SAFETY DATA SHEETS

This SDS packet was issued with item: 074768016

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

070974527 070990994 071382845 074768008 074768024 078908034

MATERIAL SAFETY DATA SHEET

1. Chemical Product and Company Identification

Product Name:	Oxygen (MSDS No. P - 4638 - D)	Trade Name:	Oxygen
Chemical Name	Oxygen	Synonyms:	Not Applicable
Formula:	0 ₂	Chemical Family	: Not Applicable
24 Hr. Emergenc General Informa	y: CHEMTREC 1-800-424-9300* tion: 201-460-0454	Company Name:	MADA, INC. 625 WASHINGTON AVENUE CARLSTADT, NJ 07072

* Call emergency numbers 24 hours a day only for spills, leaks fire, exposure, or accidents involving this product. For routine information contact your supplier.

2. Composition / Information on Ingredients

INGREDIENT NAME	CAS NUMBER	PERCENTAGE	OSHA PEL	ACGIH TLV - TWA
Oxygen	7782-44-7	>99%*	None currently established	None currently established

* The symbol " > " " greater than. "

3. Hazards Identification

EMERGENCY OVERVIEW

WARNING! High-pressure, oxidizing gas. Vigorously accelerates combustion. Self-contained breathing apparatus may be required by rescue workers. Odor: None

THRESHOLD LIMIT VALUE: None currently established - ACGIH 1997 recommends a TLV - TWA of 0.5 mg/m³ for welding fumes not otherwise classified (NOC) that may be generated during welding with this product. See section 16 for more information on welding hazards.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION - Breathing 80% or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain and breathing difficulty.

Product: Oxygen

Date: January 2008

Breathing oxygen at higher pressure increases the likelihood of adverse effects within a shorter time period. Breathing pure oxygen under pressure may cause lung damage and also nervous system effects resulting in dizziness, poor coordination, tingling sensation, visual and hearing disturbances, muscular twitching, unconsciousness and convulsions. Breathing oxygen under pressure may cause prolongation of adaptation to darkness and reduced peripheral vision.

-SKIN CONTACT - No harm expected.

SWALLOWING - This product is a gas at normal temperature and pressure.

EYE CONTACT - No harm expected.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE: No harm expected.

OTHER EFFECTS OF OVEREXPOSURE: See section 11, Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: See section 11, Toxicological Information.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION: None known.

CARCINOGENICITY: Oxygen is not listed by NTP, OSHA, or IARC.

4. First Aid Measures

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. Keep victim warm and at rest.

Call a physician. Advise the physician that the victim has been exposed to a high concentration of oxygen.

SKIN CONTACT: No emergency care anticipated.

SWALLOWING: This is a gas at normal temperature and pressure.

EYE CONTACT: No emergency care anticipated.

NOTES TO PHYSICIAN: Supportive treatment should include immediate sedation, anti-convulsive therapy if needed, and rest. See section 11, Toxicological Information.

5. Fire Fighting Measures

FLASH POINT (test method) Not applicable	AUTOIGNITION TEMPERAT	TURE Not applicable
FLAMMABLE LIMITS IN AIR, % by volume	LOWER Not applicable	UPPER Not applicable

EXTINGUISHING MEDIA: Vigorously accelerates combustion. Use media appropriate for surrounding fire. Water (e.g. safety shower) is the preferred extinguishing media for clothing fires.

SPECIAL FIRE FIGHTING PROCEDURES:

WARNING! High-pressure, oxidizing gas. Evaluate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool, then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion. Heat of fire can build pressure in cylinder and cause it to rupture. Oxygen cylinders are equipped with a pressure relief device (Exceptions may exist where authorized by DOT.) No part of a cylinder should be subjected to a temperature higher than 125F (52C). Smoking, flames and electric sparks in the presence of enriched oxygen atmospheres are potential explosion hazards.

HAZARDOUS COMBUSTION PRODUCTS: None known.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

WARNING! High-pressure, oxidizing gas. Shut off flow if without risk. Ventilate area or move cylinder to well-ventilated area. Remove all flammable materials from vicinity. Oxygen must never be permitted to strike an oily surface, greasy clothes, or other combustible material.

