SAFETY DATA SHEET
CARBON DIOXIDE (CO2)

Section 1. Chemical Product and Company Identification

Product Name:	Carbon Dioxide
Synonym:/ Another Identifiers	CO2, Carbonic Anhydride
Distributor:	Buckeye Fire Equipment Company 110 Kings Road, Kings Mountain, NC 28086
Telephone:	704-739-7415
Manufacturer:	Praxair Inc. 10 Riverview Drive Danbury, CT. 06810—6268
Web Address:	www.buckeyefire.com
E-mail Address:	bfec@.buckeyef.com
Recommended Use:	Fire Suppression
Emergency Contacts:	Chemtrec 1(800) 424-9300
Revision Date:	08/22/19

Section 2. Hazard Identification

OSHA/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: 4	None	Warning
Skin Corrosion/Irritation: None	None	None
Skin Sensitization: None	None	None
Eye: None	None	None
Carcinogen: None	None	None

GHS – Label Symbol(s):  **GHS-07**

If Pressurized: Gas Under Pressure 
GHS-04

GHS – Signal Word(s): Warning
GHS- US Classification: Liquified Gas H280
Other Hazards Not Resulting in Classification:
Carbon dioxide is a simple asphyxiate. May displace oxygen and cause rapid suffocation. OSHA-H01.
May cause frostbite in contact with skin or eyes.CGA-HG01.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H280	*-Contains gas under pressure; may explode if heated. -
Health	H313 332 336	May be harmful in contact with skin. Harmful if inhaled. May cause dizziness and drowsiness
Environmental	None	
Precautionary statements:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261 271 280	Do not pierce or burn, even after use. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 336 304+340 305+310 313+333	Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures) Thaw frosted parts with lukewarm water. Do not rub affected areas. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Immediately call a doctor. May be harmful in contact with skin or if inhaled.
Storage	P405 403+233 410+403	Store locked up. Store in a well-ventilated place. Keep container tightly closed. *- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*If under pressure

Section 3. Composition/ Information on ingredients

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Carbon Dioxide	204-696-9	NA	124-38-9	>99.90%
Impurities			N/A	<0.2

*% is rounded to the nearest appropriate number. Values are not to be considered product specification.

Section 4. First Aid Measures

Note: Rescuer should not attempt to retrieve a victim of exposure to this product without adequate personal protection equipment. At a minimum, self-contained breathing apparatus should be worn.

First Aid measures after Eye Exposure: Immediately flush eyes with cool water for 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Seek medical attention immediately.

First Aid measures after Skin Exposure: May cause cold burns or frostbite. In case of frostbite, place the frostbitten part in warm water in warm water. (Do NOT Use HOT) water. Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal cooling and sensation have returned to the affected area. If warm water is not available or it is impractical to use, wrap the affected part gently in a blanket. If fingers or hands, are frostbitten, place the affected part in the armpit. Have the victim gently exercise the affected part while being warmed. Seek immediate medical attention as soon as possible. Take a copy of this SDS to the attending physician or health professional.

First Aid measures after Inhalation: Remove victim to fresh air as quickly as possible. Trained personnel should *administer supplemental oxygen and or / cardio*-pulmonary resuscitation if necessary. Only trained personnel should administer supplemental oxygen.

First Aid measures after Ingestion: Ingestion is not considered to be a potential route of exposure.

Section 5. Firefighting Measures

Extinguishing Media: This product is an extinguishing agent. It is nonflammable and noncombustible.

Special Firefighting Procedures: Structural firefighters must wear self-contained breathing apparatus (SCBA) and full protective equipment. Move fire exposed cylinders if it can be done without risk to firefighters. Otherwise cool containers with hose stream and protect personnel. Withdraw immediately in case of rising sounds from venting safety device or any discoloration of tanks due to fire.

Unusual Fire and Explosion Hazards: Containers of carbon dioxide, when involved in fire, may rupture or burst from the heat of the fire.

Sensitivity to Mechanical Impact or Static Discharge: None

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedure: In case of accidental release, use the Appropriate respiratory and personal protection. Evacuate personnel to safe area and allow the gas, which is heavier than air, to dissipate.

