

**MASTER AGREEMENT**

ADVANTAGE CONTRACT #: 18P 21072100000000000005

COMMODITY/SERVICE DESCRIPTION: Bulk Liquid Oxygen

START DATE: 8/1/2021

END DATE: 7/31/2026

This Contract is between the following State of Maine Department and Provider:

**STATE OF MAINE DEPARTMENT**

DEPARTMENT NAME: Office of State Procurement Services

ADDRESS: 111 Sewall St., 4<sup>th</sup> Floor Burton Cross Office Building, SHS# 9

CITY: Augusta

STATE: ME

ZIP CODE: 04333-009

**PROVIDER**

PROVIDER NAME: Maine Oxy Acetylene Supply Inc.

ADDRESS: 100 Washington Street N

CITY: Auburn

STATE: ME

ZIP CODE: 04210

PROVIDER'S VENDOR CUSTOMER #: VC1000061814

Each signatory below represents that the person has the requisite authority to enter into this Contract.

Department Representative:

Provider Representative:

Signed by:

Handwritten signature of William J. E. Allen in blue ink.

2D5B6E39F57E44A...

Bill Allen, Senior Procurement Manager

Date 7/17/2025

Signed by:

Handwritten signature of Will Gentry in blue ink.

8DF3000A2E7049F...

Will Gentry, President

Date 7/17/2025

*The contract is fully executed when all parties sign and funds have been encumbered. Upon final approval by the Office of State Procurement Services, a case details page will be made part of this contract.*

**DEPARTMENT AND PROVIDER POINT OF CONTACT and PROCUREMENT METHOD**

PROCUREMENT SERVICES MA MANGER: The Procurement Services MA Manager manages the MA contract documents. All other communication is to be with the agency the services were provided to.

NAME: Michael McNeil	
EMAIL: michael.mcneil@maine.gov	TELEPHONE: 207-956-2351

VENDOR CONTACT: The vendor contact person will help consumers place orders, inquire about orders that have not been delivered, all shipping issues, quality issues and any issues pertaining to the Master Agreement (MA) contract. All orders not submitted through a Delivery Order will be sent through the vendor contact person. The vendor contact person for this MA is:

NAME: Paul A Rice Jr.	
EMAIL: price@maineoxy.com	TELEPHONE: 207-415-3936

Any changes to the individuals identified above may be changed at any time through written notice by either party.

**Master Agreement (MA) procurement method:** RFQ 09A 210621\*278

<b>TABLE OF RIDERS</b>
------------------------

The following riders are hereby incorporated into this Contract and made part of it by reference.	
<input checked="" type="checkbox"/>	RIDER A – Specifications and User Information
<input checked="" type="checkbox"/>	RIDER B – Terms and Conditions
<input type="checkbox"/>	RIDER C – Exceptions
<input checked="" type="checkbox"/>	RIDER D – Responsible Bidder Certification
<input checked="" type="checkbox"/>	SDS – Safety Data Sheet

**RIDER A: SPECIFICATIONS AND USER INFORMATION****TABLE OF CONTENTS**

- I. CONTRACT PERIOD
- II. COMMODITY
- III. AMENDMENTS TO SPECIFICATIONS
- IV. AMENDMENT/EXTENSION PRICING/RATE CHANGES
- V. CONTRACTED PRICING/RATES
- VI. AUTHORIZED USERS
- VII. ORDERING PROCEDURE/DELIVERY INFORMATION

**I. CONTRACT PERIOD:**

Contract renewal term [8/1/2025] through [7/31/2026]

Following the initial term of the contract, the Department, at their discretion, may opt to extend / renew the contract for up to one (1) two (2) year and one (1) one (1) year extension periods.

- ☐ Initial Term
- ☐ First Renewal
- ☒ Second Renewal

**II. COMMODITY:** Liquid Oxygen

The State reserves the right to add other similar items or commodities to the Master Agreement (MA) if it's in the State's best interest but does not obligate the State to purchase similar noncontracted items or commodities from the selected bidder.

**III. AMENDMENTS TO SPECIFICATIONS**

None

**IV. AMENDMENT/EXTENSION PRICING/RATE CHANGES**

Extension at current rates.

