

Material Safety Data Sheet

Printing date 03/29/2007

Version 1

Reviewed on 03/29/2007

1 Identification of substance

· **Product details**

· **Trade name:** 1,3-Butadiene

· **Article number:** 059-01-0010BOC

· **Creation date:** 08/30/2006

· **Manufacturer/Supplier:**

BOC Canada Limited
5860 Chedworth Way
Mississauga, Ontario L5R 0A2
www.bocgases.ca

TELEPHONE NUMBER: (905) 501-1700

24-HOUR EMERGENCY TELEPHONE NUMBER: (905) 501-0802

EMERGENCY RESPONSE PLAN NO: 2-0101

Please ensure that this MSDS is received by the appropriate person

· **Information department:** Customer Service Centre: 1-866-385-5349

2 Composition/Data on components

· **Chemical characterization:**

· **CAS No. Description**

106-99-0 1,3-Butadiene

· **Identification number(s)**

· **EINECS Number:** 203-450-8

· **EU Number:** 601-013-00-X

3 Hazards identification

· **Hazard description:**



Carc. Cat. 1, Muta. Cat. 2

Toxic

Extremely flammable

· **WHMIS-symbols:**

A - Compressed gas

B1 - Flammable gas

D1B - Toxic material causing immediate and serious toxic effects



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· HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	4	Fire = 4
REACTIVITY	0	Reactivity = 0

· NFPA ratings (scale 0 - 4)

3	4	0	Health = 3
			Fire = 4
			Reactivity = 0

· Information pertaining to particular dangers for man and environment:

- May cause cancer.
- May cause heritable genetic damage.
- Extremely flammable.

· Classification system:

The classification is in line with internationally approved calculation standards. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- After inhalation:** Supply fresh air; consult doctor in case of complaints.
- After skin contact:** Generally the product does not irritate the skin.
- After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:** Not applicable

5 Fire fighting measures

- Suitable extinguishing agents:** CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- Person-related safety precautions:**
 - Wear protective equipment. Keep unprotected persons away.
 - Ensure adequate ventilation.
 - Stop leak - ONLY if possible to do so without risk.
- Measures for environmental protection:**
 - Prevent seepage into sewage system, workpits and/or cellars.
 - In case of gas release or seepage into the ground inform responsible authorities.
- Measures for cleaning/collecting:**
 - Dispose contaminated material as waste according to item 13.
 - Ensure adequate ventilation.

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7 Handling and storage

- **Handling:** Do not mix with air or oxygen above atmospheric pressure.
- **Information for safe handling:**
 - Open and handle cylinder with care.
 - Handle with care. Avoid jolting, friction, and impact.
 - Use only in well ventilated areas.
 - Store cylinders upright with valve protection cap in place and firmly secured to prevent falling or being knocked over.
 - If difficulty with operating cylinder valve is experienced discontinue use and contact supplier.
- **Information about protection against explosions and fires:**
 - Keep ignition sources away - Do not smoke.
 - Protect against electrostatic charges.
 - Keep respiratory protective device available.
 - Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
 - Store in a cool location.
 - Do not expose cylinder to temperatures higher than 50°C (122 °F)
- **Information about storage in one common storage facility:**
 - Store away from oxidizing agents.
 - Store separately from cylinders containing oxygen or oxidants by a minimum distance of 20' or by a barrier of non-combustible material at least 5' high having a fire resistant rating of at least 30minutes.
 - Sources of ignition should be removed from storage area.
- **Further information about storage conditions:**
 - Keep cylinder valve tightly closed.
 - Store in cool, dry conditions in well sealed receptacles.
 - Protect from heat and direct sunlight.
 - Store cylinder in a well ventilated area.
 - Store in accordance with local fire code and/or building code or any pertaining regulations.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:**
 - Adequate local ventillation.
 - Safety showers and eyewash stations should be nearby.
- **Components with limit values that require monitoring at the workplace:**

106-99-0 1,3-Butadiene (23-100%)	
EL	2 ppm
	ACGIH A2; IARC 2A
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Store protective clothing separately.
 - Protective clothing should be kept free of oil and grease.

