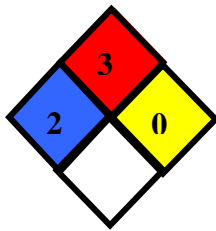


# SAFETY DATA SHEET

BPCL KOCHI REFINERY



## BENZENE

NFPA 704 (Sec 16)

### Section 1 – IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY / UNDERTAKING

Chemical Name	Benzene	CAS Number:	71-43-2
Product name		UN No.	1114
Chemical Formula	C <sub>6</sub> H <sub>6</sub>	Synonyms	Benzol Phenyl Hydride Carbon Oil
Hazchem No.		Hazardous waste ID No.	
Product use	Solvent, Petrochemical feed stock		
Manufacturer's name	Bharat Petroleum Corporation Limited		
Address	4&6, Currimbhoy Road, Ballard Estate Mumbai- 400 001, INDIA		
Contact information	Telephone No. : 091-22-24176354 Fax No. : 091-22-24166512/24182511 Emergency Coordination Centre Contact : BPCL Kochi Refinery, Ambalamugal, Kochi, Kerala <b>EMERGENCY CONTACT DETAILS :</b> BPCL – KOCHI REFINERY, Ambalamugal Dist. Ernakulam, Kerala, India 091-484-2722061 24*7 Emergency contact No : +91 9495001031		

### Section 2 – Composition / Information on ingredients

Composition:	Benzene – 99.9 %v, Toluene – 500 ppm
Hazardous Components:	Benzene, Toluene

### Section 3 – Hazards Identification

Primary Entry Routes	Inhalation, skin, eyes and ingestion
Acute Health Effects	Inhalation causes headache, dullness, dizziness, unconsciousness, leukemia. Ingestion causes burning sensation in mouth and stomach. When absorbed by skin causes pain, redness. Repeated contacts lead to dermatitis. Eye contact causes pain & redness

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Chronic Effects	Inhalation is the primary route of Chronic Benzene poisoning			
Carcinogenicity	Listed as carcinogenic			
NFPA hazard signals	Flammability	Health	Reactivity	Special
	3	2	0	
Other (Specify)				

## Section 4 – First Aid Measures

Eyes:	If eye is affected, flush with plenty of water until irritation subsides. Get medical attention.
Skin:	If drenched with product, remove contaminated clothing promptly. Flush affected area with copious amounts of water and then wash with soap and water
Inhalation:	If inhaled remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, call physician Remove to fresh air. Consult a physician if irritation persists.
Ingestion:	If swallowed, do not induce vomiting.

## Section 5 – Fire fighting measures

Flash Point	< - 10 °C	Auto ignition Temperature	562 °C
Flash Point Method	Abel	TDG Flammability Classification	
LEL	562 °C	UEL	8.0 %
Combustible liquid		Explosive material	
Corrosive material		Flammable material	Flammable
Oxidiser		Pyrophoric material	
Organic peroxide		Explosion sensitivity to impact	
Explosion sensitivity to static electricity		Hazardous polymerisation	
Extinguishing Media	Foam, Dry Chemical Powder, CO2		
Fire or Explosion Hazards	Heat produces vapours and can cause violent rupture of containers. Vapours are Carcinogenic		
Hazardous combustion Products	Carbon di oxide, carbon mono oxide		
Fire-Fighting Instructions and procedures	Fire fighters should wear self-breathing apparatus while fighting fire		

## Section 6 – Accidental Release Measures

Small Spills	Ensure the leaking area is below 10 ppm with the help of on line detectors or by Dragger tube tests. Shut off leaks standing upwind.
Containment & Clean-up	Provide earth/sand bund to contain the leaked / leaking product. Collect leaked/leaking product in closed container. Ensure good ventilation. Prevent spillage from entering drains or water sources. After spills wash area with soap and water preventing runoff from entering drains.

