

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier: n-Butane**

**1.2. Relevant identified uses of the substance or mixture and uses advised against:**

Use of the substance/mixture : Feedstock and Fuels

**1.3. Details of the supplier of the safety data sheet:**

TPC Group  
 One Allen Center  
 500 Dallas Street, Suite 1000  
 Houston, TX 77002 - United States  
 T 713.627.7474

**1.4. Emergency telephone number:**

Emergency number : Chemtrec US – 800-424-9300  
 Chemtrec International – +1-703-527-3887

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture:**

**Classification (GHS-US)**

Simple Asphyxiant  
 Flammable gases Category 1  
 Compressed gas  
 STOT SE Category 3

**2.2. Label elements:**

**GHS-US labeling**

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H220 - Extremely flammable gas  
 H280 - Contains gas under pressure; may explode if heated  
 H336 - May cause drowsiness or dizziness  
 H380 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US) :

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
 P271 - Use only outdoors or in a well-ventilated area  
 P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 P312 - Call a POISON CENTER/doctor/physician if you feel unwell  
 P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely  
 P381 - Eliminate all ignition sources if safe to do so  
 P403 - Store in a well-ventilated place  
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
 P405 - Store locked up  
 P410+P403 - Protect from sunlight. Store in a well-ventilated place  
 P501 - Dispose in a safe manner in accordance with state/local/national regulations

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### 2.3. Other hazards

Contact with rapidly expanding gas may cause burns or frostbite.

### 2.4. Unknown acute toxicity (GHS-US)

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
n-butane	(CAS No) 106-97-8	97-100	Simple Asphyxiant Flammable Gas, cat. 1 Compressed gas STOT SE, cat. 3
propane	(CAS No) 74-98-6	0 - 2.5	Simple Asphyxiant Flammable Gas, cat. 1 Compressed gas STOT SE, cat. 3
isobutane	(CAS No) 75-28-5	0 – 2.0	Simple Asphyxiant Flammable Gas, cat. 1 Compressed gas STOT SE, cat. 3

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Contact with rapidly expanding gas may cause burns or frostbite. Try to warm up the frozen tissues and seek medical attention.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed:

Symptoms/injuries after inhalation : May cause drowsiness or dizziness.

### 4.3. Indication of any immediate medical attention and special treatment needed:

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media:

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Extremely flammable gas.
Explosion hazard	: May form flammable/explosive vapor-air mixture.

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### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Leaking gas fire: Do not extinguish, unless leak can be completely isolated. Eliminate all ignition sources if safe to do so.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Remove ignition sources. Use special care to avoid static electric charges. Eliminate every possible source of ignition. No naked lights. No smoking.

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection. Avoid breathing vapor/gas.
- Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Store away from other materials.

### 6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable. Flammable gas.
- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No naked lights. No smoking. Avoid breathing vapor/gas. Use only outdoors or in a well-ventilated area.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed.
- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : heat, spark and flame. Keep in fireproof place. Keep container tightly closed.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.
- Storage area : Store in a well-ventilated place.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

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n-butane (106-97-8)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA ACGIH	Remark (ACGIH)	Butane is classified as an Aliphatic Hydrocarbon (C1-C4)

isobutane (75-28-5)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm

propane (74-98-6)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm Aliphatic Hydrocarbons (C1-C4)
USA ACGIH	Remark (ACGIH)	Propane is considered an Aliphatic hydrocarbon
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

### 8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
Other information	: Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Molecular mass	: 58.122 g/mol
Color	: colorless
Odor	: Faint, unpleasant
Odor threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -138 °C
Freezing point	: -138 °C
Boiling point	: -0.5 °C
Flash point	: -60.1 °C Closed cup
Auto-ignition temperature	: 405 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: 2.1 kg/m <sup>3</sup>
Specific Gravity/Relative density	: 2 @ 1 atm, 21.1°C
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available

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Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: (LEL) 1.9 vol % (UEL) 8.5 vol %

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Extremely flammable gas. Stable at ambient temperature and under normal conditions of use.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

### 10.5. Incompatible materials

Oxidizing agent.

