

SAFETY DATA SHEET

Glyclean™ AM



Version 7.0	Revision Date: 2023/10/30	SDS Number (Internal): 7723811-00011	MSDS number: AA00152-0000026330 Date of last issue: 2023/08/11 Date of first issue: 2021/01/06
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Glyclean™ AM

SDS-Identcode : 130000026330

Recommended use of the chemical and restrictions on use

Recommended use : Cleansing agents, acidic.
Disinfectants

Restrictions on use : For industrial use only.

Manufacturer or supplier's details

Company : PureTech Scientific LLC

Address : 901 West DuPont Avenue, Belle, VW 25015, United States of America

Telephone : 1-877-215-5999

Emergency telephone number : 080-880-0455 access code 336264

E-mail address : sds-support@puretechscientific.com

Telefax : 1-304-357-1364

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 1

Serious eye damage/eye irritation : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

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Hazard statements : H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H332 Harmful if inhaled.

Precautionary statements : **Prevention:**
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 + P310 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER/ doctor.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 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.
P363 Wash contaminated clothing before reuse.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container according to waste-related laws

Other hazards which do not result in classification

Corrosive to the respiratory tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name	CAS-No.	Concentration (% w/w)
Glycolic acid	Acetic acid, hydroxy-	79-14-1	>= 70 - < 80
Methoxyacetic acid	No data available	625-45-6	>= 0.3 - < 1
Formic acid	Methanoic	64-18-6	>= 0.1 - < 1

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II	Acid		
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4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention immediately.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.
- If swallowed : If swallowed, DO NOT induce vomiting.
If vomiting occurs have person lean forward.
Call a physician or poison control centre immediately.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Inhalation may provoke the following symptoms:
Cough
Shortness of breath
Pain
Irritation
Skin contact may provoke the following symptoms:
Irritation
Rash
Necrosis
Discomfort
Eye contact may provoke the following symptoms
Corrosion
Ulceration
Severe irritation
Ingestion may provoke the following symptoms:
Gastrointestinal discomfort
Nausea
Vomiting

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Diarrhoea
Causes serious eye damage.
Harmful if inhaled.
Causes severe burns.
Causes digestive tract burns.
Corrosive to respiratory system.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician : Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable and unsuitable extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : None known.

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Carbon oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.

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Prevent spreading over a wide area (e.g. by containment or oil barriers).

Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Avoid breathing mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Take care to prevent spills, waste and minimize release to the environment.

Do not breathe decomposition products.

Conditions for safe storage : Keep in properly labelled containers.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Reacts with many metals to liberate hydrogen gas which can form explosive mixtures with air. Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside

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drums, or any types of steel containers or tanks upon storage.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents

Recommended storage temperature : > 10 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Formic acid	64-18-6	TWA	5 ppm	KR OEL
		TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH

Other ingredients, which are listed in section 3 but not listed in this section, do not have established occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Carbon dioxide	124-38-9	TWA	5,000 ppm	KR OEL
		STEL	30,000 ppm	KR OEL
		TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH

Engineering measures : Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection : Use respiratory protection (gas mask) unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Inorganic gas/vapour type

Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.

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If splashes are likely to occur, wear:
Face-shield

Hand protection

Material	: Chloroprene
Break through time	: > 480 min
Glove thickness	: 0.6 mm

Remarks

: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection

: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures

: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: amber
Odour	: of burnt sugar
Odour Threshold	: No data available
pH	: 0.1 (25 °C)
Melting point/freezing point	: 10 °C
Initial boiling point and boiling range	: No data available

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Flash point	:	> 100 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Solubility(ies) Water solubility	:	> 300 g/l (for a component of this mixture) (22 °C)
Relative vapour density	:	No data available
Relative density	:	1.25 (26 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	Not applicable

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	:	Not classified as a reactivity hazard. Stable under normal conditions. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated
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temperatures.

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents
Bases

Hazardous decomposition products

Thermal decomposition : Carbon dioxide

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Health hazard information

Acute toxicity

|| Harmful if inhaled.