## V. CONTRACTED PRICING/RATES

**Prices:** Prices are with shipping terms of “Free on Board (FOB) – Destination”. The State intends for this to mean that all goods shall be priced to include shipping charges, if any, to the State’s desired location. The “FOB – Destination” shipping term is also intended to mean that the State shall not bear any responsibility for the goods in question until the State takes possession of them at the destination point of delivery.

**Price and Rate Guarantee Period:** All quoted prices and rates must be guaranteed for and must remain firm for minimally one year of the initial contract period. Any approved price or rate adjustments must be held firm for minimally one year or the remainder of the contract period. Price adjustment requests must be made by the vendor at least sixty (60) days prior to the effective date. Requests for price adjustments must include sufficient documentation from the manufacture supporting the request. The price adjustment will not go into effect until the contract amendment has been fully approved by the State of Maine.

## VI. AUTHORIZED USERS:

**State of Maine Departments authorized to utilize this MA contract:**

Inland Fisheries & Wildlife

**Municipalities, political subdivisions, and school districts in Maine:**

- ☒ Are NOT permitted to utilize this MA.
- ☐ Are permitted to utilize this MA as written.
- ☐ Are permitted to utilize this MA with the following conditions:

## VII. ORDERING PROCEDURES/DELIVERY INFORMATION:

Delivery Orders (DO) will be created in AdvantageME for all orders over \$5000.00. DO’s will be emailed as a .pdf file to the vendor’s email address submitted in AdvantageME by the vendor.

**Quantities:** It is understood and agreed that the MA will cover the actual quantities required by the State over the length of the contract.

**Delivery Locations:** The vendor must deliver to the Department of Inland Fisheries & Wildlife locations listed below. The exact addresses will be provided to the vendor at the time the order is placed.

Casco Fish Hatchery  
70 Fish Hatchery Road  
Casco Maine 04015

Dry Mills Fish Hatchery  
158 Weymouth Road  
Gray, Maine 04039

Embden Rearing Station  
809 Cross Town Road  
Embden, Maine 04958

Enfield Fish Hatchery  
45 Cobb Road  
Enfield, Maine 04493

Governor Hill Fish Hatchery  
82 Hatchery Road  
Augusta, Maine 04330

Palermo Rearing Station  
200 Gore Road  
Palermo, Maine 04354

**Delivery and Inspection:** The vendor is responsible for the delivery of material in first class condition at the point of delivery, and in accordance with good commercial practice.

**RIDER B: TERMS and CONDITIONS**

1. **DEFINITIONS.** The following definitions are applicable to these standard terms and conditions:
  - a. The term "Buyer" or "State" shall refer to the Government of the State of Maine or a person representing the Government of the State of Maine.
  - b. The term "Department" or "DAFS" shall refer to the State of Maine Department of Administrative and Financial Services.
  - c. The term "Bureau" or "BGS" shall refer to the State of Maine Bureau of General Services.
  - d. The term "OSPS" shall refer to the State of Maine Office of State Procurement Services.
  - e. The term "Provider" shall refer to the organization that is providing goods and/or services through the contract to which these standard terms and conditions have been attached and incorporated.
  - f. The term "Contract" shall refer to the contract document to which these standard terms and conditions apply, taking the format of a Buyer Purchase Order (BPO) or Master Agreement (MA) or other contractual document that is mutually agreed upon between the State and the Provider.
2. **WARRANTY.** The Provider warrants the following:
  - a. That all goods and services to be supplied by it under this Contract are fit and sufficient for the purpose intended, and
  - b. That all goods and services covered by this Contract will conform to the specifications, drawing samples, symbols or other description specified by OSPS, and
  - c. That such articles are merchantable, good quality, and free from defects whether patent or latent in material and workmanship, and
  - d. That all workmanship, materials, and articles to be provided are of the best grade and quality, and
  - e. That it has good and clear title to all articles to be supplied by it and the same are free and clear from all liens, encumbrances and security interest.

