

Safety Data Sheet 50021

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Date of issue: 02/10/2015 Revision date: 12/12/2017 Supersedes: 02/10/2015

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Version: 1.1

SECTION 1: Identification	
1.1. Identification	
Product form	: Mixtures
Product name	: Sulfur Dioxide (0.00001% - 0.99%,) Oxygen (19.5 - 23.5%,) in balance Nitrogen
1.2. Recommended use and restriction	ons on use
Use of the substance/mixture	: Test gas/Calibration gas.
1.3. Supplier	
Calgaz, division of Airgas USA LLC 821 Chesapeake Drive Cambridge, 21613 - USA T 1-410-228-6400 - F 1-410-228-4251 info@Calgaz.com - www.Calgaz.com	
1.4. Emergency telephone number	
Emergency number	: CHEMTREC: 1-800-424-9300 Internationally: 1-703-527-3887
SECTION 2: Hazard(s) identification	
2.1. Classification of the substance of	r mixture
GHS-US classification	
Gases under pressure H280 Compressed gas	Contains gas under pressure; may explode if heated
Full text of H statements : see section 16	
2.2. GHS Label elements, including p	recautionary statements
GHS-US labeling	
Hazard pictograms (GHS-US) Signal word (GHS-US) Hazard statements (GHS-US) Precautionary statements (GHS-US)	 GHS04 Warning H280 - Contains gas under pressure; may explode if heated P202 - Do not handle until all safety precautions have been read and understood. P271 - Use only outdoors or in a well-ventilated area. P403 - Store in a well-ventilated place.
	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 which do not resu	It in classification
No additional information available	
2.4. Unknown acute toxicity (GHS US	
Not applicable	
	tion on ingredients
SECTION 3: Composition/Informa	tion on ingredients
Not applicable SECTION 3: Composition/Informa 3.1. Substances Not applicable	tion on ingredients

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Name	Product identifier	%	GHS-US classification
Nitrogen	(CAS-No.) 7727-37-9	75.51 - 80.49999	Press. Gas (Comp.), H280
Oxygen	(CAS-No.) 7782-44-7	19.5 - 23.5	Ox. Gas 1, H270 Press. Gas (Comp.), H280
Sulfur Dioxide	(CAS-No.) 7446-09-5	0.00001 - 0.99	Press. Gas (Liq.), H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318

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	: 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 effect	cts (acute and delayed)
Symptoms/effects after inhalation	: Adverse effects not expected from this product.
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	: None known. Adverse effects not expected from this product.
Most important symptoms and effects, both acute and delayed	: No effect on living tissue. Refer to section 11.
4.3. Immediate medical attention and sp	ecial treatment, if necessary
If you feel unwell, seek medical advice. If breath	ing is difficult, give oxygen.
SECTION 5: Fire-fighting measures	
5.1. Suitable (and unsuitable) extinguisl	hing media
Suitable extinguishing media	· Lise extinguishing media appropriate for surrounding fire

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: Do not use water jet to extinguish.
5.2. Specific hazards arising from the c	hemical
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.
Hazardous combustion products	: None known
5.3. Special protective equipment and p	recautions for fire-fighters
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 mea	SUIZAS

SECTION 6. Accidental release measures		
6.1. Personal precautions, protective equ	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	: Evacuate personnel to a safe area. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.	

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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 without risk.	
6.3. Methods and material for containment	it 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.
Methods and material for containment and cleaning up	: None.
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 only with 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.
Safe handling of the gas receptacle	: Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.
Safe use of the product	: The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularily) checked for leaks before use. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. 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	g any incompatibilities
Technical measures	: None known.
Storage conditions	: Do not expose to temperatures exceeding 52 °C/ 125 °F. Protect cylinders from physical damage; do not drag, roll, slide or drop. Keep container closed when not in use. Store in well ventilated area.
Incompatible products	: None known.
Incompatible materials	: Flammable materials.
Conditions for safe storage, including any incompatibilities	: Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials.
Storage area	: Store away from heat. Store in a well-ventilated place.

