



SIGMA-ALDRICH

# Material Safety Data Sheet

Date Printed: 10/18/2007  
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Version 1.100

## Section 1 - Product and Company Information

<b>Product Name</b>	Ethylbenzene, ReagentPlus&#174;, 99%		
<b>Product Number</b>	E12508		
<b>Brand</b>	Aldrich Chemical		
<b>Company Address</b>	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS, MO 63103 US		
<b>City, State, Zip, Country</b>			
<b>Technical Phone:</b>	800-325-5832	<b>Emergency Phone:</b>	314-776-6555
<b>Fax:</b>	800-325-5052		

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
ETHYLBENZENE	100-41-4	Yes	202-849-4	601-023-00-4

**Formula** C8H10  
**Synonyms** Aethylbenzol (German), Ethylbenzeen (Dutch), Ethyl benzene (ACGIH:OSHA), Ethylbenzol, Etilbenzene (Italian), Etylobenzen (Polish), NCH56393, Phenylethane

## Section 3 - Hazards Identification

### Emergency Overview

Flammable (USA) Highly Flammable (EU), Harmful.  
 Harmful by inhalation. Irritating to respiratory system and skin. Limited evidence of a carcinogenic effect. Risk of serious damage to eyes.  
 Possible Carcinogen (US), Calif. Prop. 65 carcinogen. Target organ(s): Central nervous system, Blood.

**HMIS Rating**  
 Health: 2\* Flammability: 3 Reactivity: 0

**NFPA Rating**  
 Health: 2 Flammability: 3 Reactivity: 0

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

### Oral Exposure

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

### Inhalation Exposure

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

### Dermal Exposure

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

### Eye Exposure

In case of contact immediately flush eyes with copious amounts of water for at least 15 minutes.

## Section 5 - Fire Fighting Measures

**Flammable Hazards:** Yes

### Explosion Hazards

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

**Flash Point:** 59 °F 15 °C

**Explosion Limits:** Lower: 1 % Upper: 6.7 %

**Autoignition Temp:** 432 °C **Flammability:** Yes

### Extinguishing Media

#### Suitable

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

### Firefighting

#### Protective Equipment

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

#### Specific Hazard(s)

Flammable liquid.

#### Specific Method(s) of Fire Fighting

Use water spray to cool fire-exposed containers.

## Section 6 - Accidental Release Measures

### Procedure to be Followed in Case of Leak or Spill

Evacuate area. Shut off all sources of ignition.

### Procedure(s) of Personal Precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

### Methods for Cleaning Up

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

## Section 7 - Handling and Storage

### Handling

#### User Exposure

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

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**Storage**  
**Suitable**

Keep container closed. Keep away from heat, sparks, and open flame.

**Special Requirements**

Hygroscopic.

**Section 8 - Exposure Controls / PPE****Engineering Controls**

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

**Personal Protective Equipment****Respiratory**

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate, use a full-face 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.

**Hand**

Compatible chemical-resistant gloves.

**Eye**

Chemical safety goggles.

**General Hygiene Measures**

Wash thoroughly after handling. Wash contaminated clothing before reuse.

**Exposure Limits**

Country	Type	Value
Poland	NDS	100 MG/M3
Poland	NDSch	350 MG/M3
Poland	NDSP	

**Exposure Limits, RTECS**

Country	Source	Type	Value
USA	ACGIH	TWASTEL	100 PPM 125 PPM
USA	MSHA Standard-air	TWA	100 PPM (435 MG/M3)
USA	OSHA	PEL	8H TWA 100 PPM (435 MG/M3)
New Zealand	OEL		
USA	NIOSH	TWASTEL	100 PPM 125 PPM

**Section 9 - Physical/Chemical Properties****Appearance**

Physical State	Color
Liquid	Colorless

Molecular Weight 106.17 AMU

pH	N/A
BP/BP Range	136 - 137 °C
MP/MP Range	-95 °C
Freezing Point	N/A
Vapor Pressure	10 mmHg 20 °C
Vapor Density	3.7 g/l
Saturated Vapor Conc.	N/A

SG/Density	0.867 g/cm3
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	Log Kow: 2.924
Decomposition Temp.	N/A
Flash Point °F	59 °F
Flash Point °C	15 °C

Explosion Limits	Lower: 1 % Upper: 6.7 %
Flammability	N/A
Autoignition Temp	432 °C
Refractive Index	1.495
Solubility	N/A

N/A = not available

Method: closed cup  
Method: closed cup**Section 10 - Stability and Reactivity****Stability****Stable**

Stable.

**Conditions to Avoid**

Moisture.

**Materials to Avoid**

Strong oxidizing agents.

**Hazardous Decomposition Products****Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide

**Hazardous Polymerization****Hazardous Polymerization**

Will not occur.