Monitor the surrounding area for carbon dioxide and oxygen levels. The levels of carbon dioxide must be below those listed in Section XI. and the atmosphere must have at least 19.5% oxygen before personnel are allowed back into the area.

Section 7. Handling and Storage

Precautions for Safe Handling: Avoid eye, respiratory, and skin exposure. Avoid breathing gas. Use the appropriate personal protective equipment when handling. Be aware of any signs of dizziness, fatigue, or any exposure symptom described in Section XI.

Condition for safe storage: Product should be stored in dry, well-ventilated areas away from sources of heat. Store in its original container or extinguisher. Containers are under pressure and present significant safety hazards. Store away from heavily trafficked areas and paths for ingress/egress. Protect container from possible damage and falling. Secure cylinders to prevent accidental knock over. Protect from the sunlight. For more information see supplier website.

Section 8. Exposure Controls and Personal Protection

Exposure Guidelines:

Chemical Name	OSHA PEL	ACGIH TLV	NIOSH IDLH	EU BLV
Carbon dioxide	TWA: 5000 ppm TWA: 9000 mg/m3	TWA: 5000 ppm STEL: 30000 ppm	40000 PPM	NA

Use adequate ventilation to prevent unacceptable concentration levels noted in Section XI.

Personal Protective Equipment: *Eye protection*: Wear chemical goggles or full-face air-purifying respirator.

Respiratory Protection: Use self-contained breathing apparatus.

Skin Protection: Use low-temperature protective gloves and appropriate body protection

Section 9. Physical and Chemical Properties

Appearance and Odor: Carbon dioxide is a colorless gas that is odorless at low concentrations. At high concentrations it will have a sharp acidic odor.

Gas Density: @21 ^{o}C and 1 atm: 0.1144lb./ft^3
Solubility: *0.90%*
Flash Point: N/A
Flammability: N/A
Melting Point/Freezing Point at 1 atm: -78.5 ^{o}C
Boiling Point@ 1 atm: -78.5 ^{o}C
pH: 3.7
Vapor Density at 21.1 ^{o}C: *Liquid Density 762 kg/^{m3}*
Vapor Pressure at 20 ^{o}C: 838 psig
Relative Density/Specific gravity (H_2O =1) at 21.1 ^{o}C 1.22
Relative Density/Specific Gravity (Air =1) at 21.1 ^{o}C and1 atm: 1.52
Solubility in Water, % by wt.: 0.90

Section 10. Stability and Reactivity

Stability: Normally stable.
Incompatibles: Will ignite and explode when heated with powered aluminum, beryllium, cerium alloys, chromium, magnesium-aluminum alloys, manganese, thorium, titanium, and zirconium. In the presence of moisture will ignite with cesium oxide. Metal acetylides will also ignite and explode on contact with carbon dioxide.

Decompression Products: In an electrical discharge, yields carbon monoxide and oxygen. In the presence of Moisture, carbon dioxide will form carbonic acid.

Hazardous Polymerization: Will not occur, however carbon dioxide acts as to catalyze the polymerization of acrylaldehyde and aziridine.

Section 11. Toxicological Information

Potential Health Effects:

Effects of a Single Acute Overexposure:
Inhalation: Carbon Dioxide gas is an asphyxiate with effects due to lack of oxygen. It is also physiologically active, affecting circulation and breathing. Moderate concentrations may cause headache, drowsiness, dizziness, stinging of the nose and throat, excitation, rapid breathing and heart rate, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.
Carbon Dioxide is an asphyxiant. It initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis. Symptoms in humans are as follows

Carbon Dioxide Concentration Inhaled	Effects
1%	Breathing rate increases slightly
2%	Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.
3%	Breathing increases to twice normal rate and becomes labored. Weak narcotic effect. Impaired hearing, headache, increased blood pressure and pulse rate.
4-5%	Breathing increases to approximately four times normal rate, symptoms of intoxication become evident, and slight choking may be felt.
5-10%	Characteristic sharp odor noticeable. Very labored breathing, visual impairment, headache, and ringing in ears. Judgement may be impaired, followed within minutes of loss of consciousness.
10-100%	Unconsciousness occurs more rapidly about 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.

