

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: Oxygen

CAS No: 7782-44-7

Product Code: N-1067

Formula: O₂

1.2. Intended Use of the Product

Industrial use.

1.3. Name, Address, and Telephone of the Responsible Party

Company

Nova Gas Technologies, Inc.

2781 Three Lakes Road

NORTH CHARLESTON, SC 29418

1-843-747-0956

www.lasergas.com

1.4. Emergency Telephone Number

Emergency Number : 1-800-424-9300 or 1-703-527-3887 (CHEMTREC)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Ox. Gas 1 H270

Compressed gas H280

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H270 - May cause or intensify fire; oxidizer.

H280 - Contains gas under pressure; may explode if heated.

Precautionary Statements (GHS-US)

: P220 - Keep/Store away from combustible material, oxidizable materials, and incompatible materials.

P244 - Keep reduction valves/valves and fittings free from oil and grease.

P370+P376 - In case of fire: Stop leak if safe to do so.

P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Contact with the product may cause cold burns or frostbite. Breathing pure oxygen under pressure can cause lung damage, central nervous system effects such as dizziness, poor coordination, tingling sensation, visual and hearing disturbances, unconsciousness, and convulsions. Inhalation of 100% oxygen for extended periods or at high pressure can cause retinal (eye) damage.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : Oxygen

CAS No : 7782-44-7

Name	Product Identifier	%	Classification (GHS-US)
Oxygen	(CAS No) 7782-44-7	> 99	Ox. Gas 1, H270 Compressed gas, H280

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3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

First-aid Measures After Inhalation: Move person to fresh air. Seek medical attention for discomfort or if symptoms do not subside.

First-aid Measures After Skin Contact: If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

First-aid Measures After Eye Contact: If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

First-aid Measures After Ingestion: Though risk of ingestion is extremely unlikely, in case of frostbite or freeze burns due to oral exposure seek immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Not expected to present a significant hazard under anticipated conditions of normal use. May cause frostbite.

Symptoms/Injuries After Inhalation: Breathing 80% Oxygen or more for more than a few hours may cause breathing difficulty, sore throat, and chest pain. Breathing pure oxygen under pressure can cause lung damage, central nervous system effects such as dizziness, poor coordination, tingling sensation, visual and hearing disturbances, unconsciousness, and convulsions. Inhalation of 100% oxygen for extended periods or at high pressure can cause retinal (eye) damage.

Symptoms/Injuries After Skin Contact: May cause frostbite. Symptoms may include redness, pain, and skin burns.

Symptoms/Injuries After Eye Contact: Contact with gas escaping the cylinder causes frostbite, freeze burns, and permanent eye damage.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas escaping the cylinder may cause freeze burns and frostbite.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. In case of fire: keep cylinders cool by spraying with water.

Unsuitable Extinguishing Media: Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable. This product increases the risk of fire and may accelerate combustion. Contact with combustible material may cause fire.

Explosion Hazard: Heating may cause an explosion. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Cylinders involved in a fire may explode even if the fire has been extinguished.

Reactivity: May cause or intensify fire; oxidizer.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leaking gas fire, eliminate all ignition sources if safe to do so. Use water spray or fog for cooling exposed containers. Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Avoid contact with the skin and the eyes.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

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Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Avoid unnecessary release into environment.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Stop leak if safe to do so.

Methods for Cleaning Up: Wear a self-contained breathing apparatus and appropriate personal protective equipment (PPE). Clean up spills immediately and dispose of waste safely. Isolate area until gas has dispersed.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. For further information refer to Section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Risk of explosion if heated under confinement. Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Do not pressurize, cut, or weld containers. Protect cylinders from physical damage: do not drag, roll, slide or drop. Mechanical impact may cause an explosion or cause cylinder to rocket. Contact with the product may cause cold burns or frostbite.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Keep at temperatures below 52°C / 125°F.

Storage Conditions: Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Store tightly closed in a dry, cool and well-ventilated place. Keep valves free from grease and oil.

Incompatible Products: Strong oxidizers. Reducing agents. Combustible materials. Oils. Grease. Hydrocarbons.

7.3. Specific End Use(s)

Industrial use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

8.2. Exposure Controls

Appropriate Engineering Controls

: Gas detectors should be used when flammable gases/vapors may be released. Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof equipment. All equipment should comply with the National Electric Code.

Personal Protective Equipment

: Protective goggles or safety glasses. Gloves. Protective clothing. High vapor/gas concentration: self-contained respirator.



Materials for Protective Clothing

: Wear suitable protective clothing.

Hand Protection

: Protective gloves.

Eye Protection

: Chemical goggles or safety glasses.

Skin and Body Protection

: Wear suitable protective clothing.