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Other (Specify)	
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## Section 7 – Handling and Storage

Handling Precautions	Do not touch the product with bare hands. Use proper hand gloves. Do not wash/clean hands with the product. Use water and soap. Change oil soaked clothes immediately. Do not inhale the product. Stand upwind while gauging/sampling
Storage Requirements	Do not use/store near heat/open flame/water/acids. Earth storage vessel & all connecting equipment pipelines properly. Provide good ventilation at the work site. Do not store other materials near or in the vicinity. Use only flameproof type of electrical equipment. Do not smoke/have open flame.

## Section 8 – Exposure Controls / Personal Protection

Engineering Controls	Provide proper ventilation for environment to be below TWA. Provide detectors on site. Daily check of benzene concentration in the plant is recommended. Valve and pump leaks are attended immediately
Gloves (Specify)	PVC gloves,
Respiratory Protection (Specify)	Use respiratory protection if ventilation is improper. Use of Self-Contained Breathing Apparatus recommended
Eye (Specify)	Use face shield,
Foot wear (Specify)	safety boots
Protective clothing/ Equipment (Specify)	
Other(Specify)	Contaminated clothing to be immediately removed

## Section 9 – Physical and Chemical properties

Physical State	Liquid
Appearance	Water white liquid
Odour	aromatic like sweet odour
Vapour Pressure	1 to 2 psi at 25 °C
Specific Gravity (Specify at what temp)	0.883 gm / cc at 15 °C
Water Solubility (Specify at what temp)	Insoluble
Evaporation rate	
Boiling Point	80.1 °C
Freezing Point	5.4 °C
Vapour Density	2.77 (Air = 1)
pH	

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## Section 10 – Stability and Reactivity

Chemical Stability (If no, under what conditions)	Chemically stable.
Chemical Incompatibilities (If yes, which ones)	Incompatible with oxidizing agents & chlorine. Reacts vigorously with oxidising materials. Vigorous or incandescent reaction with Hydrogen and Raney Nickel catalyst above 210°C, Uranium Hexafluoride and Bromine Trifluoride
Conditions to Avoid	Can undergo auto-oxidation in air & generate heat which can build up in a confined space to cause spontaneous combustion
Hazardous Decomposition Products	Carbon di oxide, carbon mono oxide

## Section 11 – Toxicological Information

TLV – TWA as per ACIGH/NIOSH	Benzene – 0.5 ppm, Toluene – 100 ppm
STEL	2.5 ppm
LD 50 (Specify species and route)	LD50 (Oral-Rat): 3400 mg/kg
LC 50 (Specify species and route)	
Acute Inhalation Effects	Carcinogenic

## Section 12 – Ecological Information

Prevent spillage from entering drains or water sources. After spills wash area with soap and water preventing runoff from entering drains. Can burn with lot of heat producing CO<sub>2</sub> and CO.

## Section 13 – Disposal Considerations

Disposal	Seal all the waste in vapour tight plastic bags for eventual disposal or incineration. Don not handle with bare hands. Use PVC gloves
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## Section 14 – Transport Information

Shipping Name	Benzene, Benzol
Special shipping information/ instructions	

## Section 15 – Regulatory Information

Toxic/Flammable Substance

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BPCL KOCHI REFINERY



## EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Benzene <sup>a</sup>	71-43-2			10 pounds	313	U019	

Indicates that benzene was already a CERCLA hazardous substance prior to the CAA Amendments of 1990 and received an adjusted 10-pound RQ based on potential carcinogenicity in an August 14, 1989, final rule (54 FR 33418). The CAA Amendments specify that “benzene (including benzene from gasoline)” is a hazardous air pollutant and, thus, a CERCLA hazardous substance.

## Section 16 – Other Information

Depending on the duration of the exposure, periodic medical check-up is recommended. Prolonged exposure (even at low concentration) may cause leukemia. Use of alcoholic drink enhances the poisonous effect. Person with blood disorder should avoid contact with Benzene. High concentration can lead to unconsciousness and death. In industry, inhalation is the primary route of Chronic Benzene poisoning. There is a great individual variation in the signs and symptoms of Chronic Benzene poisoning.

Prepared by BPCL Kochi Refinery

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## Notes:

1. CAS No. – Chemical Abstract Service Number
2. UN No. – United Nations Number
3. TDG flammability – Transport of Dangerous Goods Flammability classification by United Nations.