Skin Contact: No harm expected from vapor. Cold gas, or liquid or solid carbon dioxide may cause severe frostbite.

Swallowing: An unlikely route of exposure. This product is a gas a normal temperature and pressure.

Eye Contact: No harm expected from vapor. Cold gas, or liquid or solid carbon dioxide may cause severe frostbite.

Effect of Repeated Overexposure: No harm expected.

Other Effects of Over Exposure: Damage to retinal or ganglion cells and central nervous system may occur.

Medical Conditions Aggravated by Overexposure: The toxicology and the physical and chemical properties of carbon dioxide suggest that overexposure is unlikely to aggravate existing medical conditions.

Acute Dose Effects: LC_{L0} = 90,000 ppm, 5 min. human
Reproductive Effects: A single study has shown an increase in heart defects in rats exposed to 6% carbon dioxide in air for 24 hours at different times during gestation. There is no evidence that carbon dioxide in tetra genic for humans.

Carcinogenicity: None

Section 12. Ecological Information

Ecotoxicity: Occurs naturally in the environment.
Dissipation: Dissipates rapidly in well-ventilated areas.

Any adverse effect on animal would be related to overexposure and oxygen deficient environments. No adverse effect to plant life except for frost caused by rapidly expanding gases.

Section 13. Disposal Consideration

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. Transportation Information

In accordance with DOT:

UN Proper Shipping Name:	Carbon Dioxide
Transport document Description:	UN1013 Carbon dioxide 2.2(non-flammable gas)
UN Identification #	UN1013
Class (DOT)	2.2- Class 2.2- Non-flammable compressed gas CFR 173.115
Hazard Label Required (DOT):	2.2-Non-Flammable Gas

NOTES:
This product is defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada “Transportation of Dangerous Goods” regulations.

Special Precautions for Shipping:
If shipped in a stored pressure-type fire extinguisher, carbon dioxide in a pressurized container is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be CARBON DIOXIDE and the UN designation is UN 1013.

Section 15. Regulatory Information

***International Inventory Status**:* All ingredients are on the following inventories

Country(ies)	Agency
United States of America	TSCA
Canada	DSL
Australia	AICS
Europe	EINECS/ELINCS

***U.S. Federal Regulatory Information**:*

This product is not subject to the SARA reporting requirements or has SARA Threshold Planning Quantities or CERCLA Reportable Quantities.

SARA 311/312: **Hazard Categories**:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

U.S. State Regulatory Information:

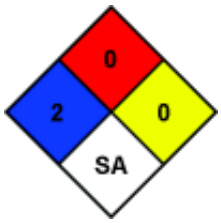
Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska -	Designated Toxic and Hazardous Substances: Carbon Dioxide
California-	Permissible Exposure Limits for Chemical Contaminants: Carbon Dioxide
Florida-	Substance Carbon Dioxide
Illinois-	Toxic Substance List-Carbon Dioxide
Kansas-	Section 302/303 List-No
Massachusetts –	Substance List: Carbon Dioxide
Minnesota-	List of Hazardous Substances: Carbon Dioxide
Missouri-	Employer Information/Toxic Substance List: Carbon Dioxide
New Jersey-	Right to Know Hazardous Substance List: Carbon Dioxide
North Dakota-	List of Hazardous Chemicals, Reportable Quantities: No
Pennsylvania-	Hazardous Substance List-Carbon Dioxide
Rhode Island-	Hazardous Substance List-Carbon Dioxide
Texas-	Hazardous Substance List- No
West Virginia-	Hazardous Substance List Carbon Dioxide
Wisconsin-	Toxic and Hazardous Substances- Carbon Dioxide

California Proposition 65: No component is listed on the California Proposition 65 list.

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulation or standards.



NFPA health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
NFPA specific hazard	: SA - This denotes gases which are simple asphyxiants.

HMIS III Rating

Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 0 Minimal Hazard
Reactivity	: 0 Minimal Hazard
Physical	: 3 Serious Hazard

Issuing Date	08/22/19
Revision Date	08/22/19
Revision Notes	None

The information provided in this Safety Data Sheet is correct to best of our knowledge, information and belief at the date of publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is given in good faith but no warranty, expressed or implied, is made.