

SAFETY DATA SHEET

Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Benzene
OTHER NAMES	C ₆ H ₆ , benzol, benzole, benzolene, "coal naphtha", cyclohexatriene, "mineral naphtha", "motor benzol", "nitration benzene", phene, "phenyl hydride", pyrobenzol, pyrobenzole, benzine
PRODUCT USE	Manufacture of chemicals including styrene, dyes, and many other organic chemicals. Has been used in artificial leather, linoleum, oil cloth, airplane dopes, lacquers; as solvent for waxes, resins, oils etc. May also be a minor component of gasoline, petrol. Exposure should be minimised by use in closed systems. Handling procedures and control measures should be evaluated for exposure before commencement of use in plant operations.
SUPPLIER	
Company:	IRPC Public Company Limited
Address:	299 Moo.5 Sukhumvit Road, Tumbon Chern-nern Amphur Muang, Rayong 21000 THAILAND
Telephone:	+66 38802560

Section 2 - HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No. 1272/2008 (CLP) and GHS Classification

Flammable Liquid Category 2
Carcinogen Category 1A
Germ Cell Mutagen Category 1B
STOT - RE Category 1
Aspiration Hazard Category 1
Eye Irritation Category 2
Skin Corrosion/Irritation Category 2

PICTOGRAMS



SIGNAL WORD DANGER

HAZARD STATEMENTS

H225 Highly flammable liquid and vapour.

H350 May cause cancer.

H340 May cause genetic defects.

H372 Causes damage to organs.

H304 May be fatal if swallowed and enters airways.

H319 Causes serious eye irritation.

H315 Causes skin irritation.

PRECAUTIONARY STATEMENTS

P201 Obtain special instructions before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion- proof electrical/ventilating/lighting/ equipment

P242 Use only non- sparking tools

P243 Take precautionary measures against static discharge.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hand thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well- ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P304+P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P314 Get medical advice/attention if you feel unwell.

P337+P313 If eye irritation persists: Get medical advice/attention.

P403+P233 Store in a well- ventilated place. Keep container tightly closed.

P403+P235 Store in a well- ventilated place. Keep cool.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS Number	EC Number	Composition
Benzene	71-43-2	200-753-7	> 99 %

Section 4 - FIRST AID MEASURES

Skin Exposure	<p>Immediately remove all contaminated clothing, including footwear.</p> <p>Flush skin and hair with running water (and soap if available).</p> <p>Seek medical attention in event of irritation.</p>
Eyes Exposure	<p>Wash out immediately with fresh running water.</p> <p>Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</p> <p>Seek medical attention without delay; if pain persists or recurs seek medical attention.</p>
Inhalation	<p>If fumes or combustion products are inhaled remove from contaminated area.</p> <p>If the patient is not breathing spontaneously, administer rescue breathing.</p>
Ingestion	<p>DO NOT induce vomiting.</p> <p>Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</p> <p>If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.</p> <p>Seek medical advice.</p>

Section 5 - FIRE FIGHTING MEASURES

Suitable extinguishing agents	Foam, Dry chemical, CO ₂ , water spray or fog – Large fires only.
Fire fighting	Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Prevent, by any means available, spillage from entering drains or water course. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location.
Hazards during fire-fighting	Carbon monoxide (CO), carbon dioxide (CO ₂), other pyrolysis products typical of burning organic material.
Protective equipment	Breathing apparatus. Chemical splash suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid breathing vapours and contact with skin and eyes.
Cleanup	Clear area of personnel and move upwind. Prevent, by any means available, spillage from entering drains or water course. Absorb remaining product with sand, earth or vermiculite and wipe up. Collect recoverable product into labelled containers for recycling. Collect residues in a flammable waste container. Wash area and prevent runoff into drains.

Section 7 - HANDLING AND STORAGE

Handling	DO NOT cut, drill, grind, weld or perform similar operations on or near containers. DO NOT use compressed air for filling discharging or handling operations. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid generation of static electricity. Avoid all personal contact, including inhalation.
Storage conditions	Store in original containers in approved flame-proof area. Store away from incompatible materials in a cool, dry, well-ventilated area. DO NOT store in pits, depressions, basements or areas where vapours may be trapped. Protect containers against physical damage and check regularly for leaks. No smoking, naked lights, heat or ignition sources.

Section 8 - EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure limits

Component Name	Reference	STEL		TWA	
		ppm	mg/m ³	ppm	mg/m ³
Benzene	Australian Exposure Standard	-	-	1	3.2
	NIOSH	1	-	0.1	-
	ACGIH TLV	2.5	-	0.5	-

Exposure controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipments

Respiratory protection

Type A* Filter of sufficient capacity.

