

1. CHEMICAL IDENTITY
1-BUTENE

Chemical Name	1-Butene	Trade name	Butene
Synonyms	n-Butene/ Butylene/ Ethylethylene	Chemical classification	Mono Olefin
Formula	CH ₂ =CHCH ₂ CH ₃	CAS Number	106-98-9
UN number	1012	UN Hazard class	2
Hazchem code (EAC)	4W		
REGULATED IDENTIFICATION		Hazardous ingredients	CAS No.
Shipping Name	Flammable gas	1- Butene	106-98-9
Shipping code/ Label	1012/2		
Hazardous waste Id No.	Not pertinent		

Uses: Co monomer in LLDPE manufacturing process.

2. PHYSICAL AND CHEMICAL DATA

Boiling point/ Range °C	-6.3	Physical state	Gas	Appearance	colourless gas
Melting/ Freezing Point °C	-185.3	Vapour Pressure(at 20° C) mm Hg	1910	Odour	lightly aromatic odor
Vapour Density (Air =1)	2.00	Solubility in water (at 30°C)	Insoluble	Other Information	
Specific gravity (at 20 °C) (water =1)	0.59	pH		Soluble in Alcohol, ether	

3. FIRE AND EXPLOSION HAZARD DATA

Flash point° C (CC) (OC)	-80	Flammability LFL % v UFL % v	1.6 10	TDG Flammability	2
Explosion sensitivity to impact	No	Explosion sensitivity to static electricity	No	Autoignition Temperature °C	385
Combustible Material	No	Explosive Material	No	Hazardous Polymerization	may occur
Flammable Material	Yes	Oxidiser	No	Corrosive Material	No
Pyrophoric Material	No	Organic Peroxide	No	Other information :	
Hazardous Combustion Products	when heated to decomposition it emits acids smoke and fumes.				

4. REACTIVITY DATA

Chemical stability	Stable
Incompatibility with other Materials	Aluminium tetrahydrobromate (explodes after an induction period). Reacts with strong acids, halogens and nitrogen oxides. Reacts violently with strong oxidants.
Reactivity	<u>No</u>
Hazardous Reaction Products	when heated to decomposition it emits acids smoke and fumes.

5. HEALTH HAZARD DATA

Route of entry	Inhalation, skin contact			
Effect of exposure/ Symptoms	Inhalation: prolonged inhalation of high concentration has an anesthetic effect. May cause cough, dizziness, shortness of breath, drowsiness, unconsciousness. Skin contact : Contact with liquid causes freezing of tissues and result in injury similar to thermal burn.			
Emergency treatment	Inhalation: Remove from exposure. If breathing has stopped, start artificial respiration, give oxygen and call a doctor. Skin: Defrost area with cold water before remove clothing. Eyes: Flush with flowing water.			
Permissible Exposure Limit	TLV-TWA (ACGIH)	1000 ppm	STEL(ACGIH)	
TDLo imp-rat:	IDLH	DNA	Odour threshold	0.16 mg/m ³
NFPA Hazard signals	Health 1	Flammability 4	Reactivity 0	Special -





MATERIAL SAFETY DATA SHEET (MSDS)

6. PREVENTIVE MEASURES

1-BUTENE

PERSONAL PROTECTIVE MATERIAL	Self contained breathing apparatus, air-line gas mask, insulating gloves, goggles, face shield
HANDLING AND STORAGE PRECAUTIONS	Storage tank should be protected by deluge system. Take precautions against static electricity. Use non sparking tools. Avoid storage temperature above 30° C. do not use compressed air when filling, emptying or processing. Flow, agitation etc. can cause build up of static charge due to liquids low conductivity. Store separate from oxidants

7. EMERGENCY AND FIRST AID MEASURES

FIRE (Class of fire : B)	
Fire extinguish media	Dry chemical , carbon dioxide
Special Procedures	shut the gas off. Approach from upwind side. Do not approach horizontal LPG tanks from the ends. water can help disperse LPG vapours. If possible and no risk to surroundings, let fire burn itself out. Keep cylinders cool by spraying with water. Fight fire from sheltered location.
Unusual Hazards	Butene is heavier than air and will sink into low places. Explosion from vapour cloud can occur. The liquid floats and boils on water: flammable visible cloud is produced.
EXPOSURE	
First Aid Measures	Inhalation: Remove from exposure. If breathing has stopped, start artificial respiration, give oxygen and call a doctor. Skin: Defrost area with cold water before remove clothing. Eyes: Flush with flowing water.
Antidotes/ Dosages	
SPILLS	
Steps to be taken	A liquid leak vaporizes almost immediately, chilling the air and making visible the vapour it contains. Shut off gas.
Waste Disposal Method	Burn in a flare or in a furnace

8. ADDITIONAL INFORMATION/ REFERENCES

ECOLOGICAL INFORMATION	
Ecotoxicity	DNA
Persistence	DNA
OTHER INFORMATION	DNA
REFERENCES (FOR OBTAINING MORE INFORMATION)	
1. MSDS Technimont	

9. MANUFACTURER/SUPPLIER/ CONSUMER'S DATA

Haldia Petrochemicals Limited, Durgachak, Haldia, Midnapore, WB- 721 602	Contact person in Emergency	Emergency leader
PH: (03224) 74384/400/007	Local Bodies Involved	The Additional District Magistrate
Fax: (03224) 74012/420	Standard Packing	Received through pipeline at HPL
	Termcard details/ Ref	
	Others	-

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