Material Safety Data Sheet

Date Printed: 30/JAN/2005
Date Updated: 21/DEC/2004
Version 1.9
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, ANHYDROUS, 99.8%
Product Number	401765
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
Fax	+61 2 9841 0500
Emergency Phone #	+61 2 9841 0566

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
BENZENE	71-43-2	200-753-7	601-020-00-8

Formula	C6H6
Molecular Weight	78.11 AMU
Synonyms	(6)Annulene * Benzeen (Dutch) * Benzen (Polish) * Benzene (ACGIH:OSHA) * Benzin (Obs.) * Benzine (Obs.) * Benzol (OSHA) * Benzole * Benzolene * Benzolo (Italian) * Bicarburet of hydrogen * Carbon oil * Coal naphtha * Cyclohexatriene * Fenzen (Czech) * Mineral naphtha * NCI-C55276 * Phene * Phenyl hydride * Pyrobenzol * Pyrobenzole * RCRA waste number U019

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
May cause cancer. Highly flammable. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
Carc. Cat.1

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 skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
Specific Hazard(s): Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back. Emits toxic fumes under fire conditions.
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.

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. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

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

8 - Exposure Controls / Personal Protection

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

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1.6
Poland		NDSCh	-
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	1.6 mg/m3
		0.5 ppm

Remarks: HK

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	1 ppm
		3.25 mg/m3

Remarks: 4
Remarks: H,TRK, TRGS 901-15

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	3 mg/m3
		1 ppm

Remarks: K

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level	1.5 mg/m3
		0.5 ppm

Remarks: H, K

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	3.2 mg/m3
		1 ppm

Remarks: H K

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	3 ppm

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Liquid Color: Colorless

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	80 - 80.2 °C	760 mmHg
MP/MP Range	5.5 °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	0.879 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.
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

RTECS NUMBER: CY1400000

ACUTE TOXICITY

LCLO
Inhalation
Human
2 PPH/5M

LDLO
Oral
Man
50 mg/kg

LCLO
Inhalation
Human
65 mg/m3
5Y
Remarks: Blood:Other changes.

LD50
Oral
Rat
930 mg/kg
Remarks: Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold.

LC50

Inhalation
Rat
10,000 ppm
7H

LD50
Intraperitoneal
Rat
1100 UG/KG

LD50
Oral
Mouse
4700 mg/kg

LC50
Inhalation
Mouse
9,980 ppm
Remarks: Behavioral:General anesthetic. Behavioral:Muscle weakness. Lungs, Thorax, or Respiration:Dyspnea.

LD50
Skin
Mouse
48 mg/kg

LD50
Intraperitoneal
Mouse
340 MG/KG

LD50
Skin
Rabbit
>9400 UL/KG

LD50
Skin
Guinea pig
>9400 UL/KG

LD50
Oral
Mammal
5700 mg/kg

IRRITATION DATA

Skin
Rabbit
15 mg
24H
Remarks: Open irritation test

Skin
Rabbit
20 mg
24H
Remarks: Moderate irritation effect

Eyes

Rabbit
88 mg
Remarks: Moderate irritation effect

Eyes
Rabbit
2 mg
24H
Remarks: Severe irritation effect

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: Toxic if absorbed through skin.
Eye Contact: Causes severe eye irritation.
Inhalation: Toxic if inhaled. Vapor or mist is irritating to the mucous membranes and upper respiratory tract.
Ingestion: Toxic 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.

Man
Route of Application: Inhalation
Exposure Time: 78W-
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia Blood:Thrombocytopenia.

Human
Route of Application: Inhalation
Exposure Time: 8H/10Y
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

Rat
Route of Application: Oral
Exposure Time: 52W
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Endocrine:Tumors. Blood:Leukemia

Rat
Route of Application: Inhalation
Exposure Time: 6H/10W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Ear:Tumors.

Mouse
Route of Application: Oral
Exposure Time: 2Y
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Endocrine:Tumors. Blood:Lymphomas including Hodgkin's disease.

Mouse
Route of Application: Inhalation
Exposure Time: 6H/16W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Blood:Lymphomas including Hodgkin's disease.

Mouse
Route of Application: Skin
Exposure Time: 49W
Result: Tumorigenic:Neoplastic by RTECS criteria. Skin and Appendages: Other: Tumors.

Mouse
Route of Application: Intraperitoneal
Exposure Time: 8W
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.

Mouse
Route of Application: Subcutaneous
Exposure Time: 17W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Blood:Leukemia Blood:Lymphomas including Hodgkin's disease.

Mouse
Route of Application: Parenteral
Exposure Time: 19W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Blood:Leukemia Blood:Lymphomas including Hodgkin's disease.

