



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 10/01/2014

Version 1.2

## SECTION 1. Identification

### Product identifier

Product number	BX0212
Product name	Benzene For HPLC and Spectrophotometry OmniSolv®
CAS-No.	71-43-2

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

Identified uses	Reagent for analysis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 2, H225  
Acute toxicity, Category 4, Oral, H302  
Skin irritation, Category 2, H315  
Eye irritation, Category 2A, H319  
Germ cell mutagenicity, Category 1B, H340  
Carcinogenicity, Category 1A, H350  
Specific target organ systemic toxicity - repeated exposure, Category 1, Blood, H372  
Aspiration hazard, Category 1, H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

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## *Hazard Statements*

H340 May cause genetic defects.

H350 May cause cancer.

H225 Highly flammable liquid and vapor.

H302 Harmful if swallowed.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H372 Causes damage to organs (Blood) through prolonged or repeated exposure.

## *Precautionary Statements*

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

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

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

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

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula

C<sub>6</sub>H<sub>6</sub> (Hill)

Molar mass

78.11 g/mol

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## Hazardous ingredients

*Chemical Name ( Concentration)*

CAS-No.

*benzene ( >= 90 % - <= 100 % )*

71-43-2

Exact percentages are being withheld as a trade secret.

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## SECTION 4. First aid measures

### Description of first-aid measures

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

*Skin contact*

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

*Eye contact*

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

*Ingestion*

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

Never give anything by mouth to an unconscious person.

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

irritant effects, respiratory arrest, Dizziness, narcosis, inebriation, euphoria, agitation, Nausea, Headache, Tiredness, CNS disorders

Drying-out effect resulting in rough and chapped skin.

### Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*

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

*Unsuitable extinguishing media*

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

### Special hazards arising from the substance or mixture

Combustible.

Forms explosive mixtures with air at ambient temperatures.

Vapors are heavier than air and may spread along floors.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

### Advice for firefighters

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### *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.

### *Further information*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. 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: Protective equipment 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 (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

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

Observe label precautions.

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

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

### **Conditions for safe storage, including any incompatibilities**

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

Store at room temperature.

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**SECTION 8. Exposure controls/personal protection****Exposure limit(s)***Ingredients*

Basis	Value	Threshold limits	Remarks
<i>benzene 71-43-2</i>			
ACGIH	Time Weighted Average (TWA):	0.5 ppm	Can be absorbed through the skin.
	Short Term Exposure Limit (STEL):	2.5 ppm	
	Skin designation:		
NIOSH/GUIDE	Recommended exposure limit (REL):	0.1 ppm	
	Short Term Exposure Limit (STEL):	1 ppm	
Z1A	Time Weighted Average (TWA):	1 ppm	
	Short Term Exposure Limit (STEL):	5 ppm	
OSHA/Z2	Time Weighted Average (TWA):	10 ppm	
	Ceiling Limit Value:	25 ppm	
	Maximum concentration:	50 ppm	

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Safety glasses

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

Flame retardant antistatic protective clothing.

*Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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**SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	0.5 - 277.1 ppm
pH	No information available.
Melting point	5.5 °C
Boiling point/boiling range	176.2 °F ( 80.1 °C) at 1,013 hPa
Flash point	12 °F ( -11 °C) Method: DIN 51755 Part 1
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.4 %(V)
Upper explosion limit	8.0 %(V)
Vapor pressure	101 hPa at 68 °F ( 20 °C)
Relative vapor density	2.7
Density	0.88 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Relative density	No information available.
Water solubility	1.8 g/l at 68 °F ( 20 °C)
Partition coefficient: n-octanol/water	log Pow: 2.13 (experimental) (Lit.) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

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Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	1031 °F ( 555 °C) Method: DIN 51794
Viscosity, kinematic	0.78 mm <sup>2</sup> /s at 68 °F ( 20 °C)

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## SECTION 10. Stability and reactivity

### Reactivity

steam-volatile

Vapors 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, uranium hexafluoride

Halogenated hydrocarbon, in the presence of:

Light metals

Risk of explosion with:

perchlorates, Nitric acid, Ozone, peroxy compounds

Risk of ignition or formation of inflammable gases or vapors with:

Oxygen, halogen-halogen compounds, oxyhalogenic compounds, chromium(VI) oxide

Violent reactions possible with:

mineral acids, sulfur, Oxidizing agents

### Conditions to avoid

Warming.

