

Section 1: Product and Company Identification

Middlesex Gases & Technologies

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Product Code: Liquid Oxygen

Section 2: Hazards Identification



Danger

Hazard Classification:

Gases Under Pressure
Oxidizing Gas (Category 1)

Hazard Statements:

Contains gas under pressure; may explode if heated
May cause or intensify fire; oxidizer

Precautionary Statements

Prevention:

Keep reduction valves/valves and fittings free from oil and grease.
Keep and store away from clothing and combustible materials.

Response:

In case of fire: Stop leak if safe to do so.

Storage:

Protect from sunlight.
Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

CAS #

7782-44-7

Chemical Substance	Chemical Family	Trade Names
OXYGEN, LIQUID	inorganic, gas	LIQUID OXYGEN; LOX; OXYGEN; OXYGEN, PRESSURIZED LIQUID; UN 1073; O2; OXYGEN (CRYOGENIC LIQUID)

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Immediately flush with plenty of lukewarm water, or wrap affected area in blankets. Get immediate medical attention.	Flush eyes with plenty of water for at least 15 minutes. Get medical attention.	Get medical attention.	Remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	<ul style="list-style-type: none">Respiratory protection may be needed for frequent or heavy exposure.None

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.

Methods for Cleanup	Other Information
Stop leak and ventilate	None

Section 7: Handling and Storage

Handling	Storage
Store and use with adequate ventilation. 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.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
OXYGEN, LIQUID: No occupational exposure limits established.

Engineering Controls

Handle only in fully enclosed systems.

Eye Protection	Skin Protection	Respiratory Protection
Wear splash resistant safety goggles.	Wear appropriate protective, cold insulating clothing.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas	Clear	Blue	N/A	Gas	Odorless	Tasteless

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	1.1407 @ -183 C	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.156 cP @ -173 C

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
31.9988	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Alcohol

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials
Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals

Hazardous Decomposition Products	Possibility of Hazardous Reactions
Miscellaneous decomposition products	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions

Eye Irritation	Skin Irritation	Sensitization
Frostbite, blurred vision	Blisters, frostbite	No significant target effects reported.

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Not known.	Available.	Available.	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Oxygen, refrigerated liquid	UN1073	2.2	Not available	2.2; 5.1	Forbidden	Forbidden	N/A

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
Oxygen, refrigerated liquid	UN1073	2.2; 5.1	Not applicable

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
Not regulated.	Not regulated.	Not regulated.

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
No	No	Yes	No	Yes

SARA 372.65

Not regulated.

OSHA Process Safety

Not regulated.

State Regulations

CA Proposition 65

Not regulated.

Canadian Regulations

WHMIS Classification

Not determined.

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Listed on inventory.	Not listed.	Not determined.

Section 16: Other Information

NFPA Rating

HEALTH=3 FIRE=0 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard