



NATIONAL REFRIGERANTS, INC.

R-600

## Safety Data Sheet

### R-600 n-BUTANE

#### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** n-BUTANE  
**OTHER NAME:** Paraffin Series Hydrocarbon  
**USE:** Refrigerant  
**DISTRIBUTOR:** National Refrigerants, Inc.  
661 Kenyon Avenue  
Bridgeton, New Jersey 08302

**FOR MORE INFORMATION CALL:**  
(Monday-Friday, 8:00am-5:00pm)  
1-800-262-0012

**IN CASE OF TRANSPORTATION EMERGENCY CALL:**  
CHEMTREC: 1-800-424-9300

#### 2. HAZARDS IDENTIFICATION

**CLASSIFICATION:** Flammable Gas, Gas under pressure, Compressed Gas  
**SIGNAL WORD:** DANGER  
**HAZARD STATEMENT(S):** Extremely flammable gas, Contains gas under pressure, may explode if heated  
**SYMBOL(S):** Flames, Gas Cylinder



#### PRECAUTIONARY STATEMENT(S):

**Prevention:** Keep away from heat, sparks, open flame, and hot surfaces. No Smoking

**Response:** Leaking gas fire: Do not extinguish unless leak can be stopped immediately. Eliminate all ignition sources if safe to do so.

**Storage:** Protect from sunlight, store in a well ventilated pla

#### EMERGENCY OVERVIEW:

Flammable gas. Liquid under high pressure.

#### POTENTIAL HEALTH EFFECTS

##### Effects of Overexposure:

##### Eye Contact

Eye contact with the rapidly evaporation liquid may cause frostbite.

##### Skin Contact

Skin contact with the rapidly evaporation liquid may cause frostbite. Frostbite effects are a change in color of the skin to gray or white, followed by blistering.



**Inhalation**

Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Inhalation of high vapor concentration may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting, leading to unconsciousness, cardiac irregularities, or death.

**Ingestion**

Not an expected route of exposure.

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

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<u>INGREDIENT NAME</u>	<u>% VOLUME</u>	<u>CAS NUMBER</u>
Liquefied Petroleum Gas	100	106-97-8

**COMMON NAME and SYNONYMS**

R-600; n-BUTANE

There are no impurities or stabilizers that contribute to the classification of the material identified in Section 2

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**4. FIRST AID MEASURES**

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<b>INGESTION:</b>	Do not induce vomiting. Contact a physician immediately.
<b>INHALATION:</b>	Remove to fresh air. If breathing has stopped, restore breathing at once. Administer oxygen and get medical help.
<b>SKIN CONTACT:</b>	For liquid contact, warm areas gradually and get medical attention if there is evidence of tissue damage. Flush area with plenty of water.
<b>EYE CONTACT:</b>	For liquid contact, irrigate with running water for minimum of 15 minutes. Consult physician immediately if frostbite occurs.

**SPECIAL MEDICAL TREATMENT:** There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

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**5. FIRE FIGHTING MEASURES**

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**FLAMMABLE PROPERTIES**

<b>FLASH POINT (METHOD):</b>	-101 F (Open Cup)
<b>AUTO IGNITION TEMPERATURE:</b>	
<b>UPPER EXPLOSIVE LIMIT (vol.) gas in air:</b>	8.5%
<b>LOWER EXPLOSIVE LIMIT (vol.) gas in air:</b>	1.9%
<b>EXTINGUISHING MEDIA:</b>	Dry Chemical Extinguisher (B-C), Water

**UNUSUAL FIRE HAZARDS:**

Vapors are heavier than air and may travel along the ground or may be moved by ventilation systems and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point.



**FIRE FIGHTING INSTRUCTIONS:**

Stop the release of materials if possible. Cool the vapor space of the storage container with water spray. Avoid accumulation of unburned materials. Remove personnel in general area. Observe maximum isolation when extinguishing fire. Expansion of liquid and change of state from liquid to vapor will allow combustible mixture to encompass a large area.

**6. ACCIDENTAL RELEASE MEASURES**

**SPILL AND LEAK PROCEDURES:**

Avoid sources of ignition-Ventilate area. Use water fog to evaporate or ventilate. Protect body against contact with liquid. If confined space – Use self-contained breathing apparatus. Consult local fire authorities.

**7. HANDLING AND STORAGE**

**NORMAL HANDLING :**Comply with state and local regulations covering liquefied petroleum gases. Comply with NFPA Pamphlet #58.

**STORAGE RECOMMENDATIONS:**

Store small containers in well-ventilated areas, away from heat or sources of ignition. Prohibit smoking in areas of storage or use. Secure containers when not in use.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:**

- Mechanical:** Provide as needed to keep concentration in air below TLV and LEL
- Local Exhaust:** Continuous ventilation recommended.
- Special:** Explosion proof fans and motors.

