

## Chemical Safety Data Sheet MSDS / SDS

**BENZENE-D5**

Revision Date:2026-03-21 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : BENZENE-D5  
CBnumber : CB9493926  
CAS : 13657-09-5  
Synonyms : Benzene-d<sub>5</sub>;BENZENE-D5, 99 ATOM % D

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P331 Do NOT induce vomiting.

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

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

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P273 Avoid release to the environment.

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

**Hazard statements**

H412 Harmful to aquatic life with long lasting effects

H372 Causes damage to organs through prolonged or repeated exposure

H350 May cause cancer

H340 May cause genetic defects

H319 Causes serious eye irritation

H315 Causes skin irritation

H304 May be fatal if swallowed and enters airways

H225 Highly Flammable liquid and vapour

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## SECTION 3: Composition/information on ingredients

### Substance

Product name : BENZENE-D5  
Synonyms : Benzene-d<sub>5</sub>; BENZENE-D5, 99 ATOM % D  
CAS : 13657-09-5  
MF : C6HD5  
MW : 83.14

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## SECTION 4: First aid measures

### General advice

Show this safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. Call in physician.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

### If swallowed

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

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

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

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## SECTION 5: Firefighting measures

### **Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>) Foam Dry powder

### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

### **Specific hazards during fire fighting**

Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

### **Hazardous combustion products**

Carbon oxides

### **Specific extinguishing methods**

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### **Special protective equipment for fire-fighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.

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## SECTION 7: Handling and storage

### **Handling**

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

## Storage

### Further information on storage conditions

Keep container tightly closed in a dry and wellventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorised persons.

### Storage class

3, Flammable liquids

### Recommended storage temperature

Recommended storage temperature see product label.

### Packaging material

Suitable material: Mild Steel Drum

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## SECTION 8: Exposure controls/personal protection

### Ingredients with workplace control parameters

Biological occupational exposure limits turic acid soon as possible after exposure ceases)

### Engineering measures

No data available

### Personal protective equipment

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Recommended Filter type

Filter A-(P3)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### Eye/face protection

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

Safety glasses

#### Skin and body protection

Flame retardant antistatic protective clothing.

#### Hand protection

##### Material

Viton®

##### Break through time

480 min

##### Glove thickness

0.7 mm

##### Protective index

Full contact

**Manufacturer**

Vitoject® (KCL 890 / Aldrich Z677698, Size M)

**Material**

Nitrile rubber

**Break through time**

10 min

**Glove thickness**

0.4 mm

**Protective index**

Splash contact

**Manufacturer**

Camatril® (KCL 730 / Aldrich Z677442, Size M)

**Remarks**

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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D- 36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

liquid

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**Color**

No data available

**Odor**

No data available

**Odor Threshold**

No data available

**pH**

No data available

**Melting point/ range**

5.5 °C

Method: lit.

**Boiling point/boiling range**

80 °C

Method: lit.

**Flash point**

-11 °C

Method: closed cup

**Evaporation rate**

No data available

**Flammability (solid, gas)**

No data available

**Flammability (liquids)**

No data available

**Burning rate**

No data available

**Upper explosion limit / Upper flammability limit**

No data available

**Lower explosion limit / Lower flammability limit**

No data available

**Vapor pressure**

No data available

**Relative vapor density**

No data available

**Relative density**

0.930 g/mL at 25 °C

**Density**

0.93 g/mL (25 °C) 0.93 g/cm<sup>3</sup> (25 °C)

**Water solubility**

No data available

**Partition coefficient: n-octanol/water**

No data available

**Autoignition temperature**

No data available

**Decomposition temperature**

No data available

**Viscosity, dynamic**

No data available

**Viscosity, kinematic**

No data available

**Flow time**

No data available

**Explosive properties**

No data available

**Oxidizing properties**

none

**Molecular weight**

83.10 g/mol

**Particle characteristics Particle size**

No data available

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**SECTION 10: Stability and reactivity****Reactivity**

Vapours may form explosive mixture with air.

**Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

**Possibility of hazardous reactions**

Exothermic reaction with: halogens Halogenated hydrocarbon in the presence of: Light metals Risk of explosion with: halogen-halogen compounds Nitric acid Boranes Ozone peroxi compounds perchlorates permanganic acid perchloryl fluoride Strong oxidizing agents Chlorine fluorides uranium hexafluoride Oxygen liquid Risk of ignition or formation of inflammable gases or vapours with: chromium(VI) oxide Fluorine nitril compounds Oxygen oxyhalogenic compounds Violent reactions possible with: mineral acids sulfur

**Conditions to avoid**

Warming.