WASTE DISPOSAL METHOD: Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation, away from oil, grease and other hydrocarbons. Separate oxygen cylinders from flammables by at least 20 feet or use a barricade of noncombustible material. This barricade should be at least 5 feet high and have a fire resistance rating of at least 1/2 hour. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. Never apply flame or localized heat directly to any part of the cylinder. High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely, venting the cylinder contents. Never strike an arc on a compressed gas cylinder or make a cylinder part of the electrical circuit. For other precautions in using oxygen, see section 16.

PRECAUTIONS WHEN USING OXYGEN IN WELDING AND CUTTING: Read an understand the manufacturer's instructions and the precautionary labels on the products. See American National Standards Institute (ANSI) Z49.1, Safety in Welding and Cutting, published by the American Welding Society, PO Box 351040, Miami, Florida 33135 and National Fire Protection Association (NFPA) 51, Oxygen Fuel Gas Welding and Cutting.

8. Exposure Controls/Personal Protection

VENTILATION / ENGINEERING CONTROLS:

LOCAL EXHAUST - Use a local exhaust system, if necessary, to prevent increased oxygen concentration and in welding, to keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

Product: Oxygen

MECHANICAL (general) - General exhaust ventilation may be acceptable if it can maintain a supply of air that is not too rich in oxygen, and during welding, can keep hazardous flames and gases below the applicable TLVs in the worker's breathing zone.

SPECIAL - None

OTHER - None

RESPIRATORY PROTECTION: None required under normal use. However, air-supplied respirators are required while working in confined spaces with this product. For welding, use air-purifying or air-supplied respirators, as appropriate, where local or general exhaust ventilation is inadequate. Adequate ventilation must keep worker exposure below applicable TLVs for fumes, gases and other by-products of welding with oxygen. See sections 3, 10 and 16 for details. The respiratory protection use must conform with OSHA rules as specified in 29 CFR 1910.134.

SKIN PROTECTION: Wear work gloves when handling cylinders; welding gloves for welding. Gloves must be free of oil and grease.

EYE PROTECTION: Wear safety glasses when handling cylinders. For welding, wear glasses with filter lens selected as per ANSI Z49.1. Provide protective screens and goggles, if necessary, to protect others. Select as per OSHA 29 CFR 1910.33.

OTHER PROTECTIVE EQUIPMENT: Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. As needed for welding, wear hand, head and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum this includes welder's gloves and protective goggles and may include arm protectors, aprons, hats, shoulder protection, as well as substantial clothing. Regardless of protective equipment, never touch live electrical parts.

9. Physical and Chemical Properties

MOLECULAR WEIGHT: 31.9988	EXPANSION RATIO: Not applicable
SPECIFIC GRAVITY (air = 1): At 70°F (21.1°C) and 1 atm: 1.105	SOLUBILITY IN WATER: vol/vol at 32°F (0°C): 0.0491
GAS DENSITY: At 70°F (21.1°C) and 1 atm: 0.083279 lbs/ft ³ (1.326 kg/m ³)	VAPOR PRESSURE: AT 68°F (20°C): Not applicable
PERCENT VOLATILES BY VOLUME: 100	EVAPORATION RATE (Butyl Acetate = 1): Gas, not applicable
BOILING POINT: (1 atm): - 297.33°F (182.96°C)	pH: Not applicable

FREEZING POINT (1 atm): - 361.8°F (-218.78°C)

APPEARANCE, ODOR AND STATE: Colorless, odorless, tasteless gas at normal temperature and pressure

10. Stability and Reactivity

STABILITY:	Unstable	Stable	x

INCOMPATIBILITY (materials to avoid): Combustible materials, asphalt, flammable materials, especially oils and greases. Oxygen reacts with many materials. See NFPA 491M Manual of Hazardous Chemical Reactions for details.

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Will Not Occur

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION:

May Occur

CONDITIONS TO AVOID: None currently known.

11. Toxicological Information

At atmospheric concentration and pressure, oxygen poses no toxicity hazards. At high concentrations, newborn premature infants may suffer delayed retinal damage (retrolental fibroplasia) that can propress to retinal detachment and blindness. Retinal damage may also occur in adults exposed to 100% oxygen for extended periods (24 to 48 hours) or at greater than atmospheric pressure, particularly in individuals whose retinal circulation has been previously compromised. All individuals exposed for long periods to oxygen at high pressure and all who exhibit overt oxygen toxicity should have ophthalmologic examinations.

