



## Safety Data Sheet

Material Name: CARBON MONOXIDE IN NITROGEN, 1 PPM TO 20%

SDS ID: MATNE505

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

CARBON MONOXIDE IN NITROGEN, 1 PPM TO 20%

**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.

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

Reproductive Toxicity - Category 1A

Specific target organ toxicity - Repeated exposure - Category 1 ( central nervous system )

Simple Asphyxiant

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Danger

**Hazard Statement(s)**

Contains gas under pressure; may explode if heated.

May damage fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

May displace oxygen and cause rapid suffocation.

**Precautionary Statement(s)**

**Prevention**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves/protective clothing/eye protection/face protection.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

**Response**



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IF exposed or concerned: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

**Storage**

Store locked up.

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

**Disposal**

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

**Other Hazards**

Rapid release of compressed gas may cause frostbite.

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

CAS	Component Name	Percent
7727-37-9	NITROGEN	80 - >99
630-08-0	Carbon monoxide	0.0001 - 20

**Section 4 - FIRST AID MEASURES****Inhalation**

If adverse effects occur, get immediate medical attention. 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. Get medical advice/attention.

**Ingestion**

If swallowed, get medical attention.

**Most Important Symptoms/Effects****Acute**

frostbite, suffocation

**Delayed**

reproductive effects, central nervous system damage

**Indication of any immediate medical attention and special treatment needed**

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, oxides of nitrogen

**Fire Fighting Measures**



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Move container from fire area if it can be done without risk. Damaged cylinders should be handled only by specialists. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Avoid inhalation of material or combustion by-products. Reduce vapors with water spray. Do not get water inside container. Stay away from the ends of tanks. Stay upwind and keep out of low areas. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Apply water from a protected location or from a safe distance.

### 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

Do not touch or walk through spilled material. Stop leak if possible without personal risk. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Ventilate closed spaces before entering. 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. Prevent entry into waterways, sewers, basements, or confined areas. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

#### Environmental Precautions

Avoid release to the environment.

### Section 7 - HANDLING AND STORAGE

#### Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing gas. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection. Wash hands thoroughly after handling.

#### Conditions for Safe Storage, Including any Incompatibilities

Store locked up.

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

Store and handle in accordance with all current regulations and standards. Protect from physical damage. Keep container tightly closed. See original container for storage recommendations. Cylinders should be stored upright (with valve protection cap in place). Keep separated from incompatible substances. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.

#### Incompatible Materials

metals, oxidizing materials, halogens, metal oxides, combustible materials, lithium

### 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>Carbon monoxide</b>	<b>630-08-0</b>
ACGIH:	25 ppm TWA



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NIOSH:	35 ppm TWA ; 40 mg/m3 TWA
	200 ppm Ceiling ; 229 mg/m3 Ceiling
	1200 ppm IDLH
OSHA (US):	50 ppm TWA ; 55 mg/m3 TWA
Mexico:	50 ppm TWA VLE-PPT ; 55 mg/m3 TWA VLE-PPT
	400 ppm STEL [PPT-CT ] ; 400 mg/m3 STEL [PPT-CT ]

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)****Carbon monoxide (630-08-0)**

3.5 % of hemoglobin Medium: blood Time: end of shift Parameter: Carboxyhemoglobin (background, nonspecific ) ;

20 ppm Medium: end-exhaled air Time: end of shift Parameter: Carbon monoxide (background, nonspecific )

**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**

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin Protection**

For the gas: Wear appropriate chemical resistant clothing. 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**

Wear insulated gloves.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	colorless gas	<b>Physical State</b>	gas
<b>Odor</b>	odorless	<b>Color</b>	colorless
<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>	Not flammable
<b>Autoignition Temperature</b>	Not available	<b>Flash Point</b>	(Not flammable )



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<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>	gas	<b>Molecular Weight</b>	Not available

### 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**

Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.

**Incompatible Materials**

metals, oxidizing materials, halogens, metal oxides, combustible materials, lithium

**Hazardous decomposition products**

Oxides of carbon, oxides of nitrogen

### Section 11 - TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure****Inhalation**

nausea, vomiting, headache, drowsiness, dizziness, disorientation, loss of coordination, loss of appetite, suffocation, convulsions, coma, death, changes in body temperature, changes in blood pressure, chest pain, difficulty breathing, irregular heartbeat, hallucinations, pain in extremities, tremors, hearing loss, visual disturbances, eye damage, blood disorders, heart damage, nerve damage, birth defects, Reproductive Effects, brain damage, cardiovascular system damage

**Skin Contact**

frostbite

**Eye Contact**

irritation, 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 the following selected endpoints are published:

**Carbon monoxide (630-08-0)**

Inhalation LC50 Rat 1807 ppm 4 h



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**Product Toxicity Data**

**Acute Toxicity Estimate**

No data available.

**Immediate Effects**

frostbite, suffocation

**Delayed Effects**

reproductive effects, central nervous system damage

**Irritation/Corrosivity Data**

No information available for the product.

**Respiratory Sensitization**

No information available for the product.

**Dermal Sensitization**

No information available for the product.

**Component Carcinogenicity**

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

**Germ Cell Mutagenicity**

No data available for the mixture.

**Tumorigenic Data**

No data available for the mixture.

**Reproductive Toxicity**

Available data characterizes components of this product as reproductive hazards.

**Specific Target Organ Toxicity - Single Exposure**

No target organs identified.

**Specific Target Organ Toxicity - Repeated Exposure**

central nervous system

**Aspiration hazard**

Not applicable.

**Medical Conditions Aggravated by Exposure**

No data available.

**Additional Data**

Alcohol may enhance the toxic effects. May cross the placenta. Smoking may enhance the toxic effects.

**Section 12 - ECOLOGICAL INFORMATION**

**Component Analysis - Aquatic Toxicity**

No LOEL ecotoxicity data are available for this product's components.

**Persistence and Degradability**

No data available.

**Bioaccumulative Potential**

No data available.

**Mobility**

No data available.

**Other Toxicity**

No additional information is 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.



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#### Section 14 - TRANSPORT INFORMATION

**US DOT Information:**

**Shipping Name:** COMPRESSED GAS, N.O.S. , ( Contains: NITROGEN , CARBON MONOXIDE )

**Hazard Class:** 2.2

**UN/NA #:** UN1956

**Required Label(s):** 2.2

**IMDG Information:**

**Shipping Name:** COMPRESSED GAS, N.O.S. , ( Contains: NITROGEN , CARBON MONOXIDE )

**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.

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

Gas Under Pressure; Reproductive Toxicity; Specific Target Organ Toxicity; 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>Carbon monoxide</b>	<b>630-08-0</b>	Yes	Yes	Yes	Yes	Yes

**The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):**

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

<b>Carbon monoxide</b>	<b>630-08-0</b>
Repro/Dev. Tox	developmental toxicity , 7/1/1989

**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

<b>Carbon monoxide</b>	<b>630-08-0</b>
	0.1 %

**Component Analysis - Inventory**

**NITROGEN (7727-37-9)**



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

**Carbon monoxide (630-08-0)**

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

**Section 16 - OTHER INFORMATION****NFPA Ratings**

Health: 2 Fire: 0 Reactivity: 0

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

**Summary of Changes**

Updated: 03/04/2016

**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 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; 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);



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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; 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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