

1,3-Butadiene

PurityPlus Gases
6331 East 20th Street
P.O. Box 19907
Indianapolis, IN 46219-0907
317.562.1483 (tel)
317.562.1484 (fax)

Section 1: Product and Company Identification

PurityPlus Gases

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Product Code: 1,3-Butadiene

Section 2: Hazards Identification



Danger

Hazard Classification:

Carcinogenicity (Category 1.A)
Flammable (Category 1)
Gases Under Pressure
Germ Cell Mutagenicity (Category 1.B)

Hazard Statements:

Contains gas under pressure; may explode if heated
Extremely flammable gas
May cause cancer
May cause genetic defects

Precautionary Statements

Prevention:

Obtain special instructions before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wear protective gloves, protective clothing, eye protection and face protection.
Do not handle until all safety precautions have been read and understood.

Response:

Eliminate all ignition sources if safe to do so.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
If exposed or concerned: Get medical advice/attention.

Storage:

Protect from sunlight.

Store in well-ventilated place.
Store locked up.

Disposal:
Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

CAS #
106-99-0

Chemical Substance	Chemical Family	Trade Names
1,3-BUTADIENE	Hydrocarbons, Aliphatic, Unsaturated	BUTADIENE, INHIBITED; BIVINYL; BIETHYLENE; PYRROLYLENE; VINYLETHYLENE; DIVINYL; BUTA-1,3-DIENE; ALPHA,GAMMA-BUTADIENE; ERYTHRENE; METHYLALLENE; BUTADIENE; UN 1010; C4H6

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
If it is safe to do so, remove victim to an uncontaminated area, and place them in a comfortable position to wait for medical attention. Immediately remove contaminated clothes and shoes. Cleanse the affected skin areas thoroughly with soap under running water for 15 minutes. Seek medical treatment. For exposure to liquid, immediately warm frostbite area with warm water less than 105F (41C).	Rinse the affected eye thoroughly for 10 minutes under running water. Seek immediate medical treatment. For exposure to liquid, immediately warm frostbite area with warm water less than 105F (41C).	Get immediate medical attention.	If it is safe to do so, remove victim to fresh air, and place them in a comfortable position to wait for medical attention. Administer oxygen or artificial respiration if breathing is difficult. Seek immediate medical treatment.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Toxic carbon monoxide may be given off during combustion.	<ul style="list-style-type: none">Use self-contained breathing apparatus.

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.

Methods for Cleanup	Other Information
Stop leak, evacuate and ventilate the area.	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

Section 7: Handling and Storage

Handling	Storage
Keep container tightly closed in a locked area. Protect from sunlight. Protect from ignition sources. Secure cylinders upright to keep them from falling or being knocked over. Store only where temperature will not exceed 125F (52C).	Always handle in a well ventilated area. Use only in closed systems. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. Avoid contact with skin and eyes. Keep away from heat and ignition sources.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
BUTADIENE, INHIBITED: 1,3-BUTADIENE: 1 ppm OSHA TWA 5 ppm OSHA STEL 15 minute(s) 0.5 ppm OSHA action level 2 ppm ACGIH TWA NIOSH TWA (lowest feasible concentration)

Engineering Controls

Handle only in fully enclosed systems.

Eye Protection	Skin Protection	Respiratory Protection
For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and shower in work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate chemical resistant clothing.	Use self-contained breathing apparatus.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas	Colorless	Colorless	N/A	Gas	Distinct odor	N/A

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
-105 F (-76 C)			788 F (420 C)	0.115	0.02

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
23 F (-5 C)	-164 F (-109 C)	910 mmHg @ 20 C	1.87 (Air=1)	0.6211 @ 20 C	0.05% @ 20 C	Not applicable	1.6 ppm	>25 (butyl acetate=1)	0.00075 mPa.s (0.00075 centipoise) @ 20 C and 101.33 kPa; 0.33 mPa.s (0.33 centipoise) @ -40 C; 0.25 mPa.s (0.25 centipoise) @ 0 C

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
54.09	C-H2:C-H-C-H:C-H2	Not available	Not available	100%	Not applicable	Soluble: Organic solvents, ether, acetone, benzene, ethanol, cyclohexane, methanol, carbon tetrachloride, chloroform

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials
May explode if exposed to shock, friction or heating. Stable when inhibited. Explosive, shock- and heat-sensitive polymeric peroxides may be produced in the presence of air. The polyperoxide formed is insoluble in 1,3-butadiene and forms a separate layer, thus increasing the hazard.	May explode if exposed to shock, friction or heating. Stable when inhibited. Explosive, shock- and heat-sensitive polymeric peroxides may be produced in the presence of air. The polyperoxide formed is insoluble in 1,3-butadiene and forms a separate layer, thus increasing the hazard.	Metal carbide, metal salts, combustible materials, metals, oxidizing materials, halogens, metal oxides, copper, aluminum tetrahydroborate, vinylacetylene, crotonaldehyde, boron trifluoride and phenol
Hazardous Decomposition Products	Possibility of Hazardous Reactions	
Oxides of carbon	May polymerize. Avoid contact with heat, air, light, initiators or curing agents. May polymerize with evolution of heat. Closed containers may rupture violently.	

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
5480 mg/kg oral-rat LD50	Not established	Irritation, nausea, headache, drowsiness, dizziness, loss of coordination

Eye Irritation	Skin Irritation	Sensitization
Irritation, blurred vision at very high concentration	Liquid: blisters, frostbite	Germ cell mutagenicity, Category 1B; H340: May cause genetic defects. Carcinogenicity, Category 1A; H350: May cause cancer.

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
OSHA: Carcinogen; NTP: Known Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 2A; ACGIH: A2 -Suspected Human Carcinogen; EC: Category 2	Available.	Available.	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: 24 Hr LC50 Lagodon rhomboides: 71.5 mg/L Invertebrate toxicity: 96 Hr EC50 Daphnia magna: 24.8 mg/L Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001, D003.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Butadienes, stabilized	UN1010	2.1	Not available	2.1	Forbidden	150 kg	N/A

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
BUTADIENES, STABILIZED OR BUTADIENES AND HYDROCARBON MIXTURE, stabilized containing more than 40 percent butadienes	UN1010	2.1	N/A

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
1,3-Butadiene: 10 LBS RQ	Not regulated.	Not regulated.

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
Yes	Yes	Yes	Yes	Yes

SARA 372.65

1,3-Butadiene

OSHA Process Safety

Not regulated.

State Regulations

CA Proposition 65
Known to the state of California to cause the following: 1,3-Butadiene Cancer (Apr 01, 1988) Developmental toxicity (Apr 16, 2004) Male reproductive toxicity (Apr 16, 2004) Female reproductive toxicity (Apr 16, 2004)

Canadian Regulations

WHMIS Classification
A, B1, D2A, F

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDL)
Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

NFPA Rating
HEALTH=1 FIRE=4 REACTIVITY=2

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard