

## 1,3-Butadiene-1,1,4,4-d<sub>4</sub> (gas) (stabilized with hydroquinone)

### Section 1. Chemical product and company identifications

**Product code:** D-0232

**Chemical formula:** C<sub>4</sub>H<sub>2</sub>D<sub>4</sub>

**CAS:** 10545-58-1

**CAS (unlabelled):** 106-99-0

**Synonyms:** Buta-1,3-diene, Biethylene, Vinylethylene

**Supplier / Manufacturer:**

**C/D/N Isotopes Inc.**

88 Leacock Street

Pointe-Claire (Québec) H9R 1H1

Phone: 514-697-6254

Toll-Free (Canada & USA): 1-800-565-4696

Fax: 514-697-6148

Website: www.cdnisotopes.com

**In case of emergency:**

**TOXYSKAN HOTLINE: 1-855-780-0599**

### Section 2. Hazards identifications

**Physical state:** Gas

**Warning:** Extremely flammable gas. Contains gas under pressure; may explode if heated.




**Routes of entry:** Inhalation, ingestion. skin and eyes

#### GHS (Globally Harmonized System of Classification and Labelling of Chemicals):

**GHS Classification:**

- Flammable gases (Category 1)
- Gases under pressure (Compressed gas)
- Germ cell mutagenicity (Category 1B)
- Carcinogenicity (Category 1A)

**GHS Label elements:**

- Pictograms:   
- Signal word: Danger

**Hazards statement:**

- H220 Extremely flammable gas.
- H280 Contains gas under pressure; may explode if heated.
- H340 May cause genetic defects.
- H350 May cause cancer.

**Precautionary statement:**

- P210 Keep away from heat/ hot surfaces/ sparks/ open flames/ ignition sources. No smoking.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P318 IF exposed or concerned, get medical advice.

### Section 3. Composition and information on ingredients

<u>Name</u>	<u>CAS</u>	<u>Concentration %</u>
1,3-Butadiene-1,1,4,4-d <sub>4</sub>	10545-58-1	> 98

### Section 4. First aid measures

**Eye contact:** Flush eyes with water as a precaution.

**Skin contact:** Wash off with soap and plenty of water. Consult a physician.

**Inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

## **Section 5. Firefighting measures**

**Flammability of the product:** Flammable in the presence of an oxidizing gas (e.g. air), a source of ignition, and when the concentration of the gas is between the lower and upper explosive limits. Keep away from heat/sparks/open flame/hot surface/oxidizing gas. No smoking.

**Lower explosion limit:** 1.4 Vol%

**Upper explosion limit:** 16.3 Vol%

**Auto-ignition temperature:** 420 °C (788 °F)

**Flash point:** -76 °C (-105 °F)

**Products of combustion:** Hazardous decomposition products formed under fire conditions: Carbon oxides.

**Firefighting media and instructions:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

## **Section 6. Accidental release measures**

**Personal precautions:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

**Environmental precautions:** Do not let product enter drains.

**Methods for cleaning up:** Ventilate area.

## **Section 7. Handling and storage**

**Handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Provide appropriate exhaust ventilation. Keep away from sources of ignition - No smoking.

**Storage:** Store at room temperature. Adequate ventilation. Protect from heat and ignition sources.

## **Section 8. Exposure Controls, Personal Protections**

**Engineering controls:** Use mechanical exhaust or laboratory fumehood to avoid exposure.

**Eyes:** Safety glasses with side-shields conforming to NIOSH (US) or EN 166(EU).

**Respiratory:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US).

**Hands:** Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Skin/body:** Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## **Section 9. Physical and chemical properties (unlabelled)**

