# astraldiagnostics Acetic Acid, Glacial

<sup>d</sup> Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Revision date: 08 DEC 2022

SECTION 1: Identification		
1.1. Identification		
Product form	: Substance	
Substance name	: Acetic Acid, Glacial	
CAS-No.	: 64-19-7	
Product code	: 3298-16, 3298-G	
Formula	: C2H4O2	
Synonyms	: Acetic acid, glacial; ethanoic acid; ethylic acid; methanecarboxylic acid	
1.2. Recommended use and restrictions	s on use	
Use of the substance/mixture	: For laboratory and manufacturing use only.	
Recommended use	: Laboratory chemicals	
Restrictions on use	: Not for food, drug or household use	
1.3. Supplier		
Astral Diagnostics Inc. Logan Township NJ 08085 - United States T +1 856 224 0900 800-441-0366 Technical Service; Monday-Friday: 8:00 AM-5:00 PM, Eastern US Time www.ethosbiosciences.com		

#### 1.4. Emergency telephone number

Emergency number

: 800-424-9300 CHEMTREC (USA) -- 24 Hours/Day, 7 Days/Week

#### SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

#### **GHS US classification**

Flammable liquids Category 3 Acute toxicity (inhalation:vapor) Category 4 Skin corrosion/irritation Category 1B Serious eye damage/eye irritation Category 1 Hazardous to the aquatic environment - Acute Hazard Category 3

Full text of H statements : see section 16

- H226 Flammable liquid and vapor
- H332 Harmful if inhaled
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H402 Harmful to aquatic life

2.2.	GHS Label elements, including precautionary statements
GHS U	labeling

Hazard pictograms (GHS US)

Signal word (GHS US) Hazard statements (GHS US)

Precautionary statements (GHS US)

- : Danger
- : H226 Flammable liquid and vapor
  - H314 Causes severe skin burns and eye damage
  - H332 Harmful if inhaled
  - H402 Harmful to aquatic life
- : P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
  - P233 Keep container tightly closed.
  - P240 Ground/bond container and receiving equipment.
  - P241 Use explosion-proof electrical, ventilating, lighting equipment.
  - P242 Use only non-sparking tools.
  - P243 Take precautionary measures against static discharge.

