

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

Chemical Name	Benzene	Trade name	Benzene
Synonyms	Benzol, Cyclohexatriene, coaltar naphtha, phenyl hydride	Chemical classification	Hydrocarbon (aromatic)
Formula	C ₆ H ₆	CAS Number	71-43-2
UN number	1114	UN Hazard class	3
Hazchem code (EAC)	3 WE		
REGULATED IDENTIFICATION		Hazardous ingredients	CAS No.
Shipping Name	Flammable liquid	-	-
Shipping code/ Label	1114 / 3 / Red	-	-
Hazardous waste Id No.	Not pertinent		
Uses: In manufacture of various chemicals, dyes, pesticides, detergents, plastics, synthetic rubber paints			

2. PHYSICAL AND CHEMICAL DATA

Boiling point/ Range °C	80.1	Physical state	Liquid	Appearance	Colourless
Melting/Freezing Point °C	5.5	Vapour Pressure(at 20 °C) mm Hg	100	Odour	Characteristic
Vapour Density (Air =1)	2.77	Solubility in water (at 30 °C)	Insoluble	Other Information	
Specific gravity (at 20 °C) (water =1)	0.8794	pH	Not pertinent		

3. FIRE AND EXPLOSION HAZARD DATA

Flash point °C (OC) (CC)	-11	Flammability LFL % v	1.4	TDG Flammability	3
		UFL % v	8.0		
Explosion sensitivity to impact	No	Explosion sensitivity to static electricity	Yes	Autoignition Temperature °C	580
Combustible Material	Yes	Explosive Material	No	Hazardous Polymerization	No
Flammable Material	Yes	Oxidiser	No	Corrosive Material	No
Pyrophoric Material	No	Organic Peroxide	No	Other information : Highly Flammable	
Hazardous Combustion Products	None				

4. REACTIVITY DATA

Chemical stability	Stable under normal conditions.
Incompatibility with other Materials	Oxidisers, perchlorates, K ₂ O ₂ , N ₂ O ₂ , H ₂ SO ₄ with permanganates, chlorine or bromine with iron
Reactivity	Reacts vigorously with H ₂ + Raney nickel and bromine trifluoride. Explodes on contact with Permanganic acid, Peroxo-mono / disulphuric acid
Hazardous Reaction Products	None

5. HEALTH HAZARD DATA

Route of entry	Absorption through skin, inhalation, ingestion			
Effect of exposure/ Symptoms	Burning and redness of eyes and skin. Repeated contact leads to dermatitis, dizziness, excitation, pallor followed by flushing, weakness, headache, breathlessness, chest constriction, coma and possible death. It is a suspected human carcinogen			
Emergency treatment	Flush eyes with plenty of water for atleast 10 minutes. Remove contaminated clothing. Wash affected skin with soap and water. If inhaled, remove the victim to fresh air. Give artificial respiration, if breathing has stopped. If ingested, have victim, drink water or milk. Do not induce vomiting. Obtain medical attention immediately.			
Permissible Exposure Limit	TLV-TWA (ACGIH)	10 ppm, 32 mg/m ³	STEL(ACGIH)	DNA
LD 50 orl-rat: 3400 mg/kg	IDLH	2000 ppm	Odour threshold	5 ppm
TCLo ihl-hmn: 210 ppm				
NFPA Hazard Signals	Health	Flammability	Reactivity	Special
	2	3	0	--

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

PERSONAL PROTECTIVE MATERIAL	Use PVC of rubber gloves and apron, gum boots, goggles / face shield and overalls. Use breathing apparatus if required
HANDLING AND STORAGE PRECAUTIONS	Store in a cool, clean, ventilated, fireproof storage area. keep away from heat, sparks, open flame and incompatible materials(strong oxidising agents). Protect containers against physical damage.

7. EMERGENCY AND FIRST AID MEASURES

FIRE (Class of fire : B)	
Fire extinguish media	Alcohol resistant foam or Dry agent (CO ₂ , dry chemical powder)
Special Procedures	None
Unusual Hazards	None
EXPOSURE	
First Aid Measures	Eye : Flush eyes with plenty of water for atleast 10 minutes. Skin : Remove contaminated clothing and wash affected skin with soap and water. Inhalation : Remove victim to fresh air. If not breathing, give artificial respiration. Ingestion : if conscious, have victim drink water or milk. Do not induce vomiting. In all cases obtain medical attention immediately.
Antidotes/ Dosages	DNA
SPILLS	
Steps to be taken	Stop leak, if safe to do so. Contain spillage. Absorb in sand or earth for disposal. Eliminate all sources of ignition. Use personnel protective equipment. Cordon off area. stay upwind.
Waste Disposal Method	Let the spillage go to drips pit of chemical sewer, if available for further treatment. Flush small spillage with plenty of water.

8. ADDITIONAL INFORMATION/ REFERENCES

ECOLOGICAL INFORMATION	
Ecotoxicity	Harmful to aquatic life in very low concentrations. Aquatic toxicity : 5 ppm/6 h/minnow/ lethal/ distilled water : 20 ppm/24h/sunfish TLm/tap water
Persistence	Calculated half time in water at 25° C and 1m depth (based on evaporation rate of 0.144 m/h) = 4.81h
OTHER INFORMATION	BEI (total phenol in urine at end of shift) not to exceed 50 mg/l mean value
REFERENCES (FOR OBTAINING MORE INFORMATION)	
1. Hazardous Cemicsals Data Book: G Weiss: Noyes Data Corp USA	2. Hand Book of Environment Data: Karen Verschueren : Van Nostrand Reinhold Co., USA

9. MANUFACTURER/SUPPLIER/CONSUMER'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	

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