SAFETY DATA SHEET

1. Identification

Product identifier	**Gallo Gun™ 4179-01 (Mag 20), 4179-20 (Mag 20) and 4179-16 (Mag 16)**
Other means of identification	Not available.
Recommended use	Industrial applications
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Nu-Calgon
Address	2611 Schuetz Road St. Louis, MO 63043 United States
Telephone	314-469-7000 / 800-554-5499
E-mail	Not available.
Emergency phone number	1-800-424-9300 (CHEMTREC)
Supplier	See above.

2. Hazard identification

Physical hazards	Gases under pressure	Liquefied gas
	Simple asphyxiants	Category 1
Health hazards	Not classified.	
Environmental hazards	Not classified.	
WHMIS 2015 defined hazards	Not classified	

Label elements

Signal word	Warning
Hazard statement	Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement

Prevention	Keep container tightly closed. Use only outdoors or in a well-ventilated area. Wear respiratory protection.
Response	Wash hands after handling.
Storage	Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of container in accordance with local, regional, national and international regulations.

WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)	None known
WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)	None known
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information

This product is a manufactured article and is exempt.

As per OSHA Definitions: 1910.1200 (c). Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

As per the Hazardous Products Act: A manufactured article means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

3. Composition/Information on ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Carbon dioxide		124-38-9	100

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

4. First-aid measures

Inhalation

Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the gaseous version.
Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Skin contact

Not a normal route of exposure.
Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the liquefied version.
Remove contaminated clothing. Treat for frostbite by gently warming affected area. Wash with soap and water. Obtain medical attention if irritation persists.

Eye contact

Not a normal route of exposure.
Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the liquefied version.
Flush eye with lukewarm, gently flowing fresh water for at least 15 minutes. Obtain medical attention immediately.

Ingestion

Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the liquefied version.
Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious or is convulsing. Obtain medical attention.

Most important symptoms/effects, acute and delayed

Convulsions. Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Water spray.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions

In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods

Cool containers exposed to flames with water until well after the fire is out.

General fire hazards

Contents under pressure. Pressurized container may explode when exposed to heat or flame. Vapour may accumulate. Firefighters should wear a self-contained breathing apparatus.

Hazardous combustion products	May include and are not limited to: Oxides of carbon.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Isolate area until gas has dispersed. Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage

Precautions for safe handling	Keep away from heat, sparks, open flames, hot surfaces. - No smoking. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Wash thoroughly after handling. Use good industrial hygiene practices in handling this material. When using do not eat or drink.
Conditions for safe storage, including any incompatibilities	Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Stored containers should be periodically checked for general condition and leakage. Keep out of reach of children.

8. Exposure controls/Personal protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	15000 ppm
	TWA	5000 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	15 minute	30000 ppm
	8 hour	5000 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m3
		5000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Confirm with a reputable supplier first.

Other Wear suitable protective clothing. As required by employer code.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards Not applicable.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. When using do not eat or drink.

9. Physical and chemical properties

Appearance Gaseous.

Physical state Gas.

Form Liquefied gas.

Color Clear colorless

Odor Odorless

Odor threshold Not available.

pH 3.2 - 3.7 The pH of saturated CO2 solutions varies from 3.7 at 101 kPa (1 atm) to 3.2 at 2370 kPa (23.4 atm)

Melting point/freezing point -69.88 °F (-56.6 °C)

Initial boiling point and boiling range	-109.3 °F (-78.5 °C)
Pour point	Not available.
Partition coefficient (n-octanol/water)	Not available.
Flash point	None
Evaporation rate	> 1 Ether
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	5723 kPa @20°C
Vapor density	1.522 at 21°C
Relative density	Not available.
Solubility(ies)	Complete
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.51 g/cm3 estimated at -56.6 °C
Dynamic viscosity	0.02 mPa.s (68 °F (20 °C))
Explosive properties	Not explosive.
Heat of combustion (NFPA 30B)	0 kJ/g
Kinematic viscosity	0.01323 mm²/s estimated
Molecular formula	C-O2
Molecular weight	44.01
Oxidizing properties	Not oxidizing.
Surface tension	16.2 mN/m

10. Stability and reactivity

Reactivity	This product may react with strong oxidizing agents.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Incompatible materials	Aluminum.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological information

Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Information on likely routes of exposure	
Ingestion	Not a normal route of exposure. The product is a gas at room temperature.
Inhalation	Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the gaseous version. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Skin contact	Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the liquefied version. Contact with liquid may cause frostbite.
Eye contact	Carbon dioxide is harmless at atmospheric pressure. The following statements apply to contact with the liquefied version. Contact with liquid may cause frostbite.