At two or more atmospheres, toxicity to the Central Nervous System (CNS) occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes and loss of consciousness and generalized seizures. At three atmospheres, CNS toxicity occurs in less than two hours; at six atmospheres, in only a few minutes.

Patients with chronic obstructive pulmonary disease retain carbon dioxide abnormally. If oxygen is administered, raising their blood oxygen concentration, their breathing becomes depressed and retained carbon dioxide rises to a dangerous level.

Animal studies suggest that the administration of certain drugs, including phenothiazine drugs and chloroquine, increases the susceptibility to toxicity from oxygen at high concentrations or pressures. Animal studies also indicate that vitamin E deficiency may increase susceptibility to oxygen toxicity.

Airway obstruction during high oxygen tension may cause alveolar collapse following absorption of the oxygen. Similarly, occlusion of the eustachian tubes may cause retraction of the eardrum and obstruction of the paranasal sinuses may produce vacuum-type headache.

12. Ecological Information

No adverse ecological effects expected. Oxygen does not contain any Class I or Class II ozone-depleting chemicals. Oxygen is not listed as a marine pollutant by DOT.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities.

Return cylinder to supplier. For emergency disposal, secure cylinder in a well-ventilated area or outdoors. then slowly discharge gas to the atmosphere.

14. Transport Information

DOT/IMO SHIPPING NAME: Oxygen, compressed	HAZARD CLASS: 2.2
IDENTIFICATION NUMBER: UN 1072	PRODUCT RQ: Not applicable

SHIPPING LABEL(s): OXYGEN. An oxygen label may be used for domestic shipment in the United States and Canada in place of the NONFLAMMABLE GAS and OXIDIZER labels (49 CFR Part 172).

PLACARD (When required): Nonflammable gas or oxygen.

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position,

in a well-ventilated vehicle. Cylinders transported in an enclosed, non ventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is in violation of federal law [49 CFR 173.301(b)].

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state and local regulations.

U.S. FEDERAL REGULATIONS:

EPA (Environmental Protection Agency)

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act of 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: Superfund Amendment and Reauthorization Act:

 SECTIONS 302/304: Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of extremely hazardous substances (40 CFR Part 355):

Threshold Planning Quantity (TPQ): None

Extremely Hazardous Substances (40 CFR 355): None

 SECTIONS 311/312: Require submission of Material Safety Data Sheets (MSDSs) and chemical inventory reporting with identification of EPA hazard categories. The hazard categories for these products are as follows:

IMMEDIATE: No	PRESSURE: Yes
DELAYED: No	REACTIVITY: No
	FIRE: Yes

 SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Oxygen does not require reporting under Section 313.

40 CFR 68: Risk Management Program for Chemical Accidental Release Prevention: Requires development and implementation of risk management programs at facilities that

manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Oxygen is not listed as a regulated substance.

TSCA: Toxic Substances Control Act: Oxygen is listed on the TSCA inventory.

OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION):

29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Oxygen is not listed in Appendix A as a highly hazardous chemical.

STATE REGULATIONS:

CALIFORNIA: This product is not listed by California under the Safe Drinking Water Toxic Enforcement Act of 1986 (Proposition 65).

PENNSYLVANIA: This product is subject to the Pennsylvania Worker and Community Right-To-Know Act (35 P.S. Sections 7301-7302).

16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

WARNING: Medical grades of Oxygen are subject to strict federal regulation and are for use only under the control of a licensed physician or clinician, familiar with the product and its hazards.

ADDITIONAL SAFETY AND HEALTH HAZARDS: *High-pressure, oxidizing gas.* Clean all gauges, valves regulators, piping and equipment to be used in oxygen service in accordance with CGA pamphlet G-4.1. Keep cylinders and their valves free of oil and grease. Use piping and equipment adequately designed to withstand pressures to be encountered. Close cylinder valve after each use; keep closed even when empty. *Never use oxygen as a substitute for compressed air.* Never use an oxygen jet for cleaning purposes of any sort, especially for clothing. Oxygen increases the likelihood of an engulfing fire. *Prevent reverse flow.* Reverse flow into cylinder may cause rupture. Use a check valve or other protective devise in any line or piping from the cylinder. *Never work on a pressurized system.* If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state and local laws; then repair the leak. *Never ground a compressed gas cylinder or allow it to become part of an electrical circuit.*

Personnel who have been exposed to high concentration of oxygen should stay in a well-ventilated or open area before going into a confined space or near an ignition source.

