

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Trade Name : BUTENE-1

Chemical Name : BUTENE-1, BUTENE, Butylene, Methylpropene

Synonyms : Butylene, Methylpropene

Molecular Formula : C₄H₈

1.2 Use : Product of BST

1.3 Max. Quantity Storage : 250 ton

1.4 Manufacturer/Import : Bangkok Synthetics Company Limited

1.5 Address : 5, I-7 Rd. Maptaphut Industrial Estate, Muang District, Rayong 21150

Tel. : 0-3868-3314 Fax. : 0-3868-3315

2. HAZARD IDENTIFICATION

2.1 Route to body : Respiration, eye and skin system

2.2 Target :

- Eyes : Irritate, frostbite and impaired vision
- Skin : Irritate and frostbite
- Inhalation : Cough, dizziness, shortness of breath, drowsiness, unconsciousness
- Ingestion : Nausea, vomiting, and gastrointestinal hemorrhage may develop.

2.3 Effect of Short-term Overexposure : Material acts as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death. Pressure drop through valves and piping may cause extreme cold and frostbite on contact.

2.4 Effect of Long-term Overexposure : Abnormal heart muscle

2.5 TLV.-TWA : No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Percent	U.N. No.	CAS.No.	Safety Standard	
				TLV (ppm)	LD50 (mg/kg)
Butene-1	-	1012	106-98-9	250	-

Carcigen classification : -

4.First - aid measures

4.1 Skin : In case frostbite, do not remove clothing. Flush with warm water at least 15 minutes and take to doctor.

4.2 Eyes : Flush with water at least 15 minutes and take to doctor.

4.3 Inhalation : Fresh air, rest and call a doctor.

4.4 Ingestion : No data available

4.5 Additional data for first aid : -

5.FIRE FIGHTING MEASURES

5.1 Flash Point : -80°C (-112°F)

5.2 Exposure Limits :

- LEL% : 1.6 - UEL% : 9.3

5.3 Auto Ignition : 384°C (723°F)

5.4 Stability : Stable

5.5 Incompatibility Materials : Oxidizers

5.6 Hazardous Decomposition Products : CO₂, CO and other organic matter from combustion

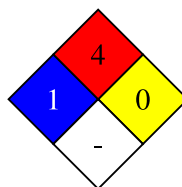
5.7 NFPA Label :

5.7.1 Health Hazard : Level 1

5.7.2 Flammable : Level 4

5.7.3 Reactivity : Level 0

5.7.4 Special data : -



5.8 Hazard Class : Flammable gas

5.9 Extinguish Media : Water Spray

5.10 Keep tank cool by spraying with water

6.ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions : Evacuate area.

: Wear self-contained breathing apparatus when entering area unless

atmosphere is proved to be safe

: Ensure adequate air ventilation.

: Eliminate ignition sources.

6.2 Environmental precautions : Try to stop release.

: Prevent from entering sewers, basements and work pits, or
any place where its accumulation can be dangerous.

6.3 Clean up method : Ventilate area.

7.HANDLING AND STORAGE

7.1 Keep cool, good ventilation and keep away from open flame and sparks, no smoking

7.2 Refer to supplier's container handling instructions.

8.EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Ventilation : Good ventilation

8.2 Respiration Protection : Respiratory protection with organic cartridge

8.2 protective Gloves : Insulating Gloves

8.3 Eye Protection : Face Shield or combined eye and respiratory protection

8.4 Other Protective Equipment : Put on SCBA before fire fighting

9.PHYSICAL AND CHEMICAL PROPERTIES

9.1 Boiling Point : -6.0°C (21.2°F)

9.2 Melting Point : -185°C (1.3°F)

9.3 Vapor Pressure mm.Hg : 1900 mm.Hg

9.4 Solubility in water : Insoluble

9.5 Specific Gravity (Air =1) : 1.94 (water =1) : 0.6

9.6 Evaporating Rate : No data available

9.7 Apparent Color and Odor : Colorless, bitter odor gas and liquid under pressure

9.8 pH : No data available

9.9 Molecular Weight : 56.11

10. STABILITY AND REACTIVITY

- 10.1 Stability : Stable under normal storage conditions.
- 10.2 Condition to Avoid : Storage in poorly ventilated areas. Storage near a heat source.
- 10.3 Material to Avoid : Oxidizing agents.
- 10.4 Hazardous Polymerization : Will not occurs.
- 10.5 Hazardous Decomposition : Toxic carbon monoxide

11. TOXICOLOGICAL INFORMATION

- 11.1 Lethal concentration (LC50) : None established
- 11.2 Lethal dose 50 (LD50) : N/Ap
- 11.3 Teratogenicity : N/Ap
- 11.4 Reproductive effects : N/Ap
- 11.5 Mutagenicity : N/Ap

12. ECOLOGICAL INFORMATION

- 12.1 No adverse ecological effects are expected

13. DISPOSAL CONSIDERATIONS

- 13.1 Do not discharge into areas where there is a risk of forming an explosive mixture with air.
- 13.2 Waste gas should be flared through a suitable burner with flash back arrestor.
- 13.3 Do not discharge into any place where its accumulation could be dangerous.
- 13.4 Contact supplier if guidance is required

14. TRANSPORT INFORMATION

- 14.1 Proper Shipping Name : 1-Butene
- 14.2 Hazardous Class : 2.1 (flammable)
- 14.3 Identification Number : UN1012
- 14.4 Labeling : Flammable gas



14.5 Special precautions : Cylinders should be transported in a secure upright position in a well ventilated truck.

14.6 Additional data for transportation : Avoid transport on vehicle where the load space is not separated from the driver's compartment.

14.7 Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

14.8 Before transporting product containers :

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

15. REGULATORY INFORMATION

15.1 OSHA : Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

15.2 TSCA : Material is listed in TSCA inventory

15.3 Symbol(s) : Flammable gas

15.4 S Phase(s) : S9 Keep container in a well-ventilated place.

: S16 Keep away from sources of ignition-No smoking.

16. Other information

16.1 Ensure operators understand the flammability hazard.

16.2 Ensure all nation/local regulations are observed.

16.3 Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Definition

OSHA : Occupational Safety and Health Administration

TLV : Threshold Limit Value

TWA : Time – weighted average

TSCA : Toxic Substances Control Act

NFPA : National Fire Protection Association

CFR : Code of Federal Regulations

References

1. www.ecu.edu/oehs/LabSafety/IARCCarClass.htm
2. www.ilo.org/publi/english/protection/safework/
3. www.americangasgroup.com/index.htm
4. www.scotecatalog.com/msds.nsf/
5. MSDS of Air liquide SA France
6. Scott Specialty Gas - MSDS Sheet SearchButene-1.htm

Remark

Additional Information Available from

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