Neither the final certificate of payment nor any provision herein, nor partial nor entire use of the articles provided shall constitute an acceptance of work not done in accordance with this agreement or relieve the Provider liability in respect of any warranties or responsibility for faulty material or workmanship. The Provider shall remedy any defects in the work and pay any damage to other work resulting therefrom, which shall appear within one year from the date of final acceptance of the work provided hereunder. OSPS shall give written notice of observed defects with reasonable promptness.
3. **TAXES.** Provider agrees that, unless otherwise indicated in the order, the prices herein do not include federal, state, or local sales or use tax from which an exemption is available for purposes of this order. Provider agrees to accept and use tax exemption certificates when supplied by OSPS as applicable. In case it shall ever be determined that any tax included in the prices herein was not required to be paid by Provider, Provider agrees to notify OSPS and to make prompt application for the refund thereof, to take all proper steps to procure the same and when received to pay the same to OSPS.
4. **PACKING AND SHIPMENT.** Deliveries shall be made as specified without charge for boxing, carting, or storage, unless otherwise specified. Articles shall be suitably packed to secure lowest transportation cost and to conform to the requirements of common carriers and any applicable specifications. Order numbers and symbols must be plainly marked on all invoices, packages, bills

of lading, and shipping orders. Bill of lading should accompany each invoice. Count or weight shall be final and conclusive on shipments not accompanied by packing lists.

5. **DELIVERY.** Delivery should be strictly in accordance with delivery schedule. If Provider's deliveries fail to meet such schedule, OSPS, without limiting its other remedies, may direct expedited routing and the difference between the expedited routing and the order routing costs shall be paid by the Provider. Articles fabricated beyond OSPS's releases are at Provider's risk. Provider shall not make material commitments or production arrangements in excess of the amount or in advance of the time necessary to meet delivery schedule, and, unless otherwise specified herein, no deliveries shall be made in advance of OSPSO's delivery schedule. Neither party shall be liable for excess costs of deliveries or defaults due to the causes beyond its control and without its fault or negligence, provided, however, that when the Provider has reason to believe that the deliveries will not be made as scheduled, written notice setting forth the cause of the anticipated delay will be given immediately to OSPS. If the Provider's delay or default is caused by the delay or default of a subcontractor, such delay or default shall be excusable only if it arose out of causes beyond the control of both Provider and subcontractor and without fault of negligence or either of them and the articles or services to be furnished were not obtainable from other sources in sufficient time to permit Provider to meet the required delivery schedule.
6. **FORCE MAJEURE.** The performance of an obligation by either party shall be excused in the event that performance of that obligation is prevented by an act of God, act of war, riot, fire, explosion, flood or other catastrophe, sabotage, severe shortage of fuel, power or raw materials, change in law, court order, national defense requirement, or strike or labor dispute, provided that any such event and the delay caused thereby is beyond the control of, and could not reasonably be avoided by, that party.
7. **INSPECTION.** All articles and work will be subject to final inspection and approval after delivery, notwithstanding prior payment, it being expressly agreed that payment will not constitute final acceptance. OSPS, at its option, may either reject any article or work not in conformity with the requirements and terms of this order, or re-work the same at Provider's expense. OSPS may reject the entire shipment where it consists of a quantity of similar articles and sample inspection discloses that ten (10%) percent of the articles inspected are defective, unless Provider agrees to reimburse OSPS for the cost of a complete inspection of the articles included in such shipment. Rejected material may be returned at Provider's risk and expense at the full invoice price plus applicable incoming transportation charges, if any. No replacement of defective articles of work shall be made unless specified by OSPS.
8. **INVOICE.** The original and duplicate invoices covering each and every shipment made against this order showing Contract number, Vendor number, and other essential particulars, must be forwarded promptly to the ordering agency concerned by the Vendor to whom the order is issued. Delays in receiving invoice, and any errors or omissions on statements, will be considered just cause for withholding settlement without losing discount privileges. All accounts are to be carried in the name of the agency or institution receiving the goods, and not in the name of OSPS.
9. **MODIFICATIONS.** OSPS reserves the right to increase or decrease all or any portion of the work and the articles required by the bidding documents or this agreements, or to eliminate all or any portion of such work or articles or to change delivery date hereon without invalidating this Contract. All such modification shall be in writing. If any such modification are made, the Contract amount or amounts shall be adjusted accordingly. In no event shall Provider fail or refuse to continue the



performance of the work in providing of articles under this Agreement because of the inability of the parties to agree on an adjustment or adjustments.

