



Safety Data Sheet

Material Name: 9.77-<29.30% Chlorine and ≤23.5% Oxygen in Helium, Nitrogen, or Argon

SDS ID: 00244897

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

9.77-<29.30% Chlorine and ≤23.5% Oxygen in Helium, Nitrogen, or Argon

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.

Oxidizing Gases - Category 1

Gases Under Pressure - Compressed gas

Acute Toxicity - Inhalation - Gas - Category 2

Skin Corrosion/Irritation - Category 1

Serious Eye Damage/Eye Irritation - Category 1

Specific Target Organ Toxicity - Single Exposure - Category 3

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.

Fatal if inhaled.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

May displace oxygen and cause rapid suffocation.

Precautionary Statement(s)

Prevention



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- Keep valves and fittings free from oil and grease.
- Keep/Store away from clothing/combustible materials.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wear respiratory protection.
- Wash thoroughly after handling.

Response

- In case of fire: stop leak if safe to do so.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.

Storage

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

Disposal

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

Statement(s) of Unknown Acute Toxicity

Inhalation 70.7001% of the mixture consists of ingredient(s) of unknown acute toxicity.

Other Hazards

The rapid release of compressed gas may cause frostbite.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7440-59-7	Helium	<91
7727-37-9	Nitrogen	<91
7440-37-1	Argon	<91
7782-50-5	Chlorine	9.77-<29.30
7782-44-7	Oxygen	0-23.5

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.



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Eyes

Immediately 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**

Fatal if inhaled, frostbite, suffocation, skin burns, eye damage, respiratory tract irritation

Delayed

No information on significant adverse effects.

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media**

water spray or fog

Unsuitable Extinguishing Media

Do not use high-pressure water streams.

Special Hazards Arising from the Chemical

May intensify fire; oxidizer. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products

Chlorine, 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. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. 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. Apply water from a protected location or from a safe distance. Do not direct water at source of leak or safety devices; icing may occur. Reduce vapors with water spray: Consider downwind evacuation if material is leaking. 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. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Eliminate all ignition sources if safe to do so. Take any precaution to avoid mixing with combustibles. Reduce vapors with water spray. Do not direct water at spill or source of leak. Isolate area until gas has dispersed. Stop leak if safe to do so - Prevent entry into waterways, drains, or confined areas. Do not touch spilled material. Eliminate all ignition sources if safe to do so. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Damaged cylinders should be handled only by specialists.

Environmental Precautions

Avoid release to the environment. Collect spillage.



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Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe gas. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Wear respiratory protection. Wear protective gloves/clothing and eye/face protection. Do not eat, drink, or smoke when using this product. Avoid release to the environment. Damaged cylinders should be handled only by specialists.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Protect from sunlight.

Store and handle in accordance with all current regulations and standards.

Incompatible Materials

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

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Helium	7440-59-7
ACGIH:	(See Appendix F: Minimal Oxygen Content)
Nitrogen	7727-37-9
ACGIH:	(See Appendix F: Minimal Oxygen Content)
Argon	7440-37-1
ACGIH:	(See Appendix F: Minimal Oxygen Content)
Chlorine	7782-50-5
ACGIH:	0.5 ppm TWA
	1 ppm STEL
NIOSH:	0.5 ppm Ceiling 15 min ; 1.45 mg/m3 Ceiling 15 min
	10 ppm IDLH
Europe:	0.5 ppm STEL ; 1.5 mg/m3 STEL
OSHA (US):	1 ppm Ceiling ; 3 mg/m3 Ceiling
Mexico:	1 ppm TWA VLE-PPT ; 3 mg/m3 TWA VLE-PPT
	3 ppm STEL [PPT-CT] ; 9 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.



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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. Contact lenses should not be worn. Provide emergency eye wash supplies 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. 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

For the gas: Protective gloves are not required, but recommended. For the liquid: Wear chemical resistant, insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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



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Section 10 - STABILITY AND REACTIVITY

Reactivity

May intensify fire; oxidizer.

