

Material Safety Data Sheet

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Version 2.0

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	BENZENE-D6, 99.6 ATOM % D
Product Number	151815
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
BENZENE 99.5 ATOM % D	1076-43-3	214-061-8	601-020-00-8
Formula	C6D6		
Molecular Weight	84.16 AMU		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

May cause cancer. May cause heritable genetic damage. Highly flammable. Irritating to eyes and skin. Also toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Harmful: may cause lung damage if swallowed.
Carc. Cat.1 Muta. Cat.2

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

Assure adequate flushing of the eyes by separating the eyelids with fingers.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon Dioxide, dry chemical powder, or appropriate foam. Water can be applied as a spray or fog and if properly applied is capable of extinguishing the fire by sweeping the flames off the surface of the burning liquid.

SPECIAL RISKS

Specific Hazard(s): Vapor may travel considerable distance to source of ignition and flash back. Flammable liquid.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SPECIFIC METHOD(S) OF FIRE FIGHTING

Use water spray to cool fire-exposed containers.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame.

SPECIAL REQUIREMENTS: Handle and store under inert gas. Hygroscopic.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood. Use nonsparking tools.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

PERSONAL PROTECTIVE EQUIPMENT

Special Protective Measures: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

9 - Physical and Chemical Properties

Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	79.1 °C	760 mmHg
MP/MP Range	6.8 °C	
Flash Point	-11 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	562 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 1.3 % Upper: 8 %	
Vapor Pressure	74.6 mmHg	20 °C
SG/Density	0.95 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	2.77 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Moisture.

Materials to Avoid: Acids, Bases, Halogens, Strong oxidizing agents, Avoid contact with metal salts.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Nausea, dizziness, and headache. Narcotic effect. 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 effects.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Blood. Bone marrow. Eyes. Female reproductive system.

CHRONIC EXPOSURE - CARCINOGEN

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

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.
CMR CAT.: Carc. Cat.1

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1114
Class: 3
PG: II
Proper Shipping Name: Benzene

IMDG

UN#: 1114
Class: 3
PG: II
Proper Shipping Name: Benzene
Marine Pollutant: No

Severe Marine Pollutant: No

IATA

UN#: 1114

Class: 3

PG: II

Proper Shipping Name: Benzene

Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 601-020-00-8

NOTA: E

INDICATION OF DANGER: F T

Highly Flammable. Toxic.

R-PHRASES: 45 46 11 36/38 48/23/24/25 65

May cause cancer. May cause heritable genetic damage. Highly flammable. Irritating to eyes and skin. Also toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Harmful: may cause lung damage if swallowed.

S-PHRASES: 53 45

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 3 (Self classification)

SWITZERLAND

SWISS POISON CLASS: 1

16 - Other Information

WARRANTY

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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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