**10. TERMINATION.** OSPS may terminate the whole or any part of this Agreement in any one of the following circumstances:

- a. The Provider fails to make delivery of articles, or to perform services within the time or times specified herein, or
- b. If Provider fails to deliver specified materials or services, or
- c. If Provider fails to perform any of the provisions of this Agreement, or
- d. If Provider so fails to make progress as to endanger the performance of this Agreement in accordance with its terms, or
- e. If Provider is adjudged bankrupt, or if it makes a general assignment for the benefit of its creditors or if a receiver is appointed on account of its insolvency, or
- f. Whenever for any reason the State shall determine that such termination is in the best interest of the State to do so.

In the event that OSPS terminates this Agreement in whole or in part, pursuant to this paragraph with the exception of (f), OSPS may procure (articles and services similar to those so terminated) upon such terms and in such manner as OSPS deems appropriate, and Provider shall be liable to OSPS for any excess cost of such similar articles or services.

**11. NON-APPROPRIATION.** Notwithstanding any other provision of this Contract, if the State does not receive sufficient State, Federal, or other sources of funds to fund this Contract and other obligations of the State, if funds are de-appropriated, or if the State does not receive legal authority to expend funds from State or Federal legislative, executive or judicial bodies, then the State is not obligated to make payment under this Contract.

**12. GOVERNMENTAL REQUIREMENTS.** The Provider warrants and represents that it will comply with all applicable governmental ordinances, laws and regulations.

**13. GOVERNING LAW.** This Contract shall be governed in all respects by the laws, statutes, and regulations of the United States of America and of the State of Maine. Any legal proceeding against the State regarding this Contract shall be brought in the State of Maine administrative or judicial forums. The Provider consents to personal jurisdiction in the State of Maine.

**14. DISPUTES.** OSPS will decide any and all questions which may arise as to the quality and acceptability of articles provided and installation of such articles, and as to the manner of performance and rate of progress under this Contract. OSPS will decide all questions, which may arise as to the interpretation of the terms of this Agreement and the fulfillment of this Agreement on the part of the Provider.

**15. SUBLETTING, ASSIGNMENT OR TRANSFER.** The Provider shall not sublet, sell, transfer, assign or otherwise dispose of this Contract or any portion thereof, or of its right, title or interest therein, without the written request and written approval from the Department. Such approval shall not in any case relieve the Provider of its responsibility for performance of work or liability under this Contract.

**16. STATE HELD HARMLESS.** The Provider shall indemnify and hold harmless the Department and its officers, agents, and employees from and against any and all third party claims, liabilities, and

costs, including reasonable attorney fees, for any or all injuries to persons or property or claims for money damages, including claims for violation of intellectual property rights, arising from the negligent acts or omissions of the Provider, its employees or agents, officers or Subcontractors in the performance of work under this Agreement; provided, however, the Provider shall not be liable for claims arising out of the negligent acts or omissions of the Department, or for actions taken in reasonable reliance on written instructions of the Department.

**17. NON-COLLUSION.** The Provider warrants that it has not employed or contracted with any company or person, other than for assistance with the normal study and preparation of a proposal, to solicit or secure this Contract, and that it has not paid, or agreed to pay, any company or person, other than a bona fide employee working solely for the Provider, any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon, or resulting from, the award of this Contract.

And, the Provider has not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services, and this proposal is in all respects fair and without collusion or fraud. The above-mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.

For breach or violation of this provision, the Department shall have the right to terminate this Contract without liability or, at its discretion, to otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

**18. MATERIAL SAFETY:** All manufacturers, importers, suppliers, or distributors of hazardous chemicals doing business in this State must provide a copy of the current Material Safety Data Sheet (MSDS) for any hazardous chemical to their direct purchasers of that chemical.

