



# Aqua Chemical Supply, Inc.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Carbon Dioxide  
Trade names: Carbon Dioxide, Medipure® Carbon Dioxide

Recommended Uses: Industrial: analytical, lasers, semiconductor process gas, supercritical fluid extraction

Restrictions on Use: Use only as directed

Manufacturer/Supplier/Distributor:  
Tech Air  
50 Mill Plain Rd.  
Danbury, CT 06811

Emergency telephone number: For emergency assistance involving chemicals call  
CHEMTREC day or night at: 1-800-424-9300

## 2. HAZARDS IDENTIFICATION



### Warning

Hazard Classification: Gases Under Pressure

Hazard Statements: Contains gas under pressure; may explode if heated

Precautionary Statements

Storage: Protect from sunlight. Store in well-ventilated place.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

CAS # 124-38-9

Chemical Substance	Chemical Family	Trade Names
CARBON DIOXIDE, GAS	oxides of carbon	CARBONIC ACID GAS; CARBONIC ANHYDRIDE;
CARBON DIOXIDE; CARBON OXIDE; UN1013; CO2		

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. FIRST AID MEASURES

**Skin Contact** If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

**Eye Contact** Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**Ingestion** Do not induce vomiting.

**Inhalation** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**5. FIRE FIGHTING MEASURES**

Suitable Extinguishing Media  
Non-flammable

Products of Combustion  
Non-flammable

Protection of Firefighters  
Any appropriate escape-type, self-contained breathing apparatus.  
Non-flammable

**6. ACCIDENTAL RELEASE MEASURES**

Personal Precautions  
Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.

Environmental Precautions  
Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.  
Methods for Cleanup: Stop leak, evacuate, remove source of ignition.  
Other Information: None

**7. HANDLING AND STORAGE**

Handling  
Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.  
Storage  
Store and handle in accordance with all current regulations and standards.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Exposure Guidelines  
CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m<sup>3</sup>) OSHA TWA 10000 ppm (18000 mg/m<sup>3</sup>) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m<sup>3</sup>) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm  
ACGIH STEL 5000 ppm (9000 mg/m<sup>3</sup>) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m<sup>3</sup>) NIOSH recommended STEL

Engineering Controls: Handle only in fully enclosed systems

Eye Protection

For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

General Hygiene considerations

Avoid breathing vapor or mist

Avoid contact with eyes and skin

Wash thoroughly after handling and before eating or drinking.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State	Gas
Appearance	Colorless
Color	Colorless
Change in Appearance	N/A
Physical Form	Gas
Odor	Odorless
Taste	Acid taste
Flash Point	Not flammable
Flammability	Not available

Partition Coefficient	N/A
Auto ignition Temperature	Not flammable
Upper Explosive Limits	Not flammable
Lower Explosive Limits	Not flammable
Boiling Point	Not available
Freezing Point	-71 F (-57C) @4000 mmHg
Vapor Pressure	43700 mmHg @21 C
Vapor Density	1.5 (Air=1)
Specific Gravity	1.522 @21 C
Water Solubility	Soluble
pH	3.7 (saturated aqueous solution)@ 101.3 kPa (carbonic acid)
Odor Threshold	Not available
Evaporation Rate	Not applicable
Viscosity	0.01657 cP @ 0 C
Molecular Weight	44.01
Molecular Formula	C-O2
Density	0.114
Weight per Gallon	Not available
Volatility by Volume	Not applicable
Volatility	Not applicable
Solvent Solubility	Soluble: Alcohol, acetone, hydrocarbons, organic solvents

### 10. STABILITY AND REACTIVITY

#### Stability

Stable at normal temperatures and pressure.

#### Conditions to Avoid

Stable at normal temperatures and pressure.

#### Incompatible Materials

Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases

#### Hazardous Decomposition Products

Carbon monoxide

#### Possibility of Hazardous Reactions

Will not polymerize.

### 11. TOXICOLOGICAL INFORMATION

#### Acute Effects

Oral LD50 Not established

Dermal LD50 Not established

Inhalation Ringing in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma

Eye Irritation Irritation, frostbite, blurred vision

Skin Irritation Liquid: blisters, frostbite

Sensitization Difficulty breathing

#### Chronic Effects

Carcinogenicity Not available

Mutagenicity Not established

Reproductive Effects Available.

Developmental Effects No data

### 12. ECOLOGICAL INFORMATION

Eco toxicity

Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta)  
 Invertebrate toxicity: Not available  
 Algal toxicity: Not available  
 Phyto toxicity: Not available  
 Other toxicity: Not available

Persistence / Degradability

Relatively non-persistent in the environment. Moderately volatile from water.

Bioaccumulation / Accumulation

Accumulates very little in the bodies of living organisms.

**13. DISPOSAL CONSIDERATION**

Dispose in accordance with all applicable regulations.

**14. TRANSPORT INFORMATION**

U.S. DOT 49 CFR 172.101

Proper Shipping Name	Carbon dioxide
ID Number	UN1013
Hazard Class or Division	2.2
Packing Group	Not applicable
Labeling Requirements	2.2
Passenger Aircraft or Railcar Quantity Limitations	
75 kg or L	
Cargo Aircraft Only Quantity Limitations	
150kg	

Canadian Transportation of Dangerous Goods

Proper Shipping Name	Carbon dioxide
ID Number	UN1013
Hazard Class or Division	2.2
Packing Group	Not applicable

**15. REGULATORY INFORMATION**

U.S. Regulations

CERCLA Sections	Not regulated
SARA 355.30	Not regulated
SARA 355.40	Not regulated

SARA 370.21

Acute	Yes
Chronic	No
Fire	No
Reactive	No
Sudden Release	Yes

SARA 372.65	Not regulated
OSHA Safety	Not regulated
State Regulations	CA Prop 65 not regulated
Canadian Regulations	WHMIS A

National Inventory Status

US Inventory (TSCA)	Listed on inventory
TSCA 12b Export Notification	Not listed
Canada Inventory (DSL/NDSL)	Listed on inventory

**16. OTHER INFORMATION****NFPA Rating**

HEALTH=2 FIRE=0 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

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