

## Material Safety Data Sheet acc. to ISO/DIS 11014

Printing date 04/13/2006

Reviewed on 04/13/2006

### 1 Identification of substance

- **Product details**
- **Trade name:** *benzene*
- **Application of the substance / the preparation** *Solvents*
- **Manufacturer/Supplier:**  
FDSC  
9, Avenue Bel Air  
F-13400 AUBAGNE
- **Information department:** *Laboratory*
- **Emergency information:** *CHEMTREC 800-424-9300*

### 2 Composition/Data on components

- **Chemical characterization:**
- **CAS No. Description**  
*71-43-2 benzene*
- **Identification number(s)**
- **EINECS Number:** *200-753-7*
- **EU Number:** *601-020-00-8*

### 3 Hazards identification

- **Hazard description:**



*Carc. Cat. 1, Muta. Cat. 2*  
*Toxic*  
*Highly flammable*

- **Information pertaining to particular dangers for man and environment:**

*May cause cancer.*  
*May cause heritable genetic damage.*  
*Highly flammable.*  
*Irritating to eyes and skin.*  
*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.*

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



*Health = 3*  
*Fire = 3*  
*Reactivity = 0*

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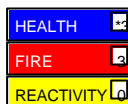
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· **HMIS-ratings (scale 0 - 4)**



Health = \*3

Fire = 3

Reactivity = 0

### 4 First aid measures

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.

### 5 Fire fighting measures

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.

### 7 Handling and storage

- **Handling:**
- **Information for safe handling:** Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Keep respiratory protective device available.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.

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Store in cool, dry conditions in well sealed receptacles.

### 8 Exposure controls and personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

#### 71-43-2 benzene

PEL	Short-term value: 15* mg/m <sup>3</sup> , 5* ppm Long-term value: 3* mg/m <sup>3</sup> , 1* ppm *Table Z-2 for exclusions in 29 CFR 1910.1028
REL	Short-term value: 3.2 mg/m <sup>3</sup> , 1 ppm Long-term value: 0.32 mg/m <sup>3</sup> , 0.1 ppm
TLV	Short-term value: 8 mg/m <sup>3</sup> , 2.5 ppm Long-term value: 1.6 mg/m <sup>3</sup> , 0.5 ppm Skin; BEI

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**



Tightly sealed goggles

### 9 Physical and chemical properties

· **General Information**

<b>Form:</b>	Fluid
<b>Color:</b>	Colorless
<b>Odor:</b>	Aromatic

· **Change in condition**

**Melting point/Melting range:** 6°C (43°F)  
**Boiling point/Boiling range:** 80°C (176°F)

· **Flash point:** -11°C (12°F)

· **Ignition temperature:** 555°C (1031°F)

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

<b>Lower:</b>	1.2 Vol %
<b>Upper:</b>	8 Vol %

· **Vapor pressure at 20°C (68°F):** 100 hPa (75 mm Hg)

· **Density at 20°C (68°F):** 0.88 g/cm<sup>3</sup>

· **Solubility in / Miscibility with**

**Water at 20°C (68°F):** 0.7 g/l

· **Viscosity:**

**Dynamic at 20°C (68°F):** 0.66 mPas

### 10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

· **Dangerous reactions** No dangerous reactions known.

· **Dangerous products of decomposition:** No dangerous decomposition products known.

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### 11 Toxicological information

**· Acute toxicity:**

**· LD/LC50 values that are relevant for classification:**

Oral	LD50	4894 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
Inhalative	LC50/4 h	9980 mg/l (mouse)

**· Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

### 12 Ecological information

**· General notes:**

Water hazard class 3 (Assessment by list): extremely hazardous for water  
Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into the ground.

### 13 Disposal considerations

**· Product:**

**· Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**· Uncleaned packagings:**

**· Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

**· DOT regulations:**



- **Hazard class:** 3
- **Identification number:** UN1114
- **Packing group:** II
- **Proper shipping name (technical name):** BENZENE

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· **Label** 3

· **Land transport ADR/RID (cross-border):**



· **ADR/RID class:** 3 (F1) Flammable liquids  
 · **Danger code (Kemler):** 33  
 · **UN-Number:** 1114  
 · **Packaging group:** II  
 · **Label:** 3  
 · **Description of goods:** 1114 BENZENE

· **Maritime transport IMDG:**



· **IMDG Class:** 3  
 · **UN Number:** 1114  
 · **Label** 3  
 · **Packaging group:** II  
 · **EMS Number:** F-E,S-D  
 · **Propper shipping name:** BENZENE

· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 3  
 · **UN/ID Number:** 1114  
 · **Label** 3  
 · **Packaging group:** II  
 · **Propper shipping name:** BENZENE

### 15 Regulations

- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is listed.
- **TSCA (Toxic Substances Control Act):** Substance is listed.
- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is listed.

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· **Chemicals known to cause developmental toxicity:** Substance is listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency) A**

· **IARC (International Agency for Research on Cancer) 1**

· **NTP (National Toxicology Program) K**

· **TLV (Threshold Limit Value established by ACGIH) A1**

· **NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is listed.**

· **OSHA-Ca (Occupational Safety & Health Administration) Substance is listed.**

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

· **Hazard symbols:**



Carc. Cat. 1, Muta. Cat. 2

Toxic

Highly flammable

· **Risk phrases:**

May cause cancer.

May cause heritable genetic damage.

Highly flammable.

Irritating to eyes and skin.

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.

· **Safety phrases:**

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).

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Service protection de l'environnement