Human
Route of Application: Inhalation
Exposure Time: 15M/8Y
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

Rat
Route of Application: Oral
Exposure Time: 1Y
Result: Tumorigenic:Carcinogenic by RTECS criteria. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Ear:Tumors.

Blood:Leukemia

Rat
Route of Application: Oral
Exposure Time: 52W
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Endocrine:Tumors. Blood:Leukemia

Man
Route of Application: Inhalation
Exposure Time: 4Y-
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

Man
Route of Application: Inhalation
Exposure Time: 11Y
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Lymphomas including Hodgkin's disease.

Mouse
Route of Application: Inhalation
Exposure Time: 6H/10W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Ear:Tumors. Lungs, Thorax, or Respiration:Tumors.

Mouse
Route of Application: Oral
Exposure Time: 8W
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.

Human
Route of Application: Inhalation
Exposure Time: 4W
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

Human
Route of Application: Inhalation
Exposure Time: 11Y-
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

Mouse
Route of Application: Inhalation
Exposure Time: 6H/16W
Result: Tumorigenic:Carcinogenic by RTECS criteria.
Blood:Leukemia

IARC CARCINOGEN LIST

Rating: Group 1

CHRONIC EXPOSURE - MUTAGEN
Result: Laboratory experiments have shown mutagenic effects.

Human
2200 UMOL/L
Cell Type: leukocyte
DNA inhibition

Human
2200 UMOL/L
Cell Type: HeLa cell
DNA inhibition

Human
5 UMOL/L
Cell Type: lymphocyte
Other mutation test systems

Human
125 PPM
Inhalation
1Y
Cytogenetic analysis

Human
1 MMOL/L
72H
Cell Type: leukocyte
Cytogenetic analysis

Human
1 MG/L
Cell Type: lymphocyte
Cytogenetic analysis

Human
10 PPM
Unreported
4W
Cytogenetic analysis

Human
200 UMOL/L
Cell Type: lymphocyte
Sister chromatid exchange

Human
1 GM/L
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Rat
1 PPM
Inhalation
6H
Micronucleus test

Rat
1 MMOL/L
Cell Type: liver
Unscheduled DNA synthesis

Rat
400 PPM
Inhalation
DNA inhibition

Rat
1 MMOL/L

Cell Type: liver
Other mutation test systems

Rat
1 MMOL/L
Cell Type: Bone marrow
Other mutation test systems

Rat
1 GM/L
Subcutaneous
Other mutation test systems

Rat
2200 MG/KG
Subcutaneous
Other mutation test systems

Rat
300 MG/M3/16W-I
Inhalation
Cytogenetic analysis

Rat
2400 MG/KG
Subcutaneous
12D
Cytogenetic analysis

Rat
234 MG/KG
Intraperitoneal
Cytogenetic analysis

Rat
39060 UG/KG
Oral
Cytogenetic analysis

Rat
3 PPM
Inhalation
6H
Sister chromatid exchange

Rat
1 MMOL/L
Cell Type: leukocyte
Sister chromatid exchange

Mouse
12500 NMOL/L
Cell Type: Embryo
Micronucleus test

Mouse
440 MG/KG
Subcutaneous
Micronucleus test

Mouse
40 MG/KG

Oral
Micronucleus test

Mouse
264 MG/KG
Intraperitoneal
24H
Micronucleus test

Mouse
10 PPM
Inhalation
6H
Micronucleus test

Mouse
62500 UG/L (+S9)
Cell Type: lymphocyte
Mutation in microorganisms

Mouse
2500 MG/L (+S9)
Cell Type: Embryo
Mutation in microorganisms

Mouse
1 GM/L
Cell Type: Embryo
Morphological transformation.

Mouse
150 GM/L
Cell Type: fibroblast
Morphological transformation.

Mouse
3840 UMOL/L
Cell Type: lymphocyte
DNA damage

Mouse
2640 MG/KG
Intraperitoneal
3D
DNA

Mouse
2 GM/KG
Oral
Other mutation test systems

Mouse
5 MMOL/L
Cell Type: Other cell types
Other mutation test systems

Mouse
20 GM/KG
Oral
DNA inhibition

Mouse

10 MMOL/L
Cell Type: lymphocyte
Other mutation test systems

Mouse
880 MG/KG
Intraperitoneal
DNA inhibition

Mouse
3000 PPM
Inhalation
4H
DNA inhibition

Mouse
3 MMOL/L
Cell Type: Bone marrow
DNA inhibition

Mouse
10 PPM
Inhalation
6H
Sister chromatid exchange

Mouse
5 GM/KG
Intraperitoneal
Sister chromatid exchange

Mouse
20 MG/KG
Oral
Cytogenetic analysis

Mouse
264 MG/KG
Intraperitoneal
3D
Cytogenetic analysis

Mouse
3000 PPM
Inhalation
Cytogenetic analysis

Mouse
1 MG/KG
Oral
Dominant lethal test

Mouse
5 MG/KG
Intraperitoneal
Dominant lethal test

Mouse
12500 UG/L
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Mouse
40 PPB/6W-C
Inhalation
Mutation in mammalian somatic cells.