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P: P: P: P4 P4	305+P351+P338 - IF IN ontact lenses, if present a 310 - Immediately call a 363 - Wash contaminate 370+P378 - In case of fir xtinguish 403+P235 - Store in a w 405 - Store locked up.	vater/shower. b: Remove person to fr EYES: Rinse cautious and easy to do. Contin poison center or docto d clothing before reus re: Use carbon dioxide ell-ventilated place. Ke	esh air ar ly with wa ue rinsing pr/physicia e. e (CO2), p eep cool.	an. powder, alcohol-resistant foam to
t in clas	sification			
: N	one.			
)				
ion on	ingredients			
. 0	- u-u			
: 0	ompound	Due due tiden titlen	0/	
				GHS US classification
		(0/10-10-1	100	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation: vapor), H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 3, H402
see sec	ction 16			<u> </u>
	ha alu tha uital funational I			a simulation Descination
ar wi Vo wa	rrest: artificial respiration ith labored breathing: ha omiting: prevent asphyxi arming up). Keep watchi	or oxygen. Cardiac ar If-seated. Victim in sho a/aspiration pneumoni ng the victim. Give psy	rest: perf ock: on hi a. Prever /chologic	orm resuscitation. Victim conscious s back with legs slightly raised. nt cooling by covering the victim (no al aid. Keep the victim calm, avoid
ac	Remove the victim into fresh air. Immediately consult a doctor/medical service. Doctor: administration of corticoid spray.			
ag st	gents without medical ad icks to the skin. Cover w	lvice. Remove clothing ounds with sterile ban	while wa	ashing. Do not remove clothing if it
ea	Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice. Take victim to an ophthalmologist.			
vc cc	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not apply (chemical) neutralizing agents without medical advice. Immediately consult a doctor/medical service. Call a Poison Center. Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital.			
fects (ac	cute and delayed)			
: Pi	ractically non-toxic if swa		> 2000 n	ng/kg). Causes severe skin burns.
	PPP Present in class : N : N : C : C : See sec : See sec : C : C : C : C : C : C : C : C : C : C	P405 - Store locked up. P501 - Dispose of content it in classification : None. : None. : Compound : Compound : see section 16 : see section 16 : check the vital functions. arrest: artificial respiration with labored breathing: ha Vomiting: prevent asphyxi warming up). Keep watchi physical strain. Depending : Remove the victim into fre administration of corticoid : Wash immediately with lot agents without medical ad sticks to the skin. Cover w burned surface > 10%: tak : Rinse immediately with plk easy to do. Continue rinsii advice. Take victim to an of : Rinse immediately with plk easy to do. Continue rinsii advice. Take victim to an of : Rinse mouth with water. In vomiting. Do not apply (ch consult a doctor/medical s immediately to hospital. Tak	P403+P235 - Store in a well-ventilated place. Ke         P405 - Store locked up.         P501 - Dispose of contents/container to comply         It in classification <ul> <li>None.</li> <li>Compound</li> </ul> It in classification <ul> <li>None.</li> </ul> It in classification <li>None.</li> It in classification       It in classification         : None.       Product identifier         (CAS-No.) 64-19-7       It is classification         : see section 16       Case of the vital functions. Unconscious: maintair arrest: artificial respiration or oxygen. Cardiac ar with labored breathing: half-seated. Victim in sho Vomiting: prevent asphyxia/aspiration pneumoni warming up). Keep watching the victim. Give psy physical strain. Depending on the victim's condit         : Remove the victim into fresh air. Immediately co administration of corticoid spray.         : Wash immediately with lots of water (15 minutes agents without medical advice. Remove clothing sticks to the skin. Cover wounds with sterile ban burned surface > 10%: take victim to hospital.         : Rinse immediately with plenty of water for 15 mi easy to do. Continue rinsing. Do not apply (chem advice. Take victim to an ophthalmologist.         : Rinse immediately with water. Immediately after inges vomiting. Do not apply (chemical) neutralizing age consult a doctor/medical service. Call a Poison O immediately to hospital. Take the container/vomi         fects (acute and delayed)       :	P403+P235 - Store in a well-ventilated place. Keep cool.         P405 - Store locked up.         P501 - Dispose of contents/container to comply with local         It in classification <ul> <li>None.</li> <li>None.</li> </ul> It in classification <ul> <li>None.</li> </ul> It on ingredients           It in classification         : Compound         Product identifier       %         (CAS-No.) 64-19-7       100         : see section 16

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Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue.
Symptoms/effects after ingestion	<ul> <li>Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Blood in vomit. Diarrhoea. Shock. Low arterial pressure. Enlargement/disease of the liver. Decreased renal function.</li> </ul>
Chronic symptoms	: Affection/discolouration of the teeth.

Obtain medical assistance.

SECTION 5: Fire-fighting measures	
5.1. Suitable (and unsuitable) extinguis	hing media
Suitable extinguishing media	: Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.
Unsuitable extinguishing media	: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.
5.2. Specific hazards arising from the c	hemical
Fire hazard	<ul> <li>DIRECT FIRE HAZARD. Flammable liquid and vapour. Gas/vapor flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Reactions involving a fire hazard: see "Reactivity Hazard".</li> </ul>
Explosion hazard	<ul> <li>DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".</li> </ul>
Hazardous decomposition products in case of fire	: Upon combustion: CO and CO2 are formed.
5.3. Special protective equipment and p	precautions for fire-fighters
Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
<b>SECTION 6: Accidental release mea</b>	sures
6.1. Personal precautions, protective ed	quipment and emergency procedures
General measures	: Clean up any spills as soon as possible, using an absorbent material to collect it.
6.1.1. For non-emergency personnel	
Protective equipment	: Gas-tight suit. Corrosion-proof suit.
Emergency procedures	Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosion-proof appliances and lighting equipment. Corrosion-proof appliances. Keep containers closed. Wash contaminated clothes.
6.1.2. For emergency responders	
Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Stop leak if safe to do so. Ventilate area.
6.2. Environmental precautions	
Prevent soil and water pollution. Prevent spread	ling in sewers.
6.3. Methods and material for containm	ent and cleaning up
For containment	: Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute combustible/toxic gases/vapors with water spray. Take account of toxic/corrosive precipitation water. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
Methods for cleaning up	: Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite or kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.
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### 6.4. Reference to other sections