**19. ORDER OF PRECEDENCE.** In the event of a conflict between the documents comprising this Agreement, the Order of Precedence shall be:

- a. Exceptions - If applicable
- b. General Terms & Conditions for Goods and/or Services under Buyer Purchase Orders and Master Agreements
- c. Scope of Work - If applicable
- d. Vender Agreement - Included at Department's Discretion
- e. Other - Included at Department's Discretion

**20. CYBERSECURITY AND PROHIBITED TECHNOLOGIES.** The Provider certifies to the best of Provider's knowledge and belief that the aforementioned organization, its principals and any subcontractors named in this Contract:

- a. is not a foreign adversary business entity, <https://www.maine.gov/oit/prohibited-technologies>, [Title 5 MRSA §2021 \(3\)](#); and
- b. is not on the list of prohibited companies or does not obtain or purchase any information or communications technology or services included on the list of prohibited information and communications technology and services <https://www.maine.gov/oit/prohibited-technologies>, [Title 5 MRSA §2030-B](#).

Contracts entered into by a state agency in violation of [Title 5 M.R.S. §2030-B](#) are void. A person who knowingly signs this contract, in violation of this section, commits a civil violation for which a fine may be adjudged in an amount that is twice the amount of this contract or \$250,000, whichever is greater, [Title 5 MRSA §2030-A](#).

- 21. TARIFFS.** Any price increases implemented by the provider due to the imposition of tariffs shall remain in effect only for the duration that such tariffs are in place. In the event of the repeal or reduction of any applicable tariff(s), the provider shall immediately return to the original price list or make a proportional reduction in the price to reflect the decrease in tariff(s). Price adjustments under this clause shall be made in good faith and without undue delay upon confirmation via documents reflecting tariff changes.

**RIDER C: EXCEPTIONS TO RIDER B**

N/A

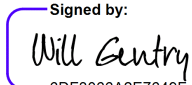
**RIDER D: RESPONSIBLE BIDDER CERTIFICATION**

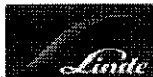
*By signing this document, I certify to the best of my knowledge and belief that the aforementioned organization, its principals, and any subcontractors named in this proposal:*

- a. Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from bidding or working on contracts issued by any governmental agency.*
- b. Have not within three years of submitting the proposal for this contract been convicted of or had a civil judgment rendered against them for:*
  - i. fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government transaction or contract.*
  - ii. violating Federal or State antitrust statutes or committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;*
  - iii. are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and*
  - iv. have not within a three (3) year period preceding this proposal had one or more federal, state or local government transactions terminated for cause or default.*
- c. Have not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and this proposal is in all respects fair and without collusion or fraud. The above-mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.*

- **Failure to provide this certification may result in the disqualification of the Bidder's proposal, at the discretion of the Department.**

*To the best of my knowledge all information provided in the enclosed proposal, both programmatic and financial, is complete and accurate at the time of submission.*

Name: Will Gentry	Title: President
Authorized Signature:  <small>Signed by: 6DF3066A2E7649F...</small>	Date: 7/17/2025

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PRAXAIR

# Oxygen, refrigerated liquid

## Safety Data Sheet P-4637

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Date of issue: 01/01/1979

Revision date: 08/31/2020

Supersedes: 10/21/2016

Version: 1.1

### SECTION 1: Product and company identification

#### 1.1. Product identifier

Product form : Substance  
 Trade name : Liquid Oxygen, Medipure Liquid Oxygen  
 CAS-No. : 7782-44-7  
 Formula : O<sub>2</sub>  
 Other means of identification : Oxygen (cryogenic liquid), Liquid Oxygen, Medipure Liquid Oxygen

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use  
 Medical applications.

#### 1.3. Details of the supplier of the safety data sheet

Linde Inc.  
 10 Riverview Drive  
 Danbury, CT 06810-6268 - USA  
 T 1-844-44LINDE (1-844-445-4633)  
[www.lindeus.com](http://www.lindeus.com)

#### 1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week  
 — Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887  
 (collect calls accepted, Contract 17729)

### SECTION 2: Hazard identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Ox. Gas 1 H270  
 Press. Gas (Ref. Liq.) H281

#### 2.2. Label elements

##### GHS US labeling

Hazard pictograms (GHS US)



GHS03

GHS04

Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H270 - MAY CAUSE OR INTENSIFY FIRE; OXIDIZER  
 H281 - CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY  
 CGA-HG13 - COMBUSTIBLES IN CONTACT WITH LIQUID OXYGEN MAY EXPLODE ON  
 IGNITION OR IMPACT.

