

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code: 00009
Product Name: Butadiene
Company Name: Gas Innovations
 18005 E. Hwy 225
 La Porte, TX 77571
Phone Number: +1 (281)471-2200
Web site address: www.gasinnovations.com
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Information: Infotrac (outside of United States) +1 (352)323-3500

2. HAZARDS IDENTIFICATION

Flammable Gases, Category 1
 Gas Under Pressure, Compressed gas
 Germ Cell Mutagenicity, Category 1B
 Carcinogenicity, Category 1A



GHS Signal Word: Danger

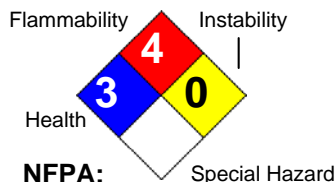
GHS Hazard Phrases: H220 - Extremely flammable gas.
 H280 - Containers gas under pressure; may explode if heated.
 H340 - May cause genetic defects .
 H350 - May cause cancer .

GHS Precaution Phrases: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P281 - Use personal protective equipment as required.

GHS Response Phrases: P308+313 - IF exposed or concerned: Get medical attention/advice.
 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: P403 - Store in well-ventilated place. P410+403 - Protect from sunlight and store in well-ventilated place. P501 - Dispose of contents/containers in accordance with local/regional/national/international regulations.

Hazard Rating System:



Potential Health Effects (Acute and Chronic): Exposure to rapidly expanding gas or vaporizing liquids may cause irritation of the eyes, nose and throat, drowsiness, and lightheadedness. It has anesthetic action and exposure to very high concentrations may cause unconsciousness and death. If spilled on the skin it may cause frostbite and irritation. Possible carcinogen, leukemia, lymph sarcoma, and reproductive hazard.

Inhalation: May cause irritation of the nose and throat. May cause drowsiness and lightheadedness. Exposure to high concentrations may cause unconsciousness and death. This material can act as a simple asphyxiant by displacement of air.

Skin Contact: 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 |
|----------|--------------------------------------|---------------|
| 106-99-0 | 1,3-Butadiene | 100 % |

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. If breathing is difficult, give oxygen. Consult a physician. |
| In Case of Skin Contact: | Wash skin with soap and water. Get immediate medical advice/attention. |
| 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: | < 0 F (-17.8 C) Method Used: ASTM D Closed Cup |
| Explosive Limits: | LEL: 2.0 %(V) UEL: 12 %(V) |
| Autoignition Pt: | 435 C (815 F) |
| Suitable Extinguishing Media: | The only safe way to extinguish an 1,3-Butadiene 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. Small secondary fires may be brought under control by using carbon dioxide or a dry chemical fire extinguisher and stopping the flow. Cover liquid spills with foam. If a leak or spill has not ignited, use water spray to disperse the vapors. Do not extinguish flames at leak because possibility of uncontrolled explosive reignition exists. |
| 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. Unstable, material will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks of pressure or temperature. Static discharge, material can accumulate static charges which can cause an incendiary electrical discharge. Auto-refrigeration, drains can become plugged and valves may become inoperable because of the formation of ice due to expanding vapors or vaporizing liquids. Cylinders exposed to fire may rupture with violent force. Extinguishing 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. Butadiene may form explosive peroxides on exposure to air in storage. See section 10, Reactivity Data. |
| Flammable Properties and Hazards: | Material is unstable. Explosive peroxides. |

6. ACCIDENTAL RELEASE MEASURES

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. If in public areas, keep public away and advise authorities. Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear. For a water spill, allow to evaporate from surface. Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

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 all lines and equipment. Use proper bonding and/or grounding procedures. Do not pressurize, cut, heat, or weld containers. 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. Do not store in direct sunlight.

Storage Temperature: Ambient.

Other Precautions:

Loading/Unloading Temperature: Ambient. Loading/Unloading Viscosity: 0.4 cst.
Storage/Transport Pressure: 1 atmosphere or above.

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 |
|----------|-----------------------|---------------------------|------------|--------------|
| 106-99-0 | 1,3-Butadiene | PEL: 1 ppm STEL: 5 ppm | TLV: 2 ppm | No data. |

Respiratory Equipment (Specify Type): If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

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. Insulated gloves.

Other Protective Clothing: Wear appropriate protective clothing to prevent skin exposure. Long sleeved shirt.

