

**SECTION 1: Identification**
**1.1. Product identifier**

Product form	:	Mixtures
Trade name	:	ALnox™
Product code	:	HC-2002-03538
Formula	:	Equimolar mixture of N <sub>2</sub> O / O <sub>2</sub>
Synonyms	:	Equimolar mixture of Medical Nitrous oxide and Medical Oxygen, Nitrous oxide USP and Medical Oxygen USP Mixture
Other means of identification	:	Oxygen (50.00%) in Nitrous Oxide

**1.2. Recommended use and restrictions on use**

Recommended uses and restrictions	:	Analgesia
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**1.3. Supplier**

VitalAire Canada Inc.  
 6990 Creditview Road – Unit 6  
 L5N 8R9 Mississauga, ON – Canada  
 T 1-888-629-0202  
[www.vitalaire.com](http://www.vitalaire.com)

**1.4. Emergency telephone number**

Emergency number	:	514-878-1667
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**SECTION 2: Hazard identification**
**2.1. Classification of the substance or mixture**
**Classification (GHS-CA)**

Oxidising Gases, Category 1	H270
Gases under pressure : Compressed Gas	H280
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336
Full text of H statements : see section 16	

**2.2. GHS Label elements, including precautionary statements**
**GHS-CA labelling**

Hazard pictograms (GHS-CA)



Signal word (GHS-CA) : Danger

 Hazard statements (GHS-CA) : H270 - May cause or intensify fire; oxidizer  
 H280 - Contains gas under pressure; may explode if heated  
 H336 - May cause drowsiness or dizziness

 Precautionary statements (GHS-CA) : P370+P376 - In case of fire: Stop leak if safe to do so  
 P271 + P403 - Use and store in a well-ventilated area  
 P220 - Keep away from clothing and other combustible materials  
 P244 - Keep valves and fittings free from oil and grease  
 P202 - Do not handle until all safety precautions have been read and understood  
 CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C/125 °F  
 CGA-PG05 - Use a back flow preventive device in the piping  
 CGA-PG06 - Close valve after each use and when empty  
 CGA-PG10 + CGA-PG20 - Use only with equipment of compatible materials of construction and rated for cylinder pressure  
 CGA-PG21 - Open valve slowly  
 CGA-PG22 - Use only with equipment cleaned for oxygen service  
 First Aid : P304 + P340 +P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**2.3. Other hazards**

No additional information available

**2.4. Unknown acute toxicity (GHS-CA)**

No data available

**SECTION 3: Composition/information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS-CA)
Oxygen	Liquid oxygen / Oxygen (dissolved) / Oxygen (liquid) / Oxygen, refrigerated liquid / Oxygen, dissolved / Oxygen, compressed / Oxygen gas / OXYGEN	(CAS-No.) 7782-44-7	50	Ox. Gas 1, H270 Press. Gas (Comp.), H280
Nitrous oxide	Dinitrogen oxide / Laughing gas / Nitrogen oxide (N2O) / NITROUS OXIDE	(CAS-No.) 10024-97-2	50	Ox. Gas 1, H270 Press. Gas (Comp.), H280 STOT SE 3, H336

Full text of hazard classes and H-statements : see section 16

**SECTION 4: First-aid measures****4.1. Description of first aid measures**

- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
- First-aid measures after skin contact : Adverse effects not expected from this product
- First-aid measures after eye contact : Adverse effects not expected from this product
- First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

**4.2. Most important symptoms and effects (acute and delayed)**

- Symptoms/effects after inhalation : May cause drowsiness or dizziness.
- Symptoms/effects after skin contact : Adverse effects not expected from this product
- Symptoms/effects after eye contact : Adverse effects not expected from this product
- Symptoms/effects after ingestion : Ingestion is not considered a potential route of exposure.
- Symptoms/effects upon intravenous administration : Not known.
- Chronic symptoms : Adverse effects not expected from this product.

**4.3. Immediate medical attention and special treatment, if necessary**

- Other medical advice or treatment : If you feel unwell, seek medical advice.

**SECTION 5: Fire-fighting measures****5.1. Suitable extinguishing media**

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

**5.2. Unsuitable extinguishing media**

- Unsuitable extinguishing media : Unknown

**5.3. Specific hazards arising from the hazardous product**

- Fire hazard : The product is not flammable.
- Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
- Hazardous combustion products : Nitric oxide/nitrogen dioxide.

