 parts per million General Toxicity Parent: NOAEL: 500 parts per million Fertility: NOAEL: 2,000 parts per million Early Embryonic Development: NOAEL: 500 ppm Method: OECD Test Guideline 416 Result: Animal testing did not show any effects on fertility. GLP: Yes
Effects on fetal development	:	Test Type: Pre-natal Species: Rat, female Application Route: Oral Dose: 50 - 250 - 750 parts per million General Toxicity Maternal: NOEL: 50 ppm Teratogenicity: NOAEL: 750 ppm Embryo-fetal toxicity.: NOAEL: 750 ppm Method: OECD Test Guideline 414 Result: Did not show teratogenic effects in animal experiments. GLP: Yes

Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Dose: 5 - 15 - 45 milligram per kilogram
General Toxicity Maternal: NOAEL: 15 mg/kg body weight
Teratogenicity: NOAEL: 45 mg/kg body weight
Embryo-fetal toxicity.: NOAEL: 15 mg/kg body weight
Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses
GLP: Yes

STOT-single exposure

May cause respiratory irritation.

Components:

glutaral:

Assessment	:	May cause respiratory irritation.

methanol:

Target Organs	:	Central nervous system, Eyes
Assessment	:	Causes damage to organs.

STOT-repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

glutaral:

Species	:	Rat, male and female
NOAEL	:	500 parts per million
LOAEL	:	2000 ppm
Application Route	:	Oral
Exposure time	:	90 Days
Number of exposures	:	daily
Dose	:	100 - 500 - 2000 parts per million
Method	:	OECD Test Guideline 408
GLP	:	Yes
Remarks	:	Subchronic toxicity

Species	:	Rat, male and female
NOAEL	:	500 parts per million
LOAEL	:	2000 ppm

Application Route	:	Oral
Exposure time	:	12 Months
Number of exposures	:	daily
Dose	:	100 - 500 - 2000 parts per million
Method	:	OECD Test Guideline 452
GLP	:	Yes
Remarks	:	Chronic toxicity

Species	:	Dog, male and female
NOAEL	:	500 parts per million
Application Route	:	Oral
Exposure time	:	12 Months
Number of exposures	:	daily
Dose	:	20 - 100 - 500 parts per million
Method	:	OECD Test Guideline 452
GLP	:	Yes
Remarks	:	Chronic toxicity

Species	:	Rat, male and female
NOAEC	:	>= 1 ppm
Application Route	:	Inhalation
Test atmosphere	:	vapor
Exposure time	:	90 Days
Number of exposures	:	6 hours/day, 5 days/week
Dose	:	0,062 - 0,125 - 0,25 - 0,5 - 1 parts per million
Method	:	OECD Test Guideline 413
GLP	:	Yes
Remarks	:	Subchronic toxicity

Aspiration toxicity

Not classified due to lack of data.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Cyprinodon variegatus (sheepshead minnow)): 64 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (copepod Acartia tonsa): 6 mg/l Exposure time: 48 h Test Type: semi-static test
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 1.2 mg/l Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 0.05 mg/l
End point: Growth rate
Exposure time: 72 h

ErC50 (Skeletonema costatum (marine diatom)): 1.22 mg/l
Exposure time: 72 h
Test Type: Static

NOEC (Skeletonema costatum (marine diatom)): 0.142 mg/l
Exposure time: 72 h
Test Type: Static

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
Exposure time: 62 d
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.24 mg/l
End point: number of offspring
Exposure time: 21 d
Test Type: flow-through test
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50 (activated sludge): > 50 mg/l
Method: OECD Test Guideline 209

: EC50 (Bacteria): 17 - 25 mg/l
Exposure time: 16 h

Components:

glutaral:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 10 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: No
Method: OECD Test Guideline 203
GLP: No
Remarks: Fresh water
nominal concentration

LC50 (Lepomis macrochirus (Bluegill sunfish)): 13 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: No
Method: OECD Test Guideline 203
GLP: No
Remarks: Fresh water
nominal concentration

LC50 (Cyprinodon variegatus (sheepshead minnow)): 39 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: No
GLP: No
Remarks: salt water
nominal concentration

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 14.87 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: No
Method: Regulation (EC) No. 440/2008, Annex, C.2
GLP: No
Remarks: Fresh water
nominal concentration

EC50 (Daphnia magna (Water flea)): 14 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: No
Method: EPA-660/3-75-009
GLP: No
Remarks: Fresh water
nominal concentration

