Halothane (3.00% - 7.00%), Oxygen (23.51% - 92.99%) in Nitrogen

Safety Data Sheet

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : Halothane (3.00% - 7.00%), Oxygen (23.51% - 92.99%) in Nitrogen

Product code : HC-2003-03484

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

Use of the substance/mixture : Test gas/Calibration gas.

1.3. Details of the supplier of the safety data sheet

Air Liquide
2700 Post Oak Boulevard
Houston, TX 77056 - USA
T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Ox. Gas 1	H270
Compressed gas	H280
Eye Dam. 1	H318
Repr. 2	H361
STOT SE 3	H335

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS03 GHS04 GHS05 GHS07 GHS08

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
H318 - Causes serious eye damage
H361 - Suspected of damaging fertility or the unborn child (Inhalation)
CGA-HG22 - Corrosive to the respiratory tract.

Precautionary statements (GHS-US) :
P202 - Do not handle until all safety precautions have been read and understood
P220 - Keep/Store away from combustible materials, clothing
P244 - Keep reduction valves/valves and fittings free from oil and grease
P261 - Avoid breathing gas
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P284 - Wear respiratory protection. Consult respiratory device supplier´s product information for the selection of the appropriate device.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P307+P311 - If exposed: Call a poison center/doctor
P403 - Store in a well-ventilated place
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
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 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG20 - Use only with equipment of compatible materials of construction
CGA-PG21 - Open valve slowly
CGA-PG22 - Use only with equipment cleaned for oxygen service

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Oxygen	(CAS No) 7782-44-7	23.51 - 92.99	Ox. Gas 1, H270 Compressed gas, H280
Nitrogen	(CAS No) 7727-37-9	0.01 - 73.49	Compressed gas, H280
Halothane	(CAS No) 151-67-7	3 - 7	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Repr. 2, H361 STOT SE 3, H336 STOT SE 3, H335

Full text of H-phrases: 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 : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/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

Symptoms/injuries after inhalation : Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Adverse effects not expected from this product.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

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

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

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.

Reactivity : None known.

5.3. Advice for firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. 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.

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment consistent with the site emergency plan.

Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.

Emergency procedures : Evacuate and limit access. Ventilate area.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

For containment : Try to stop release if safe to do so.

Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.

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.

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 cylinder from physical damage. Store in well ventilated area. Store locked up.

Incompatible products : None known.

Incompatible materials : Flammable materials. Combustible materials. Reducing agents.

7.3. Specific end use(s)

See Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Halothane (3.00% - 7.00%), Oxygen (23.51% - 92.99%) in Nitrogen	
ACGIH	Not applicable
OSHA	Not applicable

Halothane (151-67-7)	
ACGIH	Not applicable
OSHA	Not applicable

Oxygen (7782-44-7)	
ACGIH	Not applicable

Oxygen (7782-44-7)	
OSHA	Not applicable

Nitrogen (7727-37-9)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider work permit system e.g. for maintenance activities.

Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection. Wear chemically resistant protective gloves when making or breaking process connections.

Eye protection : Wear safety glasses with side shields. Wear goggles and a face shield when transfilling or breaking transfer connections. 29 CFR 1910.133: Eye and Face Protection.

Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.

Respiratory protection : Wear a respirator when performing non-routine tasks not limited to line breaking or sampling. Wear a respirator during routine operations if determined to be necessary during a process-specific review. Consult respirator suppliers' product information or their representatives for the selection of the appropriate respirator.

Thermal hazard protection : None necessary during normal and 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. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Clear, colorless gas.

Color : Colorless

Odor : Sweet

Odor threshold : No data available

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : Not applicable - not flammable

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : See Section 2.1 and 2.2

Explosion limits : Not applicable - not flammable

Explosive properties : Not applicable - not flammable.

Oxidizing properties : Not combustible but enhances combustion of other substances. May cause or intensify fire; oxidizer.

Vapor pressure : No data available

Relative density : No data available

Relative vapor density at 20 °C : No data available

Molecular mass : Not applicable for gas-mixtures.

Relative gas density : Heavier than air

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

9.2. Other information

Additional information : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May react violently with reducing agents. Can form explosive mixtures with flammable materials.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Combustible materials. Flammable materials. Reducing agents.

10.6. 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 : Not classified

Halothane (151-67-7)	
LD50 oral rat	5450 µl/kg
LC50 inhalation rat (mg/l)	120 mg/l/4h
LC50 inhalation rat (ppm)	29000 ppm/4h
ATE US (gases)	4500.000 ppmV/4h
ATE US (dust, mist)	1.500 mg/l/4h

Oxygen (7782-44-7)	
LC50 inhalation rat (ppm)	800000 ppm/4h

Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Suspected of damaging fertility or the unborn child (Inhalation).

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Adverse effects not expected from this product.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

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.

Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.

12.3. Bioaccumulative potential

Oxygen (7782-44-7)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

Nitrogen (7727-37-9)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

12.4. Mobility in soil

Oxygen (7782-44-7)	
Ecology - soil	No ecological damage caused by this product.

Nitrogen (7727-37-9)	
Ecology - soil	No ecological damage caused by this product.

12.5. Other adverse effects

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

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment 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.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3156 Compressed gas, oxidizing, n.o.s. (Oxygen, Nitrogen)

UN-No.(DOT) : UN3156

Proper Shipping Name (DOT) : Compressed gas, oxidizing, n.o.s.

Hazard labels (DOT) : 2.2 - Non-flammable gas
5.1 - Oxidizer

DOT Packaging Non Bulk (49 CFR 173.xxx) : 302

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

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 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.

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

UN-No. (IMDG)	:	3156
Proper Shipping Name (IMDG)	:	COMPRESSED GAS, OXIDIZING, N.O.S.
Class (IMDG)	:	2.2 - Non-flammable, non-toxic gases

Air transport

UN-No. (IATA)	:	3156
Proper Shipping Name (IATA)	:	COMPRESSED GAS, OXIDIZING, N.O.S.
Class (IATA)	:	2

SECTION 15: Regulatory information

15.1. US Federal regulations

Oxygen (7782-44-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

Oxygen (7782-44-7)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class C - Oxidizing Material

Nitrogen (7727-37-9)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

EU-Regulations

No additional information available

Oxygen (7782-44-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Nitrogen (7727-37-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

National regulations

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 Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Nitrogen (7727-37-9)
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)

15.3. US State regulations

Oxygen (7782-44-7)
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

Nitrogen (7727-37-9)
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

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.

Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Ox. Gas 1	Oxidizing gases Category 1
Repr. 2	Reproductive toxicity Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H315	Causes skin irritation
H318	Causes serious eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.