#### No additional information available

SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
•	: Flammable vapors may accumulate in the container.
Precautions for safe handling	: Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly. Work under local exhaust/ventilation. Exhaust gas must be neutralized. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosion-proof equipment. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Keep container tightly closed.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
7.2. Conditions for safe storage, including	any incompatibilities
Incompatible products	: Strong bases. Oxidizing agents. Metals.
Incompatible materials	: Direct sunlight. Heat sources. Sources of ignition.
Storage temperature	: > 17 °C
Heat-ignition	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) bases.
	metals. alcohols. amines. water/moisture.
Storage area	: Store in a dry area. Keep container in a well-ventilated place. Keep out of direct sunlight. Fireproof storeroom. Keep locked up. Provide for a tub to collect spills. Provide the tank with earthing. Detached building. Store only in a limited quantity. Meet the legal requirements.
Special rules on packaging	<ul> <li>SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.</li> </ul>
Packaging materials	: SUITABLE MATERIAL: stainless steel. aluminium. LDPE (Low Density Poly Ethylene). HDPE. glass. MATERIAL TO AVOID: iron. zinc. lead. copper. bronze. natural rubber.

### SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Acetic Acid (64-19-7)		
USA - ACGIH - Occupational Exposure Limits		
Local name	Acetic acid	
ACGIH TWA (mg/m <sup>3</sup> )	25 mg/m³	
ACGIH TWA (ppm)	10 ppm	
ACGIH STEL (mg/m³)	37 mg/m³	
ACGIH STEL (ppm)	15 ppm	
Remark (ACGIH)	TLV® Basis: URT & eye irr; pulm func	
Regulatory reference	ACGIH 2020	
USA - OSHA - Occupational Exposure Limits		
Local name	Acetic acid	
OSHA PEL (TWA) (mg/m³)	25 mg/m³	
OSHA PEL (TWA) (ppm)	10 ppm	
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1	
USA - IDLH - Occupational Exposure Limits		
US IDLH (ppm)	50 ppm	
USA - NIOSH - Occupational Exposure Limits		
NIOSH REL (TWA) (mg/m³)	25 mg/m³	
NIOSH REL (TWA) [ppm]	10 ppm	
NIOSH REL (STEL) (mg/m <sup>3</sup> )	37 mg/m³	
NIOSH REL (STEL) [ppm]	15 ppm	

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8.2.	Appropriate engineering controls		
Approp	riate engineering controls	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled in a laboratory hood whenever possible.	
8.3.	3.3. Individual protection measures/Personal protective equipment		
Personal protective equipment:			
Protective goggles. Gloves. Face shield. Gas mask with filter type E. Chemical resistant apron.			
Materials for protective clothing:			
GIVE LESS RESISTANCE: natural rubber. GIVE POOR RESISTANCE: polyethylene. PVA			
Hand	Hand protection:		

Protective gloves against chemicals (EN 374)

#### Eye protection:

Protective goggles (EN 166)

#### Skin and body protection:

Head/neck protection. Corrosion-proof clothing (EN 14605)

### **Respiratory protection:**

Full face mask with filter type A at conc. in air > exposure limit. High vapour/gas concentration: compressed air apparatus (EN 136 + EN 137)

### Personal protective equipment symbol(s):



#### Thermal hazard protection:

None necessary.