**PERSONAL PROTECTIVE EQUIPMENT:**

**SKIN PROTECTION:**

Impervious, insulated gloves recommended. Impervious clothing for prolonged or repeated contact

**EYE PROTECTION:**

Face shield or goggles recommended

**RESPIRATORY PROTECTION:**

NIOSH approved self-contained breathing apparatus

**EXPOSURE GUIDELINES**

(Exposure Limits)

**INGREDIENT NAME**

Liquefied Petroleum Gas

**ACGIH TLV**

1000 ppm

**OSHA PEL**

None

**OTHER LIMIT**

None

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE:**

Clear, Colorless liquefied gas with sweet petroleum odor.

**PHYSICAL STATE:**

Gas at ambient temperature

**ODOR:**

Sweet petroleum odor



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<b>SOLUBILITY IN WATER @ 70 Deg. F</b>	0.008%
<b>BOILING POINT:</b>	31.1°F
<b>VAPOR PRESSURE @ 70 Deg. F:</b>	17 psig
<b>FLASH POINT:</b>	-60°C (-76°F)
<b>EVAPORATION RATE:</b>	> 1 (Ethyl Ether = 1.0)
<b>FLAMMABILITY:</b>	Extremely flammable in the presence of ignition sources and oxidizing materials
<b>LEL/UEL:</b>	1.8% / 8.4%
<b>PARTITION COEFFICIENT</b>	
<b>n-OCTANOL/WATER:</b>	Log Pow: 2.89
<b>AUTO IGNITION TEMPERATURE:</b>	365°C / 689°F
<b>DECOMPOSITION TEMPERATURE:</b>	Data not available
<b>VISCOSITY:</b>	Not applicable
<b>VAPOR DENSITY (air = 1.00):</b>	2.006
<b>% VOLATILES BY VOLUME:</b>	100%
<b>DENSITY:</b>	0.1554 lb/cu ft
<b>pH:</b>	Not applicable
<b>MELTING POINT:</b>	-138°C / -216°F
<b>SPECIFIC GRAVITY (Water=1):</b>	0.584
<b>MOLECULAR FORMULA:</b>	C <sub>4</sub> H <sub>10</sub>
<b>MOLECULAR WEIGHT:</b>	58.14

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## **10. STABILITY AND REACTIVITY**

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### **CHEMICAL STABILITY:**

This product is stable.

**REACTIVITY:** Not reactive under normal conditions

### **INCOMPATIBILITY WITH OTHER MATERIALS:**

None

### **CONDITIONS TO AVOID:**

High Heat, Sparks & Open Flames

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## **11. TOXICOLOGICAL INFORMATION**

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Rat inhalation LC50 (4 hr.): 658,000ppm

### **POTENTIAL HEALTH EFFECTS**

#### **Effects of Overexposure:**

##### **Eye Contact**

Eye contact with the rapidly evaporation liquid may cause frostbite.

##### **Skin Contact**

Skin contact with the rapidly evaporation liquid may cause frostbite. Frostbite effects are a change in color of the skin to gray or white, followed by blistering.

##### **Inhalation**

Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Inhalation of high vapor concentration may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting, leading to unconsciousness, cardiac irregularities, or death.

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**Ingestion**

Not an expected route of exposure.

**DELAYED AND IMMEDIATE EFFECTS**

No known significant effects or critical hazards

**CARCINOGEN:** Not listed by NTP, IARC, or NIOSH

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**12. ECOLOGICAL INFORMATION**

**DEGRADABILITY (BOD):** No data given

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**13. DISPOSAL CONSIDERATIONS**

- (1) Mechanical recovery
- (2) Flare-Off at safe location (Vapors)
- (3) Exhaust to atmosphere in safe location (No open flames)

**OTHER DISPOSAL CONSIDERATIONS:**

Disposal must comply with federal, state, and local disposal laws.

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**14. TRANSPORT INFORMATION**

<b>US DOT ID NUMBER:</b>	UN1011
<b>US DOT SHIPPING NAME:</b>	Butane
<b>US DOT HAZARD CLASS:</b>	2.1
<b>US DOT PACKING GROUP:</b>	NA

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**15. REGULATORY INFORMATION**

The ingredients listed in section 2 are reported/included in the U.S. TSCA inventory and Canadian domestic substance list.

The product is defined by OSHA in 29 CFR 1910.1200c as a flammable gas. Use of this product may require compliance with 29 CFR 1910.119, process safety management of highly hazardous chemicals.

**CALIFORNIA PROPOSITION 65:**

The ingredients in this product do not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION**

**OTHER INFORMATION:** HMIS Classification: Health – 1, Flammability – 4, Reactivity – 0

**DISCLAIMER:**

National Refrigerants, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof). NO WARRANTY OF FITNESS OR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE



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