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PPE should be inspected and maintained regularly to retain its effectiveness.

· **Breathing equipment:**

Use atmosphere-supplying respirators (e.g. supplied-air: demand, pressure-demand, or continuous-flow or self-contained breathing apparatus: demand or pressure-demand or combination supplied-air with auxiliary self-contained air supply atmosphere-supplying respirator) in case of insufficient ventilation.

· **Protection of hands:**



Protective gloves.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Eye protection:** Safety glasses

9 Physical and chemical properties

· **General Information**

Form:	Gaseous.
Color:	Colorless
Odor:	Aromatic

· **Change in condition**

Melting point/Melting range: -109°C
Boiling point/Boiling range: -4°C

· **Flash point:** Not applicable.

· **Ignition temperature:** 415°C

· **Danger of explosion:** In use, may form flammable/explosive vapour-air mixture.

· **Explosion limits:**

Lower:	1.1 Vol %
Upper:	12.5 Vol %

· **Solubility in / Miscibility with**

Water at 20°C: 0.2 g/l

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Dangerous reactions**

May form explosive gas mixture with air.
 May react with oxidizing agents.

· **Dangerous products of decomposition:** No dangerous decomposition products known.

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* 11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

106-99-0 1,3-Butadiene

Oral	LD50	5480 mg/kg (rat)
Inhalative	LC50/4hr	285 mg/l (rat)

· **Primary irritant effect:**

- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

12 Ecological information

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.

13 Disposal considerations

· **Product:**

· **Recommendation:**

Cylinder and unused product should be returned to vendor. Disposable cylinder must be disposed of in accordance with local regulations.

· **Uncleaned packagings:**

· **Recommendation:**

Cylinder and unused product should be returned to vendor. Disposable cylinder must be disposed of in accordance with local regulations.

· **Recommended cleansing agent:** None applicable.

* 14 Transport information

· **TDG and DOT regulations:**



- **Hazard class:** 2
- **Identification number:** UN1010
- **Packing group:** -
- **Proper shipping name (technical name):** BUTADIENES, STABILIZED
- **Label:** 2.1

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- **Packaging group:** -
 - **Maritime transport IMDG:**
- 
- **IMDG Class:** 2.1
 - **UN Number:** 1010
 - **Label:** 2.1
 - **Packaging group:** -
 - **EMS Number:** F-D,S-U
 - **Marine pollutant:** No
 - **Propper shipping name:** BUTADIENES, STABILIZED

- **Air transport ICAO-TI and IATA-DGR:**
- 
- **ICAO/IATA Class:** 2
 - **UN/ID Number:** 1010
 - **Label:** 2.1
 - **Packaging group:** -
 - **Propper shipping name:** BUTADIENES, STABILIZED

15 Regulations

- **Sara**

- **Section 355 (extremely hazardous substances):**

Substance is not listed.

- **Section 313 (Specific toxic chemical listings):**

Substance is listed.

- **TSCA (Toxic Substances Control Act):**

Substance is listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

Substance is listed.

- **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

- **Chemicals known to cause developmental toxicity:**

Substance is not listed.

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· **Carcinogenity categories**

· **EPA (Environmental Protection Agency)**

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· **IARC (International Agency for Research on Cancer)**

Group 2B: The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.

· **NTP (National Toxicology Program)**

K

· **TLV (Threshold Limit Value established by ACGIH)**

A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

Substance is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

Substance is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

Substance is not listed.

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

· **Hazard symbols:**

Carc. Cat. 1, Muta. Cat. 2
 Toxic
 Extremely flammable

· **Risk phrases:**

May cause cancer.
 May cause heritable genetic damage.
 Extremely flammable.

· **Safety phrases:**

Avoid exposure - obtain special instructions before use.
 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Customer Service Centre: 1-866-385-5349
- **Contact:** Canada Technical Services: 1-866-385-5349