Chemical Stability

Stable at normal temperatures and pressure. May intensify fire; oxidizer.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

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

Incompatible Materials

combustible materials, bases, metals, halogens, metal salts, reducing agents, amines, metal carbide, metal oxides, oxidizing materials, halo carbons, Acids

Hazardous decomposition products

Chlorine, miscellaneous decomposition products

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

burns, vomiting, chest pain, difficulty breathing, headache, dizziness, hyperactivity, emotional disturbances, bluish skin color, lung congestion, lung damage, death, lack of sense of smell, tooth decay

Skin Contact

frostbite, skin burns

Eye Contact

frostbite, eye damage

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:

Chlorine (7782-50-5)

Oral LD50 Rat 5800 mg/kg (females)

Inhalation LC50 Rat 293 ppm 1 h

Product Toxicity Data

Acute Toxicity Estimate

Inhalation - Gas	146.5 ppm
Oral	> 2000 mg/kg

Immediate Effects

Fatal if inhaled, frostbite, suffocation, skin burns, eye damage, respiratory tract irritation

Delayed Effects

No information on significant adverse effects

Irritation/Corrosivity Data

skin burns, eye damage

Respiratory Sensitization

No data available.



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Dermal Sensitization

No data available.

Component Carcinogenicity

Chlorine	7782-50-5
ACGIH:	A4 - Not Classifiable as a Human Carcinogen

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity - Single Exposure

respiratory tract

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

Chlorine	7782-50-5
Fish:	LC50 96 h Lepomis macrochirus 0.44 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 0.014 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 0.014 mg/L; LC50 96 h Oncorhynchus mykiss 0.104 - 0.168 mg/L [static]; LC50 96 h Pimephales promelas 0.08 mg/L [flow-through]; LC50 96 h Pimephales promelas 0.1 mg/L
Invertebrate:	LC50 48 h Daphnia magna 0.017 mg/L IUCLID

Persistence and Degradability

No data available for the mixture.

Bioaccumulative Potential

No data available for the mixture.

Mobility

No data available for the mixture.

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, TOXIC, OXIDIZING, CORROSIVE, N.O.S. , (Contains: Chlorine ,



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second highest concentration component)

Hazard Class: 2.3

UN/NA #: UN3306

Required Label(s): 2.3, 5.1, 8

Further information: Inhalation Hazard Zone B

IMDG Information:

Shipping Name: COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. , (Contains: Chlorine , second highest concentration component)

Hazard Class: 2.3

UN#: UN3306

Required Label(s): 2.3, 5.1, 8

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

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Chlorine	7782-50-5
SARA 302:	100 lb TPQ
SARA 313:	1 % de minimis concentration
CERCLA:	10 lb final RQ ; 4.54 kg final RQ
OSHA (safety):	1500 lb TQ
SARA 304:	10 lb EPCRA RQ

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

Gas Under Pressure; Oxidizer; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; 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
Helium	7440-59-7	No	Yes	Yes	Yes	Yes
Nitrogen	7727-37-9	No	Yes	Yes	Yes	Yes
Argon	7440-37-1	No	Yes	Yes	Yes	Yes
Chlorine	7782-50-5	Yes	Yes	Yes	Yes	Yes



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Oxygen	7782-44-7	No	Yes	No	Yes	Yes
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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

Chlorine	7782-50-5
	1 %

Component Analysis - Inventory

Helium (7440-59-7)

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

Nitrogen (7727-37-9)

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

Argon (7440-37-1)

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

Chlorine (7782-50-5)



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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

Oxygen (7782-44-7)

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

Section 16 - OTHER INFORMATION**NFPA Ratings**

Health: 3 Fire: 0 Reactivity: 0 Other: OX, SA

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

Summary of Changes

New SDS: 04/04/2017

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;



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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; 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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