SPECIAL PRECAUTIONS: Use in welding and cutting. Read and understand the manufacturer's instructions and the precautionary label on the product. See American Standard Z49.1, Safety in Welding and Cutting, published by the American Welding Society, PO Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR 1910), US Government Printing Office, Washington, DC 20402, for more information.

Arcs and sparks can ignite combustible materials. Prevent fires. Refer to NFPA 51B, "Cutting and Welding Processes." Do not strike an arc on the cylinder. The defect produced by an arc burn could lead to cylinder rupture.

Product: Oxygen

MIXTURES: When you mix two or more gases or liquefied gases, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an individual hygienist, or other trained person when you evaluate the end product. Remember, gases and liquids have properties that can cause serious injury or death.

HAZARD RATING SYSTEMS:

NF	PA RATINGS:		HMIS RATINGS:	1
	HEALTH	= 0	HEALTH	= 0
	FLAMMABILIT	Y = 0	FLAMMABILITY	= 0
	REACTIVITY	= 0	REACTIVITY	= 0
	SPECIAL	= OX (Oxidizer)		

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:	0-3000 psig	CGA-540
	3001-4000 psig	CGA-577
	4001-5500 psig	CGA-701
PIN-INDEXED YOKE:	0-3000 psig	CGA-870 (Medical Use)
ULTRA-HIGH-INTEGRITY		
CONNECTION:	0-3000 psig	CGA-714

Use the proper CGA connections. DO NOT USE ADAPTERS.

SAFETY DATA SHEET

Oxygen

Section 1. Identification

GHS product identifier	: Oxygen
Chemical name	: oxygen
Other means of identification	 Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
Product use	: Synthetic/Analytical chemistry.
Synonym	 Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
SDS #	: 001043
Supplier's details	 Mada Medical Products, Inc. 625 Washington Ave. Carlstadt, NJ 07072 201-460-0454
Emergency telephone number (with hours of operation)	: 1-866-734-3438

Section 2. Hazards identification **OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). **Classification of the** : OXIDIZING GASES - Category 1 GASES UNDER PRESSURE - Compressed gas substance or mixture **GHS label elements** Hazard pictograms : Signal word : Danger Hazard statements : May cause or intensify fire; oxidizer. Contains gas under pressure; may explode if heated. Precautionary statements General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service. Prevention : Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Use and store only outdoors or in a well ventilated place. Response : In case of fire: Stop leak if safe to do so. Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place. Disposal : Not applicable. Date of issue/Date of revision : 10/16/2014. Date of previous issue : 9/29/2014. Version :0.02 1/12

Section 2. Hazards identification

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: oxygen
Other means of identification	 Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

CAS number/other identifiers

Product code	: 001043
CAS number	. //02-44-/

Ingredient name	%	CAS number
oxygen	100	7782-44-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	3	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	1	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	:	As this product is a gas, refer to the inhalation section.
Potential acute health effective contact	ects :	May cause eye irritation. Contact with rapidly expanding gas may cause burns or
Inhalation		No known significant effects or critical hazards.
Skin contact	:	May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite		Try to warm up the frozen tissues and seek medical attention.
Ingestion		As this product is a gas, refer to the inhalation section.
Over-exposure signs/sym	pton	15
Eye contact	:	No specific data.
Inhalation	:	No specific data.
Skin contact		No specific data.
Date of issue/Date of revision		: 10/16/2014. Date of previous issue : 9/29/2014. Version : 0.02 2/12

Oxygen

Section 4. First aid measures

Ingestion

: No specific data.

Indication of immediate me	dical attention and special treatment needed. if necessary
Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: No specific treatment.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures		
Extinguishing media		
Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.	
Unsuitable extinguishing media	: None known.	
Specific hazards arising from the chemical	: Contains gas under pressure. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.	
Hazardous thermal decomposition products	: No specific data.	
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk.	
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.	