Respiratory Protection

: Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Thermal Hazard Protection

: If material is cold, wear thermally resistant protective gloves.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Gas

Appearance : Colorless

Odor : Odorless

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Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point/ Freezing Point at 1 atm	: -218.79 °C (-361.82 °F)
Boiling Point	: -182.98 °C (-297.36 °F)
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Not flammable
Vapor Pressure	: No data available
Relative Vapor Density at 20 °C	: No data available
Specific Gravity (Air = 1) at 21.1°C (70°F)	: 1.105
Solubility in Water vol/vol at 0°C (32°F) and 1 atm	: 0.0489
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available
Gas Density at 21.1 °C (70 °F)	: 0.0827 lb./ft ³ (1.325 kg/m ³)
Critical Pressure	: 731.4 psia (5043 kPa abs)
Molecular Weight	: 32.0

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** May cause or intensify fire; oxidizer.
- 10.2. Chemical Stability:** Stable under recommended handling and storage conditions (see Section 7).
- 10.3. Possibility of Hazardous Reactions:** Hazardous reactions are not expected to occur under normal conditions of use.
- 10.4. Conditions to Avoid:** Heat, open flame, and other sources of ignition. Pressurized container: may burst if heated.
- 10.5. Incompatible Materials:** Strong oxidizers. Reducing agents. Combustible materials. Oils. Grease. Hydrocarbons.
- 10.6. Hazardous Decomposition Products:** None known.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified. Does not contain carcinogens listed in the National Toxicology Program (NTP) Report on Carcinogens, the International Agency for Research on Cancer (IARC), or by OSHA.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Breathing 80% Oxygen or more for more than a few hours may cause breathing difficulty, sore throat, and chest pain. Breathing pure oxygen under pressure can cause lung damage, central nervous system effects such as dizziness, poor coordination, tingling sensation, visual and hearing disturbances, unconsciousness, and convulsions. Inhalation of 100% oxygen for extended periods (>24 hours) or at high pressure can cause retinal (eye) damage.

Symptoms/Injuries After Skin Contact: May cause frostbite. Symptoms may include redness, pain, and skin burns.

Symptoms/Injuries After Eye Contact: Contact with gas escaping the cylinder causes frostbite, freeze burns, and permanent eye damage.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas escaping the cylinder may cause freeze burns and frostbite.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity No additional information available

12.2. Persistence and Degradability No additional information available

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12.3. Bioaccumulative Potential No additional information available

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects No additional information available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: Dispose of empty container in accordance with all local regulations. Recycle or recondition if possible. Empty gas cylinders should be returned to the vendor for recycling or refilling.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name : OXYGEN, COMPRESSED

Hazard Class : 2.2

Identification Number : UN1072

Label Codes : 2.2, 5.1

ERG Number : 122



14.2. In Accordance with IMDG

Proper Shipping Name : OXYGEN, COMPRESSED

Hazard Class : 2

Division : 2.2

Subsidiary Risk(s) : 5.1

Identification Number : UN1072

Label Codes : 2.2, 5.1

EmS-No. (Fire) : F-C

EmS-No. (Spillage) : S-W



14.3. In Accordance with IATA

Proper Shipping Name : OXYGEN, COMPRESSED

Identification Number : UN1072

Hazard Class : 2

Label Codes : 2.2, 5.1

Division : 2.2

Subsidiary Risk(s) : 5.1

ERG Code (IATA) : 2X



SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Oxygen (7782-44-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes

Sudden release of pressure hazard
Fire hazard

15.2 US State Regulations

Oxygen (7782-44-7)

U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity

RTK - U.S. - Massachusetts - Right To Know List

RTK - U.S. - New Jersey - Right to Know Hazardous Substance List

RTK - U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 02/11/2016

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

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GHS Full Text Phrases:

Compressed gas	Gases under pressure Compressed gas
Ox. Gas 1	Oxidizing gases Category 1
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated

NFPA Health Hazard

: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA Fire Hazard

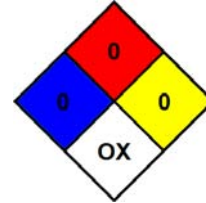
: 0 - Materials that will not burn.

NFPA Reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

NFPA Specific Hazard

: OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



HMIS III Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability

: 0 Minimal Hazard

Physical

: 3 Serious Hazard

The information contained in this SDS is believed to be correct as of the date issued and is intended to describe the product for the purposes of health, safety and environmental requirements only. The supplier assumes no liability for the accuracy or completeness of this information and does not guarantee that these are the only hazards that may exist. It should not therefore be construed as guaranteeing any specific property of the product. It is the user's responsibility to determine the suitability of any product for his/her use or application.

SDS US (GHS HazCom)