**5.4. Special protective equipment and precautions for fire-fighters**

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Exposure to fire may cause containers to rupture/explode. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
- Protection during firefighting : Standard protective clothing and equipment (e.g. Self Contained Breathing Apparatus) for fire fighters. 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 : Ensure adequate ventilation.
- Personal Precautions, Protective Equipment and Emergency Procedures : EVACUATE ALL PERSONNEL FROM AFFECTED AREA. Use appropriate protective equipment. If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest VitalAire Canada Location

#### 6.2. Methods and materials for containment and cleaning up

- For containment : Try to stop release if without risk.
- Methods for cleaning up : Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.
- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty.

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

- Technical measures : Comply with applicable regulations.
- Storage conditions : Do not expose to temperatures exceeding 52 °C/ 125 °F. Keep container closed when not in use. Protect cylinders from physical damage; do not drag, roll, slide or drop. Store in well ventilated area. Special instructions: Upon receipt, store cylinder in a horizontal position for at least 36 hours in an area where the temperature is maintained above 0°C and does not exceed 50°C. If it is suspected that cylinder has been exposed to a temperature below 0°C, repeat the above procedure.  
Immediately before use the cylinder must be inverted completely at least three times.
- Incompatible products : None known.
- Incompatible materials : Flammable materials. Combustible materials. Reducing agents.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Nitrous oxide (10024-97-2)		
USA - ACGIH	ACGIH TWA (ppm)	50 ppm
Canada (Quebec)	VEMP (mg/m <sup>3</sup> )	90 mg/m <sup>3</sup>
Canada (Quebec)	VEMP (ppm)	50 ppm
Alberta	OEL TWA (mg/m <sup>3</sup> )	90 mg/m <sup>3</sup>
Alberta	OEL TWA (ppm)	50 ppm
British Columbia	OEL TWA (ppm)	25 ppm
Manitoba	OEL TWA (ppm)	50 ppm
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	90 mg/m <sup>3</sup>
New Brunswick	OEL TWA (ppm)	50 ppm
New Foundland & Labrador	OEL TWA (ppm)	50 ppm
Nova Scotia	OEL TWA (ppm)	50 ppm
Nunavut	OEL STEL (ppm)	75 ppm
Nunavut	OEL TWA (ppm)	50 ppm
Northwest Territories	OEL STEL (ppm)	75 ppm
Northwest Territories	OEL TWA (ppm)	50 ppm
Ontario	OEL TWA (mg/m <sup>3</sup> )	45 mg/m <sup>3</sup>
Ontario	OEL TWA (ppm)	25 ppm
Prince Edward Island	OEL TWA (ppm)	50 ppm

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Nitrous oxide (10024-97-2)		
Saskatchewan	OEL STEL (ppm)	75 ppm
Saskatchewan	OEL TWA (ppm)	50 ppm

### 8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider the use of a work permit system e.g. for maintenance activities.
- Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

### 8.3. Individual protection measures/Personal protective equipment

- Personal protective equipment : Gloves. Safety glasses. Protective clothing. Safety shoes.



- Hand protection : Wear working gloves when handling gas containers.
- Eye protection : Wear safety glasses with side shields.
- Skin and body protection : Wear suitable protective clothing, e.g. lab coats, coveralls or flame resistant clothing.
- Respiratory protection : None necessary during routine operations. See Sections 5 & 6.
- Thermal hazard protection : None necessary during routine operations.
- Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
- Other information : 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 : Clear, colorless gas.
- Colour : Colourless
- Odour : Slightly sweet
- Odour threshold : No data available
- pH : No data available
- Relative evaporation rate (butylacetate=1) : No data available
- Relative evaporation rate (ether=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : No data available
- Flash point : Not applicable (non-flammable gas)
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : See Section 2.1 and 2.2
- Vapour pressure : No data available
- Vapour pressure at 50 °C : No data available
- Relative density : No data available
- Solubility : Water: No data available
- Log Pow : No data available
- Viscosity, kinematic : No data available
- Explosive properties : Not applicable (non-flammable gas).
- Oxidising properties : Not combustible but enhances combustion of other substances. May cause or intensify fire; oxidizer.
- Explosive limits : Not applicable (non-flammable gas)

### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Can form explosive mix with flammable materials. May react violently with reducing agents.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Incompatible materials	: Flammable materials. Combustible materials. Reducing agents.
Hazardous decomposition products	: Under normal conditions of storage and use hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

#### Oxygen (7782-44-7)

LC50 inhalation rat (ppm)	800000 ppm/4h
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#### Nitrous oxide (10024-97-2)

LC50 inhalation rat (ppm)	250000 ppm/4h
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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
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

### SECTION 12: Ecological information

#### 12.1. Toxicity

No additional information available

#### 12.2. Persistence and degradability

##### Oxygen (7782-44-7)

Persistence and degradability	No ecological damage caused by this product.
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##### Nitrous oxide (10024-97-2)

Persistence and degradability	Not applicable for inorganic gases.
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#### 12.3. Bioaccumulative potential

##### Oxygen (7782-44-7)

Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

##### Nitrous oxide (10024-97-2)

Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No data available.

