

# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

El Paso Corporation  
and its subsidiaries  
1001 Louisiana Street  
Houston, Texas 77002

Information: (713) 420-2600  
CHEMTREC: (800) 424-9300

**Product Name:** Butane Plus  
MSDS Number: A0094.msds

Last Revision: 06/26/07  
Date Prepared: 02/11/92

**Synonyms:** Butane+, C4 Plus, C4+  
**Product Description:** Butane, Aliphatic Hydrocarbons

## 2. COMPOSITION & INFORMATION ON INGREDIENTS

Components(s)						
Product/ Components	CAS No.	Wt <sup>%(4)</sup>	Occupational Exposure Limits			Units
			OSHA <sup>(1)</sup>	ACGIH <sup>(1)</sup>	NIOSH <sup>(2)</sup>	
Butane	Mixture	100	N/A	N/A	N/A	N/A
n-Butane	106-97-8	30-35	800 <sup>(3)</sup>	1000	800	ppm
iso-Butane	75-28-5	25-35	N/A	1000	800	ppm
iso-Pentene	563-45-1	12	N/A	N/A	N/A	N/A
n-Pentane	109-66-0	8	600 <sup>(3)</sup>	600	120	ppm
n-Hexane	110-54-3	2	50 <sup>(3)</sup>	50	50	ppm
2-Methylpentane	107-83-5	3	500 <sup>(3)</sup> 1000 <sup>STEL(3)</sup>	500 1000 <sup>STEL</sup>	100 510 <sup>Ceiling</sup>	ppm
3-Methylpentane	96-14-0	2	500 <sup>(3)</sup> 1000 <sup>STEL(3)</sup>	500 1000 <sup>STEL</sup>	100 510 <sup>Ceiling</sup>	ppm
Methylcyclopentane	96-37-7	1	N/A	N/A	N/A	N/A
Benzene	71-43-2	0.6	1 5 <sup>STEL</sup>	0.5 2.5 <sup>STEL</sup>	0.1 1 <sup>STEL</sup>	ppm
Trace hydrocarbons	N/A	1	N/A	N/A	N/A	N/A

<sup>(1)</sup>8-hour TWA unless otherwise specified.

<sup>(2)</sup>10-hour TWA unless otherwise specified.

<sup>(3)</sup>Vacated 1989 PEL. The manufacturer has included this data for informational purposes since these values were vacated in 1992.

<sup>(4)</sup>Normal composition ranges are shown. Exceptions may occur depending upon the source of the butane.

N/A = Not Applicable.

## 3. HAZARD IDENTIFICATION

**Note:** This product has not been tested by El Paso Corporation to determine its specific health hazards. Therefore, the information provided in this section includes health hazard information on the product components.

<b>Carcinogenicity:</b>	<b>NTP</b>	<b>IARC Monographs</b>	<b>OSHA Regulated</b>
Mixture	No	No	No
Benzene	Yes	Yes	Yes

### **Potential Health Effects From Overexposure**

#### **Acute Effects:**

Eyes: Butane plus gas may be slightly irritating to the eyes. Pressurized gas can cause mechanical injury to the eye.

Skin: Contact with liquefied gas may cause frostbite.

Inhalation: Causes drowsiness, excitation or unconsciousness due to anesthetic and asphyxiant properties of this gas.

Ingestion: Not Applicable.

#### **Chronic Effects:**

None determined.

#### **Additional Medical and Toxicological Information:**

Contact with full strength or dilute formulations of this product or exposure above and below exposure limits may aggravate pre-existing dermatitis or respiratory disorders in certain individuals. This product contains benzene, which can cause degeneration in blood forming organs leading to anemia which may further degrade to leukemia. Isobutane and n-butane have been shown to cause mild cardiac sensitization in laboratory test animals.

### **4. FIRST AID MEASURES**

Eye Contact: Normally not a concern. If liquefied gas contacts the eye, immediately flush the area with warm water. Get medical attention.

Skin Contact: Promptly flush the affected area with warm water. If freeze burns have occurred, apply bulky, dry sterile bandage to protect area. Get medical attention.

Inhalation: Remove to fresh air. Apply artificial respiration if not breathing. Get medical attention.

Ingestion: None considered necessary.

### **5. FIRE FIGHTING MEASURES**

Flash Point: -100 °F (estimated)

Flammable Limits in Air, % by Volume:

Lower: 1.6% (butane)

Upper: 8.4% (butane)

Autoignition Temperature: N/A

Extinguishing Media: Dry chemical, carbon dioxide, or foam.

NFPA Ratings (butane): Health: 1 Flammability: 4 Reactivity: 0

### **Special Fire Fighting Instructions**

BLEVE'S (Boiling Liquid Expanding Vapor Explosions) can occur when a liquid in a pressurized container is heated to temperatures beyond its boiling point. This can lead to failure of the container and damage to the surrounding area.

