

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Benzene for analysis

Revision date: 07.07.2023

Product code: 22301

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Benzene for analysis

REACH Registration Number: 01-2119447106-44-XXXX  
CAS No: 71-43-2  
Index No: 601-020-00-8  
EC No: 200-753-7

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Uses advised against

Do not use for private purposes (household).

### 1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH  
Street: Stempelstraße 6  
Place: D-47167 Duisburg  
Telephone: 0203/5194-0  
E-mail: info@analytichem.de  
Contact person: Abteilung Produktsicherheit  
E-mail: produktsicherheit@analytichem.de  
Internet: www.analytichem.de  
Responsible Department: Abteilung Produktsicherheit  
Telefax: 0203/5194-290  
Telephone: 0203/5194-107/117

### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

### Further Information

No data available

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Flam. Liq. 2; H225  
Carc. 1A; H350  
Muta. 1B; H340  
Skin Irrit. 2; H315  
Eye Irrit. 2; H319  
STOT RE 1; H372  
Asp. Tox. 1; H304  
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

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

Signal word: Danger

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#### Pictograms:



#### Hazard statements

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 statements

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P331	Do NOT induce vomiting.

#### Special labelling of certain mixtures

Restricted to professional users.

#### 2.3. Other hazards

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Sum formula:	C <sub>6</sub> H <sub>6</sub>
Molecular weight:	78,11 g/mol

#### Hazardous components

CAS No	Chemical name	Quantity
	EC No      Index No      REACH No	
	Classification (Regulation (EC) No 1272/2008)	
71-43-2	benzene	100 %
	200-753-7      601-020-00-8      01-2119447106-44-	
	Flam. Liq. 2, Carc. 1A, Muta. 1B, Skin Irrit. 2, Eye Irrit. 2, STOT RE 1, Asp. Tox. 1, Aquatic Chronic 3; H225 H350 H340 H315 H319 H372 H304 H412	

Full text of H and EUH statements: see section 16.

#### Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
71-43-2	200-753-7	benzene	100 %
		inhalation: LC50 = 13700 mg/l (vapours); oral: LD50 = > 2000 mg/kg	

#### Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

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#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

###### General information

Self-protection of the first aider

###### After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

###### After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

###### After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

###### After ingestion

Observe risk of aspiration if vomiting occurs.

Call a physician immediately.

##### 4.2. Most important symptoms and effects, both acute and delayed

Irritant

Respiratory complaints

Dizziness

Anaesthetic state

Inebriation

Agitation

Gastrointestinal complaints

Headache

##### 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

Foam

Extinguishing powder

Carbon dioxide (CO<sub>2</sub>)

###### Unsuitable extinguishing media

no restriction

##### 5.2. Special hazards arising from the substance or mixture

Combustible liquids

Hazardous combustion products

In case of fire may be liberated: Carbon dioxide (CO<sub>2</sub>) Carbon monoxide

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Heating causes rise in pressure with risk of bursting.

Beware of reignition.

##### 5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

In case of fire and/or explosion do not breathe fumes.

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Avoid contact with skin, eyes and clothes.

#### Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

Use water spray jet to protect personnel and to cool endangered containers.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### General advice

Keep away from sources of ignition - No smoking.

This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).

Take action to prevent static discharges.

##### For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

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

##### For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

Danger of explosion

#### 6.3. Methods and material for containment and cleaning up

##### For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

##### For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

##### Other information

Provide adequate ventilation.

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

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

#### 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

##### Advice on safe handling

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff. Keep container tightly closed.

Use personal protection equipment. Use extractor hood (laboratory).

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Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

**Advice on protection against fire and explosion**

Take action to prevent static discharges. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Advice on general occupational hygiene**

Keep away from food, drink and animal feedingstuffs.

**Further information on handling**

Take off immediately all contaminated clothing and wash it before reuse.

Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Store in a place accessible by authorized persons only.