#### 12.4. Mobility in soil

##### Oxygen (7782-44-7)

Log Pow	Not applicable for inorganic gases.
Ecology - soil	No ecological damage caused by this product.

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<b>Nitrous oxide (10024-97-2)</b>	
Log Pow	Not applicable for inorganic gases.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

### 12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Product/Packaging disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at [www.cganet.com](http://www.cganet.com) for more guidance on suitable disposal methods.

## SECTION 14: Transport information

### 14.1. Basic shipping description

In accordance with TDG

#### Transportation of Dangerous Goods

UN-No. (TDG) : UN3156  
 TDG Primary Hazard Classes : 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.  
 TDG Subsidiary Classes : 5.1  
 Transport Document Description : UN3156 Compressed gas, oxidizing, n.o.s., 2.2 (5.1)  
 Proper Shipping Name : Compressed gas, oxidizing, n.o.s.

Hazard labels (TDG) : 2.2 - Non-flammable, non-toxic gases  
 5.1 - Oxidizing substances



TDG Special Provisions : 16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks). (2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name: (a)UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S.; (b)UN1851, MEDICINE, LIQUID, TOXIC, N.O.S.; (c)UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S.; (d)UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.; or (e)UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the "Food and Drugs Act". (3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment: (a)UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or (b)UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS. SOR/2014-306

ERAP Index : 3 000  
 Explosive Limit and Limited Quantity Index : 0  
 Passenger Carrying Ship Index : Forbidden  
 Excepted quantities (TDG) : E0  
 Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 75 L

### 14.2. Transport information/DOT - USA

#### Department of Transport

DOT NA no. : UN3156

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UN-No.(DOT)	: 3156
DOT Symbols	: G - Identifies PSN requiring a technical name
Transport Document Description	: UN3156, 2.2
Contains Statement Field Selection (DOT)	: DOT_TECHNICAL - Proper Shipping Name - Technical (DOT)
Class (DOT)	: 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Division (DOT)	: 2.2
Hazard labels (DOT)	: 2.2 - Non-flammable gas 5.1 - Oxidiser



Dangerous for the environment	: No
DOT Special Provisions (49 CFR 172.102)	: A14 - This material is not authorized to be transported as a limited quantity or consumer commodity in accordance with 173.306 of this subchapter when transported aboard an aircraft.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 306
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 304
DOT Packaging Bulk (49 CFR 173.xxx)	: 314;315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 150 kg
DOT Vessel Stowage Location	: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
Other information	: No supplementary information available.

### 14.3. Air and sea transport

#### IMDG

UN-No. (IMDG)	: 3156
Proper Shipping Name (IMDG)	: Compressed gas, oxidizing, n.o.s.
Transport Document Description (IMDG)	: UN 3156 Compressed gas, oxidizing, n.o.s., 2.2
Class (IMDG)	: 2.2 - Non-flammable, non-toxic gases
Subsidiary risk (IMDG)	: 5.1

#### IATA

UN-No. (IATA)	: 3156
Proper Shipping Name (IATA)	: Compressed gas, oxidizing, n.o.s.
Transport Document Description (IATA)	: UN 3156 Compressed gas, oxidizing, n.o.s., 2.2
Class (IATA)	: 2.2 - Gases : Non-flammable, non-toxic
Subsidiary risk (IATA)	: 5.1

## SECTION 15: Regulatory information

### 15.1. National regulations

#### Oxygen (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

#### Nitrous oxide (10024-97-2)

Listed on the Canadian DSL (Domestic Substances List)

### 15.2. International regulations

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**Oxygen (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 EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
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 the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

**Nitrous oxide (10024-97-2)**

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 EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
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 the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

**SECTION 16: Other information**

Date of issue : 05/23/2017

Full text of H-statements:

H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

SDS Canada (GHS)

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