

# Material Safety Data Sheet

Version: 02

Revision Date : 14-7-2025

Section 1. Product Information and Company Identification			
<b>Product name</b>	Benzene		
<b>Mol. formula</b>	C <sub>6</sub> H <sub>6</sub>	<b>CAS No.</b>	71-43-2
<b>Mol.wt</b>	78,11 g/mol		
<b>manufacturer name</b>	Pioneers for laboratory chemicals		
<b>Brand name</b>	Piochem		
<b>Address</b>	Area 540, Industrial Zone 6th October city Giza, Egypt.		
<b>Website</b>	www.piochem.com		
<b>E-mail</b>	info@piochem.com		
<b>Phone number</b>	0 12 05700001		

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Skin irritation (Category 2), H315

Eye irritation (Category 2), H319

Germ cell mutagenicity (Category 1B), H340

Carcinogenicity (Category 1A), H350

Specific target organ toxicity - repeated exposure (Category 1), H372

Aspiration hazard (Category 1), H304

Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

#### Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapour.

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273	Avoid release to the environment.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
Supplemental Hazard Statements	none
Restricted to professional users.	

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	:	C <sub>6</sub> H <sub>6</sub>
Molecular weight	:	78,11 g/mol
CAS-No.	:	71-43-2
EC-No.	:	200-753-7
Index-No.	:	601-020-00-8
Registration number	:	01-2119447106-44-XXXX

### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
<b>Benzene</b>		
CAS-No.	71-43-2	Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2; Muta. 1B; Carc. 1A; STOT RE 1; Asp. Tox. 1; Aquatic Chronic 3; H225, H315, H319, H340, H350, H372, H304, H412
EC-No.	200-753-7	
Index-No.	601-020-00-8	
Registration number	01-2119447106-44-XXXX	
		<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice



Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Flash back possible over considerable distance., Container explosion may occur under fire conditions.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**6.3 Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**6.4 Reference to other sections**

For disposal see section 13.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid exposure - obtain special instructions before use.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Flammable liquids



### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Components with workplace control parameters**

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid Colour: clear, colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	freezing point: 5.2 °C - lit.
f) Initial boiling point and boiling range	79-81° C
g) Flash point	-10,99 °C - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 8 %(V) Lower explosion limit: 1,3 %(V)
k) Vapour pressure	221,3 hPa at 37,7 °C 99,5 hPa at 20,0 °C

- l) Vapour density                      No data available
- m) Relative density                  0,875 – 0.879g/cm<sup>3</sup> at 20 °C
- n) Water solubility                    No data available
- o) Partition coefficient: n-  
octanol/water                          log Pow: 2,13 at 25 °C
- p) Auto-ignition  
temperature                              562,0 °C
- q) Decomposition  
temperature                                No data available
- r) Viscosity                                No data available
- s) Explosive properties                No data available
- t) Oxidizing properties                No data available

## 9.2 Other safety information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

acids, Bases, Halogens, Strong oxidizing agents, Metallic salts

### 10.6 Hazardous decomposition products

Other decomposition products - No data available  
In the event of fire: see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - > 5.960 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - female - 4 h - 43,7 mg/l  
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - 8.263 mg/kg

#### Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation - 4 h  
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Eye irritation

**Respiratory or skin sensitisation**

Maximisation Test (GPMT) - Guinea pig  
Result: Does not cause skin sensitisation.

**Germ cell mutagenicity**

Laboratory experiments have shown mutagenic effects. In vivo tests showed mutagenic effects

Chinese hamster lung cells  
Result: positive

OECD Test Guideline 475  
Mouse - male  
Result: positive

**Carcinogenicity**

Carcinogenicity - Human - male - Inhalation  
Tumorigenic: Carcinogenic by RTECS criteria. Leukaemia Blood: Thrombocytopenia.

Carcinogenicity - Rat - Oral  
Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors. Leukaemia

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Benzene)

**Reproductive toxicity**

Reproductive toxicity - Mouse - Intraperitoneal

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity - Rat - Inhalation

Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Developmental Toxicity - Mouse - Inhalation

Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Additional Information**

Repeated dose toxicity Rat - male and female - Oral - NOAEL : 100 mg/kg - OECD Test Guideline 408  
RTECS: CY1400000

Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue.

The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia, aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral blood-forming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased., Blood disorders

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 15,00 - 32,00 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates EC50 - Ceriodaphnia dubia (water flea) - 17,2 mg/l - 48 h

Toxicity to algae Growth inhibition EC50 - Pseudokirchneriella subcapitata (green algae) - 100 mg/l - 72 h  
(OECD Test Guideline 201)

### 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d  
Result: 96 % - Readily biodegradable  
(OECD Test Guideline 301F)

### 12.3 Bioaccumulative potential

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d  
- 0,05 mg/l

Bioconcentration factor (BCF): 10

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

Harmful to aquatic life with long lasting effects.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contaminated packaging  
Dispose of as unused product.



**15.3 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out

**SECTION 16: Other information****Full text of H-Statements referred to under sections 2 and 3.**

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
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