

SAFETY DATA SHEET

Revision date: 2025-03-24

Version: BEN100(20).6

1. IDENTIFICATION

- A. Product name : Benzene
- B. Recommended use and restriction on use
- General use : Industrial solvent
 - Restriction on use : - Not available
- C. Manufacturer / Supplier / Distributor information
- Manufacturer information
- Company name
SK Geocentric Co.,Ltd.
 - Address
Office) 51, Jong-ro, Jongno-gu, Seoul, Korea
Plant) 2, Sinyecheon-ro, Nam-gu, Ulsan, Korea
R&D) 325, Exporo, Yuseong-gu, Daejeon, Korea
 - Dept.
Safety Health Environment Team
 - Telephone number : Office) 82-2-2121-5114
 - Emergency telephone number
Plant) 82-52-208-2114
 - Fax number :
 - E-mail address :
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2. HAZARD IDENTIFICATION

- A. GHS Classification
- Flammable liquids : Category2
 - Acute toxicity (inhalation: vapor) : Category5
 - Skin corrosion/irritation : Category2
 - Serious eye damage/irritation : Category2A
 - Germ cell mutagenicity : Category1B
 - Carcinogenicity : Category1A
 - Specific target organ toxicity(Single exposure) : Category1
 - Specific target organ toxicity(Repeated exposure) : Category1
 - Aspiration hazard : Category1
 - Acute aquatic toxicity : Category2
 - Chronic aquatic toxicity : Category2
- B. GHS label elements
- Hazard symbols



○ **Signal words**

- Danger

○ **Hazard statements**

- H411 Toxic to aquatic life with long lasting effects
- H401 Toxic to aquatic organisms.
- H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H370 Causes damage to organs(Refer Section SDS 11)
- H350 May cause cancer
- H315 Causes skin irritation
- H333 May be harmful if inhaled.
- H319 Causes serious eye irritation
- H225 Highly flammable liquid and vapour
- H304 May be fatal if swallowed and enters airways
- H340 May cause genetic defects

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P273 Avoid release to the environment.
- P270 Do not eat, drink or smoke when using this product.
- P264 Wash hands thoroughly after handling.
- P260 Do not breathe gas/mist/vapours/spray.
- P243 Take precautionary measures against static discharge.

2) Response

- P304+P312 IF INHALED: 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.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P391 Collect spillage.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
- P362 Take off contaminated clothing and wash before reuse.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P321 Specific treatment
- P314 Get medical advice/attention if you feel unwell.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P307+P311 If exposed: Call a POISON CENTER or doctor/physician.

3) Storage

- P405 Store locked up.
- P403+P235 Store in a well-ventilated place. Keep cool.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 2 , Flammability : 3, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	%[weight]
Benzene	Benzol ; Benzole ; Bicarburet of hydrogen ; Coal naphtha ; Clohexatriene ; Phene ; Phenyl hydride ; Polystream ; Pyrobenzol ; Pyrobenzole ; Cyclohexatriene ; Benzine ; 1,3,5-Cyclohexatriene ;	71-43-2	99-100

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Remove contact lenses if worn.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.
- Wash thoroughly after handling.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contaminated clothing, shoes and isolate.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- If swallowed, large amounts of water to drink and do not induce vomiting.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Move container to safe area from the leak area.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Do not direct water at spill or source of leak.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.
- Avoid skin contact and inhalation.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Do not use plastic containers.
- Prevent the influx to waterways, sewers, basements or confined spaces.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Get the manual before use.
- Operators should wear antistatic footwear and clothing.
- Do not inhale the steam prolonged or repeated.
- Contaminated work clothing should not be allowed out of the workplace.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid contact with heat, sparks, flame or other ignition sources.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Keep sealed when not in use.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ ACGIH TLV

- [Benzene] : TWA, 0.5 ppm (1.6 mg/m³) STEL, 2.5 ppm (8 mg/m³)

○ OSHA PEL

- Not available

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

- Respiratory protection

- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

○ Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ Hand protection

- Wear appropriate chemical resistant glove.

○ Skin protection

- Wear appropriate chemical resistant protective clothing.

○ Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance

- Appearance : Liquid
- Color : Colorless transparent

B. Odor

: Characteristic aromatic

C. Odor threshold

: Not available

D. pH

: Technically not feasible

E. Melting point/Freezing point

: 5.49°C

F. Initial Boiling Point/Boiling Ranges

: 79.4°C

G. Flash point

: -11°C

H. Evaporation rate

: 3.5 (butyl acetate = 1)

I. Flammability(solid, gas)

: Not available

J. Upper/Lower Flammability or explosive limits

: 1.2~7.8%

K. Vapour pressure

: 10 kPa (75.01 mm Hg) [room temperature]

L. Solubility

: 1.88 g/l (solubility in water)

M. Vapour density

: 2.7 [Air = 1]

N. Specific gravity(Relative density)

: 0.88

O. Partition coefficient of n-octanol/water

: 2.13

P. Autoignition temperature

: 498°C

Q. Decomposition temperature

: Not available

R. Viscosity

: Dynamic (room temperature): 0.6 mPa · s (0.6 cP)

S. Molecular weight

: 78.12 g/mole

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - May be fatal if swallowed and enters airways
- (Oral)
 - Not available
- (Eye· Skin)
 - Causes skin irritation
 - Causes serious eye irritation

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - * Oral
 - [Benzene] : LD50 > 2000 mg/kg Rat (OECD TG 401) (ECHA)
 - * Dermal
 - [Benzene] : LD50 > 8260 mg/kg (9.4 mL/kg) Guinea pig and rabbit (OECD TG 402) (ECHA)
 - * Inhalation
 - [Benzene] : Vapor LC50 43.7 mg/L 4 hr Rat (OECD TG 403) (ECHA)
- Skin corrosion/irritation
 - Causes skin irritation
- Serious eye damage/irritation
 - Causes serious eye irritation
- Respiratory sensitization
 - Not available
- Skin sensitization
 - Not available
- Carcinogenicity
 - * IARC
 - Not available
 - * OSHA
 - Not available
 - * ACGIH
 - Not available
 - * NTP
 - Not available
 - * EU CLP
 - [Benzene] : Carc. 1A (Benzene)
- Germ cell mutagenicity
 - May cause genetic defects
- Reproductive toxicity
 - Not available
- STOT-single exposure
 - Causes damage to organs
- STOT-repeated exposure
 - Causes damage to organs through prolonged or repeated exposure
- Aspiration hazard
 - May be fatal if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- Fish
 - [Benzene] : LC50 5.3 mg/L 96 hr Oncorhynchus mykiss, NOEC 0.8 mg/L 32 d Pimephales promelas (ECHA)
- Crustaceans
 - [Benzene] : EC50 10 mg/L 48 hr Daphnia magna (ECHA)
- Algae
 - [Benzene] : EC50 32 mg/L 72 hr Raphidocelis subcapitata (ECHA)

B. Persistence and degradability

- Persistence
 - [Benzene] : log Pow 2.13 (25 °C) (ECHA)

- ☐ **Degradability**
 - Not available

C. Bioaccumulative potential

- ☐ **Bioaccumulative potential**
 - Not available

- ☐ **Biodegradation**

- [Benzene] : Not readily biodegradable (NIER)

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 1114

B. Proper shipping name

- BENZENE

C. Hazard Class

- 3

D. IMDG CODE/IATA DGR Packing group

- II

E. Marine pollutant

- Applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-D (Flammable liquids)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- ☐ **POPs Management Law**

- Not applicable

- ☐ **Information of EU Classification**

- * Classification**

- [Benzene] : H225, H350, H340, H372, H304, H319, H315

- ☐ **U.S. Federal regulations**

- * OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

- * CERCLA Section 103 (40CFR302.4)**

- [Benzene] : 4.53599 kg 10 lb

- * EPCRA Section 302 (40CFR355.30)**

- Not applicable

- * EPCRA Section 304 (40CFR355.40)**

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [Benzene] : Applicable

☐ **Rotterdam Convention listed ingredients**

- Not applicable

☐ **Stockholm Convention listed ingredients**

- Not applicable

☐ **Montreal Protocol listed ingredients**

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

2015-06-11

C. Revision number and Last date revised

Revision number : 6

Last date revised : 2025-03-24

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).