

## Safety Data Sheet

**Material Name:** Oxygen, Nitrogen, Argon, Krypton, Xenon, Neon, and Carbon Dioxide Gas Mix

**SDS ID:** 00244815

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

Oxygen, Nitrogen, Argon, Krypton, Xenon, Neon, and Carbon Dioxide Gas Mix

**Product Description**

Classification determined in accordance with Compressed Gas Association standards.

**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.

909 Lake Carolyn Parkway

Suite 1300

Irving, TX 75039

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.**

Oxidizing Gases - Category 1

Gases Under Pressure - Compressed gas

Simple Asphyxiant

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Danger

**Hazard Statement(s)**

May cause or intensify fire; oxidizer.

Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

**Precautionary Statement(s)**

**Prevention**

Keep valves and fittings free from oil and grease.

Keep/Store away from clothing/combustible materials.

**Response**

In case of fire: stop leak if safe to do so.

**Storage**

Protect from sunlight. Store in a well-ventilated place.

**Disposal**

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Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other Hazards**

The rapid release of compressed gas may cause frostbite.

### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7727-37-9	Nitrogen	0 - 100
7440-37-1	Argon	0 - 100
7439-90-9	Krypton	0 - 100
7440-63-3	Xenon	0 - 100
7440-01-9	Neon	0 - 100
124-38-9	Carbon dioxide	0 - 100
7782-44-7	Oxygen	>23.5

### 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**

Rinse cautiously with water for several 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**

frostbite, suffocation

**Delayed**

No information on significant adverse effects.

**Note to Physicians**

For inhalation, consider oxygen.

### Section 5 - FIRE FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media**

regular dry chemical, carbon dioxide.

**Unsuitable Extinguishing Media**

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

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### Special Hazards Arising from the Chemical

Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials. Containers may rupture or explode if exposed to heat.

### Hazardous Combustion Products

oxides of nitrogen, miscellaneous decomposition products

### Fire Fighting Measures

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 fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Do not direct water at source of leak or safety devices; icing may occur. Reduce vapors with water spray. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). 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. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

### Environmental Precautions

Avoid release to the environment.

## Section 7 - HANDLING AND STORAGE

### Precautions for Safe Handling

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

### Conditions for Safe Storage, Including any Incompatibilities

Protect from sunlight. Store in a well-ventilated place.

Store and handle in accordance with all current regulations and standards: U.S. OSHA 29 CFR 1910.101.

### Incompatible Materials

combustible materials, bases, oxidizing materials, reducing agents, metals, halocarbons, amines, metal salts, metal oxides, metal carbide, halogens, acids

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### Component Exposure Limits

<b>Nitrogen</b>	<b>7727-37-9</b>
ACGIH:	(See Appendix F: Minimal Oxygen Content )
<b>Argon</b>	<b>7440-37-1</b>
ACGIH:	(See Appendix F: Minimal Oxygen Content )
<b>Neon</b>	<b>7440-01-9</b>

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ACGIH:	(See Appendix F: Minimal Oxygen Content )
<b>Carbon dioxide</b>	<b>124-38-9</b>
ACGIH:	5000 ppm TWA
	30000 ppm STEL
NIOSH:	5000 ppm TWA ; 9000 mg/m <sup>3</sup> TWA
	30000 ppm STEL ; 54000 mg/m <sup>3</sup> STEL
	40000 ppm IDLH
Europe:	5000 ppm TWA ; 9000 mg/m <sup>3</sup> TWA
OSHA (US):	5000 ppm TWA ; 9000 mg/m <sup>3</sup> TWA
Mexico:	5000 ppm TWA [VLE-PPT ]
	30000 ppm STEL [PPT-CT ]

**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 or process enclosure 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 with a faceshield. 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. 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**

For the gas: Protective gloves are not required, but recommended. For the liquid: Wear appropriate protective, cold insulating clothing.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	colorless gas	<b>Physical State</b>	gas
<b>Odor</b>	Not available	<b>Color</b>	colorless