**Incompatible materials**

No data available

**Hazardous decomposition products**

In the event of fire: see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - > 2,000 mg/kg (OECD Test Guideline 401)

Symptoms: Nausea

LC50 Inhalation - Rat - female - 4 h - 43.7 mg/l - vapour (OECD Test Guideline 403)

Symptoms: Possible damages:, mucosal irritations

LD50 Dermal - Rabbit - male and female - > 8,260 mg/kg (OECD Test Guideline 402)

#### Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 4 h (OECD Test Guideline 404)

Remarks: Drying-out effect resulting in rough and chapped skin.

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

Remarks: (ECHA)

#### Respiratory or skin sensitization

Maximisation Test - Guinea pig

Result: negative (OECD Test Guideline 406)

#### Germ cell mutagenicity

May cause genetic defects.

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: US-EPA

Result: positive

Test Type: Mutagenicity (mammal cell test): micronucleus.

Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapour)

Method: OECD Test Guideline 474

Result: positive

#### Carcinogenicity

May cause cancer. Positive evidence from human epidemiological studies.

#### Reproductive toxicity

Classified based on available data. For more details, see section 2

#### Specific target organ toxicity - single exposure

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

- Blood

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### **Aspiration hazard**

Aspiration may cause pulmonary oedema and pneumonitis.

### **11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 120 d - No observed adverse effect level - 100 mg/kg - Lowest observed adverse effect level - 25 mg/kg

Remarks: Subchronic toxicity

Systemic effects:

After absorption: agitation

Headache

Dizziness inebriation

Tiredness

CNS disorders narcosis respiratory arrest

Subacute toxicity

After a latency period:

Changes in the blood count haemolysis

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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## **SECTION 12: Ecological information**

### **Ecotoxicity**

#### **Components:**

#### **Benzene-d5:**

##### **Toxicity to fish**

LC50 (Oncorhynchus mykiss (rainbow trout)): 5.3 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203

##### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (Daphnia magna (Water flea)): 10 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202

##### **Toxicity to algae/aquatic plants**

ErC50 (Pseudokirchneriella subcapitata (green algae)): 100 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

##### **Toxicity to fish (Chronic toxicity)**

NOEC (Pimephales promelas (fathead minnow)): 0.8 mg/l Exposure time: 32 d Test Type: flow-through test Analytical monitoring: yes

Remarks: (ECHA)

### **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

NOEC (Ceriodaphnia dubia (water flea)): 3 mg/l End point: reproduction rate Exposure time: 7 d Test Type: semi-static test Analytical monitoring: yes Method: US-EPA

### **Ecotoxicology Assessment**

#### **Chronic aquatic toxicity**

Harmful to aquatic life with long lasting effects.

#### **Persistence and degradability**

#### **Components:**

##### **Benzene-d5:**

#### **Biodegradability**

aerobic Inoculum: activated sludge, non-adapted Concentration: 17 mg/l Result: Readily biodegradable. Biodegradation: 96 % Exposure time: 28 d Method: OECD Test Guideline 301F GLP: yes

#### **Bioaccumulative potential**

#### **Components:**

##### **Benzene-d5:**

#### **Bioaccumulation**

Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 10 Exposure time: 3 d Concentration: 0.05 mg/l

#### **Mobility in soil**

No data available

#### **Other adverse effects**

#### **Components:**

##### **Benzene-d5:**

#### **Additional ecological information**

Endangers drinking-water supplies if allowed to enter soil or water. Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### **Disposal methods**

#### **Waste from residues**

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## SECTION 14: Transport information

## International Regulations

### IATA-DGR

UN/ID No. : UN 1114

Proper shipping name : Benzene

Class : 3

Packing group : II

Labels : Class 3 - Flammable liquids

Packing instruction (cargo aircraft) : 364

Packing instruction (passenger aircraft) : 353

### IMDG-Code

UN number : UN 1114

Proper shipping name : BENZENE

Class : 3

Packing group : II

Labels : 3

EmS Code : F-E, S-D

Marine pollutant : no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

## National Regulations

### JT/T 617

UN number : UN 1114

Proper shipping name : BENZENE

Class : 3

Packing group : II

Labels : 3

Environmentally hazardous : no

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15: Regulatory information

Downstream users need to comply with the conditions of safe use of the chemical, understand the environmental and health hazard and risk management measures identified on the SDS as well as the local/national regulations concerning the chemical.