<b>SECTION 9: Physical and chemical</b>	properties	
9.1. Information on basic physical and	chemical properties	
Physical state	: Liquid	
Appearance	: Liquid.	
Color	: Colorless	
Odor	: Irritating/pungent odor; Vinegar odor	
Odor threshold	: No data available	
рН	: 2.4 (0.1 mol/l)	
Melting point	: 17 °C (1013 hPa)	
Freezing point	: No data available	
Boiling point	: 118 °C (1013 hPa)	
Critical temperature	: 322 °C	
Critical pressure	: 45300 hPa	
Flash point	: 39 °C (1013 hPa)	
Relative evaporation rate (butyl acetate=1)	: 0.97	
Relative evaporation rate (ether=1)	: 11	
Flammability (solid, gas)	: No data available	
Vapor pressure	: 20.79 hPa (25 °C)	
Relative vapor density at 20 °C	: 2.1	
Relative density	: 1.04 (25 °C)	
Relative density of saturated gas/air mixture	: 1	
Specific gravity / density	: 1040 kg/m³ (25 °C)	
Molecular mass	: 60.05 g/mol	
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Solubility	<ul> <li>Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in tetrachloromethane. Soluble in glycerol.</li> <li>Water: 60.3 g/100ml (25 °C)</li> <li>Ethanol: complete</li> <li>Ether: complete</li> <li>Acetone: complete</li> </ul>
Log Pow	: -0.17 (Experimental value, 25 °C)
Auto-ignition temperature	: 463 °C (1013 hPa)
Decomposition temperature	: No data available in the literature
Viscosity, kinematic	: 1.168 mm²/s
Viscosity, dynamic	: 1.056 mPa·s (25 °C)
Explosion limits	: 4 – 19.9 vol % Lower explosive limit (LEL): 4 vol % Upper explosive limit (UEL): 19.9 vol %
Explosive properties	: No data available.
Oxidizing properties	: No data available.
9.2. Other information	
Specific conductivity	: 500000 pS/m (0 °C)
VOC content	: 100 %
Other properties	: Gas/vapor heavier than air at 20°C. Clear. Hygroscopic. Volatile. Substance has acid reaction.
SECTION 10: Stability and reactiv	ity
10.1. Reactivity	
	oounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Reacts violently with (some) bases.
10.2. Chemical stability	
Hygroscopic.	
10.3. Possibility of hazardous reaction	15
Reacts violently with (some) bases: release of	
10.4. Conditions to avoid	atible materiale
Extremely high or low temperatures. Incompa	
10.5. Incompatible materials	
May react violently with alkalis. May react with	h bases, copper, silver, mercury, magnesium, zinc and their alloys.
10.6. Hazardous decomposition produ	icts
Carbon dioxide. Carbon monoxide.	
SECTION 11: Toxicological inform	nation
11.1. Information on toxicological effe	
Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Harmful if inhaled.
Acetic Acid (64-19-7)	
LD50 oral rat	3310 mg/kg body weight (Rat, Male / female, Experimental value, Oral, 6 day(s))
LC50 Inhalation - Rat	11.4 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Female, Experimental value, Inhalation (vapors), 14 day(s))
ATE US (oral)	3310 mg/kg body weight
ATE US (vapors)	11.4 mg/l/4h
ATE US (dust, mist)	11.4 mg/l/4h
Skin corrosion/irritation	: Causes severe skin burns. pH: 2.4 (0.1 mol/l)
Serious eye damage/irritation	: Causes serious eye damage. pH: 2.4 (0.1 mol/l)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified

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Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: 1.168 mm²/s
Likely routes of exposure	: Inhalation. Skin and eye contact.
Potential Adverse human health effects and symptoms	: Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Causes severe skin burns. Causes serious eye damage.
Symptoms/effects after inhalation	: Coughing. Dry/sore throat. Respiratory difficulties. Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of pneumonia. Risk of lung edema.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue.
Symptoms/effects after ingestion	: Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Blood in vomit. Diarrhoea. Shock. Low arterial pressure. Enlargement/disease of the liver. Decreased renal function.
Chronic symptoms	: Affection/discolouration of the teeth.