EC50 (Acartia tonsa): 3 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: Yes
Method: ISO 14669 and PARCOM method
GLP: Yes
Remarks: salt water
nominal concentration

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 0.6 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: Yes
Method: Regulation (EC) No. 440/2008, Annex, C.3
GLP: Yes
Remarks: Fresh water
nominal concentration

NOEC (Desmodesmus subspicatus (green algae)): 0.025 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: Yes
Method: Regulation (EC) No. 440/2008, Annex, C.3
GLP: Yes
Remarks: Fresh water
nominal concentration

Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 1.6 mg/l End point: Survival test Exposure time: 97 d Test Type: flow-through test Analytical monitoring: Yes Method: OECD Test Guideline 210 GLP: Yes Remarks: Fresh water nominal concentration
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 5 mg/l End point: Reproduction Exposure time: 21 d Test Type: semi-static test Analytical monitoring: Yes Method: OECD Test Guideline 221 GLP: Yes Remarks: Fresh water nominal concentration
Toxicity to microorganisms	:	EC20 (activated sludge): 15 mg/l End point: Respiration inhibition Exposure time: 30 min Test Type: static test Analytical monitoring: No Method: OECD Test Guideline 209 GLP: Yes EC50 (activated sludge): 80 mg/l End point: Respiration inhibition Exposure time: 30 min Test Type: static test Analytical monitoring: No Method: OECD Test Guideline 209 GLP: Yes
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 170 mg/kg Exposure time: 14 d

End point: Survival
Method: OECD Test Guideline 207
GLP: Yes

Plant toxicity : EC50: > 1,000 mg/kg
End point: Growth inhibition
Test period: 19 d
Species: Avena sativa (oats)
Method: OECD Test Guideline 208
GLP: Yes

EC50: > 1,000 mg/kg
End point: Growth inhibition
Test period: 19 d
Species: Vicia sativa
Method: OECD Test Guideline 208
GLP: Yes

Toxicity to terrestrial organisms : LD50 (Anas platyrhynchos (Mallard duck)): 206 mg/kg
Exposure time: 14 d
End point: mortality

LC50 (Anas platyrhynchos (Mallard duck)): > 2,500 ppm
Exposure time: 5 d
End point: mortality

methanol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l
Exposure time: 96 h
Analytical monitoring: Yes
Method: EPA-660/3-75-009
GLP: No information available.
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h
Analytical monitoring: No
Method: DIN 38412
GLP: No
Remarks: Fresh water

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): ca. 22,000 mg/l
End point: Growth rate
Exposure time: 96 h
Analytical monitoring: No information available.
Method: OECD Test Guideline 201

GLP: No information available.
Remarks: Fresh water

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Analytical monitoring: Yes
Method: OECD Test Guideline 209
GLP: No information available.
Remarks: Fresh water

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to fish.

Persistence and degradability

Product:

Biodegradability : Result: Readily biodegradable.
Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: 73 %
Exposure time: 9 d
Method: OECD Test Guideline 301A
Remarks: 10-day Window: Pass

Biodegradation: 73 %
Exposure time: 28 d
Method: OECD Test Guideline 306
Remarks: 10-day Window: Not applicable

Biochemical Oxygen Demand (BOD) : 28 %
Incubation time: 5 d

: 57 - 63 %
Incubation time: 10 d

: 72 - 74 %
Incubation time: 20 d

ThOD : 1.920 mg/g

Photodegradation : Sensitizer: OH radicals
Concentration: 1,500,000 1/cm3
Rate constant: 4.69E-11 cm3/s
Degradation (indirect photolysis):
Degradation half life: 2.74 h
Method: Estimated value

Components:

glutaral:

Biodegradability : Result: rapidly biodegradable
Biodegradation: 90 - 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301A
GLP: Yes

Result: Biodegradable in sea water
Biodegradation: 90 - 100 %
Exposure time: 70 d
Method: OECD Test Guideline 306
GLP: Yes

Concentration: 20 mg/l
Dissolved organic carbon (DOC)
Result: Biodegradable
Biodegradation: 97 %
Exposure time: 73 d
Lag phase: 1 d
Beginning of plateau phase: 2 d
Method: OECD Test Guideline 303A
GLP: Yes

Stability in water : Remarks: Hydrolyzes slowly.