Section 6. Accidental release measures

Personal precautions, protect	tive equipment and emergency procedures
For non-emergency personnel	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods and materials for co	ntainment and cleaning up
Small spill	: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
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Section 6. Accidental release measures

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: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling	L	
Protective measures	:	Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. 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.
Advice on general occupational hygiene	•	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	:	Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Separate from acids, alkalies, reducing agents and combustibles. Keep container tightly closed and sealed until ready for use. 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

Date of issue/Date of revision						
Skin protection						
Eye/face protection	: Safety eyew assessment gases or du the assessm shields.	vear complying with an a t indicates this is necess ists. If contact is possible nent indicates a higher of	pproved standard sh sary to avoid exposur le, the following prote degree of protection:	ould be used w e to liquid splas action should be safety glasses	when a risk shes, mists, worn, unle with side-	SS
Hygiene measures	: Wash hands eating, smo Appropriate Wash conta showers are	s, forearms and face the king and using the lavat techniques should be u aminated clothing before e close to the workstatio	proughly after handlin ory and at the end of sed to remove poten reusing. Ensure that n location.	ig chemical pro the working pe tially contamina at eyewash stati	ducts, befor riod. ated clothing ons and sat	re 3. fety
Individual protection measu	res					
Environmental exposure controls	: Emissions f they comply cases, fume will be nece	rom ventilation or work p with the requirements of scrubbers, filters or en ssary to reduce emission	process equipment s of environmental prot gineering modificatio ins to acceptable leve	hould be check ection legislatio ns to the proces els.	ed to ensur on. In some ss equipme	e nt
Appropriate engineering controls	: Good gener contaminan	ral ventilation should be its.	sufficient to control w	orker exposure	e to airborne)
None.						
Control parameters	its					

Section 8. Exposure controls/personal protection

Hand protection	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	 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.
Other skin protection	 Appropriate footwear and any additional skin protection measures 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 protection	: 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.

Section 9. Physical and chemical properties

Date of issue/Date of revision	: 10/16/2014. Date of previous issue : 9/29/2014. Version : 0.02 5/12
Decomposition temperature	: Not available.
Auto-ignition temperature	: Not available.
Partition coefficient: n- octanol/water	: 0.65
Solubility in water	: Not available.
Solubility	: Not available.
Relative density	: Not applicable.
Gas Density (lb/ft 3)	: 0.083
Specific Volume (ft 3/lb)	: 12.0482
Vapor density	: 1.1 (Air = 1)
Vapor pressure	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Flammability (solid, gas)	 Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.
Evaporation rate	: Not available.
Burning rate	: Not applicable.
Burning time	: Not applicable.
Flash point	: [Product does not sustain combustion.]
pH	: Not available.
Odor threshold	: Not available.
Odor	: Odorless.
Critical temperature	: -118.15°C (-180.7°F)
Melting/freezing point	: -218.4°C (-361.1°F)
Boiling/condensation point	: -183°C (-297.4°F)
Molecular formula	: 02
Molecular weight	: 32 g/mole
Color	: Colorless. Blue.
Physical state	: Gas. [Compressed gas.]
Appearance	

Oxygen

Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing fire
Conditions to avoid	: No specific data.
Incompatibility with various substances	: Extremely reactive or incompatible with the following materials: oxidizing materials, reducing materials and combustible materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur

Section 11. Toxicological information	
Information on toxicological effects	
Acute toxicity	
Not available.	
Irritation/Corrosion	
Not available.	
Sensitization	
Not available.	
Mutagenicity	
Not available.	
Carcinogenicity	
Not available.	
Reproductive toxicity	
Not available.	
Teratogenicity	
Not available.	
Specific target organ toxicity (single exposure)	
Not available.	
Specific target organ toxicity (repeated exposure)	

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Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on the likely	: Not available.
routes of exposure	

Potential acute health effects

Eye contact	 May cause eye irritation. Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion	: As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure	
Potential immediate effects	: Not available.
Potential delayed effects	: Not available.
Long term exposure	
Potential immediate effects	: Not available.
Potential delayed effects	: Not available.
Potential chronic health eff	ects
Not available.	
General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

ue : 9/29/2014.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential	
oxygen	0.65	-	low	

Mobility in soil

Soil/water partition	: Not available.
coefficient (Koc)	

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Fransbort information	ion
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	DOT	TDG	Mexico	IMDG	IATA	
UN number	I number UN1072		UN1072	UN1072	UN1072	
UN proper shipping name	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	
Transport hazard class(es)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	
Packing group	-	•	-	-	•	
Environment	No.	No.	No.	No.	No.	
Additional information	Limited quantity Yes. Packaging instruction Passenger aircraft Quantity limitation: 75 kg Cargo aircraft	Explosive Limit and Limited Quantity Index 0.125 ERAP Index 3000 Passenger Carrying Ship Index	•	-	Passenger and Cargo AircraftQuantity limitation: 75 kg Cargo Aircraft Only Quantity limitation: 150 kg	