Symptoms related to the physical, chemical and toxicological characteristics	Convulsions. Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Carbon dioxide (CAS 124-38-9)		
Acute		
Dermal		
LD50	Not available	
Inhalation		
LC50	Not available	
Oral		
LD50	Not available	

Skin corrosion/irritation	Contact with liquid may cause frostbite.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Contact with liquid may cause frostbite.
Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	See below.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Teratogenicity	Not available.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not likely, due to the form of the product.

12. Ecological information

Ecotoxicity	Not available.
Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.

Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

Transport of Dangerous Goods (TDG) Proof of Classification	Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.
General	Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations. US: See §173.306 Limited quantities of compressed gases for further details

U.S. Department of Transportation (DOT)

Basic shipping requirements:

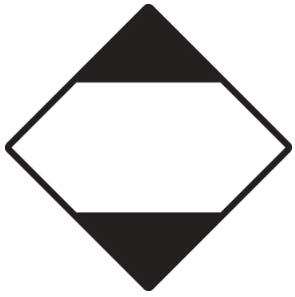
UN number	UN1013
Proper shipping name	Carbon dioxide
Hazard class	Limited Quantity - US
Packaging exceptions	<1L - Limited Quantity
Packaging non bulk	302, 304
Packaging bulk	302, 314, 315

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN1013
Proper shipping name	CARBON DIOXIDE
Hazard class	Limited Quantity - Canada
Special provisions	148
Packaging exceptions	<0.125 L - Limited Quantity

DOT; TDG



15. Regulatory information

Canadian federal regulations

This product is a manufactured article and is exempt.

As per the Hazardous Products Act: A manufactured article means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

Canada CEPA Schedule I: Listed substance

Carbon dioxide (CAS 124-38-9) Listed.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Carbon dioxide (CAS 124-38-9)

Precursor Control Regulations

Not regulated.

WHMIS 2015 Exemptions Not applicable

US federal regulations This product is a manufactured article and is exempt.

As per OSHA Definitions: 1910.1200 (c). Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance No

Classified hazard categories Gas under pressure
Simple asphyxiant

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

US state regulations See below

US - California Hazardous Substances (Director's): Listed substance

Carbon dioxide (CAS 124-38-9) Listed.

US - Minnesota Haz Subs: Listed substance

Carbon dioxide (CAS 124-38-9) Listed.

US - Texas Effects Screening Levels Hazard Data: Simple asphyxiant

Carbon dioxide (CAS 124-38-9)

US - Texas Effects Screening Levels: Listed substance

Carbon dioxide (CAS 124-38-9) Listed.

US. Massachusetts RTK - Substance List

Carbon dioxide (CAS 124-38-9)

US. New Jersey Worker and Community Right-to-Know Act

Carbon dioxide (CAS 124-38-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Carbon dioxide (CAS 124-38-9)

US. Rhode Island RTK

Carbon dioxide (CAS 124-38-9)

US. California Proposition 65

Not Listed.

Inventory status

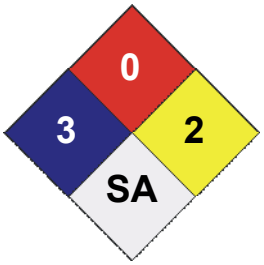
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 3
FLAMMABILITY	0
PHYSICAL HAZARD	2
PERSONAL PROTECTION	X



Disclaimer

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Prepared by Nu-Calgon Technical Service Phone: (314) 469-7000

Further information Not available.

Other information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.