

Safety Data Sheet

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

Date of issue: 08/20/2014 Version: 1.0

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

1.1. Product identifier

Product form : Mixture

Product name : Carbon Dioxide (3.00% - 35.00%), Nitric Oxide (0.0001% - 0.20%), Sulfur Dioxide (0.0001% -

0.9999%) in Nitrogen

Product code : SG-2004-00649

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

1.4. Emergency telephone number

Emergency number : CHEMTREC: 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

CGA-HG03 - May increase respiration and heart rate

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 gloves, protective clothing, 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-PG18 - When returning cylinder, install leak tight valve outlet cap or plug

CGA-PG20 - Use only with equipment of compatible materials of construction and rated for

cylinder pressure

CGA-PG21 - Open valve slowly

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2.3. Other hazards

Other hazards not contributing to the : None.

classification

2.4. Unknown acute toxicity (GHS-US)

No data available

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	63.8001 - 96.9998	Compressed gas, H280
Carbon dioxide	(CAS No)124-38-9	3 - 35	Simple Asphy, H380 Liquefied gas, H280
Sulphur dioxide	(CAS No)7446-09-5	0.0001 - 0.9999	Liquefied gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318
Nitric oxide	(CAS No)10102-43-9	0.0001 - 0.2	Ox. Gas 1, H270 Compressed gas, H280 Acute Tox. 1 (Inhalation:gas), H330 STOT SE 2, H371

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. May increase respiration and heart rate. 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

No additional information available

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.

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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.

Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire

fighters.

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). 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 dioxide (7446-0	09-5)	
USA ACGIH	ACGIH STEL (ppm)	0.25 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	13 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	5 ppm

Nitric oxide (10102-43-9)		
USA ACGIH	ACGIH TWA (ppm)	25 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	30 mg/m³

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Nitric oxide (10102-43-9)		
USA OSHA	OSHA PEL (TWA) (ppm)	25 ppm
Carbon dioxide (124-38-9	9)	
USA ACGIH	ACGIH TWA (ppm)	5000 ppm
USA ACGIH	ACGIH STEL (ppm)	30000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	9000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	5000 ppm

Exposure controls

Odor threshold

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.

No data available

Environmental exposure controls Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for

specific methods for waste gas treatment.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state

Clear, colorless gas. **Appearance**

Color : Colorless Odor odorless

рΗ No data available Relative evaporation rate (butyl acetate=1) : No data available Melting point No data available Freezing point : No data available : No data available Boiling point No data available Flash point 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 Heavier than or similar to air

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

•: •: 20 mg/l •: 67 mg/l •: 2000 mg/l

Log Pow : No data available No data available Log Kow Viscosity, kinematic No data available Viscosity, dynamic : No data available

Explosive properties Not applicable - not flammable.

Oxidizing properties : None.

Explosive limits : No data available

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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.

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

Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	410000 ppm/4h
Sulphur dioxide (7446-09-5)	
LC50 inhalation rat (ppm)	1260 ppm/4h
ATE US (gases)	1260.00000000 ppmV/4h
Nitric oxide (10102-43-9)	
LC50 inhalation rat (mg/l)	1068 mg/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	57.5 ppm/4h
ATE US (gases)	57.50000000 ppmV/4h
ATE US (vapors)	1.06800000 mg/l/4h
ATE US (dust, mist)	1.06800000 mg/l/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
Sulphur dioxide (7446-09-5)	
IADC analin	O. Net alegatischia

IARC group 3 - Not classifiable

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. May increase respiration and heart rate. 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.

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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

Nitrogen (7727-37-9)		
Persistence and degradability	No ecological damage caused by this product.	
Sulphur dioxide (7446-09-5)		
Persistence and degradability	Not applicable for inorganic gases.	
Nitric oxide (10102-43-9)		
Persistence and degradability	Not applicable for inorganic gases.	
Carbon dioxide (124-38-9)		
Persistence and degradability	No ecological damage caused by this product.	

