

Material Safety Data Sheet

1-BUTENE

Revision 09/04.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Advanced Gas Technologies
1401 Stauffer Road
Palm, PA 18070.

Telephone Number: (215) 541-4116

MSDS IDENTIFICATION CODE / NUMBER: BE

EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

PRODUCT NAME: 1-Butene

CAS NUMBER: 106-98-9

CHEMICAL NAME: 1-Butene

CHEMICAL FORMULA: C₄ H₈

SYNONYMS: n-Butene, Butene, Normal Butene

2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	%VOLUME
1-Butene	No	100

CAS NUMBER: 106-98-9

PEL-OSHA: Simple Asphyxiant
TLV-ACGIH-Simple Asphyxiate
LD 50 or LC50: Not Available

3. HAZARDS IDENTIFICATION

This product does not contain oxygen and may cause asphyxia if released in a confined area.
Simple hydrocarbons can cause irritation and central nervous system depression at high concentrations.
Extremely flammable.

4. FIRST AID MEASURES

EYES

Adverse effects are not anticipated as product is a gas at room temperature.

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SKIN

Adverse effects not anticipated.

INGESTION

Ingestion is unlikely.

INHALATION

Product is relatively nontoxic. Simple hydrocarbons can irritate the eyes, mucous membranes and respiratory system at high concentrations. Inhalation of high concentrations may cause dizziness, disorientation, incoordination, narcosis, nausea or level to prevent asphyxiation. This product may displace oxygen if released in a confined space. Maintain oxygen levels above 19.5% at sea level to prevent asphyxiation.

The effects of oxygen deficiency, resulting from simple asphyxiates may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death. Oxygen deficiency during pregnancy can cause developmental abnormalities in humans and experimental animals.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: -112 F (-80 C) Closed Cup

AUTOIGNITION: 725 F (385 C)

LOWER EXPLOSIVE LIMIT (%) :1.6

UPPER EXPLOSIVE LIMIT (%) : 9.3

FIRE AND EXPLOSION HAZARDS.

1-Butene is heavier than air and may travel a considerable distance to an ignition source. 1-Butene is a flammable gas! Keep away from open flame and other sources of ignition. Do not allow smoking in storage areas or when handling.

EXTINGUISHING MEDIA

Water, Carbon dioxide, Dry chemical.

FIRE FIGHTING INSTRUCTIONS

If possible, stop the flow of gas with a remote valve.. Use water spray to cool exposed containers. If fire is extinguished and flow of gas is continues, increase ventilation to prevent a build up of a flammable/explosive atmosphere. Extinguish sources of ignition. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above the liquid level with remote monitors. Limit the number of personnel in proximity to the fire. Evacuate surrounding areas to at least 3000 feet in all directions.

6. ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Use appropriate protective equipment . Increase ventilation to prevent build up of a flammable/explosive atmosphere. Extinguish all sources of ignition ! If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call Advanced Gas Technologies, or CHEMTREC.

7. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS

Earth bond and ground all equipment associated with the product system. Electrical equipment should be non-sparking and explosion proof. Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide, or roll cylinders. Use a pressure regulator when connecting to lower pressure (<250psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130 F(54 C).

Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

Post "No Smoking" signs in storage or use areas.

For additional recommendations consult Compressed Gas Association Pamphlet P-1.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Use local exhaust to prevent gas from accumulating. Use general ventilation to prevent build up of flammable concentrations. Use a hood with ventilation when handling small quantities. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

EYE / FACE PROTECTION

Safety goggles or glasses

SKIN PROTECTION

Protective gloves made of plastic or rubber.

RESPIRATORY PROTECTION

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

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OTHER / GENERAL PROTECTION

Safety shoes,safety shower, eyewash.

9. PHYSICAL AND CHEMICAL PROPERTIES

BASIC PHYSICAL PROPERTIES

BOILING POINT: 20.7 F -6.3 C

VAPOR PRESSURE: (@70 F) 37 psia

VAPOR DENSITY (AIR=1): 2.00

SOLUBILITY (H2O): Insoluble

Physical state: Gas.

Oder: A colorless gas with a slight olefinic odor.

10. STABILITY AND REACTIVITY

STABILITY: Stable.

INCOMPATIBLE MATERIALS

Oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

No chronic effects data given in the Registry of Toxic Effects of Chemical Substances (RTECS) or Sax,Dangerous Priorities of Industrial Materials, 7th ed.

12. ECOLOGICAL INFORMATION

NO DATA GIVEN

13. DISPOSAL CONSIDERATIONS

Do not attempt to dispose of waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE TO Advanced Gas Technologies for proper disposal.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME: Petroleum Gases, Liquefied

HAZARD CLASS: 2.1

DOT IDENTIFICATION NUMBER: UN 1075

DOT SHIPPING LABEL: Flammable Gas

15. REGULATORY INFORMATION

Butene is listed under the accident prevention provisions of section 112 © of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 Pounds.

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES: Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard

16. OTHER INFORMATION

NFPA HAZARD RATING - HEALTH 1 Slight Hazard
FIRE 4 Severe Hazard
REACTIVITY 0 No Hazard

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