

Safety Data Sheet

R-600 n-BUTANE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: n-BUTANE
OTHER NAME: Paraffin Series Hydrocarbon

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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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<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

4. FIRST AID MEASURES

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

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT (METHOD):	-101 F (Open Cup)
AUTO IGNITION TEMPERATURE:	
UPPER EXPLOSIVE LIMIT (vol.) gas in air:	8.5%
LOWER EXPLOSIVE LIMIT (vol.) gas in air:	1.9%
EXTINGUISHING MEDIA:	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

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

10. STABILITY AND REACTIVITY

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

11. TOXICOLOGICAL INFORMATION

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

POTENTIAL HEALTH EFFECTS

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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

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DELAYED AND IMMEDIATE EFFECTS

No known significant effects or critical hazards

CARCINOGEN: Not listed by NTP, IARC, or NIOSH

12. ECOLOGICAL INFORMATION

DEGRADABILITY (BOD): No data given

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.

14. TRANSPORT INFORMATION

US DOT ID NUMBER:	UN1011
US DOT SHIPPING NAME:	Butane
US DOT HAZARD CLASS:	2.1
US DOT PACKING GROUP:	NA

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.