



Issue date March 1, 2015

Reviewed date March 1, 2018

Safety Data Sheet

SDS ID# 4080

Section 1. IDENTIFICATION

1.1. Product identifier

Product form : Mixture

Product name : Benzene (0.0001%-0.01%) in Air (Oxygen 20.9% bal. Nitrogen)

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

Product use : Calibration gas/Bumptest gas/Function test gas

1.3. Details of the supplier of the safety data sheet

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687
Telephone 1-208-466-9425 or Toll free 1-800-552-5003
Fax 1-208-466-9144
www.isgases.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 : GASES UNDER PRESSURE - Compressed gas

2.2. Label elements

Hazard pictograms



Signal word : WARNING

Hazard statements : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
: CGA-HG24 - MAY SUPPORT COMBUSTION
: OSHA - PG01 - DO NOT REMOVE THIS PRODUCT LABEL

Precautionary statements

- [General] : Read and follow all Safety Data Sheets (SDS's) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have a product container or label at hand. Use equipment rated for cylinder pressure.
- [Prevention] : P202 - Do not handle until all safety precautions have been read and understood
 : P271+P403- Use only outdoors or in a well-ventilated area
 CGA-PG05 - Use a back flow preventive device in the piping.
 CGA-PG10 - Use only with equipment rated for cylinder pressure.
 CGA-PG12 - Do not open valve until connected to equipment prepared for use.
 CGA-PG06 - Close valve after each use and when empty.
- [Response] : P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
- [Storage] : CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
- [Disposal] : Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No data available

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	%
Nitrogen	(CAS No) 7727-37-9	76.49 - 80.49
Oxygen	(CAS No) 7782-44-7	19.5 - 23.5
Benzene	(CAS No) 71-43-2	0.0001 - 0.01

Section 4. FIRST AID MEASURES

4.1. Description of first aid measures

- General : IF exposed or concerned: Get medical advice/attention.
- Inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration or oxygen by trained personnel. If victim feels unwell, seek medical advice.
- Skin contact : Immediately flush with copious amount of water for at least 15 minutes.
- Eye contact : Immediately flush with copious amount of water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure, refer to the inhalation section.

4.2. Most important symptoms/effects, acute and delayed

Acute

- Inhalation : Adverse effects not expected from this product.
- Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.
- Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion	: Ingestion is not considered a potential route of exposure, refer to the inhalation section.
Frostbite	: Thaw frosted parts with lukewarm water. Do not rub affected areas. Get immediate medical advice/attention.
Symptoms/injuries upon intravenous administration	: Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Chronic symptoms	: Adverse effects not expected from this product.
Delayed	: Adverse effects not expected from this product.

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

If victim feels unwell, seek medical advice. If breathing is difficult, give artificial respiration or oxygen by trained personnel.

Section 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: None known

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.
Reactivity	: None known.

5.3. Advice for fire-fighters

Firefighting instructions	: In case of fire: Evacuate all personnel from the danger area. Stop the leak and flow of gas before extinguishing fire, if safe to do so. If this is not possible, withdraw from area and allow fire to burn. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Let the fire burn. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Exercise caution when fighting any chemical fire.
Protection during firefighting	: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus, SCBA) 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.
6.1.12. 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. See information above "For non-emergency personnel".

6.2. Methods and material for containment and cleaning up

For containment	: Immediately contact emergency personnel. Try to stop gas leak if safe to do so.
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Methods for cleaning up

:Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safety handling

: Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Protect cylinders from physical damage; do not drag, roll, slide, or drop.

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). Store locked up. Keep containers closed when not in use. Protect cylinder from physical damage. Store and use away from heat, sparks, open flame or any other ignition source. Store in well ventilated area.

Incompatible products

: None known.

Incompatible materials

: None known.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Nitrogen (7727-37-9)

OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
ppm	mg/m ³	(as of 4/26/13)	(as of 4/26/13)	8-hour TWA (ST) STEL (C) Ceiling
		8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	
<i>Not established</i>	<i>Not established</i>	<i>Not established</i>	<i>Not established</i>	Simple asphyxiant

Oxygen (7782-44-7)

OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
ppm	mg/m ³	(as of 4/26/13)	(as of 4/26/13)	8-hour TWA (ST) STEL (C) Ceiling
		8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	

There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.

Benzene (71-43-2)

OSHA PELs				Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
8-hour Time Weighted Average (TWA)	Acceptable Ceiling Concentration	Acceptable maximum peak		(as of 4/26/13)	(as of 4/26/13)	8-hour TWA (ST) STEL (C) Ceiling
		Concentration	Maximum Duration	8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	

10 ppm	25 ppm	50 ppm	10 min	1 ppm	Ca 0.1 ppm	0.5 ppm
				(ST) 5 ppm	(ST) 1 ppm	(ST) 2.5 ppm

8.2. Appropriate engineering controls

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

8.3. Individual protection measures

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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
 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. Exposure controls

Appearance : Clear, colorless gas.
 Physical state : Gas
 Color : Colorless
 Odor : No data available
 Odor threshold : No data available
 pH : No data available
 Freezing point : No data available
 Flash point : No data available
 Evaporation rate : No data available
 Flammability (solid, gas) : Not Flammable - not combustible
 Upper flammability : Not Flammable - not combustible
 Lower flammability : Not Flammable - not combustible
 Relative density : No data available
 Solubility : No data available
 Partition coefficient : No data available
 Auto-ignition temperature : No data available
 Decomposition temperature : No data available
 Viscosity : Not applicable

