1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Acetic acid Glacial
Synonyms	Acetic acid, Glacial acetic acid
Grade	ACS, HPLC, Pesticide, Dehydrous, LCMS, Trace Metal, Trace Metal Plus
Company	Anaqua Chemicals Supply
	1510 Eldridge Parkway, Suite 110-268 Houston, TX 77077, USA
Telephone	(281) 668-0032
Fax	(281) 668-0033

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Formula	$C_2H_4O_2$
CAS-No.	64-19-7
Index-No.	607-002-00-6
Ec-No.	200-580-7
Concentration	>99.7 %

3. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids	Category 3
Skin corrosion	Category 1A

According to European Directive 67/548/EEC as amended.

Flammable. Causes severe burns.

4. FIRST AID MEASURES

Inhalation	If breathed in, move into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Never give anything by mouth to an unconscious person.
	Rinse mouth with water. Consult a physician.
Skin Contact	Immediately wash off with soap and plenty of water. Consult a physician.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.

Most important symptoms and effects, both acute and delayed

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Ingestion or inhalation of concentrated acetic acid causes damage to tissues of the respiratory and digestive tracts. Symptoms include: hematemesis, bloody diarrhea, edema and/or perforation

of the esophagus and pylorus, pancreatitis, hematuria, anuria, uremia, albuminuria, hemolysis, convulsions, bronchitis, pulmonary edema, pneumonia, cardiovascular collapse, shock, and death. Direct contact or exposure to high concentrations of vapor with skin or eyes can cause: erythema, blisters, tissue destruction with slow healing, skin blackening, hyperkeratosis, fissures, corneal erosion, opacification, iritis, conjunctivitis, and possible blindness., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special hazards	Carbon oxides
Special protective equipment for fire-fighters	Wear self contained breathing apparatus for fighting fire if necessary. Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
Environmental precautions	Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up	Contain spillage, collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations

7. HANDLING AND STORAGE

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking.Take measures to prevent build up of electrostatic charge.
Storage	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational exposure controls

Engineering Measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective Equipment

Respiratory protection	Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls when risk assessment shows air-purifying respirators are appropriate. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
Skin protection	Handle with gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.
Eye / face protection	Tightly fitting face shield (8-inch minimum) and safety glasses
Body protection	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Color	Colorless
pH	2.4 at 60.05 g/l
Melting point	16.2 ℃
Boiling point	117-118 ℃
Flash point	40 ℃ - closed cup
Ignition temperature	485 ℃
Lower explosion limit	4 % (V)
Upper explosion limit	19.9 % (V)
Vapor pressure	73.3 hPa at 50.0 ℃
	15.2 hPa at 20 ℃
Density	1.049 g/mL at 25 ℃ (77 ℉)
Water solubility	Completely miscible
Partition coefficient: n-octanol/ water	log Pow: -0.17
Surface tension	28.8 mN/m at 10 ℃
Molecular weight	101.19

10. STABILITY AND REACTIVITY

Storage stability	No information available
Conditions to avoid	Heat, flames and sparks.
Materials to avoid	Oxidizing agents, soluble carbonates and phosphates, hydroxides, metals, peroxides, permanganates, e.g. potassium permanganate, amines, alcohols
Hazardous decomposition products	No information available

11. TOXICOLOGICAL INFORMATION

Acute toxicity		LD50 Oral - rat – 3,310 mg/kg LC50 Inhalation - mouse - 1 h - 5620 ppm Remarks: Sense Organs and Special Senses (Nose, eye, ear, and Taste): Eye: Conjunctive irritation. Sense Organs and Special Senses (Nose, Eye, Ear, and taste):Eye: Other. Blood: Other changes. LD50 Dermal - rabbit - 1.112 mg/kg
Skin and eye irritation		Corrosive to eyes (Rabbit) 24 h
Sensitization		No available information
Germ cell mutagenicity		No available information
Carcinogenicity		IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity		No available information
Aspiration hazard		No available information
Potential health effects	**Inhalation**	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

	Ingestion	May be harmful if swallowed. Causes burns
	Skin	Toxic if absorbed through skin. Causes skin burns.
	Eyes	**Eyes** Causes eye burns.
Signs and Symptoms of Exposure		Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Ingestion or inhalation of concentrated acetic acid causes damage to tissues of the respiratory and digestive tracts. Symptoms include: hematemesis, bloody diarrhea, edema and/or perforation of the esophagus and pylorus, pancreatitis, hematuria, anuria, uremia, albuminuria, hemolysis, convulsions, bronchitis, pulmonary edema, pneumonia, cardiovascular collapse, shock, and death. Direct contact or exposure to high concentrations of vapor with skin or eyes can cause: erythema, blisters, tissue destruction with slow healing, skin blackening, hyperkeratosis, fissures, corneal erosion, opacification, iritis, conjunctivitis, and possible blindness., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Additional Information		RTECS: AF1225000

12. ECOLOGICAL INFORMATION

Ecotoxicity	
Persistence and degradability	Biodegradability: aerobic - Exposure time 30 d Result: 99 % - Readily biodegradable. (Remarks: Expected to be biodegradable)
Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 79 - 88 mg/l - 96 h LC50 - Lepomis macrochirus - 75 mg/l - 96 h
Toxicity to daphnia and aquatic invertebrates	EC50 65 mg/l (Daphnia magna (Water flea)) 48 h
Bioaccumulative potential	No available information
Results of PBT and vPvB assessment	No available information
Mobility	No available information
Other adverse effects	Harmful to aquatic life. Biochemical Oxygen Demand (BOD): 880 mg/g

13. DISPOSAL CONSIDERATIONS

Product	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

IATA

UN-Number: 2789 Class: 8 (3) Packing group: II

Proper shipping name: Acetic acid, glacial

IMDG

UN-Number: 1296 Class: 3 (8) Packing group: II

Proper shipping name: Acetic acid, glacial

EMS-No. F-A, S-A

DOT (US)

UN-Number: 1296 Class: 3 (8) Packing group: II

Proper shipping name: Acetic acid, glacial

Marine pollution: No

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15. REGULATORY INFORMATION

Hazard statements

H226: Flammable liquid and vapour.

H314: Causes severe skin burns and eye damage.

Precautionary statements

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor/ physician.

GHS-Labeling

Pictogram

Signal word *Danger*

R-phrase(s): 10-35

Flammable. Causes severe burns.

S-phrase(s): 23-26-45

Do not breathe gas/fumes/vapour/spray. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately

16. OTHER INFORMATION

 The information, data, and recommendations in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information, data, and recommendations set forth herein are believed by us to be accurate. We make no warranties, either expressed or implied, with respect thereto and assume no liability in connection with any use of such information, data, and recommendations.