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: Gas Liquid Solid

Appearance and Odor: Appearance: colorless.
Odor: Mildly aromatic.

Vapor Pressure: 25 PSIA @ 50F, 8.4 PSIA @ 0F.

Specific Volume: 6.9 ft³/lb @ 1 atm, 70F.

Specific Gravity of Vapor: 1.88 @ 1 atm, 15.5C.

Freezing Point: -109 C (-164 F)

Boiling Point: -3.90 C (25.0 F)

Decomposition Temperature: NA

Autoignition Pt: 435 C (815 F)

Flash Pt: < 0 F (-17.8 C) Method Used: ASTM D Closed Cup

Explosive Limits: LEL: 2.0 %(V) UEL: 12 %(V)

Specific Gravity (Water = 1): 0.63 at 60.0 F (15.6 C)

Density: 1.9153 - @ 1 atm at 60.0 F (15.6 C)

Bulk density: NA

Vapor Pressure (vs. Air or mm Hg): 25 PSIA at 50.0 F (10.0 C)

Vapor Density (vs. Air = 1): NA

Evaporation Rate: NA

Solubility in Water: 0.07% at 100 F (37.8 C)

Saturated Vapor Concentration: NA

Viscosity: 0.4 cSt at 0 F (-17.8 C)

pH: NA

Percent Volatile: NA

VOC / Volume: NA

Particle Size: NA
Heat Value: NA
Corrosion Rate: NA
Molecular Formula & Weight: C4H6 54.092

10. STABILITY AND REACTIVITY

Reactivity: Material is unstable. Explosive peroxides.
Stability: Unstable [X] Stable []
Conditions To Avoid - Instability: Heat, flames and sparks. No smoking. Direct sunlight.
Incompatibility - Materials To Avoid: Air, Oxidizing agents, acetylide forming metals, ethers, caustics, amines, alkanolamines, Halogenated compounds, Alcohols, Glycols, Moisture, phenols, alkylene oxides, ammonia, Halogens, Acid anhydrides.
Hazardous Decomposition Or Byproducts: Material is unstable. Explosive peroxides.
Possibility of Hazardous Reactions: Will occur [X] Will not occur []
Conditions To Avoid - Hazardous Reactions: Must be stable to prevent polymerization; avoid exposure to air to prevent unstable polymer or explosive peroxide formation.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: Possible carcinogen, leukemia, lymph sarcoma, and reproductive hazard.

Other Studies: CAS# 106-99-0:
Acute toxicity, TCLo, Inhalation, Species: Human, 2000ppm, 7H.
Carcinogenicity/Other Information: CAS# 106-99-0: ACGIH: A2 - Suspected Human Carcinogen. California: carcinogen, initial date 4/1/88. NTP: Known carcinogen.
Carcinogenicity: NTP? Yes IARC Monographs? Yes OSHA Regulated? Yes

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/containers in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Butadienes, stabilized.
 DOT Hazard Class: 2.1 FLAMMABLE GAS
 UN/NA Number: UN1010



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) |
|----------|--------------------------------------|--------------|-----------|--------------|
| 106-99-0 | 1,3-Butadiene | No | Yes 10 LB | Yes |

| CAS # | Hazardous Components (Chemical Name) |
|----------|--------------------------------------|
| 106-99-0 | 1,3-Butadiene |

Other US EPA or State Lists

TSCA: Yes - Inventory; CA PROP.65: Yes; CA TAC, Title 8: TAC, Title 8; MA Oil/HazMat: Yes; MI CMR, Part 5: Part 5; NC TAP: Yes; NJ EHS: Yes - 0272; NY Part 597: Yes; PA HSL: Yes - B; SC TAP: Yes; WI Air: Yes

| CAS # | Hazardous Components (Chemical Name) |
|----------|--------------------------------------|
| 106-99-0 | 1,3-Butadiene |

International Regulatory Lists

Canadian DSL: Yes; Canadian NDSL: No; Mexico INSQ: Yes; Australia ICS: Yes; New Zealand IOC: Yes; China IECSC: Yes; Japan ENCS: Yes - (2)-17; Korea ECL: Yes - KE-03719; Philippines ICCS: Yes; REACH: Yes - (R), (P), C1, M2

16. OTHER INFORMATION

Revision Date: 03/25/2015

Additional Information About No data available.

This Product:

Company Policy or
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