12.3. Bioaccumulative potential

Nitrogen (7727-37-9)

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Log Pow	Not applicable for inorganic gases.	
Bioaccumulative potential	No ecological damage caused by this product.	
Sulphur dioxide (7446-09-5)		
BCF fish 1	(no bioaccumulation expected)	
Log Pow	Not applicable for inorganic gases.	
Bioaccumulative potential	No data available.	
Nitric oxide (10102-43-9)		
Log Pow	Not applicable for inorganic gases.	
Bioaccumulative potential	No data available.	
Carbon dioxide (124-38-9)		
BCF fish 1	(no bioaccumulation)	
Log Pow	0.83	
Bioaccumulative potential	No ecological damage caused by this product.	

12.4. Mobility in soil

Nitrogen (7727-37-9)	
Ecology - soil	No ecological damage caused by this product.
Sulphur dioxide (7446-09-5)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Nitric oxide (10102-43-9)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Carbon dioxide (124-38-9)	
Ecology - soil	No ecological damage caused by this product.

12.5. Other adverse effects

Effect on ozone layer : No additional information available

Effect on the global warming : Contains greenhouse gas(es) not covered by 842/2006/EC.

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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.

Additional information : None

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

DOT Proper Shipping Name : 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 : 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.

ADR

Transport document description : UN 1956, 2.2, (E)
Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 20
Classification code (ADR) : 1A

Danger labels (ADR) : 2.2 - Non-flammable compressed gas



Orange plates :

20 1956

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

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Transport by sea

UN-No. (IMDG) : 1956

Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.

Class (IMDG) : 2 - 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

Sulphur dioxide (7446-09-5)	
Listed on the United States TSCA (Toxic Substar Listed on the United States SARA Section 302	ces Control Act) inventory
SARA Section 302 Threshold Planning Quantity (TPQ)	500

Nitral (40400 40 0)		
Nitric oxide (10102-43-9)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		
Listed on the United States SARA Section 302		
SARA Section 302 Threshold Planning	100	

15.2. International regulations

CANADA

Quantity (TPQ)

Nitrogen (7727-37-9)		
Listed on the Canadian DSL (Domestic Sustance	ss List)	
WHMIS Classification	S Classification Class A - Compressed Gas	
Sulphur dioxide (7446-09-5)		
Listed on the Canadian DSL (Domestic Sustance	s List)	
WHMIS Classification	Class A - Compressed Gas 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	
Nitric oxide (10102-43-9)		

Nitric oxide (10102-43-9)		
Listed on the Canadian DSL (Domestic Sustances 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 E - Corrosive Material	

Carbon dioxide (124-38-9)		
Listed on the Canadian DSL (Domestic Sustances List)		
WHMIS Classification	Class A - Compressed Gas	

EU-Regulations

Sulphur dioxide (7446-09-5)

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

Nitric oxide (10102-43-9)

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 or 1999/45/EC

15.2.2. National regulations

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Sulphur dioxide (7446-09-5)

Listed on the AICS (the 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)

Nitric oxide (10102-43-9)

Listed on the AICS (the 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

Sulphur dioxide (7446-09-5)				
U.S California - Proposition 65 - Carcinogens List	U.S California - Proposition 65 - Developmental Toxicity	U.S California - Proposition 65 - Reproductive Toxicity - Female	U.S California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
	Yes			

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 dioxide (7446-09-5)

- U.S. Massachusetts Right To Know List
- 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

Nitric oxide (10102-43-9)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) Environmental Hazard List
- U.S. Pennsylvania RTK (Right to Know) List

Carbon dioxide (124-38-9)

- 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.

Training advice : Receptacle under pressure.

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
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Compressed gas	Gases under pressure Compressed gas
Eve Dam. 1	Serious eve damage/eve irritation Category 1

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Liquefied gas	Gases under pressure Liquefied gas
Ox. Gas 1	Oxidizing gases Category 1
Simple Asphy	Simple Asphyxiant
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT SE 2	Specific target organ toxicity (single exposure) Category 2
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
H331	Toxic if inhaled
H371	May cause damage to organs
H380	May displace oxygen and cause rapid suffocation

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.

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