Safety Data Sheet

Material Name: CARBON DIOXIDE/ARGON GAS MIXTURE

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
CARBON DIOXIDE/ARGON GAS MIXTURE

Product Use
Industrial and Specialty Gas Applications.

Restrictions on Use
None known.

Details of the supplier of the safety data sheet
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 paragraph (d) of 29 CFR 1910.1200.
Gases Under Pressure - Compressed gas
Specific target organ toxicity - Single exposure - Category 3

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.

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.
Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-37-1</td>
<td>Argon</td>
<td>0-99.9</td>
</tr>
<tr>
<td>124-38-9</td>
<td>Carbon dioxide</td>
<td>0.1-100</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID 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.

Note to Physicians
For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
carbon dioxide, regular dry chemical, Large fires: Use water spray, fog or regular foam.

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

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

Hazardous Combustion Products
Oxides of carbon

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. Damaged cylinders should be handled only by specialists.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

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

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon</td>
<td>7440-37-1</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>(See Appendix F: Minimal Oxygen Content )</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>124-38-9</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>5000 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>30000 ppm STEL</td>
</tr>
<tr>
<td>NIOSH:</td>
<td>5000 ppm TWA ; 9000 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>30000 ppm STEL ; 54000 mg/m3 STEL</td>
</tr>
<tr>
<td></td>
<td>40000 ppm IDLH</td>
</tr>
<tr>
<td>Europe:</td>
<td>5000 ppm TWA ; 9000 mg/m3 TWA</td>
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<tr>
<td>OSHA (US):</td>
<td>5000 ppm TWA ; 9000 mg/m3 TWA</td>
</tr>
<tr>
<td>Mexico:</td>
<td>5000 ppm TWA VLE-PPT ; 9000 mg/m3 TWA VLE-PPT</td>
</tr>
<tr>
<td></td>
<td>15000 ppm STEL [PPT-CT ]; 27000 mg/m3 STEL [PPT-CT ]</td>
</tr>
</tbody>
</table>
ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
There are no biological limit values for any of this product's components.

Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment
Eye/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.

Respiratory Protection
Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. For Unknown Concentrations or Immediately Dangerous to Life or Health - 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. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations
Wear insulated gloves.

<table>
<thead>
<tr>
<th>Section 9 - PHYSICAL AND CHEMICAL PROPERTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
</tr>
<tr>
<td>Odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
</tr>
<tr>
<td>Melting Point</td>
</tr>
<tr>
<td>Boiling Point Range</td>
</tr>
<tr>
<td>Evaporation Rate</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
</tr>
<tr>
<td>Water Solubility</td>
</tr>
<tr>
<td>Viscosity</td>
</tr>
<tr>
<td>Solubility (Other)</td>
</tr>
<tr>
<td>Physical Form</td>
</tr>
</tbody>
</table>
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.

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

Hazardous decomposition products
Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

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, vomiting, mood swings, loss of coordination

Skin Contact
blisters, frostbite

Eye Contact
irritation, blurred vision, frostbite

Ingestion
ingestion of a gas is unlikely

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.

Product Toxicity Data

Acute Toxicity Estimate
No data available.

Immediate Effects
suffocation, frostbite, central nervous system depression

Delayed Effects
no information on significant adverse effects.

Irritation/Corrosivity Data
No data available.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

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

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
Safety Data Sheet

Material Name: CARBON DIOXIDE/ARGON GAS MIXTURE

No data available

Reproductive Toxicity
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.

Medical Conditions Aggravated by Exposure
heart or cardiovascular disorders, respiratory disorders

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

Component Marine Pollutants (IMDG)
Not a marine pollutant.

US DOT Information:
Shipping Name: COMPRESSED GAS, N.O.S. , (Contains: Argon, Carbon dioxide)
Hazard Class: 2.2
UN/NA #: UN1956
Required Label(s): 2.2

IMDG Information:
Shipping Name: COMPRESSED GAS, N.O.S. , (Contains: Argon, Carbon dioxide)
Hazard Class: 2.2
UN#: UN1956
Required Label(s): 2.2
International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

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.
Safety Data Sheet

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SARA Section 311/312 (40 CFR 370 Subparts B and C) 2016 reporting categories
Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactivity: No

SARA Section 311/312 (40 CFR 370 Subparts B and C) 2017 reporting categories
Gas Under Pressure; Specific Target Organ Toxicity

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>Argon</td>
<td>7440-37-1</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<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 listed under California Proposition 65

Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon</td>
<td>7440-37-1</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<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>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

WHMIS Classification
A

Component Analysis - Inventory
Argon (7440-37-1)

Carbon dioxide (124-38-9)

NFPA Ratings
Health: 3 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
Updated: 10/29/2015

Key / Legend
Safety Data Sheet

Material Name: CARBON DIOXIDE/ARGON GAS MIXTURE  
SDS ID: 00244580

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CFR - Code of Federal Regulations (US); CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL), KR - Korea; LD50/LC50 - Lethal Dose/Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR’s Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDA - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

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