### **General Hazard:**

Vapors may reach an ignition source, and flashback. It can be a dangerous fire and explosion hazard when mixed with air.

### **Fire Fighting Instructions:**

Water may be ineffective on flames but should be used to keep fire-exposed containers cool. Extinguish fire by stopping the flow of gas. Firefighters should wear self-contained breathing apparatus and full protective clothing.

## **6. ACCIDENTAL RELEASE**

Eliminate sources of heat or ignition including internal combustion engines and power tools. Stop gas flow. If indoors, ventilate the affected area. Evacuate building and all affected area, downwind area first. Note: Large releases may require the notification of local emergency response agencies. Wear self-contained breathing apparatus if conditions warrant.

## **7. HANDLING & STORAGE**

Store and use Gas cylinders and tanks in well-ventilated areas, away from direct sunlight and sources of ignition. No smoking in areas of storage or use. Electrically bond all lines and equipment. Keep away from incompatible agents and from cylinders of oxygen.

## **8. EXPOSURE CONTROL, PERSONAL PROTECTION**

Eye Protection: Safety glasses or face shields are required when working with pressurized lines or cylinders. Wear chemical goggles when working with liquid natural gas.

Skin Protection: Insulated clothing and/or gloves should be worn where liquid or expanding gas may be

Inhalation: generated.  
Self-contained breathing apparatus should be available for emergency use.

Ventilation: Provide adequate general and local ventilation: (1) to maintain airborne chemical concentrations below applicable exposure limits, (2) to prevent accumulation of flammable vapors and formation of explosive atmospheres, and (3) to prevent formation of oxygen deficient atmospheres, especially in confined spaces. [Note: this product may displace oxygen in enclosed areas.]

## 9. PHYSICAL & CHEMICAL PROPERTIES

Boiling Point @ 1 atm: 31.1 °F	Melting Point: N/A
Vapor Pressure @ 77 °F: 2.05 atm	Vapor Density(Air=1):0.6
% Solubility in H <sub>2</sub> O: Slight	pH: N/A
Specific Gravity @ 68 °F & 1 atm: 2.01	Evaporation Rate: N/A
% Volatile by Volume: 100	Odor: Hydrogen odor
Viscosity (method, temp.): N/A	Appearance: Gas
	Molecular Wt.: 58.1

## 10. STABILITY & REACTIVITY

**Stability:** Stable under normal conditions of use.

**Hazardous Polymerization:** Will not occur.

**Conditions to Avoid/Incompatibilities:** Strong oxidizing agents, chlorine, bromine, pentafluoride, nitrogen trifluoride, heat, sparks, flame and build-up of static electricity.

**Hazardous Decomposition Products:** Carbon monoxide and carbon dioxide

## 11. TOXICOLOGICAL INFORMATION

No data available.

## 12. ECOLOGICAL INFORMATION

No data available.

## 13. DISPOSAL INFORMATION

No data available.

## 14. TRANSPORT INFORMATION

Identification Number: UN 1972  
Class: 2 (Flammable gas)

## 15. REGULATORY INFORMATION

### EPA SARA TITLE III

#### **Section 302 EPCRA Extremely Hazardous Substances (EHS)**

Product Component	CAS No.	Wt%	RQ, lb	TPQ, lb
None				

#### **Section 304 CERCLA Hazardous Substances**

Product Component	CAS No.	Wt%	RQ, lb
n-Hexane	110-54-3	2	5000
Benzene	71-43-2	0.6	10

#### **Section 311/312 Hazard Categorization**

Acute:	Chronic:	Fire:	Pressure:	Reactive:
X		X	X	

#### **Section 313 EPCRA Toxic Substances**

Product Component	CAS No.	Wt. %
Benzene	71-43-2	0.6
n-Hexane	110-54-3	2

Key: RQ = Reportable Quantity  
TPQ = Threshold Planning Quantity of EHS

## CALIFORNIA PROPOSITION 65 WARNING

Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm may be found in crude oil and petroleum products. Although it is possible to sufficiently refine a crude oil or its end products to remove the potential for cancer, we are advising that one or more of the listed chemicals may be present in some detectable quantities. Read and follow directions and use care when handling crude oil and petroleum products.

## 16. OTHER INFORMATION

THIS INFORMATION RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED AND MAY NOT BE VALID FOR SUCH MATERIAL USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. SUCH INFORMATION IS TO THE BEST OF THIS COMPANY'S KNOWLEDGE AND BELIEVED ACCURATE AND RELIABLE AS OF THE DATE INDICATED. HOWEVER, NO REPRESENTATION, WARRANTY OR GUARANTEE IS MADE AS TO THE ACCURACY, RELIABILITY OR COMPLETENESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY THEMSELVES AS TO THE SUITABILITY AND COMPLETENESS OF SUCH INFORMATION FOR THEIR OWN PARTICULAR USE.

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