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

**Requirements for storage rooms and vessels**

Keep in a cool, well-ventilated place. Keep container dry.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Further information on storage conditions**

Keep cool. Protect from sunlight.

storage temperature +5°C - +30°C

**7.3. Specific end use(s)**

Laboratory chemicals

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Occupational exposure limits**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fib/cm <sup>3</sup>	Category	Origin
71-43-2	Benzene	1	3.25		TWA (8 h)	

**Biological limit values**

CAS No	Substance	Parameter	Value	Test material	Sampling time
71-43-2	Benzene	S-Phenylmercapturic acid	25 µg/g	Creatinine	End of shift

**PNEC values**

CAS No	Substance	Value
71-43-2	benzene	
	Freshwater	1,9 mg/l
	Freshwater (intermittent releases)	1,9 mg/l
	Marine water	1,9 mg/l
	Freshwater sediment	33 mg/kg
	Marine sediment	33 mg/kg
	Micro-organisms in sewage treatment plants (STP)	39 mg/l
	Soil	4,8 mg/kg

**Additional advice on limit values**

DIN EN 482

DIN EN 689

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#### 8.2. Exposure controls

##### Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

##### Individual protection measures, such as personal protective equipment

##### Eye/face protection

goggles

Face protection umbrella

##### Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Trade name/designation KCL 890 Vitoject®

Suitable material: FKM (fluoro rubber) 0,7 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation KCL 890 Vitoject®

Suitable material: FKM (fluoro rubber) 0,7 mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

##### Skin protection

Take off immediately all contaminated clothing and wash it before reuse.

Wear fire resistant or flame retardant clothing.

Wash hands and face before breaks and after work and take a shower if necessary.

Draw up and observe skin protection programme.

##### Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Filtering device with filter or ventilator filtering device of type: A-(P3)

##### Environmental exposure controls

Do not allow to enter into surface water or drains.

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Danger of explosion

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	characteristic
Odour threshold:	No data available
Melting point/freezing point:	5,5 °C
Boiling point or initial boiling point and boiling range:	80 °C
Flammability:	No data available
Lower explosion limits:	1,2 vol. %

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Upper explosion limits:	7,8 vol. %
Flash point:	-11 °C
Auto-ignition temperature:	498 °C
Decomposition temperature:	No data available
pH-Value:	No data available
Viscosity / kinematic: (at 20 °C)	0,78 mm <sup>2</sup> /s
Water solubility: (at 23,5 °C)	1,88 g/L
Solubility in other solvents	No data available
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure: (at 20 °C)	100 hPa
Vapour pressure:	No data available
Density:	0,88 g/cm <sup>3</sup>
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

#### 9.2. Other information

##### Information with regard to physical hazard classes

###### Explosive properties

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Sustaining combustion: No data available

###### Self-ignition temperature

Solid: No data available

Gas: No data available

###### Oxidizing properties

No data available

##### Other safety characteristics

Evaporation rate: No data available

Solvent separation test: No data available

Solvent content: 100%

Solid content: No data available

Sublimation point: No data available

Softening point: No data available

Pour point: No data available

Viscosity / dynamic: No data available

Flow time: No data available

##### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Vapours may form explosive mixtures with air.

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

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Oxidising agent  
halogenated hydrocarbons  
Nitric acid  
peroxides, for example hydrogen peroxide  
Chlorine  
Fluorine  
Oxygen  
sulphuric acid  
Hydrochloric acid

**10.4. Conditions to avoid**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Heat

**10.5. Incompatible materials**

plastic and rubber

**10.6. Hazardous decomposition products**

SECTION 5: Firefighting measures

**Further information**

No data available

**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Toxicokinetics, metabolism and distribution**

No data available

**Acute toxicity**

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
71-43-2	benzene				
	oral	LD50 > 2000 mg/kg	Rat	Toxic. Appl. Pharmac. 19, 699-704 (1971)	OECD Guideline 401
	inhalation (4 h) vapour	LC50 13700 mg/l	Rat	Toxic. Appl. Pharmacol. 27, 183-193 (197)	OECD Guideline 403

**Irritation and corrosivity**

Causes skin irritation.  
Causes serious eye irritation.  
Has degreasing effect on the skin.