Eye protection

Safety glasses with side shields. Chemical goggles.

Protective clothing

PVC protective suit may be required if exposure severe.

Chemical splash suit

Hand protection

Wear chemical protective gloves, eg. PVC, Wear safety footwear or safety gumboots, eg. Rubber.

*A(All classes) = Organic vapours

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

State	Liquid
Melting Range	5.5 °C
Viscosity	Not Applicable
Boiling Range	80 °C
Solubility in water	Immiscible
Flash Point	-11 °C
pH (1% solution)	Not applicable
Decomposition Temp (°C)	Not Applicable
Autoignition Temp	562 °C
Vapour Pressure	9.95 kPa @20 °C

Upper Explosive Limit (%)	7.9
Lower Explosive Limit (%)	1.3
Specific Gravity (water=1)	0.879 @20 °C
Relative Vapour Density (air=1)	2.77
Volatile Component (%vol)	100

Section 10 - CHEMICAL STABILITY

Chemical Stability	Stable under normal temperatures conditions and recommended use.
Dangerous reaction	Reacts violently with iodine pentafluoride.
Condition to Avoid	Ignition sources, excess heat, confined spaces.
Material to Avoid	Strong oxidizing agents.
Dangerous decomposition	Carbon monoxide (CO), carbon dioxide (CO ₂), other pyrolysis products typical of burning organic material.

Section 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Chemical name	Route	Species	Acute Toxic Value
Benzene	Oral	Rat	LD ₅₀ 930 mg/kg
	Inhalation	Rat	LC ₅₀ 10000 ppm/7h
	Dermal	Rabbit	LD ₅₀ > 9400 mg/kg
	Inhalation	Human	TCL ₀ 100 ppm

Irritating/corrosive effects

Eye Irritation	Cause serious eye irritation.
Skin Irritation	May cause moderate inflammation. Toxic effects may result from skin absorption.

Respiratory Irritation	Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.
Ingestion Irritation	Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result.

Other information

Carcinogenic effect:

International Agency for Research on Cancer (IARC): Group 1 (Carcinogenic to humans.)
- Agents Reviewed by the IARC Monographs

Section 12 - ECOLOGICAL INFORMATION

Aquatic toxicity	LC ₅₀ 15.1 mg/l/96 h: <i>Pimephales promelas</i> (Fresh fish) EC ₅₀ 10 mg/l/48 h: <i>Daphnia magna</i> (Crustacea:OECD Guide-line 202)
Persistence and degradability	Material is expected to be readily biodegradable.
Bioaccumulative potential	Product is not likely to accumulate in biological organisms.
Mobility in soil	The product is expected to leach with moderate soil mobility.
Other adverse effects	In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.





Section 13 - DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal.

In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

Section 14 - TRANSPORTATION INFORMATION

Regulatory information	UN number	Class	Packing group	Label	Proper Shipping Name
DOT	1114	3	II		BENZENE
ADR /RID	1114	3	II		BENZENE
IMDG	1114	3	II		BENZENE
ICAO/IATA	1114	3	II		BENZENE

Section 15 - REGULATORY INFORMATION

REGULATIONS

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory.

OSHA:

This product is a "Hazardous Chemical" as defined by OSHA.

NFPA - USA

Health – 2, Flammability – 3, Reactivity – 0

HMIS - USA

Health – 2, Flammability – 3, Reactivity – 0

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory.

EU Directives 67/548/EEC

Classification F, T

Symbols



R-Phrases

R45: May cause cancer.
R46: May cause heritable genetic damage.
R11: Highly Flammable
R36/38: Irritating to eyes and skin.
R48/23/24/25: Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R65: Vapours may cause drowsiness and dizziness.

S-Phrases

S53: Avoid exposure – obtain special instructions before use.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Canada - WHMIS

This product has a WHMIS classification of B2, D2A, D2B.

Section 16 - OTHER INFORMATION

The information in this document is based on our best present. Nevertheless, it does not constitute a guarantee for any specific product features and does not establish any a legally binding contract.

DOT	Department of Transportation
ADR	European agreement concerning the international carriage of dangerous goods by road.
RID	Regulations concerning the international carriage of dangerous goods by rail.
IMDG – CODE	International maritime dangerous goods code
ICAO	International Civil Aviation Organization
IATA	International air transport association
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
CLP	Classification and Labeling of Packaging
IARC	International Agency for Research on Cancer
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
NIOSH	The National Institute for Occupational Safety and Health
ACGIH	American Conference of Industrial Hygienists
WHMIS	Workplace Hazardous Materials Information System

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