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<b>Odor Threshold</b>	Not available	<b>pH</b>	Not available
<b>Melting Point</b>	Not available	<b>Boiling Point</b>	Not available
<b>Boiling Point Range</b>	Not available	<b>Freezing point</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Flammability (solid, gas)</b>	Non-flammable
<b>Autoignition Temperature</b>	Not available	<b>Flash Point</b>	Not available
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	Not available
<b>Vapor Density (air=1)</b>	Not available	<b>Specific Gravity (water=1)</b>	Not available
<b>Water Solubility</b>	Not available	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	Not available	<b>Kinematic viscosity</b>	Not available
<b>Solubility (Other)</b>	Not available	<b>Density</b>	Not available
<b>Physical Form</b>	Compressed Gas	<b>Molecular Weight</b>	Not available

### Section 10 - STABILITY AND REACTIVITY

**Reactivity**

May cause or intensify fire, oxidizer.

**Chemical Stability**

Stable at normal temperatures and pressure.

**Possibility of Hazardous Reactions**

Will not polymerize.

**Conditions to Avoid**

Avoid contact with combustible materials. Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Protect from physical damage.

**Incompatible Materials**

bases, metals, oxidizing materials, reducing agents, combustible materials, halocarbons, amines, metal salts, metal oxides, metal carbide, halogens, acids

**Hazardous decomposition products**

oxides of nitrogen, miscellaneous decomposition products

### Section 11 - TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure**

**Inhalation**

Nausea, vomiting, difficulty breathing, headache, dizziness, drowsiness, irregular heartbeat, lung congestion, irritation, changes in body temperature, disorientation, hallucinations, mood swings, pain in extremities, tremors, convulsions

**Skin Contact**

Frostbite, irritation

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**Eye Contact**

Frostbite

**Ingestion**

ingestion of harmful amounts 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**

Frostbite, suffocation

**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**

No data available

**Reproductive Toxicity**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

No target organs identified

**Specific Target Organ Toxicity - Repeated Exposure**

No target organs identified

**Aspiration hazard**

Not applicable

**Medical Conditions Aggravated by Exposure**

No data available.

### 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 for the mixture.

**Bioaccumulative Potential**

No data available for the mixture.

**Mobility**

No data available for the mixture.

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### 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:** COMPRESSED GAS, OXIDIZING, N.O.S. , ( Contains: Oxygen , second highest concentration component )

**Hazard Class:** 2.2

**UN/NA #:** UN3156

**Required Label(s):** 2.2, 5.1

**IMDG Information:**

**Shipping Name:** COMPRESSED GAS, OXIDIZING, N.O.S. , ( Contains: Oxygen , second highest concentration component )

**Hazard Class:** 2.2

**UN#:** UN3156

**Required Label(s):** 2.2, 5.1

**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.

**SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories**

Gas Under Pressure; Oxidizer; Simple Asphyxiant

**U.S. State Regulations**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
<b>Nitrogen</b>	<b>7727-37-9</b>	No	Yes	Yes	Yes	Yes
<b>Argon</b>	<b>7440-37-1</b>	No	Yes	Yes	Yes	Yes
<b>Neon</b>	<b>7440-01-9</b>	No	Yes	Yes	Yes	Yes
<b>Carbon dioxide</b>	<b>124-38-9</b>	Yes	Yes	Yes	Yes	Yes
<b>Oxygen</b>	<b>7782-44-7</b>	No	Yes	No	Yes	Yes

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)**

Not listed under California Proposition 65.

**Component Analysis - Inventory**

**Nitrogen (7727-37-9)**

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US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

### Argon (7440-37-1)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

### Krypton (7439-90-9)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	No	Yes	Yes	Yes	Yes

### Xenon (7440-63-3)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

### Neon (7440-01-9)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
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Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No
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KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

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

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	Yes	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

### Oxygen (7782-44-7)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

## Section 16 - OTHER INFORMATION

### NFPA Ratings

Health: 2 Fire: 0 Instability: 0 Other: OX

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

### Summary of Changes

Updated: 07/11/2016

### Key / Legend

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; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); 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; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport

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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; KR REACH CCA - Korea Registration and Evaluation of Chemical Substances Chemical Control Act; 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; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL – Non-Domestic Substance List (Canada); 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; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TH-TECI - Thailand - FDA Existing Chemicals Inventory (TECI); TLV - 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); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

### **Other Information**

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