Precautionary statements (GHS US)

: P202 - Do not handle until all safety precautions have been read and understood.  
 P220 - Keep/Store away from clothing, combustible materials  
 P244 - Keep reduction valves/valves and fittings free from oil and grease  
 P271+P403 - Use and store only outdoors or in a well-ventilated place.  
 P282 - Wear cold insulating gloves/face shield/eye protection, cold insulating gloves, face  
 shield, eye protection  
 P370+P376 - IN CASE OF FIRE: Stop leak if safe to do so  
 CGA-PG05 - Use a back flow preventive device in the piping.  
 CGA-PG20+CGA-PG10 - Use only with equipment of compatible materials of construction and  
 rated for cylinder pressure.

EN (English US)

SDS ID: P-4637

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- CGA-PG22 - Use only with equipment cleaned for oxygen service.  
 CGA-PG24 - DO NOT change or force fit connections.  
 CGA-PG28 - Avoid spills. Do not walk on or roll equipment over spills.  
 CGA-PG06 - Close valve after each use and when empty.  
 CGA-PG23 - Always keep container in upright position.

### 2.3. Other hazards

Other hazards not contributing to the classification

- : Breathing 80 percent or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain, and breathing difficulty. 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 central nervous system (CNS) 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.

Contact with liquid may cause cold burns/frostbite.

### 2.4. Unknown acute toxicity (GHS US)

No data available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Name	Product identifier	%
Oxygen, refrigerated liquid (Main constituent)	(CAS-No.) 7782-44-7	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures after inhalation : Remove victim to uncontaminated area. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- First-aid measures after skin contact : The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. Get immediate medical attention.
- First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

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

No additional information available

### 4.3. Indication of any immediate medical attention and special treatment needed

None.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

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

### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion.
- Reactivity : No reactivity hazard other than the effects described in sub-sections below.

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### 5.3. Advice for firefighters

#### Firefighting instructions

: DANGER! Extremely cold liquid and gas under pressure. Take care not to direct spray onto vents on top of container. Do not discharge sprays directly into liquid; cryogenic liquid can freeze water rapidly.

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

#### Protection during firefighting

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

#### Special protective equipment for fire fighters

: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

#### Specific methods

: Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.

Exposure to fire may cause containers to rupture/explode.

Stop flow of product if safe to do so.

Use water spray or fog to knock down fire fumes if possible.

If leaking do not spray water onto container. Water surrounding area (from protected position) to contain fire.

#### Other information

: Do not walk on or roll equipment over a spill; any impact could cause an explosion. Smoking, flames, and electric sparks are potential explosion hazards in oxygen-enriched atmospheres.

Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

Cryogenic liquid causes severe frostbite, a burn-like injury. Heat of fire can build pressure in a closed container and cause it to rupture. Venting vapors may obscure visibility. Air will condense on surfaces such as vaporizers or piping exposed to liquid or cold gas. Nitrogen, which has a lower boiling point than oxygen, evaporates first, leaving an oxygen-enriched condensate.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### General measures

: Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Ensure adequate air ventilation. Eliminate ignition sources. Evacuate area. Try to stop release. Monitor concentration of released product. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Stop leak if safe to do so.

#### 6.1.1. For non-emergency personnel

No additional information available

#### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Try to stop release.

### 6.3. Methods and material for containment and cleaning up

No additional information available

### 6.4. Reference to other sections

See also sections 8 and 13.



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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

##### Precautions for safe handling

- Never use oxygen as a substitute for compressed air. Never use an oxygen jet for any type of cleaning, especially for cleaning clothing. Oxygen-saturated clothing may burst into flame at the slightest spark and be quickly consumed in an engulfing fire. Do not get liquid in eyes, on skin, or on clothing. Persons exposed to high concentrations of liquid oxygen should stay in a well-ventilated or open area for 30 minutes before entering a confined space or going near any source of ignition. Immediately remove clothing exposed to oxygen and air it out to reduce the likelihood of an engulfing fire. Prevent ignition sources, such as static electricity generated in clothing while walking.

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g. wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### Storage conditions

- Store only where temperature will not exceed 125°F (52°C). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g. NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

**OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE:** When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

When working with cryogenic/cold liquid or gaseous oxygen under pressure, avoid using materials that are incompatible with oxygen use.

