

## Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)  
Classifications according to Regulation (EC) No 1272/2008.  
Printdate 08 Jan 2025

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product name:

Benzene-d6

### 1.1. Catalog No.:

1002-1X100ML

### 1.2. Relevant identified uses of the substance or mixture

Identified: Laboratory chemical  
uses: R&D

### 1.3. Uses advised against:

HPC Standards GmbH  
Permoserstrasse 15

04318 Leipzig  
Germany

Tel. +49 341 5295 183  
Fax. +49 341 5295 182  
E-mail: info@armar-europa.de

## 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  
Long-term (chronic) aquatic hazard (Category 3), H412

### 2.2. Label elements

#### 2.2.1. Pictogram



#### 2.2.2.

2.2 Label elements  
Labelling according Regulation (EC) No 1272/2008  
Pictogram Signal word Danger  
Hazard statement(s)  
H225 Highly flammable liquid and vapor.  
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 + P331 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.  
P302 + P352 IF ON SKIN: Wash with plenty of water.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
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.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances  
Synonyms : Hexadeuterobenzene  
Formula : C6D6  
Molecular weight : 84,15 g/mol  
CAS-No. : 1076-43-3  
EC-No. : 214-061-8  
Component Classification Concentration  
(2H6)benzene  
Flam. Liq. 2; Skin Irrit. 2;  
Eye Irrit. 2; Muta. 1B;  
Carc. 1A; STOT RE 1; Asp.  
Tox. 1; Aquatic Chronic 3;  
<= 100 % H225, H315, H319, H340,  
H350, H372, H304, H412

#### 3.1.1. Formula

C6D6

#### 3.1.2. Molecular Weight (g/mol)

84.15

### 3.1.3. CAS-No.

1076-43-3

## 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### General advice

Consult a physician. Show this material 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

## 5. FIRE-FIGHTING 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

### 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

## 6. ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors 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 wetbrushing and place in container for disposal according to local regulations (see section

13).  
6.4 Reference to other sections  
For disposal see section 13

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes.

Avoid inhalation of vapor or mist.

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.

Handle and store under inert gas. hygroscopic

### 7.3 Specific end use(s)

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

## 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 gloves 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.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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 fullface 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance Form: liquid

Color: colorless

- b) Odor No data available
- c) Odor Threshold No data available
- d) pH No data available
- e) Melting point/freezing point  
Melting point/range: 6,8 °C - lit.
- f) Initial boiling point and boiling range  
79,1 °C at 1.013 hPa - lit g) Flash point -11 °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) Vapor pressure 221 hPa at 37,7 °C  
99,5 hPa at 20 °C
- l) Vapor density 2,91 - (Air = 1.0)
- m) Relative density 0,95 g/cm<sup>3</sup> at 25 °C
- n) Water solubility No data available
- o) Partition coefficient: n-octanol/water  
log Pow: 2,13 at 25 °C
- p) Autoignition temperature  
No data available
- 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  
Relative vapor density  
2,91 - (Air = 1.0)

## 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, metal salts
- 10.6 Hazardous decomposition products  
Hazardous decomposition products formed under fire conditions. - Carbon oxides  
Other decomposition products - No data available  
In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects

Acute toxicity  
LD50 Oral - Rat - male - > 2.000 mg/kg  
(OECD Test Guideline 401)  
LC50 Inhalation - Rat - female - 4 h - 43,7 mg/l  
(OECD Test Guideline 403)  
Skin corrosion/irritation  
Skin - Rabbit  
Result: Irritating to skin. - 4 h  
(OECD Test Guideline 404)  
Serious eye damage/eye irritation  
Eyes - Rabbit  
Result: Eye irritation  
Remarks: (ECHA)  
Respiratory or skin sensitization  
Maximization Test - Guinea pig  
Result: negative  
(OECD Test Guideline 406)  
Germ cell mutagenicity  
May cause genetic defects.  
Ames test  
Salmonella typhimurium  
Result: negative  
Mutagenicity (mammal cell test): chromosome aberration.  
Chinese hamster lung cells  
Result: positive  
In vitro mammalian cell gene mutation test  
Result: positive  
OECD Test Guideline 474  
Mouse - male - Bone marrow  
Result: positive Carcinogenicity  
May cause cancer. Positive evidence from human epidemiological studies.  
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
Reproductive toxicity  
No data available  
Specific target organ toxicity - single exposure  
No data available  
Specific target organ toxicity - repeated exposure  
Causes damage to organs through prolonged or repeated exposure. - Blood  
Aspiration hazard  
May be fatal if swallowed and enters airways Additional Information  
Repeated dose toxicity - Rat - male and female - Oral - 120 d - NOAEL (No observed adverse effect level) - 100 mg/kg - LOAEL (Lowest observed adverse effect level) - 25 mg/kg  
Subchronic toxicity  
RTECS: Not available  
Nausea, Dizziness, Headache, 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 bloodforming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased.. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.  
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.  
Blood - Irregularities - Based on Human Evidence

## 12. ECOLOGICAL INFORMATION

12.1 Toxicity  
Toxicity to fish flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 5,3 mg/l - 96 h  
(OECD Test Guideline 203)  
Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - 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((2H6)benzene)  
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.  
Endangers drinking-water supplies if allowed to enter soil or water.  
Discharge into the environment must be avoided

## 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.

## 14. TRANSPORT INFORMATION

14.1 UN number  
ADR/RID: 1114 IMDG: 1114 IATA: 1114  
14.2 UN proper shipping name  
ADR/RID: BENZENE  
IMDG: BENZENE  
IATA: Benzene  
14.3 Transport hazard class(es)  
ADR/RID: 3 IMDG: 3 IATA: 3  
14.4 Packaging group  
ADR/RID: II IMDG: II IATA: II  
14.5 Environmental hazards  
ADR/RID: no IMDG Marine pollutant: no IATA: no  
14.6 Special precautions for user  
No data available

## 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use  
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)

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: (2H6)benzene

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

## 16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. For lab use only!