SECTION 8: Exposure controls/personal protection

meters		
-09-5)		
ACGIH STEL (ppm)	0.25 ppm	
OSHA PEL (TWA) (mg/m ³)	13 mg/m ³	
OSHA PEL (TWA) (ppm)	5 ppm	
US IDLH (ppm)	100 ppm	
NIOSH REL (TWA) (mg/m ³)	5 mg/m³	
	09-5) ACGIH STEL (ppm) OSHA PEL (TWA) (mg/m³) OSHA PEL (TWA) (ppm) US IDLH (ppm)	O9-5) ACGIH STEL (ppm) 0.25 ppm OSHA PEL (TWA) (mg/m³) 13 mg/m³ OSHA PEL (TWA) (ppm) 5 ppm US IDLH (ppm) 100 ppm

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Sulfur Dioxide (7446-	Sulfur Dioxide (7446-09-5)		
NIOSH	NIOSH REL (TWA) (ppm)	2 ppm	
NIOSH	NIOSH REL (STEL) (mg/m ³)	13 mg/m³	
NIOSH	NIOSH REL (STEL) (ppm)	5 ppm	
Oxygen (7782-44-7)			
Not applicable			
Nitrogen (7727-37-9)			
Not applicable			

8.2.	Appropriate engineering controls		
Appropr	iate 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.	
Environ	mental 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

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.

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 ar	nd chemical properties	
Physical state	: Gas	
Appearance	: Clear, colorless gas.	
Color	: Colorless	
Odor	: irritating/pungent odor Odorless	
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	: No data available	
Relative evaporation rate (butyl acetate=1)	: No data available	
Flammability (solid, gas)	: No data available	
Vapor pressure	: No data available	
Relative vapor density at 20 °C	: No data available	

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Relative density	: No data available
Relative gas density	: Lighter or similar to air
Solubility	: Water: No data available
Log Pow	: Not applicable for gas-mixtures. Not applicable for gas-mixtures.
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: Not applicable (non-flammable gas).
Oxidizing properties	: Supports combustion. Not combustible but enhances combustion of other substances.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity				
10.1.	Reactivity			
None kr	nown.			
10.2.	Chemical stability			
Stable u	Stable under normal conditions.			
10.3.	Possibility of hazardous reactions			
Can for	m 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 r	normal conditions of storage and use, hazardous decomposition products should not be produced.			
SECTION 11: Toxicological information				
11.1.	Information on toxicological effects			

Likely routes of exposure	: Inhalation
Acute toxicity	: Not classified

Sulfur Dioxide (7446-09-5)		
LC50 inhalation rat (ppm)	1260 ppm/4h	
ATE US (gases)	1260.000 ppmV/4h	
Oxygen (7782-44-7)		
LC50 inhalation rat (ppm)	800000 ppm/4h	
ATE US (gases)	800000.000 ppmV/4h	
Nitrogen (7727-37-9)		
LC50 inhalation rat (ppm)	820000 ppm/4h	
ATE US (gases)	820000.000 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	
Sulfur Dioxide (7446-09-5)		
IARC group	3 - Not classifiable	

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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/effects after inhalation	: Adverse effects not expected from this product.
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	: None known. Adverse effects not expected from this product.

SECTION 12: Ecological information 12.1. Toxicity

Ecology - general

: No ecological damage caused by this product.

Sulfur Dioxide (7446-09-5)	
LC50-96 h - fish [mg/l]	No data available
EC50 48h - Daphnia magna [mg/l]	89 mg/l
EC50 72h Algae [mg/l]	48.1 mg/l

I2.2. Persistence and degradability			
Sulfur Dioxide (0.00001% - 0.99%,) Oxygen (19.5 - 23.5%,) in balance Nitrogen			
Persistence and degradability	No data available.		
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			
Sulfur Dioxide (0.00001% - 0.99%,) Oxygen (1	9.5 - 23.5%,) in balance Nitrogen		
Log Pow	Not applicable for gas-mixtures.		
Log Kow	Not applicable for gas-mixtures.		
Bioaccumulative potential	No data available.		
Sulfur Dioxide (7446-09-5)			
BCF fish 1	(no bioaccumulation expected)		
Log Pow	Not applicable for inorganic gases.		
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.		
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I2.4. Mobility in soil Sulfur Dioxide (0.00001% - 0.99%,) Oxygen (19.5 - 23.5%,) in balance Nitrogen Mobility in soil No data available Oxygen (7782-44-7) Ecology - soil No ecological damage caused by this product.