Molecular weight (grams)

Boiling point

Vapor pressure

	Benzene	Oxygen	Nitrogen		
Molecular weight (grams)	78.11	32.00	28.013		
Boiling point	80.1 °C	-182.9 °C	-196 °C		
Vapor pressure	12.7 KPa @ 25°C	Above critical temperature	Above critical temperature		

Vapor density at 20°C	0.6	1.11	0.97		
Relative gas density	0.8765 g/m ³ @ 20 °C	1.331	1.153		
Critical Temperature	289.0°C	-118.6 °C	-146.9 °C		

Section 10. STABILITY AND REACTIVITY

10.1. Reactivity

No reactivity hazard other than the effects described below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

10.4. Conditions to avoid

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

10.5. Incompatible materials

None known

10.6. Hazardous decomposition products

None known

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Nitrogen (7727-37-9)

LC50 inhalation rat (ppm) 410,000 ppm/4 hours

Oxygen (7782-44-7)

LC50 inhalation rat (ppm) 400,000 ppm/4 hours

Benzene (71-43-2)

LC50 inhalation rat (mg/l) 44.66 mg/l /4 hour

11.1. Information on routes of exposure

Inhalation : Adverse effects not expected from this product
 Skin contact : Adverse effects not expected from this product
 Eye contact : Adverse effects not expected from this product
 Ingestion : Ingestion is not considered a potential route of exposure

11.2. Symptoms related to physical, chemical and toxicological characteristics

Symptoms : No information available

11.3. Delayed and immediate effects

Skin corrosion/irritation : Contact with rapidly expanding gas may cause burns or frostbite.
 Serious eye damage/irritation : Contact with rapidly expanding gas may cause burns or frostbite.
 Respiratory or skin sensitization : Not classified
 Germ cell mutagenicity : Not classified
 Carcinogenicity : Not classified

Reproductive toxicity : Not classified
 Developmental Toxicity : Not classified
 Specific target organ toxicity (single exposure) : Not classified
 Specific target organ toxicity (repeated exposure) : Not classified
 Aspiration hazard : Not classified
 Not applicable for gases and gas-mixtures

11.4. Carcinogenic effects

The components of this material are not found on the following lists: FEDERAL OSHA Z LIST, NTP AND IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Section 12. ECOLOGICAL INFORMATION

12.1. Aquatic Toxicity

LC50 Fish 1 10.7 - 14.7 mg/l (Exposure time: 96 hours - Species: Pimephales promelas) LC50 96 h Oncorhynchus mykiss 5.3 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 22.49 mg/L [static]; LC50 96 h Poecilia reticulata 28.6 mg/L [static]; LC50 96 h Pimephales promelas 22330 - 41160 µg/L [static]; LC50 96 h Lepomis macrochirus 70000 - 142000 µg/L [static]
 Algae: EC50 72 h Pseudokirchneriella subcapitata 29 mg/L EPA
 Invertebrate: EC50 48 h Daphnia magna 8.76 - 15.6 mg/L [Static] EPA ; EC50 48 h Daphnia magna 10 mg/L IUCLID

12.2. Persistence and degradability

No information available for the product

12.3. Bioaccumulative potential

Benzene (71-43-2)

Partition coefficient 2.1

12.4. Mobility in soil

No information available for the product

12.5. Other





No information available for the product





Section 13. DISPOSAL CONSIDERATIONS

13.1. Disposal methods

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14. TRANSPORTATION INFORMATION

	US DOT	TDG	IMDG	IATA
UN #	UN 1956	UN 1956	UN 1956	UN 1956
Proper shipping name	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)
	2.2 	2.2 	2.2 	2.2 

Transport hazard class(es)				
Packing group	-	-	-	-
Environment	No.	No.	No.	No.

Section 15. REGULATORY INFORMATION

15.1. US Federal regulations

SARA 311/312 hazard categories

Acute Health	: No
Chronic Health	: No
Fire	: No
Pressure	: Yes
Reactive	: No

SARA Title III Notifications and Information: None known

California Proposition 65

Benzene (71-43-2)	Carcinogen
	Developmental
	Male Reproductive
SARA 311/312	Gas under pressure

15.2. US State regulations

Nitrogen (007727-37-9)

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

Oxygen (007782-44-7)

- 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

Benzene (71-43-2)

- 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
- U.S. - California - Hazardous Substance List
- U.S. - Maine - Hazardous Substance List

Section 16. OTHER INFORMATION

Date of issue/Date of revision : New SDS 3/1/2015
Revision Note : Revised 3/01/2017

Hazardous Material Information System (USA)

Hazard Scale : 0 = Minimal/ 1 = Slight/ 2 = Moderate/ 3 = Serious/ 4 = Severe

Health : 0

Fire : 0

Key/Legend

SARA	Superfund Amendments and Reauthorization Act
OSHA	Occupational Safety and Health Administration
DOT	Department of Transportation
TSCA	Toxic Substance Control Act
NTP	National Toxicology Program
ACGIH	American Conference of Governmental Industrial Hygienists
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TDG	Transportation of Dangerous Goods
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
TWA	Time Weighted Average
Prop	Proposition
ATE	Acute Toxicity Estimate

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change per gas

Low Oxygen only

Low Oxygen only



Flammable only





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change per gas



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