Product:

Acute inhalation toxicity : Acute toxicity estimate: 4.92 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

Glycolic acid:

Acute oral toxicity : LD50 (Rat): 2,040 mg/kg
Method: US EPA Test Guideline OPP 81-1

Acute inhalation toxicity : LC50 (Rat): 3.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : Assessment: The substance or mixture has no acute dermal toxicity

Methoxyacetic acid:

Acute oral toxicity : LD50 (Rat): 1,000 mg/kg

Formic acid:

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Acute oral toxicity	: LD50 (Rat): 730 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	: LC50 (Rat): 7.85 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403 Assessment: Corrosive to the respiratory tract.
Acute dermal toxicity	: LD50 (Rat): > 2,000 mg/kg Remarks: Based on data from similar materials

Skin corrosion/irritation

Causes severe burns.

Components:

Glycolic acid:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: Corrosive after 3 minutes to 1 hour of exposure

Methoxyacetic acid:

Species	: Rabbit
Result	: Corrosive after 3 minutes to 1 hour of exposure

Formic acid:

Result	: Corrosive after 3 minutes or less of exposure
Remarks	: Based on national or regional regulation.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Glycolic acid:

Species	: Rabbit
Result	: Irreversible effects on the eye
Method	: OECD Test Guideline 405

Methoxyacetic acid:

Result	: Irreversible effects on the eye
Remarks	: Based on skin corrosivity.

Formic acid:

Result	: Irreversible effects on the eye
Remarks	: Based on skin corrosivity.

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Respiratory or skin sensitisation

Respiratory sensitisation

|| No data available

Skin sensitisation

|| No data available

Components:

Glycolic acid:

Test Type	: Buehler Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

Formic acid:

Test Type	: Buehler Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

Carcinogenicity

|| No data available

Components:

Glycolic acid:

|| No data available

Species	: Mouse
Application Route	: Skin contact
Exposure time	: 40 weeks
Result	: negative

Carcinogenicity - Assessment	: Weight of evidence does not support classification as a carcinogen
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Methoxyacetic acid:

|| No data available

Formic acid:

|| No data available

Species	: Rat
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Application Route	: Ingestion
Exposure time	: 104 weeks
Result	: negative
Remarks	: Based on data from similar materials

Germ cell mutagenicity

|| No data available

Components:

Glycolic acid:

|| No data available

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Ingestion Method: OECD Test Guideline 474 Result: negative
Germ cell mutagenicity- Assessment	: Weight of evidence does not support classification as a germ cell mutagen.

Methoxyacetic acid:

|| No data available

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative Test Type: In vitro mammalian cell gene mutation test Result: negative
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Formic acid:

|| No data available

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471
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Genotoxicity in vivo	: Result: negative Test Type: Sex-linked recessive lethal test in Drosophila melanogaster (in vivo) Application Route: Ingestion Method: OECD Test Guideline 477 Result: negative
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Reproductive toxicity

No data available

Product:

Reproductive toxicity - Assessment	: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
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Components:

Glycolic acid:

No data available

Effects on fertility	: Test Type: One-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: Regulation (EC) No. 440/2008, Annex, B.34 Result: negative
Effects on foetal development	: Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative
Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity

Methoxyacetic acid:

May damage fertility or the unborn child.

Effects on fertility	: Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: positive
Effects on foetal development	: Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: positive
Reproductive toxicity - Assessment	: Clear evidence of adverse effects on sexual function and fertil-

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Assessment

ity, based on animal experiments., Clear evidence of adverse effects on development, based on animal experiments.

Formic acid:

No data available

Effects on fertility

: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development

: Test Type: Embryo-foetal development
Species: Rabbit
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

STOT - single exposure

No data available

Components:

Methoxyacetic acid:

Assessment

: May cause respiratory irritation.