When working with cryogenic/cold liquid or gas under pressure, avoid using materials that are incompatible with cryogenic use. Some metals, such as carbon steel, may fracture easily at low temperature. Use only transfer lines designed for cryogenic liquids. Prevent liquid or cold gas from being trapped in piping between valves. Equip the piping with pressure relief devices. Praxair recommends piping all vents to the exterior of the building.

#### 7.3. Specific end use(s)

None.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Oxygen, refrigerated liquid (7782-44-7)	
ACGIH	Not established
USA OSHA	Not established

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**PRAXAIR**

# Oxygen, refrigerated liquid

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### 8.2 Exposure controls

Appropriate engineering controls	: Avoid oxygen rich (>23.5%) atmospheres. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when oxidizing gases may be released. Oxygen detectors should be used when asphyxiating gases may be released. Provide adequate general and local exhaust ventilation. Consider work permit system e.g. for maintenance activities.
Hand protection	: Wear working gloves when handling gas containers.
Eye protection	: Wear safety glasses with side shields. Wear goggles and a face shield when transfilling or breaking transfer connections.
Skin and body protection	: Wear loose-fitting, cryogenic gloves, metatarsal shoes for container handling, and protective clothing where needed. Cuffless trousers should be worn outside the shoes. Gloves must be free of oil and grease. Select in accordance with OSHA 29 CFR 1910.132, 1910.136, and 1910.138.
Respiratory protection	: None required under normal use. An air-supplied respirator must be used while working with this product in confined spaces. The respiratory protection used must conform with OSHA rules as specified in 29 CFR 1910.134. Select per OSHA 29 CFR 1910.134 and ANSI Z88.2.
Thermal hazard protection	: Wear cold insulating gloves. Wear cold insulating gloves when transfilling or breaking transfer connections.
Environmental exposure controls	: None necessary.
Other information	: Consider the use of flame resistant safety clothing. Wear safety shoes while handling containers.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Colorless gas.
Molecular mass	: 32 g/mol
Color	: Bluish liquid.
Odor	: Odorless.
Odor threshold	: No data available
pH	: Not applicable.
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -219 °C (-362°F)
Freezing point	: -218.4 °C (-361°F)
Boiling point	: -183 °C (-297°F)
Flash point	: No data available
Critical temperature	: -118.6 °C (-181°F)
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not applicable.
Critical pressure	: 50.4 bar (731.4 psia)
Relative vapor density at 20 °C	: No data available
Relative density	: 1.1
Density	: 1.4289 kg/m³ (at 21.1 °C)
Relative gas density	: 1.1
Solubility	: Water: 39 mg/l
Log Pow	: Not applicable.
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.

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Explosive properties : Not applicable.  
 Oxidizing properties : Oxidizer.  
 Explosion limits : No data available

**9.2. Other information**

Gas group : Press. Gas (Ref. Liq.)  
 Additional information : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

No reactivity hazard other than the effects described in sub-sections below.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Risk of explosion if spilt on organic structural materials (e.g. wood or asphalt). Violently oxidizes organic material.

**10.4. Conditions to avoid**

None under recommended storage and handling conditions (see section 7).

**10.5. Incompatible materials**

Consult supplier for specific recommendations. Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (&gt; 30 bar) oxygen lines in case of combustion. Keep equipment free from oil and grease. May react violently with combustible materials. May react violently with reducing agents.

**10.6. Hazardous decomposition products**

None.

**SECTION 11: Toxicological information****11.1. Information on toxicological effects**

Acute toxicity : Not classified  
 Skin corrosion/irritation : Not classified  
     pH: Not applicable.  
 Serious eye damage/irritation : Not classified  
     pH: Not applicable.  
 Respiratory or skin sensitization : Not classified  
 Germ cell mutagenicity : Not classified  
 Carcinogenicity : Not classified  
 Reproductive toxicity : Not classified  
 Specific target organ toxicity – single exposure : Not classified  
 Specific target organ toxicity – repeated exposure : Not classified  
 Aspiration hazard : Not classified

**SECTION 12: Ecological information****12.1. Toxicity**

Ecology - general : No ecological damage caused by this product.

**12.2. Persistence and degradability****Oxygen, refrigerated liquid (7782-44-7)**

Persistence and degradability : No ecological damage caused by this product.

