* * *Section 1 - IDENTIFICATION* * *

Product Identifier: CARBON DIOXIDE, GAS

Trade Names/Synonyms
- MTG SDS 17; CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2

Chemical Family
- inorganic, gas

Recommended Use
- Industrial and Specialty Gas Applications

Restrictions on Use
- None known.

Manufacturer Information
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

* * *Section 2 - HAZARDS IDENTIFICATION* * *

Classification in accordance with 29 CFR 1910.1200
- Gas under pressure, Compressed gas
- Specific Target Organ Toxicity - Single Exposure, Category 3 (central nervous system)

GHS LABEL ELEMENTS

Symbol(s)

Signal Word
- WARNING

Hazard Statement(s)
- Contains gas under pressure; may explode if heated
- May cause drowsiness and dizziness
- May displace oxygen and cause rapid suffocation.

Precautionary Statement(s)

Prevention
- Avoid breathing gas. Use only outdoors or in a well-ventilated area.

Response
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Safety Data Sheet

Material Name CARBON DIOXIDE, GAS

Storage
Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal
Dispose in accordance with all applicable regulations.

Hazard(s) Not Otherwise Classified
May cause frostbite upon sudden release of compressed gas.

---

**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS***

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>124-38-9</td>
<td>Carbon dioxide</td>
<td>100</td>
</tr>
</tbody>
</table>

Component Related Regulatory Information
This product may be regulated, have exposure limits or other information identified as the following: Carbon dioxide and ethylene oxide mixtures (8070-50-6).

---

**Section 4 - FIRST AID MEASURES***

Description of Necessary Measures

**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.

**Skin**
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.

**Eyes**
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

**Ingestion**
If swallowed, get medical attention.

Most Important Symptoms/Effects

**Acute**
suffocation, frostbite, central nervous system depression

**Delayed**
No information on significant adverse effects.

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

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**Section 5 - FIRE FIGHTING MEASURES***

**Suitable Extinguishing Media**
carbon dioxide, regular dry chemical, water spray, foam

**Unsuitable Extinguishing Media**
Do not direct water at source of leak or safety devices; icing may occur.

**Specific Hazards Arising from the Chemical**
Negligible fire hazard. Containers may rupture or explode if exposed to heat.

**Hazardous Combustion Products**
Combustion: oxides of carbon
Safety Data Sheet

Material Name CARBON DIOXIDE, GAS

SDS ID: MAT04260

Fire Fighting Measures
Use extinguishing agents appropriate for surrounding fire. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

** **Section 6 - ACCIDENTAL RELEASE MEASURES** **

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Stop leak if possible without personal risk. Do not touch or walk through spilled material. Use water spray to reduce vapors or divert vapor cloud drift. Do not direct water at spill or source of leak. If possible, turn leaking containers so that gas escapes rather than liquid. Allow substance to evaporate. Ventilate closed spaces before entering. Stay upwind and keep out of low areas.

** **Section 7 - HANDLING AND STORAGE** **

Precautions for Safe Handling
Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling.

Conditions for Safe Storage, including any Incompatibilities

Incompatibilities combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases

** **Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION** **

Component Exposure Limits
Carbon dioxide (124-38-9)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH:</th>
<th>Europe:</th>
<th>OSHA (Final):</th>
<th>OSHA (Vacated):</th>
<th>NIOSH:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5000 ppm TWA</td>
<td>5000 ppm TWA; 9000 mg/m3 TWA</td>
<td>5000 ppm TWA; 9000 mg/m3 TWA</td>
<td>10000 ppm TWA; 18000 mg/m3 TWA</td>
<td>5000 ppm TWA; 9000 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>30000 ppm STEL</td>
<td>9000 mg/m3 TWA</td>
<td>30000 ppm TWA; 54000 mg/m3 STEL</td>
<td>30000 ppm STEL; 54000 mg/m3 STEL</td>
<td></td>
</tr>
</tbody>
</table>

Component Biological Limit Values
There are no biological limit values for any of this product's components.

IDLH
40,000 ppm

Appropriate Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.
Safety Data Sheet

Material Name CARBON DIOXIDE, GAS

**Individual Protection Measures, such as Personal Protective Equipment**

**Eyes/Face 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.

**Glove Recommendations**
Wear insulated gloves.

**Respiratory Protection**
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
40,000 ppm
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions - Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape - Any appropriate escape-type, self-contained breathing apparatus.

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**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor:</td>
<td>odorless</td>
</tr>
<tr>
<td>Taste:</td>
<td>acid taste</td>
</tr>
<tr>
<td>Melting/Freezing Point:</td>
<td>-57 °C @4000 mmHg</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>not flammable</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not available</td>
</tr>
<tr>
<td>UEL:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density (air = 1):</td>
<td>1.5</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>soluble</td>
</tr>
<tr>
<td>Auto Ignition:</td>
<td>Not available</td>
</tr>
<tr>
<td>Sublimation Point:</td>
<td>-78.5 °C</td>
</tr>
<tr>
<td>Volatility by Volume:</td>
<td>100 %</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>C-O2</td>
</tr>
<tr>
<td>Flammability (solid, gas):</td>
<td>Not flammable</td>
</tr>
</tbody>
</table>

| Appearance: | Colorless |
| Physical Form: | compressed gas |
| Odor Threshold: | Not available |
| pH: | acidic in solution |
| Boiling Point: | -78.5 °C (sublimation) |
| Decomposition: | Not available |
| LEL: | Not available |
| Vapor Pressure: | 43700 mmHg @ 21 °C |
| Specific Gravity (water=1): | 1.527 @ 21 °C |
| Log KOW: | Not available |
| Viscosity: | 14.9 uPa-sec @25 °C |
| Triple Point: | -56.6 °C @3883.6 mmHg |
| Molecular Weight: | 44.01 |
| Critical Temperature: | 304.13 K |