**Molecular weight:** 54.09 g/mol

**Physical status:** Gas

**Color:** Colorless

**Odour:** Slight aromatic odor

**Density:** No data available

**Melting point:** -109 °C (-164 °F)

**Boiling point:** -4.5 °C (234 °F)

**Vapour pressure:** 2,400 hPa (1,800 mmHg) at 20 °C (68 °F)

**Vapour density:** 1.9 (Air = 1)

**Partition coefficient (octanol/water):** log Pow: 1.99

**Water solubility:** 0.74 g/L

## **Section 10. Stability and reactivity**

**Stability and reactivity:** Stable under recommended storage conditions.

**Incompatibility:** Oxidizing agents, halogens, sulfur dioxide.

**Products of combustion:** Hazardous decomposition products formed under fire conditions: Carbon oxides.

**Reactivity conditions:** Heat, flames and sparks.

## **Section 11. Toxicological information (unlabelled)**

**Toxicological data:** 1,3-Butadiene

### **Information on ingredients:**

<b><u>Name</u></b>	<b><u>CAS</u></b>	<b><u>LD<sub>50</sub></u></b>	<b><u>LC<sub>50</sub></u></b>
1,3-Butadiene	106-99-0	Oral - Rat - 5,480 mg/kg	Inhalation - Rat - 4 h - 285,000 mg/m <sup>3</sup>

### **Potential acute effects**

- **Eyes:** May cause eye irritation.
- **Skin:** May be harmful if absorbed through skin. May cause skin irritation.
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion:** May be harmful if swallowed.

### **Potential chronic effects**

- **Carcinogenic effects:** Carcinogenicity - Rat - Inhalation. Tumorigenic: Carcinogenic by RTECS criteria. Cardiac: Tumors. Lungs, Thorax, or Respiration: Tumors. This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Human carcinogen. IARC: 1 - Group 1: Carcinogenic to humans (1,3-Butadiene).
- **Mutagenic effects:** In vivo tests showed mutagenic effects.
- **Teratogenic effects:** Developmental Toxicity - Rat - Inhalation. Specific Developmental Abnormalities: Musculoskeletal system.
- **Medical conditions aggravated by overexposure:** No data available.

## **Section 12. Ecological information**

### **Ecological data:**

<b><u>Name</u></b>	<b><u>Results</u></b>	<b><u>Species</u></b>	<b><u>Period</u></b>
1,3-Butadiene	No data available		

**Effects on environment:** No data available.

**Mobility:** No data available.

**Environmental precautions:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

## **Section 13. Disposal considerations**

**Waste disposal:** Contact a licensed professional waste disposal service to dispose of this material.

## **Section 14. Transportation information**

### **Classification DOT/IMDG/IATA label:**

**Shipping name:** Butadienes, stabilized

**UN number:** UN1010

**Class:** 2.1

**Packaging group:** None

**Additional information:** None

## Section 15. Regulatory information

### UNITED STATES: NFPA classification



Health: 1  
Flammable: 4  
Reactivity: 2  
Special conditions: None

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

### U.S. Federal regulations:

TSCA 8(b) inventory: 1,3-Butadiene

SARA 302/304/311/312 extremely hazardous substances: Not Listed

SARA 302/304 emergency planning and notification: Not Listed

SARA 302/304/311/312 hazardous chemicals: Not Listed

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard: Not Listed

CWA (Clean Water Act) 307: Not Listed

CWA (Clean Water Act) 311: Not Listed

CAA (Clean Air Act) 112 accidental release prevention: Not Listed

CAA (Clean Air Act) 112 regulated flammable substances: Not Listed

CAA (Clean Air Act) 112 regulated toxic substances: Not Listed

### State regulations:

DEA List I Chemicals (Precursor Chemicals): Not Listed

DEA List II Chemicals (Essential Chemicals): Not Listed

Substances in Massachusetts: Not Listed

Dangerous substances in New Jersey: Not Listed

New York – Dangerous substances with acute effects: Not Listed

Dangerous substances in Pennsylvania – right to know: Not Listed

### WHMIS (Canada):



A - Compressed gas



B1 - Flammable gas



D2A - Very toxic material causing other toxic effects

## Section 16. Additional information

### References:

- ANSI Z400.1, MSDS Standard, 2001.
- Manufacturer's Material Safety Data Sheet.
- 29CFR Part1910.1200 OSHA MSDS Requirements.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Federal act on the controlled products
- Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002.
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

**Date of issue: November 11th, 2020**

**Version: 3**

**Elaborated by: Toxyscan Inc., 1-866-780-0599**

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