

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet 50229

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 09/22/2014

Revision date: 09/22/2014

Version: 1.0

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen  
Replaces ISC MSDS No. : 1810-2249, 1810-3127, 1810-7987

#### 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

U.S. Supplier: Industrial Scientific Corporation  
1 Life Way  
Pittsburgh, PA 15205-7500  
Phone (412) 788-4353  
TOLL-FREE 800-DETECTS  
Fax (412) 788-8353

MANUFACTURER: CALGAZ  
821 Chesapeake Drive  
Cambridge, MD 21613

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300  
Internationally: 1-703-527-3887

### SECTION 2: Hazards identification

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

##### Classification (GHS-US)

Compressed gas H280  
Repr. 2 H361  
Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning  
Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated  
H361 - Suspected of damaging fertility. Suspected of damaging the unborn child  
Precautionary statements (GHS-US) : P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P405 - Store locked up  
P410+P403 - Protect from sunlight. Store in a well-ventilated place  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

#### 2.3. Other hazards

No additional information available

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

Not applicable

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Nitrogen	(CAS No) 7727-37-9	76.02 - 80.46	Compressed gas, H280
Oxygen	(CAS No) 7782-44-7	19.5 - 23.5	Ox. Gas 1, H270
n-Hexane	(CAS No) 110-54-3	0.04 - 0.48	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Adverse effects not expected from this product.
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, both acute and delayed

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

#### 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	: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Product is not explosive.
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.
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##### 6.1.1. For non-emergency personnel

Protective equipment	: Wear protective equipment consistent with the site emergency plan.
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# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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.

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.

Safe use of the product : Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Hygiene measures : Do not eat, drink or smoke when using this product.

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

Technical measures : None known.

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.

Storage area : Keep locked up.

### 7.3. Specific end use(s)

Test gas/Calibration gas.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen		
ACGIH	Not applicable	
OSHA	Not applicable	
Oxygen (7782-44-7)		
ACGIH	Not applicable	
OSHA	Not applicable	
Nitrogen (7727-37-9)		
ACGIH	Not applicable	
OSHA	Not applicable	
n-Hexane (110-54-3)		
ACGIH	ACGIH TWA (ppm)	50 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 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.
Eye protection	: Wear safety glasses with side shields. 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	: None necessary during normal and routine operations. See Sections 5 & 6.
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	: gasoline-like Odorless
Odor threshold	: No data available
pH	: Not applicable for gas-mixtures.
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable for gas-mixtures.
Flammability (solid, gas)	: Not flammable - not combustible
Explosion limits	: Not applicable - not flammable
Explosive properties	: Not applicable - not flammable.
Oxidizing properties	: Supports combustion. Not combustible but enhances combustion of other substances.
Vapor pressure	: Not applicable.
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Molecular mass	: Not applicable for gas-mixtures.
Relative gas density	: Lighter or similar to air.
Solubility	: Water: Solubility in water of component(s) of the mixture : •: 39 mg/l •: 20 mg/l •: Insoluble
Log Pow	: Not applicable for gas-mixtures.
Log Kow	: Not applicable for gas-mixtures.
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.

### 9.2. Other information

Additional information	: None.
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

### 10.2. Chemical stability

Stable under normal conditions.

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 10.3. Possibility of hazardous reactions

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

Flammable materials.

### 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

Oxygen (7782-44-7)	
LC50 inhalation rat (ppm)	800000 ppm/4h
Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h
n-Hexane (110-54-3)	
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm/4h

Skin corrosion/irritation : Not classified  
pH: Not applicable for gas-mixtures.

Serious eye damage/irritation : Not classified  
pH: Not applicable for gas-mixtures.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Suspected of damaging fertility. Suspected of damaging the unborn child.

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

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

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

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

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

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Adverse effects not expected from this product.

## SECTION 12: Ecological information

### 12.1. Toxicity

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

n-Hexane (110-54-3)	
LC50 fish 1	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

### 12.2. Persistence and degradability

Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen	
Persistence and degradability	No data available.

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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 (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen	
Log Pow	Not applicable for gas-mixtures.
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	No data available.

  

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 (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen	
Mobility in soil	No data available.

  

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	: None.
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. May be vented to atmosphere. 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 <a href="http://www.cganet.com">www.cganet.com</a> for more guidance on suitable disposal methods.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT	
Transport document description	: UN1956 Compressed gas, n.o.s. (Oxygen, Nitrogen)
UN-No.(DOT)	: UN1956
Proper Shipping Name (DOT)	: Compressed gas, n.o.s. (Oxygen, Nitrogen)
Hazard labels (DOT)	: 2.2 - Non-flammable gas



DOT Packaging Non Bulk (49 CFR 173.xxx)	: 302;305
DOT Packaging Bulk (49 CFR 173.xxx)	: 314;315
DOT Symbols	: G - Identifies PSN requiring a technical name
DOT Packaging Exceptions (49 CFR 173.xxx)	: 306;307

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

DOT Quantity Limitations Passenger aircraft/rail : 75 kg  
(49 CFR 173.27)  
DOT Quantity Limitations Cargo aircraft only (49 : 150 kg  
CFR 175.75)  
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Additional information

Other information : No supplementary information available.  
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.

### ADR

No additional information available

### Transport by sea

UN-No. (IMDG) : 1956  
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.  
Class (IMDG) : 2.2 - Non-flammable, non-toxic gases

### Air transport

UN-No.(IATA) : 1956  
Proper Shipping Name (IATA) : COMPRESSED GAS, 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

#### n-Hexane (110-54-3)

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

Listed on United States SARA Section 313

SARA Section 313 - Emission Reporting : 1.0 %

### 15.2. International regulations

#### CANADA

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

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class A - Compressed Gas  
Class C - Oxidizing Material

#### Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class A - Compressed Gas

#### n-Hexane (110-54-3)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class B Division 2 - Flammable Liquid  
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

### EU-Regulations

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

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

# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Nitrogen (7727-37-9)

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

### n-Hexane (110-54-3)

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)

#### n-Hexane (110-54-3)

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 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)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on the Canadian IDL (Ingredient Disclosure List)

### 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

#### n-Hexane (110-54-3)

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.

Revision date : 09/22/2014

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.



# Oxygen (19.5 - 23.5%,) n-Hexane (0.04 - 0.48%) in balance Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Full text of H-phrases:

Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Asp. Tox. 1	Aspiration hazard Category 1
Compressed gas	Gases under pressure Compressed gas
Flam. Liq. 2	Flammable liquids Category 2
Ox. Gas 1	Oxidizing gases Category 1
Repr. 2	Reproductive toxicity Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects

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 gas mixture. To the best of Calgaz'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 gas mixture 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.*