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Nitrogen (7727-37-9)			
Ecology - soil	No ecological damage caused b	y this product.	
2.5. Other adverse effects			
Effect on ozone layer	: None		
Effect on global warming	: No known effects from this prod	ict	
GWPmix comment	: No known effects from this prod		
SECTION 13: Disposal consideration	S		
3.1. Disposal methods			
Naste treatment methods		equired. Do not discharge into any place where it is. Ensure that the emission levels from local reg ded.	
Product/Packaging disposal recommendations	: Refer to the CGA Pamphlet P-6 more guidance on suitable disp	3 "Disposal of Gases" available at www.cganet.c ssal methods.	om for
SECTION 14: Transport information			
Department of Transportation (DOT)			
n accordance with DOT			
ransport document description	: UN1956 Compressed gas, n.o.s	., 2.2	
JN-No.(DOT)	: UN1956		
Proper Shipping Name (DOT)	: Compressed gas, n.o.s.		
Class (DOT)		compressed gas 49 CFR 173.115	
lazard labels (DOT)	: 2.2 - Non-flammable gas		
OOT Deckoping Nep Pulk (40 CEP 172 yw/)	2 2 302;305		
DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx)	: 314;315		
OOT Symbols	: G - Identifies PSN requiring a te	chnical name	
OOT Packaging Exceptions (49 CFR 173.xxx)	: 306;307		
OOT Quantity Limitations Passenger aircraft/rail 49 CFR 173.27)	75 kg		
OOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 150 kg		
DOT Vessel Stowage Location	: A - The material may be stowed passenger vessel.	"on deck" or "under deck" on a cargo vessel an	d on a
Other information	: No supplementary information a		
Special transport precautions	compartment. Ensure vehicle di what to do in the event of an ac - Ensure there is adequate vent cylinder valve is closed and not	re the load space is not separated from the drive iver is aware of the potential hazards of the load cident or an emergency. Before transporting prod lation Ensure that containers are firmly secure leaking Ensure valve outlet cap nut or plug (wh protection device (where provided) is correctly fi	and knows luct containers: d Ensure here provided)
Transportation of Dangerous Goods			
ransport by sea			
Fransport document description (IMDG)	: UN 1956 Compressed gas, n.o.	s., 2.2	
JN-No. (IMDG)	: 1956		
Proper Shipping Name (IMDG)	: Compressed gas, n.o.s.		
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Class (IMDG)	: 2.2 - Non-flammable, non-toxic gases
Limited quantities (IMDG)	: 120 ml
Air transport	
Transport document description (IATA)	: UN 1956 Compressed gas, n.o.s., 2.2
UN-No. (IATA)	: 1956
Proper Shipping Name (IATA)	: Compressed gas, n.o.s.
Class (IATA)	: 2

15.1. US Federal regulations

Sulfur Dioxide (7446-09-5)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302		
Section 302 EPCRA Reportable Quantity (RQ)	500 lb	
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb	
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

 Sulfur Dioxide (7446-09-5)

 Listed on the Canadian DSL (Domestic Substances List)

 Oxygen (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Sulfur Dioxide (7446-09-5)

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

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)

National regulations

Sulfur Dioxide (7446-09-5)

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 Japanese ISHL (Industrial Safety and Health Law) 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) Listed on INSQ (Mexican National Inventory of Chemical Substances) Listed on the TCSI (Taiwan Chemical Substance Inventory)

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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 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 INSQ (Mexican National Inventory of Chemical Substances) Listed on the TCSI (Taiwan Chemical Substance Inventory)

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)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Sulfur 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 significant risk level (NSRL)
No	Yes	No	No	

Sulfur 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 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 Revision date : 12/12/2017 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: H270 H280 Contains gas under pressure; may explode if heated

1200	
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

SDS US (GHS HazCom 2012)

Sulfur Dioxide (0.00001% - 0.99%,) Oxygen (19.5 - 23.5%,) in balance Nitrogen Safety Data Sheet

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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, accruacy, 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.