

# Nitrogen Dioxide (0.0001% - 0.28%), Sulfur Hexafluoride (0.0001% - 99.7199%) in Nitrogen

## Safety Data Sheet

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

Date of issue: 10/21/2014 Version: 1.0

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

### 1.1. Product identifier

Product form : Mixture  
Product name : Nitrogen Dioxide (0.0001% - 0.28%), Sulfur Hexafluoride (0.0001% - 99.7199%) in Nitrogen  
Product code : SG-2003-00578

### 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 America Specialty Gases  
6141 Easton Rd  
Plumsteadville, PA 18949 - USA  
T 1.800.217.2688  
[www.airliquide.com](http://www.airliquide.com)

### 1.4. Emergency telephone number

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

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification (GHS-US)

Compressed gas H280

### 2.2. Label elements

#### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS04

Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H280 - Contains gas under pressure; may explode if heated  
OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective clothing, protective gloves, eye protection, face protection  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P403 - Store in a well-ventilated place  
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-PG21 - Open valve slowly

### 2.3. Other hazards

No additional information available

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

No data available

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### 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	0.0001 - 99.9998	Compressed gas, H280
Sulphur hexafluoride	(CAS No)2551-62-4	0.0001 - 99.7199	Liquefied gas, H280
Nitrogen dioxide	(CAS No)10102-44-0	0.0001 - 0.28	Ox. Gas 1, H270 Liquefied gas, H280 Acute Tox. 1 (Inhalation:gas), H330 Skin Corr. 1B, H314 Eye Dam. 1, H318

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures after inhalation

: Remove 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, both acute and delayed

Symptoms/injuries

: Symptoms similar to those listed under inhalation.

Symptoms/injuries after inhalation

: May displace oxygen and cause rapid suffocation. If you feel unwell, seek medical advice.

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

: None known.

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

If breathing is difficult, give oxygen. Obtain medical attention if breathing difficulty persists.

### 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.

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### 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.

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.

Incompatible products : None known.

Incompatible materials : None known.

### 7.3. Specific end use(s)

Test gas/Calibration gas.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

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

##### Sulphur hexafluoride (2551-62-4)

USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	6000 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

##### Nitrogen dioxide (10102-44-0)

USA ACGIH	ACGIH TWA (ppm)	0.2 ppm
USA OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm

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### 8.2. Exposure controls

Appropriate engineering controls

: Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

Hand protection

: Wear working gloves when handling gas containers. 29CFR 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.

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

: Reddish brown

Odor

: Pungent

Odor threshold

: No data available

pH

: No data available

Relative evaporation rate (butyl acetate=1)

: No data available

Relative evaporation rate (ether=1)

: 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

Auto-ignition temperature

: No data available

Decomposition temperature

: No data available

Flammability (solid, gas)

: No data available

Vapor pressure

: No data available

Relative vapor density at 20 °C

: No data available

Relative density

: No data available

Relative gas density

: Lighter or similar to air.

Solubility

: Water: Solubility in water of component(s) of the mixture :

• : 20 mg/l • : 41 mg/l • :

Log Pow

: No data available

Log Kow

: No data available

Viscosity, kinematic

: No data available

Viscosity, dynamic

: No data available

Explosive properties

: No data available

Oxidizing properties

: None.

Explosive limits

: No data available

### 9.2. Other information

Additional information

: None.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

### 10.2. Chemical stability

Stable under normal conditions.

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### 10.3. Possibility of hazardous reactions

None known.

### 10.4. Conditions to avoid

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

### 10.5. Incompatible materials

None known.

### 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

<b>Nitrogen (7727-37-9)</b>	
LC50 inhalation rat (ppm)	410000 ppm/4h

<b>Sulphur hexafluoride (2551-62-4)</b>	
LC50 inhalation rat (ppm)	400000 ppm/4h
ATE US (gases)	400000.0000000 ppmV/4h

<b>Nitrogen dioxide (10102-44-0)</b>	
LC50 inhalation rat (ppm)	57.5 ppm/4h
ATE US (gases)	57.50000000 ppmV/4h

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
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: May displace oxygen and cause rapid suffocation. If you feel unwell, seek medical advice.
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	: None known.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

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

<b>Sulphur hexafluoride (2551-62-4)</b>	
Persistence and degradability	Not applicable for inorganic gases.

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### Nitrogen dioxide (10102-44-0)

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

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

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

#### Sulphur hexafluoride (2551-62-4)

Log Pow	1.68
Bioaccumulative potential	No data available.

#### Nitrogen dioxide (10102-44-0)

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

### 12.4. Mobility in soil

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

Ecology - soil	No ecological damage caused by this product.
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#### Sulphur hexafluoride (2551-62-4)

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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#### Nitrogen dioxide (10102-44-0)

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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### 12.5. Other adverse effects

Effect on ozone layer	: No additional information available
Effect on the global warming	: 18605.21

## 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 <a href="http://www.cganet.com">www.cganet.com</a> for more guidance on suitable disposal methods.
Additional information	: None.

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### SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1956 Compressed gas, n.o.s., 2.2
UN-No.(DOT)	: 1956
DOT NA no.	: UN1956
Proper Shipping Name (DOT)	: Compressed gas, n.o.s.
Department of Transportation (DOT) Hazard Classes	: 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT)	: 2.2 - Non-flammable gas



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

Transport document description	: UN 1956, 2.2, (E)
Class (ADR)	: 2 - Gases
Hazard identification number (Kemler No.)	: 20
Classification code (ADR)	: 1A
Hazard labels (ADR)	: 2.2 - Non-flammable compressed gas



Orange plates	:
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Tunnel restriction code (ADR)	: E
LQ	: 120ml
Excepted quantities (ADR)	: E1

### 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.

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Class (IATA) : 2

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Nitrogen dioxide (10102-44-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on the United States SARA Section 302

SARA Section 302 Threshold Planning Quantity (TPQ)	100
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#### 15.2. International regulations

##### CANADA

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

Listed on the Canadian DSL (Domestic Substances List)  
WHMIS Classification Class A - Compressed Gas

##### Sulphur hexafluoride (2551-62-4)

Listed on the Canadian DSL (Domestic Substances List)  
WHMIS Classification Class A - Compressed Gas

##### Nitrogen dioxide (10102-44-0)

Listed on the Canadian DSL (Domestic Substances List)  
WHMIS Classification Class A - Compressed Gas  
Class C - Oxidizing Material  
Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects  
Class E - Corrosive Material

#### EU-Regulations

##### Nitrogen dioxide (10102-44-0)

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]

#### 15.2.2. National regulations

##### Nitrogen dioxide (10102-44-0)

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)  
Listed on the Canadian IDL (Ingredient Disclosure List)

#### 15.3. US State regulations

##### 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

##### Sulphur hexafluoride (2551-62-4)

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 dioxide (10102-44-0)

U.S. - Massachusetts - Right To Know List

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### Nitrogen dioxide (10102-44-0)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard 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: see section 16:

Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Liquefied gas	Gases under pressure Liquefied gas
Ox. Gas 1	Oxidizing gases Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled

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.*