SECTION 12: Ecological information	
12.1. Toxicity	
Ecology - general	: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air	Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	Not harmful to crustacea. Not harmful to fishes. Not harmful to algae. Not harmful to bacteria. pH shift.
Acetic Acid (64-19-7)	
LC50 fish 1	> 1000 mg/l (Equivalent or similar to OECD 203, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	> 1000 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

12.2. Persistence and degradability	
Acetic Acid (64-19-7)	
Persistence and degradability	Readily biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.6 – 0.74 g O₂/g substance
Chemical oxygen demand (COD)	1.03 g O₂/g substance
ThOD	1.07 g O₂/g substance

12.3. Bioaccumulative potential	
Acetic Acid (64-19-7)	
BCF fish 1	3.16 (Pisces, Fresh water, QSAR)
Log Pow	-0.17 (Experimental value, 25 °C)
Bioaccumulative potential	Not bioaccumulative.

### 12.4. Mobility in soil

Acetic Acid (64-19-7)	
Surface tension	26.3 mN/m (30 °C)
Ecology - soil	Highly mobile in soil. May be harmful to plant growth, blooming and fruit formation.

#### 12.5. Other adverse effects

No additional information available

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<b>SECTION 13: Disposal consider</b>	ations
13.1. Disposal methods	
Waste disposal recommendations	: Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.
Additional information	: None.

### **SECTION 14: Transport information**

#### **Department of Transportation (DOT)**

In accordance with DOT

Transport document description UN-No.(DOT) Proper Shipping Name (DOT)

Transport hazard class(es) (DOT) Packing group (DOT) Subsidiary risk (DOT) Hazard labels (DOT)

: UN2789 Acetic acid, glacial (with more than 80 percent acid, by mass), 8 (3), II

- : UN2789
- : Acetic acid, glacial

with more than 80 percent acid, by mass

- : 8 Class 8 Corrosive material 49 CFR 173.136
- : II Medium Danger
- : 3 Class 3 Flammable and combustible liquid 49 CFR 173.120
- 8 Corrosive

: 202

: 243

3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx) DOT Special Provisions (49 CFR 172.102)

: A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.

A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.

A7 - Steel packaging must be corrosion-resistant or have protection against corrosion. A10 - When aluminum or aluminum alloy construction materials are used, they must be resistant to corrosion.

B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)

TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C

		(59 F) and 50 C (122 F), respectively.	
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154	
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1L	
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L	
DOT Vessel Stowage Location	:	A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.	
Other information	:	No supplementary information available.	
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5.1. US Federal regulations	
Acetic Acid (64-19-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not subject to reporting requirements of the United States SARA Section 313 RQ (Reportable quantity, section 304 of EPA's List of Lists) 5000 lb	

Substances Control Act (TSCA) inventory

15.2. International regulations	
CANADA	
Acetic Acid (64-19-7)	
Listed on the Canadian DSL (Domestic Substances List)	
EU-Regulations	
No additional information available	
National regulations	
No additional information available	
15.3 US State regulations	

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### **SECTION 16: Other information**

Revision date

: 08 DEC 2022

#### Full text of H-phrases:

••••					
	H226	Flammable liquid and vapor			
	H314	Causes severe skin burns and eye damage			
	H318	Causes serious eye damage			
	H332	Harmful if inhaled			
	H402	Harmful to aquatic life			

NFPA health hazard	: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
NFPA fire hazard	<ul> <li>2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.</li> </ul>
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.
Hazard Rating	$\checkmark$
Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)
Physical	: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.
Personal protection	: H
	H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

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