SAFETY DATA SHEET
Butene

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Code: 00007
Product Name: Butene

Company Name: Gas Innovations
18005 E. Hwy 225
La Porte, TX 77571

Phone Number:
+1 (281)471-2200

Web site address: www.gasinnovations.com

Emergency Contact: 3E (within United States) +1 (866)303-2640

Information: Infotrac (outside of United States) +1 (352)323-3500

Synonyms: Butylene, Cis-2-Butene, Trans-2-Butene.

2. HAZARDS IDENTIFICATION

Flammable Gases, Category 1
Gas Under Pressure, Compressed gas

Danger

GHS Signal Word: H220 - Extremely flammable gas.

GHS Hazard Phrases: H280 - Contains gas under pressure; may explode if heated.

GHS Precautionary Phrases: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

GHS Response Phrases: P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.

GHS Storage and Disposal Phrases: P410+403 - Protect from sunlight and store in well-ventilated place.

Potential Health Effects (Acute and Chronic): 1-Butene is a simple asphyxiant. Inhalation of high concentration may cause rapid respiration, dizziness, fatigue, and nausea. Massive exposure may cause unconsciousness and death. Contact with the liquid phase or with the cold gas escaping from cylinder may cause frostbite.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation. This material can act as a simple asphyxiant by displacement of air.

Skin Contact: May be harmful if absorbed through the skin. May cause skin irritation. May cause frostbite.

Eye Contact: May cause eye irritation.

Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration
106-98-9	Butene	100.0 %

4. FIRST AID MEASURES

Emergency and First Aid Procedures: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

In Case of Inhalation: If breathed in, move person into fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

In Case of Skin Contact: Wash with soap and large quantities of water. Get medical attention immediately.

In Case of Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Not expected to be a primary route of exposure.

5. FIRE FIGHTING MEASURES

Flash Pt: NA Method Used: Not Applicable

Explosive Limits: LEL: 1.6 %(V) UEL: 9.3 %(V)

Autoignition Pt: 384 C (723 F)

Suitable Extinguishing Media: The only safe way to extinguish a 1-Butene fire is to stop the flow of gas. If the flow cannot be stopped, let the fire burn out while cooling the cylinder and the surrounding areas using a water spray.

Fire Fighting Instructions: Personnel may have to wear approach-type protective suits and positive pressure self-contained breathing apparatus. Firefighters' turnout gear may be inadequate. Cylinders exposed to fire may rupture with violent force. Extinguish surrounding fire and keep cylinders cool by applying water from a maximum possible distance with a water spray. Flammable gases may spread from a spill after the fire is extinguished and be subject to re-ignition.

Flammable Properties and Hazards: High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide.

Hazardous Combustion Products: High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES: Steps to be Taken

Protective Precautions, Protective Equipment and Emergency Procedures: Use proper personal protective equipment as indicated in Section 8.

Steps To Be Taken In Case Material Is Released Or Spilled: Shut off all sources of ignition. Ventilate the area. For controlling larger flows, personnel may have to wear approach-type protective suits and self-contained breathing apparatus.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Avoid inhalation of vapor or mist. Keep away from heat, sparks and flame. Keep away from sources of ignition - No smoking. Use spark-proof tools and explosion proof equipment. Use in a closed system. Secure the cylinder to prevent it from falling or being knocked over. Install check valves or traps to prevent suckback to the cylinder. Ground all lines and equipment. Leak check the lines and equipment. Have an emergency plan covering steps to be taken in the event of an accidental release.

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances,

use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents.

Precautions To Be Taken in Storing: Cylinders should be stored and used in dry, well-ventilated areas away from sources of heat or ignition. Store away from oxidizers.

Other Precautions: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
106-98-9	Butene	No data.	No data.	No data.

Respiratory Equipment (Specify Type): Positive pressure self-contained breathing apparatus (SCBA) should be worn if it is suspected that 1-butene is in the air. Gas displaces the air and causes a deficiency of oxygen and the possibility of asphyxiation.

Eye Protection: Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder change out or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Protective Gloves: Wear appropriate protective gloves to prevent skin exposure.

Other Protective Clothing: Not required under normal use conditions.

Engineering Controls (Ventilation etc.): Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Work/Hygienic/Maintenance Practices: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States: [X] Gas [ ] Liquid [ ] Solid

Appearance and Odor: Appearance: colorless.

Specific Volume: 0.418 m3/kg, 6.7ft3/lb @ 1 atm, 21.1C.

pH: NA

Freezing Point: -185 C (-302 F)

Boiling Point: -6.50 C (20.3 F)

Flash Pt: NA Method Used: Not Applicable

Evaporation Rate: NA

Flammability (solid, gas): No data available.

Explosive Limits: LEL: 1.6 %(V) UEL: 9.3 %(V)

Vapor Pressure (vs. Air or mm Hg): 23.5 PSI at 21.1 C (70.0 F)

Vapor Density (vs. Air = 1): NA

Specific Gravity (Water = 1):	NA
Density:	2.0 - @ 1 atm at 20.0 C (68.0 F)
Bulk density:	NA
Solubility in Water:	Negligible
Saturated Vapor Concentration:	NA
Octanol/Water Partition Coefficient:	NA
Percent Volatile:	NA
VOC / Volume:	NA
HAP / Volume:	NA
Autoignition Pt:	384 C (723 F)
Decomposition Temperature:	NA
Viscosity:	NA
Particle Size:	NA
Heat Value:	NA
Corrosion Rate:	NA
Molecular Formula & Weight:	C4H8 56.108

10. STABILITY AND REACTIVITY

Reactivity:	High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide.
Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Heat, flames and sparks. No smoking.
Incompatibility - Materials To Avoid:	Oxidizing materials.
Hazardous Decomposition or Byproducts:	High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide.
Possibility of Hazardous Reactions:	Will occur [X] Will not occur [ ]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
106-98-9	Butene	n.a.	n.a.	n.a.	n.a.

12. ECOLOGICAL INFORMATION

General Ecological Information: Environmental: No information available.
Physical: No information available.

Results of PBT and vPvB assessment: No data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Do not attempt to dispose of residual or unused quantities. Return container to supplier. Dispose of contents and containers in accordance with local, regional, national, and international regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Butylene.
DOT Hazard Class: 2.1 FLAMMABLE GAS
UN/NA Number: UN1012

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
106-98-9	Butene	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
106-98-9	Butene	TSCA: Yes - Inventory; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: Yes; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes - 3600; NY Part 597: No; PA HSL: Yes - 1; SC TAP: No; WI Air: No

CAS #	Hazardous Components (Chemical Name)	International Regulatory Lists
106-98-9	Butene	Canadian DSL: Yes; Canadian NDSL: No; Mexico INSQ: Yes; Australia ICS: Yes; New Zealand IOC: Yes; China IECSC: Yes; Japan ENCS: Yes - 9-1697; Korea ECL: Yes - KE-03887; Philippines ICCS: Yes; REACH: Yes - 01-2119456615-34: Full, (P)

16. OTHER INFORMATION

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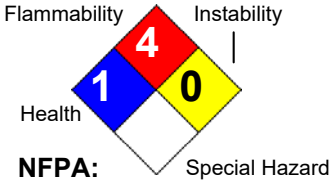
Preparer Name: Crystal Maira

Hazard Rating System:



Additional Information: 03/27/2020 - Updated DOT information.

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