### 10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

n-butane (106-97-8)	
LC50 inhalation rat (ppm)	> 13023 ppm/4h

propane (74-98-6)	
LC50 inhalation rat (ppm)	> 800 ppm (15 minute)

Skin corrosion/irritation	: Not classified pH: Not applicable
Serious eye damage/irritation	: Not classified pH: Not applicable
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: This substance can cause reversible anesthetic effects at high concentrations, including drowsiness, dizziness, headaches, and confusion. Continued exposure can lead to unconsciousness and death.
Specific target organ toxicity (repeated exposure)	: Not classified

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Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.
Likely routes of exposure	: Inhalation

### SECTION 12: Ecological information

#### 12.1. Toxicity

n-butane (106-97-8)	
LC50 fish 1	63 - 137 ppm
EC50 Daphnia 1	7.2 - 138 ppm

#### 12.2. Persistence and degradability

n-butane	
Persistence and degradability	Not established.

#### 12.3. Bioaccumulative potential

n-butane	
Bioaccumulative potential	Not established.

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Other information : Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with state/local/national regulations.
Additional information	: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials	: Avoid release to the environment.

### SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1075 Petroleum Gases, Liquified, 2.1
UN-No.(DOT)	: 1075
DOT NA no.	: UN1075
DOT Proper Shipping Name	: Petroleum Gases, Liquified
Department of Transportation (DOT)	: 2.1
Hazard Classes	
Hazard labels (DOT)	: 2.1



DOT Symbols	:
Packing group (DOT)	:

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DOT Special Provisions (49 CFR 172.102)	: T50
DOT Packaging Exceptions (49 CFR 173.xxx)	: 306
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 304
DOT Packaging Bulk (49 CFR 173.xxx)	: 314; 315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 150 kg
DOT Vessel Stowage Location	: E
DOT Vessel Stowage Other	: 4040 - Stow "clear of living quarters"

### Additional information

Other information : No supplementary information available.

No additional information available

### Transport by sea

UN-No. (IMDG)	: UN1075
Proper Shipping Name (IMDG)	: Petroleum Gases, Liquified
Class (IMDG)	: 2.1 - Gases
Packing group (IMDG)	:

### Air transport

UN-No.(IATA)	: UN1075
Proper Shipping Name (IATA)	: Petroleum Gases, Liquified
Class (IATA)	: 2.1

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

n-Butane	
SARA 302/304/311/312 <b>extremely hazardous substances:</b>	This product or its components are not listed
SARA 311/12 <b>chemical inventory-hazardous identification:</b>	Butane: Fire hazard, Sudden release of pressure, Simple asphyxiant

### 15.2. International regulations

#### CANADA

n-Butane	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

#### 15.2.2. National regulations

No additional information available

### 15.3. US State regulations

No additional information available

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### SECTION 16: Other information

Other information : None

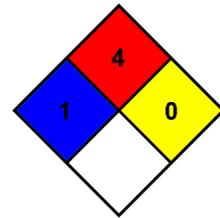
Full text of H-phrases:

Compressed gas	Gases under pressure Compressed gas
Eye Dam. Not classified	Serious eye damage/eye irritation Not classified
Flam. Gas 1	Flammable gases Category 1
Simple Asphy	Simple Asphyxiant
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H336	May cause drowsiness or dizziness
H380	May displace oxygen and cause rapid suffocation
H401	Toxic to aquatic life

NFPA health hazard : 1

NFPA fire hazard : 4

NFPA reactivity : 0



### HMIS III Rating

n-Butane	
HEALTH	1
FLAMMABILITY	4
PHYSICAL	0
PERSONAL PROTECTION	

TPC SDS US (GHS HazCom 2012)

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