Photodegradation : Sensitizer: OH radicals
Concentration: 500,000 1/cm3
Rate constant: 4.69E-10 cm3/s
Degradation (direct photolysis):
Degradation half life: 8.2 h
Remarks: Structure-activity relationship (SAR)

methanol:

Biodegradability : aerobic
Concentration: 3 mg/l
Result: Readily biodegradable.
Biodegradation: 76 %
Exposure time: 5 d
Method: Closed Bottle test
GLP: No

Photodegradation : Degradation (indirect photolysis): 50 %

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Components:

glutaral:

Bioaccumulation : Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Partition coefficient: n-octanol/water : log Pow: -0.36 (73 °F / 23 °C)
pH: 7
Method: Regulation (EC) No. 440/2008, Annex, A.8
GLP: Yes

methanol:

Partition coefficient: n-octanol/water : log Pow: -0.77
Method: Calculated value

Mobility in soil

Product:

Distribution among environmental compartments : Koc: 120 - 500
Method: estimated
Remarks: Potential for mobility in soil is high (Koc between 50 and 150).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Components:

glutaral:

Distribution among environmental compartments : log Koc: 2.5

Stability in soil : Test Type: aerobic degradation
Soil temperature: 77 °F / 25 °C
Radio label: Yes
Method: measured
GLP: Yes
Remarks: Not expected to adsorb on soil.

Other adverse effects

Product:

Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

RCRA - Resource Conservation and Recovery Authorization Act	:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)
Waste from residues	:	The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Empty containers retain product residue; observe all precautions for product. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 2922
Proper shipping name	:	Corrosive liquid, toxic, n.o.s. (GLUTARALDEHYDE)
Class	:	8
Packing group	:	II
Labels	:	8 6.1
	:	 
Packing instruction (cargo	:	855 : 30.00 L

aircraft)
Packing instruction (passenger aircraft) : 851 : 1.00 L
Environmentally hazardous : yes

IMDG-Code

UN number : UN 2922
UN proper shipping name : CORROSIVE LIQUID, TOXIC, N.O.S. (GLUTARALDEHYDE)
Class : 8
Packing group : II
Labels : 8 6.1

EmS Code : F-A, S-B
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 2922
Proper shipping name : Corrosive liquids, toxic, n.o.s. (GLUTARALDEHYDE)
Class : 8
Packing group : II
Labels : 8 6.1

ERG Code : 154
Marine pollutant : no

Hazard and Handling Notes.
Corrosive.
Toxic.
Environmentally hazardous substance.
Keep away from acids and oxidizing agents
Keep away from foodstuffs, acids and alkalis

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Respiratory or skin sensitization
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

glutaral	111-30-8	50

Pennsylvania Right To Know

glutaral	111-30-8	50
water	7732-18-5	> 1
methanol	67-56-1	0.5

California Prop. 65

WARNING: This product can expose you to chemicals including methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

TSCA inventory

TSCA	:	This product is regulated under the United States Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

FIFRA information

EPA registration number : 464-704

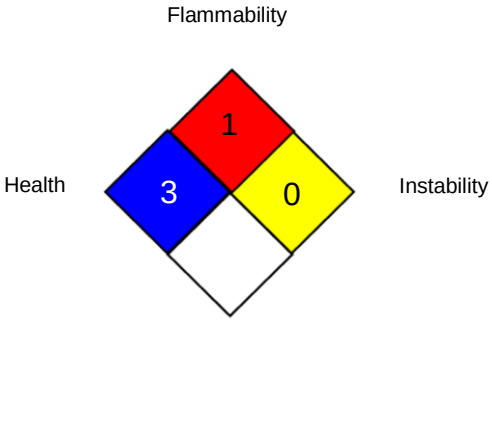
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Signal Word	:	DANGER
Hazard Statements	:	Corrosive Causes irreversible eye damage. Causes skin burns. Harmful if inhaled. May be fatal 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.

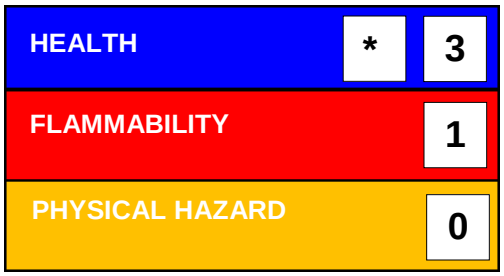
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
ACGIH / C	:	Ceiling limit
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Associa-

tion; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 05/02/2024

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered to be a guidance for processing and does not contain any warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.

Relevant changes from the previous version are marked on the left side of the Safety Data Sheet with a black double bar in appropriate places.