**Other Property Information**
No additional information is available.

**Solvent Solubility**
Soluble: alcohol, acetone, hydrocarbons, organic solvents
**Section 10 - STABILITY AND REACTIVITY**

**Reactivity**
No reactivity hazard is expected.

**Chemical Stability**
Stable at normal temperatures and pressure.

**Possibility of Hazardous Reactions**
Will not polymerize.

**Conditions to Avoid**
Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.

**Incompatible Materials**
combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases

**Hazardous Decomposition**
Combustion: oxides of carbon

**Section 11 - TOXICOLOGICAL INFORMATION**

**Acute and Chronic Toxicity**

**Component Analysis - LD50/LC50**
The components of this material have been reviewed in various sources and no selected endpoints have been identified.

**RTECS Acute Toxicity (selected)**
The components of this material have been reviewed, and RTECS publishes the following endpoints:

**Carbon dioxide (124-38-9)**

**Inhalation:** 361 gm/m3/2 hour Inhalation Mouse LC50; 200000 ppm/2 hour Inhalation Mouse LC50

**Acute Toxicity Level**

**Carbon dioxide (124-38-9)**

**Non Toxic:** inhalation

**Information on Likely Routes of Exposure**

**Inhalation**
sensitivity to light, changes in blood pressure, nausea, irregular heartbeat, headache, drowsiness, dizziness, disorientation, sleep disturbances, emotional disturbances, tingling sensation, tremors, muscle cramps, visual disturbances, suffocation, convulsions, unconsciousness, coma, difficulty breathing, blood disorders

**Ingestion**
ingestion of a gas is unlikely

**Skin Contact**
blisters, frostbite

**Eye Contact**
irritation, blurred vision, frostbite

**Immediate Effects**
suffocation, frostbite, central nervous system depression

**Delayed Effects**
No information on significant adverse effects.

**Medical Conditions Aggravated by Exposure**

heart or cardiovascular disorders, respiratory disorders

**Irritation/Corrosivity Data**
No data available.
RTECS Irritation
The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Target Organs
Carbon dioxide (124-38-9)
central nervous system

Respiratory Sensitization
No test data available.

Dermal Sensitization
No data available.

Carcinogenicity
Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data
No data available.

RTECS Reproductive Effects
The components of this material have been reviewed, and RTECS publishes the following endpoints:
Carbon dioxide (124-38-9)
55 pph Inhalation Mouse TCLo (4 hour, 6 day(s)); 55 pph Inhalation Mouse TCLo (2 hour, 3 day(s)); 2 pph Inhalation Mouse TCLo (8 hour, pregnant 10 day(s)); 13 pph Inhalation Rabbit TCLo (4 hour, pregnant 9-12 day(s)); 6 pph Inhalation Rat TCLo (24 hour, pregnant 10 day(s)); 6 pph Inhalation Rat TCLo (24 hour, pregnant 10 day(s))

Tumorigenic Data
No data available.

Specific Target Organ Toxicity - Single Exposure
central nervous system

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration Hazard
Not applicable.

* * *Section 12 - ECOLOGICAL INFORMATION* * *

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability
No data available.

Bioaccumulative Potential
No data available.

Mobility
No data available.

* * *Section 13 - DISPOSAL CONSIDERATIONS* * *

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.
**Section 14 - TRANSPORT INFORMATION**

**US DOT Information**
- **Shipping Name:** Carbon dioxide
- **UN/NA #:** UN1013  **Hazard Class:** 2.2
- **Required Label(s):** 2.2

**IMDG Information**
- **Shipping Name:** Carbon dioxide
- **UN #:** UN1013  **Hazard Class:** 2.2
- **Required Label(s):** 2.2

**Section 15 - REGULATORY INFORMATION**

**Component Analysis**

**U.S. Federal Regulations**
None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

**SARA 311/312 Hazardous Categories**
- **Acute Health:** Yes
- **Chronic Health:** No
- **Fire:** No
- **Pressure:** Yes
- **Reactive:** No

**U.S. State Regulations**
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>124-38-9</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not regulated under California Proposition 65

**Component Analysis - Inventory**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>US</th>
<th>CA</th>
<th>EU</th>
<th>AU</th>
<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>124-38-9</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Section 16 - OTHER INFORMATION**

**NFPA Ratings: Health:** 3  **Fire:** 0  **Reactivity:** 0

Hazard Scale: 0 = Minimal  1 = Slight  2 = Moderate  3 = Serious  4 = Severe
Other Information

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End of Sheet MAT04260