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

May cause genetic defects. (benzene)  
May cause cancer. (benzene)  
Reproductive toxicity: Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Causes damage to organs through prolonged or repeated exposure. (benzene)  
blood



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**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Information on likely routes of exposure**

No data available

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards**

**Endocrine disrupting properties**

No data available

**Other information**

Irritant  
Respiratory complaints  
Dizziness  
Anaesthetic state  
Inebriation  
Agitation  
Gastrointestinal complaints  
Headache

**Further information**

Avoid exposure - obtain special instructions before use.

**SECTION 12: Ecological information**

**12.1. Toxicity**

Harmful to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method	
71-43-2	benzene						
	Acute fish toxicity	LC50 5,3 mg/l	96 h	Oncorhynchus mykiss	Arch. Environm. Contam. Toxicol. 11,487-	OECD Guideline 203	
	Acute algae toxicity	ErC50 32 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (2001)	OECD Guideline 201	
	Acute crustacea toxicity	EC50 377 mg/l	48 h	other aquatic crustacea:	REACH Registration Dossier	Method: other	
	Fish toxicity	NOEC 3,1 mg/l	28 d	Morone saxatilis	US Nat. Mar. Fish Serv. Fish. Bull. 74,6	Juvenile striped bass were exposed to be	
	Crustacea toxicity	NOEC mg/l ca. 0,17	20 d	other aquatic crustacea:	REACH Registration Dossier	Method: other	

**12.2. Persistence and degradability**

96 %; 28 d; aerob  
Readily biodegradable (according to OECD criteria).

**12.3. Bioaccumulative potential**

No indication of bioaccumulation potential.

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**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
71-43-2	benzene	2,13

**BCF**

CAS No	Chemical name	BCF	Species	Source
71-43-2	benzene	< 10	Leuciscus idus melanotus	Chemosphere 14 (10)

**12.4. Mobility in soil**

log Koc: 1,93

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This substance does not have endocrine disrupting properties with respect to non-target organisms.

**12.7. Other adverse effects**

Do not allow to enter into surface water or drains.

Avoid release to the environment.

**Further information**

No data available

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not empty into drains.

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 1114
<b>14.2. UN proper shipping name:</b>	BENZENE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	33
Tunnel restriction code:	D/E

**Inland waterways transport (ADN)**

<b>14.1. UN number or ID number:</b>	UN 1114
<b>14.2. UN proper shipping name:</b>	BENZENE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Classification code:	F1

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Limited quantity: 1 L  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 1114  
**14.2. UN proper shipping name:** BENZENE  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** II  
 Hazard label: 3  
 Special Provisions: -  
 Limited quantity: 1 L  
 Excepted quantity: E2  
 EmS: F-E, S-D

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 1114  
**14.2. UN proper shipping name:** BENZENE  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** II  
 Hazard label: 3  
 Limited quantity Passenger: 1 L  
 Passenger LQ: Y341  
 Excepted quantity: E2  
 IATA-packing instructions - Passenger: 353  
 IATA-max. quantity - Passenger: 5 L  
 IATA-packing instructions - Cargo: 364  
 IATA-max. quantity - Cargo: 60 L

**SECTION 15: Regulatory information**

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**EU regulatory information**

Restrictions on use (REACH, annex XVII):  
 Entry 3, Entry 28, Entry 40

Information according to 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water hazard class (D): 3 - highly hazardous to water

**SECTION 16: Other information**

**Changes**

This data sheet contains changes from the previous version in section(s): 12.

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#### Abbreviations and acronyms

Flam. Liq: Flammable liquid  
Asp. Tox: Aspiration hazard  
Skin Irrit: Skin irritation  
Eye Irrit: Eye irritation  
Muta: Germ cell mutagenicity  
Carc: Carcinogenicity  
STOT RE: Specific target organ toxicity - repeated exposure  
Aquatic Chronic: Chronic aquatic hazard

#### Relevant H and EUH statements (number and full text)

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.

#### Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.