Mouse
2 GM/KG
Oral
5D
Mutation in mammalian somatic cells.

Hamster
100 UG/L
Cell Type: Embryo
Morphological transformation.

Hamster
17 MMOL/L
Cell Type: ovary
DNA damage

Hamster
550 MG/L
Cell Type: lung
Cytogenetic analysis

Hamster
600 MG/L
Cell Type: ovary
Cytogenetic analysis

Hamster
750 MG/L
Cell Type: ovary
Sister chromatid exchange

Hamster
62500 UG/L
Cell Type: liver
SLN

Hamster
30 UMOL/L
Cell Type: Embryo
SLN

Hamster
10 UMOL/L
Cell Type: Embryo
Mutation in mammalian somatic cells.

Rabbit
2344 MG/KG
Subcutaneous
DNA damage

Rabbit
2 GM/KG
Subcutaneous
DNA inhibition

Rabbit

1 MMOL/L
Cell Type: Bone marrow
Other mutation test systems

Cat
1 MMOL/L
Cell Type: Bone marrow
Other mutation test systems

Rabbit
8400 MG/KG
Subcutaneous
Cytogenetic analysis

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 50 PPM/24H
Route of Application: Inhalation
Exposure Time: (7-14D PREG)
Result: Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 9 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 500 PPM/7H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 500 MG/M3/12H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 5 PPM
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Species: Mouse
Dose: 20 PPM/6H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Species: Mouse
Dose: 219 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (14D PREG)
Result: Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow). Specific Developmental Abnormalities: Hepatobiliary system.

Species: Mouse
Dose: 1100 MG/KG
Route of Application: Subcutaneous
Exposure Time: (12D PREG)
Result: Effects on Embryo or Fetus: Other effects to embryo.

Species: Mouse
Dose: 7030 MG/KG
Route of Application: Subcutaneous
Exposure Time: (12-13D PREG)
Result: Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 13200 UG/KG
Route of Application: Intravenous
Exposure Time: (13-16D PREG)
Result: Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material).

Species: Rabbit
Dose: 1 GM/M3/24H
Route of Application: Inhalation
Exposure Time: (7-20D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Other developmental abnormalities.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 670 MG/M3/24H
Route of Application: Inhalation
Exposure Time: (15D PRE/1-22D PREG)
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).

Species: Rat
Dose: 56600 UG/M3/24H
Route of Application: Inhalation
Exposure Time: (1-22D PREG)
Result: Effects on Newborn: Biochemical and metabolic.

Species: Rat
Dose: 150 PPM/24H
Route of Application: Inhalation
Exposure Time: (7-14D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 12 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Mouse
Dose: 6500 MG/KG
Route of Application: Oral
Exposure Time: (8-12D PREG)
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Species: Mouse
Dose: 5 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (1D MALE)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetal death.

Species: Mouse
Dose: 4 GM/KG
Route of Application: Parenteral
Exposure Time: (12D PREG)
Result: Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4).

Species: Rabbit
Dose: 1 GM/M3/24H
Route of Application: Inhalation
Exposure Time: (7-20D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Abortion. Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 500 PPM/7H
Route of Application: Inhalation
Exposure Time: (6-18D PREG)
Result: Maternal Effects: Other effects.

CMR CAT.: Carc. Cat.1

12 - Ecological Information

ELIMINATION

Classification: Substantially biodegradable.

ECOTOXICOLOGICAL EFFECTS
Test Type: EC50 Algae
Species: Selenastrum capricornutum resp.
Time: 72 h
Value: 29 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h

Value: 22 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 9.2 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 5.9 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 15 - 32 mg/l

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 230 mg/l

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
INDICATION OF DANGER: F T
Highly Flammable. Toxic.
R-PHRASES: 45 11 48/23/24/25
May cause cancer. Highly flammable. Toxic: danger of serious

damage to health by prolonged exposure through inhalation, in contact with skin and 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

SWITZERLAND
SWISS POISON CLASS: 1*

NORWAY

Labelling for organic solvents where the package is 1liter or more.
YL-tall m3/l: 410666
YL-group: 5
Safety phrases: 38 42 210
In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

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.

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