### Incompatible materials

rubber, various plastics

### Hazardous decomposition products

no information available

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## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*

Inhalation, Eye contact, Skin contact

*Target Organs*

Eyes

Skin

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Respiratory system

Blood

Central nervous system

Bone

### *Acute oral toxicity*

LD50 Rat: 930 mg/kg (IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

LDLO human: 50 mg/kg (IUCLID)

absorption

Symptoms: Nausea

### *Acute inhalation toxicity*

LC50 Rat: 44 mg/l; 4 h (IUCLID)

absorption

Symptoms: Possible damages:, mucosal irritations

### *Acute dermal toxicity*

LD50 Rabbit: > 8,260 mg/kg  
(IUCLID)

absorption

### *Skin irritation*

Rabbit

Result: Irritations

OECD Test Guideline 404

Drying-out effect resulting in rough and chapped skin.

Causes skin irritation.

### *Eye irritation*

Rabbit

Result: Eye irritation

(IUCLID)

Causes serious eye irritation.

### *Genotoxicity in vivo*

Mutagenicity (mammal cell test): chromosome aberration.

Result: positive

(National Toxicology Program)

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

### *CMR effects*

Carcinogenicity:

May cause cancer. Positive evidence from human epidemiological studies.

Mutagenicity:

May cause genetic defects.



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### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Target Organs: Blood

Causes damage to organs through prolonged or repeated exposure.

### *Aspiration hazard*

Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

## **Carcinogenicity**

IARC	Group 1: Carcinogenic to humans	
	benzene	71-43-2
OSHA		
	benzene	71-43-2
NTP	Known carcinogen.	
	benzene	71-43-2
ACGIH	A1: Confirmed human carcinogen	
	benzene	71-43-2

## **Further information**

Systemic effects:

After absorption:

agitation, euphoria, Headache, Dizziness, inebriation, Tiredness, CNS disorders, narcosis, respiratory arrest

Subacute toxicity

After a latency period:

Changes in the blood count, hemolysis

This substance should be handled with particular care.

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## **SECTION 12. Ecological information**

### **Ecotoxicity**

#### *Toxicity to fish*

LC50 *S.gairdnerii*: 5.9 mg/l; 96 h

OECD Test Guideline 203

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

EC50 *Daphnia magna* (Water flea): 9.2 mg/l; 48 h (ECOTOX Database)

#### *Toxicity to algae*

IC50 *Pseudokirchneriella subcapitata* (green algae): 29 mg/l; 72 h

OECD Test Guideline 201

#### *Toxicity to bacteria*

EC10 *Pseudomonas putida*: 168 mg/l (Lit.)

### **Persistence and degradability**

#### *Biodegradability*

Readily biodegradable.

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*Theoretical oxygen demand (ThOD)*

3,100 mg/g  
(Lit.)

*Ratio BOD/ThBOD*

BOD5 71 %  
(Lit.)

BOD20 80 %  
(Lit.)

*Ratio COD/ThBOD*

19 %  
(Lit.)

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: 2.13  
(experimental)  
(Lit.) Bioaccumulation is not expected.

### Mobility in soil

*Distribution among environmental compartments*

*Adsorption/Soil*

log Koc: 1.93  
(experimental)

Mobile in soils (Lit.)

### Other adverse effects

*Henry constant*

562 Pa\*m<sup>3</sup>/mol  
at 77 °F ( 25 °C)  
Method: (experimental)  
(Lit.) Distribution preferentially in air.

*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

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

UN number UN 1114  
Proper shipping name BENZENE  
Class 3  
Packing group II  
Environmentally hazardous --

**Air transport (IATA)**

UN number UN 1114  
Proper shipping name BENZENE  
Class 3  
Packing group II  
Environmentally hazardous --  
Special precautions for user no

**Sea transport (IMDG)**

UN number UN 1114  
Proper shipping name BENZENE  
Class 3  
Packing group II  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-E S-D

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**SECTION 15. Regulatory information**

**United States of America**

**SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:

*Ingredients*

benzene	71-43-2	100 %
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**SARA 302**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

### *Ingredients*

benzene

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

### *Ingredients*

benzene

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

benzene

### Pennsylvania Right To Know

#### *Ingredients*

benzene

### New Jersey Right To Know

#### *Ingredients*

benzene

### California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

#### *Ingredients*

benzene

### California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

#### *Ingredients*

benzene

## Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

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## Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
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.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 10/01/2014

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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