### National regulatory information

**Law on the Prevention and Control of Occupational Diseases**

**Regulations on Safety Management of Hazardous Chemicals**

**Catalogue of Hazardous Chemicals**

Listed

**Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)**

**No. / Code Chemical name / Category Threshold quantity 57 Benzene 50 t**

**Hazardous Chemicals for Priority Management**

Listed under SAWS

**Catalogue of Specially Controlled Hazardous**

Not listed Chemicals

**List of Explosive Precursors**

Not listed

**List of Toxic and Hazardous Soil Pollutants**

Listed

**Regulations on Labour Protection in Workplaces where Toxic Substances are Used**

**Catalogue of Highly Toxic Chemicals**

Listed

**Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

**China Severely Restricted Toxic Chemicals for Import and Export**

Not listed

**Measures on the Environmental Administration of New Chemical Substances Registration**

**Registration/Notification number**

B1A222223533

**Regulation on the Administration of Precursor Chemicals**

**Catalogue and Classification of Precursor Chemicals**

Not listed

**Regulations on the Administration of Controlled Chemicals**

**List of Controlled Chemicals**

Not listed

## **Regulations of Ozone Depleting Substances Management**

### **List of Controlled Ozone Depleting Substances**

Not listed

### **List of Controlled Ozone Depleting Substances Import and Export**

Not listed

## **Environmental Protection Law**

### **List of Priority Controlled Chemicals**

Listed

### **List of Key Controlled New Pollutants**

Not listed

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## **SECTION 16: Other information**

### **Full text of other abbreviations**

#### **ACGIH**

USA. ACGIH Threshold Limit Values (TLV)

#### **ACGIH BEI**

ACGIH - Biological Exposure Indices (BEI)

#### **CN BEI**

China. Biological Occupational Exposure Indices

#### **GBZ 2.1-2007**

Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

#### **ACGIH / TWA**

8-hour, time-weighted average

#### **GBZ 2.1-2007 / PC-TWA**

Permissible concentration - time weighted average

**GBZ 2.1-2007 / PC-STEL** AIIIC - Australian Invent Transport by Land of Bra bw - Body weight; **CMR** Standard of the German List (Canada); **ECx** - Conc associated with x%respo Chemical Substances (Jap response; **ERG** - Emerge GLP - Good Laboratory P cer; **IATA** - International Construction and Equipm Half maximal inhibitory c tion; **IECSC** - Inventory o tional Maritime Dangerou **Industrial Safety and H Standardisation**; **KECI** - K tration to 50 % of a test (Median Lethal Dose); **MA** lution from Ships; **MERC** of **Dangerous Goods**; **n.o.** - No Observed (Adverse) fect Level; **NOELR** - No Norm; **NTP** - National Toxi icals; **OECD** - Organisatio fice of **Chemical Safety a and Toxic substance**; **PIC** stances; **(Q)SAR** - (Quant (EC) No 1907/2006 of th Registration, Evaluation, **Accelerating Decompositi Chemical Substance Inve Thailand Existing Chemica States**); **UN** - United Nat Transport of Dangerous **WHMIS** - Workplace Hazar

Permissible concentration - short term exposure limit ry of Industrial Chemicals

**ANTT** - National Agency for il

**ASTM** - American Society for the Testing of Materials

- Carcinogen, Mutagen or Reproductive Toxicant

DIN Institute for Standardisation

DSL - Domestic Substances Notification associated with x% response

ELx - Loading rate

EmS - Emergency Schedule

ENCS - Existing and New (n)

ErCx - Concentration associated with x% growth rate (y) Response Guide

GHS - Globally Harmonised System

actice

IARC - International Agency for Research on Cancer Transport Association

IBC - International Code for the Transport of Ships carrying Dangerous Chemicals in Bulk

IC50 - Concentration

ICAO - International Civil Aviation Organization - Existing Chemical Substances in China

IMDG - International Maritime Goods

IMO - International Maritime Organisation

ISHL - International Law (Japan)

ISO - International Organisation for Standardisation Existing Chemicals Inventory

LC50 - Lethal Concentration

LD50 - Lethal Dose to 50% of a test population POL - International Convention for the Prevention of Pollution from Ships - SUR - The Agreement for the Facilitation of the Transport of Dangerous Goods - Not Otherwise Specified

NCh - Chilean Norm

NO(A)EC - No Observed (Adverse) Effect Concentration

NO(A)EL - No Observed (Adverse) Effect Loading Rate

NOM - Official Mexican Nomenclature Program

NZIoC - New Zealand Inventory of Chemicals for Economic Co-operation and Development

OPPTS - Office of Pollution Prevention

PBT - Persistent, Bioaccumulative and Toxic - Philippines Inventory of Chemicals and Chemical Substances) Structure Activity Relationship

REACH - Regulation of the European Parliament and of the Council concerning the Restriction and Regulation of Chemicals

SADT - Self-Heating Temperature

SDS - Safety Data Sheet

TCSI - Taiwan Chemical Safety Inventory

TDG - Transportation of Dangerous Goods

TECI - Toxic Chemicals Inventory

TSCA - Toxic Substances Control Act (United States)

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

vPvB - Very Persistent and Very Bioaccumulative

Chemical Materials Information System

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.