Remarks

: Based on harmonised classification in EU regulation 1272/2008, Annex VI

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Glycolic acid:

Species

: Rat, male and female

NOAEL

: 150 mg/kg

LOAEL

: 300 mg/kg

Application Route

: Ingestion

Exposure time

: 90 Days

Method

: OECD Test Guideline 408

Formic acid:

Species

: Rat

NOAEL

: 400 mg/kg

Application Route

: Ingestion

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Exposure time	: 52 Weeks
Remarks	: Based on data from similar materials

Aspiration toxicity

No data available

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Glycolic acid:

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 114.8 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 99.6 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 31.2 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 14.4 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Methoxyacetic acid:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): > 500 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	: ErC50 (Desmodesmus subspicatus (green algae)): 66.2 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

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Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

Formic acid:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 130 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 365 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,240 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): 295 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms : NOEC: 72 mg/l
Exposure time: 13 d

Persistence and degradability

Components:

Glycolic acid:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301B

Methoxyacetic acid:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

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Formic acid:

Biodegradability	: Result: Readily biodegradable. Biodegradation: 100 % Exposure time: 28 d Method: OECD Test Guideline 301C
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Bioaccumulative potential

Components:

Glycolic acid:

Partition coefficient: n-octanol/water	: log Pow: -1.07
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Methoxyacetic acid:

Partition coefficient: n-octanol/water	: log Pow: -0.68 Remarks: Calculation
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Formic acid:

Partition coefficient: n-octanol/water	: log Pow: -2.1
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Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	: Dispose of contents and container according to wastes control act.
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It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines.
Do not dispose of waste into sewer.

Contaminated packaging	: Follow advice on product label and/or leaflet. Empty containers retain residue and can be dangerous. Do not re-use empty containers.
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Disposal precautions

Dispose of contents and container according to wastes control act.

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14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	: UN 3265
Proper shipping name	: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Glycolic acid)
Class	: 8
Packing group	: II
Labels	: 8
Environmentally hazardous	: no

IATA-DGR

UN/ID No.	: UN 3265
Proper shipping name	: Corrosive liquid, acidic, organic, n.o.s. (Glycolic acid)
Class	: 8
Packing group	: II
Labels	: Corrosive
Packing instruction (cargo aircraft)	: 855
Packing instruction (passenger aircraft)	: 851

IMDG-Code

UN number	: UN 3265
Proper shipping name	: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Glycolic acid)
Class	: 8
Packing group	: II
Labels	: 8
EmS Code	: F-A, S-B
Marine pollutant	: no

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

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.

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15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Chemical name	CAS-No.
Formic acid	64-18-6

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Not applicable

Special Management Materials

Not applicable

Controlled Substances Subject to Environment Monitoring

Not applicable

Controlled Substances Subject to Health Examination

Not applicable

Hazardous Substances Subject to Process Safety Management (PSM) Reporting Obligation

Not applicable

Regulation under the Chemicals Control Act

Toxic Chemicals

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Not applicable

Accident Precaution Chemicals

Not applicable

Dangerous Substances Safety Management Act

Not Applicable to Dangerous Materials

SAFETY DATA SHEET

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Wastes Control Act

Industrial general wastes
Follow article 13 of the act to dispose the product waste

16. OTHER INFORMATION

Other information : Glyclean™ and any associated logos are trademarks or copyrights of PureTech Scientific LLC.
Before use read PureTech Scientific LLC safety information.
For further information contact the local PureTech Scientific LLC office or nominated distributors.

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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Revision number and date

Number of Revision : 10

Revision Date : 2023/10/30

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

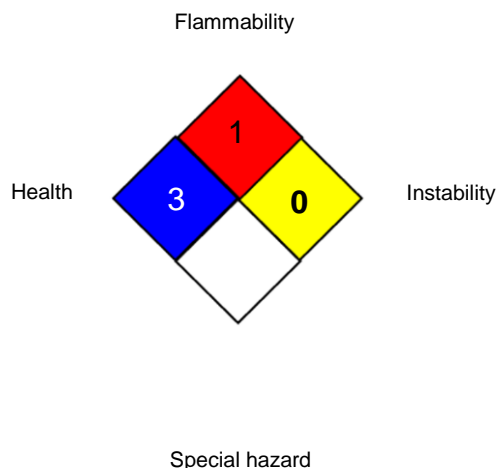
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NFPA:



Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
KR OEL	: Harmful Agents to be kept below Occupational Exposure Limits
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
KR OEL / TWA	: Time Weighted Average
KR OEL / STEL	: Short Term Exposure Limit

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Develop-

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ment; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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