

**MATERIAL SAFETY DATA SHEET (MSDS)****1. CHEMICAL IDENTITY****BUTADIENE**

Chemical Name	1,3-Butadiene	Trade name	Butadiene
Synonyms	Divinyl, Divinyl, Erythrene, Vinylethylene	Chemical classification	Hydrocarbon
Formula	C4H6	CAS Number	106-99-0
UN number	1010	UN Hazard class	2.3
Hazchem code (EAC)	2 W E		
REGULATED IDENTIFICATION		Hazardous ingredients	CAS No.
Shipping Name	Flammable gas	(1) Butadiene	106-99-0
Shipping code/ Label	1010/2/Red	--	--
Hazardous waste Id No.	Not pertinent	--	--

2. PHYSICAL AND CHEMICAL DATA

Boiling point/ Range ° C	-4.5	Physical state	Gas	Appearance	Colorless
Melting/Freezing Point °C	-10deg.	Vapour Pressure(at 20 °C) mm Hg	1840	Odour	Mild aromatic
Vapour Density (Air =1)	1.87	Solubility in water (at 30 °C)	Not soluble	Other Information:	
Specific gravity (at 20 C) (water =1)	0.621 (liq)	pH	Not pertinent		

3. FIRE AND EXPLOSION HAZARD DATA

Flash point °C	-76	Flammability LFL % v UFL % v	2	TDG Flammability	2
Explosion sensitivity to impact	Stable	Explosion sensitivity to static electricity	May Explode	Autoignition Temperature °C	429
Combustible Material	Yes	Explosive Material	Yes	Hazardous Polymerization	Yes
Flammable Material	Yes	Oxidiser	No	Corrosive Material	No
Pyrophoric Material	No	Organic Peroxide	No	Other information	
Hazardous Combustion Products	Emits acrid smoke and fumes				

4. REACTIVITY DATA

Chemical stability	With air forms peroxides, leading to explosive decomposition.
Incompatibility with other Materials	Strong oxidizers, copper and copper alloys
Reactivity	Potentially explosive with NO3+O2, Ethanol + iodine + mercury oxide (at 35 degC),
Hazardous Reaction Products	Upon exposure to air it forms explosive peroxides, sensitive to heat, shock or heating above 27degC

5. HEALTH HAZARD DATA

Route of entry	Inhalation, absorption through skin			
Effect of exposure/ Symptoms	Slight anesthetic effect at high concentration, liquid causes frostbite on skin contact, slight irritation to eyes and nose at high concentrations may affect nervous system. Suspected carcinogen.			
Emergency treatment	Flush eyes with plenty of water for at least 10 minutes. Remove contaminated clothing. Wash affected skin with water. Apply xylocaine or an antibiotic cream locally. If inhaled, remove victim to fresh air. Give artificial respiration, if breathing has stopped. Obtain medical attention immediately.			
Permissible Exposure Limit	TLV-TWA (ACGIH)	2 ppm	STEL(ACGIH)	DNA
LD 50 orl-rat: TCLo ihl-hmn:	IDLH	2000 ppm	Odour threshold	1.8 ppm
NFPA Hazard signals	Health 2	Flammability 4	Reactivity 2	Special -

**MATERIAL SAFETY DATA SHEET (MSDS)****6. PREVENTIVE MEASURES****BUTADIENE**

PERSONAL PROTECTIVE MATERIAL	Hose mask with goggles, face shields and hose inlet in a vapour free atmosphere, self-contained breathing apparatus, and rubber suit side cover safety goggles and shoes.
HANDLING AND STORAGE PRECAUTIONS	Store in a cool, fire proof with ventilation along the ground. Keep away from heat, sparks, open flame and incompatible materials. Para-1 butylcatechol (0.01-0.02%) is used as polymerisation.

7. EMERGENCY AND FIRST AID MEASURES

FIRE (Class of fire: C)	
Fire extinguish media	Dry Chemical, Carbon Dioxide, Foam, Steam, Water Fog.
Special Procedures	Keep the container cool by spraying water if exposed to heat or flame.
Unusual Hazards	Extremely flammable liquid. Vapor may explode if ignited in enclosed area.
EXPOSURE	
First Aid Measures	Eye: Immediately flush eyes with plenty of water for at least 15 minutes. Skin: Flush exposed skin with plenty of water. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse. Inhalation: If adverse effect occurs, remove to uncontaminated area. Give artificial respiration at Hot breathing. Obtain medical attention immediately. Ingestion: None required.
Antidotes/ Dosages	DNA
SPILLS	
Steps to be taken	Shut off leaks without risk. Contain the liquid on earth or sand
Waste Disposal Method	Incinerate at a safe place.

8. ADDITIONAL INFORMATION/ REFERENCES

ECOLOGICAL INFORMATION	
Ecotoxicity	Not harmful to aquatic life
Persistence	DNA
OTHER INFORMATION	
REFERENCES (FOR OBTAINING MORE INFORMATION)	
1. Hazardous Chemicals Data Book: G Weiss: Noyes Data Corp USA.	2. Hand Book of Environment Data: Karen Verschuchem: Van No strand Reinhold Co., USA.

9. MANUFACTURER/SUPPLIER'S DATA

Haldia Petrochemicals Limited, Durgachak, Haldia, Purba Medinipur, WB- 721 602	Contact person in Emergency	Emergency Leader
Ph: (03224) 274400/007	Local Bodies Involved	The Additional District Magistrate
Fax: (03224) 274420	Standard Packing	
	Tremcard details/ Ref	
	Others	Suspected Carcinogen

10. DISCLAIMER

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