Material Safety Data Sheet

Nonflammable Gas Mixture: Argon 94.2-99% / Chlorine 0.5ppm-5.8%

Section 1. Chemical product and company identification

Product Name : Nonflammable Gas Mixture: Argon 94.2-99% / Chlorine 0.5ppm-5.8%

Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Product use : Synthetic/Analytical chemistry.

MSDS# : 002933

Date of Preparation/Revision : **5/15/2006.**

In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Gas.

Emergency overview : Danger!

MAY BE FATAL IF INHALED.
CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.
CONTENTS UNDER PRESSURE.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Do not get in eyes, on skin or clothing. Do not breathe gas. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Contact with rapidly expanding gases can cause frostbite.

Routes of entry : Inhalation,Dermal,Eyes

Potential acute health effects

Eyes : Severely corrosive to the eyes.

Skin : Severely corrosive to the skin.

Inhalation : Very toxic by inhalation. Severely corrosive to the respiratory system.

Ingestion : Ingestion is not a normal route of exposure for gases

Potential chronic health effects : **CARCINOGENIC EFFECTS** Classified A4 (Not classifiable for human or animal.) by ACGIH [Chlorine].
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS: Not available.

Medical conditions aggravated by overexposure : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

Name	CAS number	% Volume	Exposure limits
Argon	7440-37-1	94.2 - 99	
Chlorine	7782-50-5	0.00005 - 5.8	**ACGIH TLV (United States, 5/2004). Notes: 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.** STEL: 2.9 mg/m^3 15 minute(s). Form: All forms

STEL: 1 ppm 15 minute(s). Form: All forms
TWA: 1.5 mg/m^3 8 hour(s). Form: All forms
TWA: 0.5 ppm 8 hour(s). Form: All forms

NIOSH REL (United States, 6/2001).
CEIL: 1.45 mg/m^3 15 minute(s). Form: All forms
CEIL: 0.5 ppm 15 minute(s). Form: All forms

OSHA PEL (United States, 6/1993).
CEIL: 3 mg/m^3 Form: All forms
CEIL: 1 ppm Form: All forms

Section 4. First aid measures

No action shall be taken involving any personal risk or without suitable training.If fumes are still suspected to be present, the rescuer should wear an appropriate mask or a self-contained breathing apparatus.It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Section 5. Fire fighting measures

Flammability of the product : Non-flammable.

Products of combustion : These products are halogenated compounds, hydrogen chloride.

Fire fighting media and instructions : Use an extinguishing agent suitable for surrounding fires.

If involved in fire, shut off flow immediately if it can be done without risk. Apply water from a safe distance to cool container and protect surrounding area.

No specific hazard.

Special protective equipment for fire-fighters : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 7. Handling and storage

Handling : Do not get in eyes, on skin or on clothing. Keep container closed. Use only with adequate ventilation. Do not puncture or incinerate container. Wash thoroughly after handling. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure Controls, Personal Protection

Engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

Hands : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protection in case of a large spill : Full chemical resistant suit and self-contained breathing apparatus only by trained and authorized persons.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Molecular weight : Not applicable.

Molecular formula : Not applicable.

Boiling/condensation point : Not available.

Melting/freezing point : -101.11°C (-150°F) based on data for: Chlorine. Weighted average: -184.32°C (-299.8°F)

Critical temperature : The lowest known value is -122.4°C (-188.3°F) (argon).

Vapor density : The highest known value is 2.4 (Air = 1) (Chlorine). Weighted average: 1.44 (Air = 1)

Specific Volume (ft^3/lb) : Not applicable.

Gas Density (lb/ft^3) : Weighted average: 0.11

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Highly reactive with, organic materials, alkalis.

Hazardous decomposition products : These products are halogenated compounds, hydrogen chloride.

Section 11. Toxicological information

Ingredient name	Test	Result	Route	Species
Chlorine	LC50	293 ppm (1 hour (s))	Inhalation	Rat
	LC50	137 ppm (1 hour (s))	Inhalation	Mouse

Chronic effects on humans : **CARCINOGENIC EFFECTS** Classified A4 (Not classifiable for human or animal.) by ACGIH [Chlorine].
Contains material which causes damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.

Nonflammable Gas Mixture: Argon 94.2-99% / Chlorine 0.5ppm-5.8%

Other toxic effects on humans : Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant).

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Ingredient name	Species	Period	Result
Chlorine	Oncorhynchus mykiss (LC50)	96 hour(s)	0.014 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.029 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.132 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.159 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.192 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.291 mg/l

Products of degradation : These products are halogenated compounds.

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

Environmental fate : Not available.

Environmental hazards : No known significant effects or critical hazards.

Toxicity to the environment : Not available.

Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation.Return cylinders with residual product to Airgas, Inc.Do not dispose of locally.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		-
TDG Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75
Mexico Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		-

Section 15. Regulatory information

United States

U.S. Federal regulations :

TSCA 8(a) CAIR: Chlorine
TSCA 8(b) inventory: Chlorine; argon
SARA 302/304/311/312 extremely hazardous substances: Chlorine
SARA 302/304 emergency planning and notification: Chlorine
SARA 302/304/311/312 hazardous chemicals: Chlorine; argon
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Chlorine: Fire hazard, Sudden Release of Pressure, Immediate (Acute) Health Hazard; argon: Sudden Release of Pressure
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: Chlorine
Clean air act (CAA) 112 accidental release prevention: Chlorine
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: Chlorine

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements :	Chlorine	7782-50-5	0.00005 - 5.8
Supplier notification :	Chlorine	7782-50-5	0.00005 - 5.8

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations :

Pennsylvania RTK: Chlorine: (environmental hazard, generic environmental hazard); argon: (generic environmental hazard)
Massachusetts RTK: Chlorine; argon
New Jersey: Chlorine; argon

Canada

WHMIS (Canada) :

Class A: Compressed gas.
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
Class E: Corrosive gas.
CEPA DSL: Chlorine; argon

Section 16. Other information

United States

Label Requirements :

MAY BE FATAL IF INHALED.
CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.
CONTENTS UNDER PRESSURE.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Canada

Label Requirements :

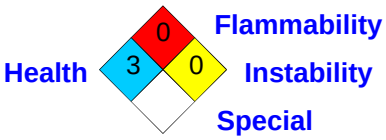
Class A: Compressed gas.
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
Class E: Corrosive gas.

Hazardous Material Information System (U.S.A.) :

Health	*	3
Fire hazard		0
Reactivity		0
Personal protection		C

Nonflammable Gas Mixture: Argon 94.2-99% / Chlorine 0.5ppm-5.8%

National Fire Protection Association (U.S.A.) :



Notice to reader

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.