EN (English US)

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### 12.3. Bioaccumulative potential

Oxygen, refrigerated liquid (7782-44-7)	
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

### 12.4. Mobility in soil

Oxygen, refrigerated liquid (7782-44-7)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.

### 12.5. Other adverse effects

Other adverse effects	: Can cause frost damage to vegetation.
Effect on ozone layer	: None.
Effect on the global warming	: No known effects from this product.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Do not discharge into any place where its accumulation could be dangerous.
Product/Packaging disposal recommendations	: Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

## SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1073 Oxygen, refrigerated liquid (cryogenic liquid), 2.2
UN-No.(DOT)	: UN1073
Proper Shipping Name (DOT)	: Oxygen, refrigerated liquid (cryogenic liquid)
Class (DOT)	: 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT)	: 2.2 - Non-flammable gas 5.1 - Oxidizer



DOT Special Provisions (49 CFR 172.102)	: T75 - When portable tank instruction T75 is referenced in Column (7) of the 172.101 Table, the applicable refrigerated liquefied gases are authorized to be transported in portable tanks in accordance with the requirements of 178.277 of this subchapter. TP5 - For a portable tank used for the transport of flammable refrigerated liquefied gases or refrigerated liquefied oxygen, the maximum rate at which the portable tank may be filled must not exceed the liquid flow capacity of the primary pressure relief system rated at a pressure not exceeding 120 percent of the portable tank's design pressure. For portable tanks used for the transport of refrigerated liquefied helium and refrigerated liquefied atmospheric gas (except oxygen), the maximum rate at which the tank is filled must not exceed the liquid flow capacity of the pressure relief device rated at 130 percent of the portable tank's design pressure. Except for a portable tank containing refrigerated liquefied helium, a portable tank shall have an outage of at least two percent below the inlet of the pressure relief device or pressure control valve, under conditions of incipient opening, with the portable tank in a level attitude. No outage is required for helium. TP22 - Lubricants for portable tank fittings (for example, gaskets, shut-off valves, flanges) must be oxygen compatible.
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### Additional information

Emergency Response Guide (ERG) Number	: 122 (UN1072)
Other information	: No supplementary information available.

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### Special transport precautions

- : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers:
  - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

### Transport by sea

- UN-No. (IMDG) : 1073
- Proper Shipping Name (IMDG) : OXYGEN, REFRIGERATED LIQUID
- Class (IMDG) : 2 - Gases
- Division (IMDG) : 2.2 - Non-flammable, non-toxic gases
- MFAG-No : 122

### Air transport

- UN-No. (IATA) : 1073
- Proper Shipping Name (IATA) : Oxygen, refrigerated liquid
- Class (IATA) : 2
- Civil Aeronautics Law : Gases under pressure/Gases nonflammable nontoxic under pressure

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Oxygen, refrigerated liquid (7782-44-7)

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

SARA Section 311/312 Hazard Classes

Fire hazard  
Immediate (acute) health hazard  
Sudden release of pressure hazard

All components of this product are listed on the Toxic Substances Control Act (TSCA) inventory.

### 15.2. International regulations

#### CANADA

#### Oxygen, refrigerated liquid (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

#### Oxygen, refrigerated liquid (7782-44-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### 15.2.2. National regulations

#### Oxygen, refrigerated liquid (7782-44-7)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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### 15.3. US State regulations

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U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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### SECTION 16: Other information

#### Other information

- : When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Linde asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Linde Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Linde Inc, it is the user's obligation to determine the conditions of safe use of the product.

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#### Revision date

: 08/31/2020

#### NFPA health hazard

- : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

#### NFPA fire hazard

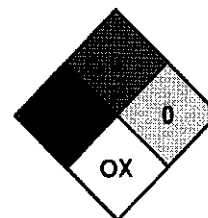
- : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

#### NFPA instability

- : 0 - Material that in themselves are normally stable, even under fire conditions.

#### NFPA specific hazard

- : OX - Materials that possess oxidizing properties.



#### Hazard Rating

##### Health

- : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

##### Flammability

- : 0 Minimal Hazard

##### Physical

- : 2 Moderate Hazard

SDS US (GHS HazCom 2012) - Praxair

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*