Pastian 44 T	name namt i	a farma a ti a s	-				
Section 14. I	ransport	ntormation	n				
Qu kg A5:	antity limitation: 150 <u>ecial provisions</u> 2	50 Passenger Carryin Road or Rail Index 75 Special provisions 42					
Pafar to CEP 49 (or	authority having	iuric diction) to	datarmi	ing the inform	nation require	nd for chinma	at of the
product."	autionty naving	junsaiction) to	determ	me the more	nation require	eu for snipmer	it of the
Special precautions f	for user : Tran uprig even	sport within use thand secure. E t of an accident o	e r's pren nsure tha or spillage	nises: always at persons tra e.	transport in c nsporting the p	losed container product know w	rs that are that to do in t
o Annex II of MARPC 3/78 and the IBC Co	cording : Not a)L de	available.					
Section 15. R	egulatory	informatio	on				
J.S. Federal regulation	ons : TSC	A 8(a) CDR Exer	not/Part	ial exemption	: This materia	al is listed or ex	empted.
	Unit	ed States invent	ory (TSC	CA 8b): This n	naterial is liste	d or exempted.	
Clean Air Act Section (b) Hazardous Air Pollutants (HAPs)	on 112 : Not I	isted					
Clean Air Act Sectio Class I Substances	n 602 : Not l	isted					
Clean Air Act Sectio Class II Substances	n 602 : Not l	isted					
DEA List I Chemical (Precursor Chemica	s : Notli Is)	isted					
DEA List II Chemica (Essential Chemical	ls : Notli s)	sted					
SARA 302/304							
Composition/infor	nation on ingree	dients					
No products were for	bund.						
SARA 304 RQ	: Not a	pplicable.					
SARA 311/312			22.000				
Classification	: Sudd	ien release of pre	essure				
Composition/infor	nation on ingree	nents	-			La concerna de la con	
Name		%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
oxygen		100	No.	Yes.	No.	No.	No.
tate regulations		material in listed					
Mannahusatta							

Oxygen

Section 15. Regulatory information

New York	:	This material is not listed.
New Jersev		This material is listed.
Pennsylvania		This material is listed.
Canada inventory		This material is listed or exempted.
International regulations		•
International lists	1	Australia inventory (AICS): This material is listed or exempted. China inventory (IECSC): This material is listed or exempted. Japan inventory: Not determined. Korea inventory: This material is listed or exempted. Malaysia Inventory (EHS Register): Not determined. New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted. Philippines inventory (PICCS): This material is listed or exempted. Taiwan inventory (CSNN): Not determined.
Chemical Weapons Convention List Schedule I Chemicals		Not listed
Chemical Weapons Convention List Schedule II Chemicals	:	Not listed
Chemical Weapons Convention List Schedule III Chemicals	:	Not listed
Canada		
WHMIS (Canada)	:	Class A: Compressed gas. Class C: Oxidizing material. CEPA Toxic substances: This material is not listed. Canadian ARET: This material is not listed. Canadian NPRI: This material is not listed. Alberta Designated Substances: This material is not listed. Ontario Designated Substances: This material is not listed. Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada	Label	requirements	Class	A:	Compressed gas.
			-	-	

Class C: Oxidizing material.

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



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

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

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Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History	
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Key to abbreviations	 ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = International Air Transport Association IBC = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists AIHA – American Industrial Hygiene Association CAS – Chemical Abstract Services CEPA – Canadian Environmental Protection Act CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA) CFR – United States Code of Federal Regulations CPR – Controlled Products Regulations DSL – Domestic Substances List GWP – Global Warming Potential IARC – International Agency for Research on Cancer ICAO – International Agency for Research on Cancer ICAO – International Civil Aviation Organisation Inh – Inhalation LC – Lethal concentration LD – Lethal dosage NDSL – Non-Domestic Substances List NIOSH – National Institute for Occupational Safety and Health TDG – Canadian Transportation of Dangerous Goods Act and Regulations TLV – Threshold Limit Value TSCA – Toxic Substances Control Act WEEL – Workplace Environmental Exposure Level WHMIS – Canadian Workplace Hazardous Material Information System
References	: Not available.
Indicates information the	at has changed from previously issued version.

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Section 16. Other information

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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.

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