**Section 11 - Toxicological Information****Route of Exposure****Skin Contact**

Causes skin irritation.

**Skin Absorption**

May be harmful if absorbed through the skin.

**Eye Contact**

Causes severe eye irritation.

**Inhalation**

Harmful if inhaled.

**Ingestion**

May be harmful if swallowed.

**Target Organ(s) or System(s)**

Central nervous system, Blood.

**Signs and Symptoms of Exposure**

Can cause CNS depression. Exposure can cause: Nausea, headache, and vomiting. Ataxia, Tremors.

RTECS Number: DA0700000

#### Toxicity Data

Oral - Rat: 3500 mg/kg (LD50)  
Remarks: Liver:Other changes  
Kidney, Ureter, Bladder:Other changes.  
Intraperitoneal - Mouse: 2624 UL/KG (LD50)  
Skin - Rabbit: 17800 UL/KG (LD50)

#### Irritation Data

Skin - Rabbit: 15 mg 24H  
Remarks: Open irritation test  
Eyes - Rabbit: 500 mg  
Remarks: Severe irritation effect

#### Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Rat - Inhalation: 750 PPM 6H/2Y 1  
Result: Tumorigenic: Carcinogenic by RTECS criteria Kidney, Ureter, Bladder: Tumors.

Mouse - Inhalation: 750 PPM 6H/2Y 1  
Result: Tumorigenic: Carcinogenic by RTECS criteria Lungs, Thorax, or Respiration: Bronchiogenic carcinoma Liver: Tumors.

#### IARC Carcinogen List

Rating  
Group 2B  
Group 2B

#### NTP Carcinogen List

<u>Rating</u>	<u>Route</u>
Clear evidence	Inhalation
Some evidence	Inhalation

#### Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	985 PPM/7H	Inhalation	(1-19D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rat	96 PPM/7H	Inhalation	(1-19D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.			
Rat	2400 MG/M3/24H	Inhalation	(7-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rabbit	500 MG/M3/24H	Inhalation	(7-20D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			

#### Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	10 MMOL/L	lymphocyte	Sister chromatid exchange
Mouse	80 MG/L	lymphocyte	Mutation in mammalian somatic cells.
Hamster	25 MG/L	Embryo	Micronucleus test

#### Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	97 PPM/7H	Inhalation	(15D PREG)
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).			
Rat	600 MG/M3/24H	Inhalation	(7-15D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death Specific Developmental Abnormalities: Musculoskeletal system.			
Rabbit	99 PPM/7H	Inhalation	(1-18D PREG)
Result: Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).			
Rabbit	1 GM/M3/24H	Inhalation	(7-20D PREG)
Result: Effects on Fertility: Abortion.			

#### Section 12 - Ecological Information

N/A

#### Acute Ecotoxicity Tests

<b>Test Type</b>	
EC50 Daphnia	
<b>Species</b>	Daphnia magna
<b>Time:</b>	<b>Value:</b>
48.0 h	2.9 mg/l
<b>Test Type</b>	
LC50 Fish	
<b>Species</b>	Cyprinodon variegatus (Sheepshead minnow)
<b>Time:</b>	<b>Value:</b>
96.0 h	88 mg/l
<b>Test Type</b>	
LC50 Fish	
<b>Species</b>	Lepomis macrochirus (Bluegill)
<b>Time:</b>	<b>Value:</b>
96.0 h	80 mg/l

#### Section 13 - Disposal Considerations

##### Appropriate Method of Disposal of Substance or Preparation

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.

#### Section 14 - Transport Information

##### DOT

**Proper Shipping Name:** Ethylbenzene  
**UN#:** 1175  
**Class:** 3  
**Packing Group:** Packing Group II  
**Hazard Label:** Flammable liquid  
**PIH:** Not PIH

##### IATA

**Proper Shipping Name:** Ethylbenzene  
**IATA UN Number:** 1175  
**Hazard Class:** 3  
**Packing Group:** II

#### Section 15 - Regulatory Information

##### EU Directives Classification

**Symbol of Danger:** F Xn  
**Indication of Danger**  
Highly Flammable Harmful.  
**Risk Statements** R: 11 20  
Highly flammable. Harmful by inhalation.  
**Safety Statements** S: 16 24/25 29  
Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. Do not empty into drains.

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**US Classification and Label Text****Indication of Danger**

Flammable (USA) Highly Flammable (EU), Harmful.

**Risk Statements**

Harmful by inhalation. Irritating to respiratory system and skin. Limited evidence of a carcinogenic effect. Risk of serious damage to eyes.

**Safety Statements**

Keep away from sources of ignition- no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

**US Statements**

Possible Carcinogen (US), Calif. Prop. 65 carcinogen. Target organ(s): Central nervous system, Blood.

**United States Regulatory Information**

**SARA Listed:** Yes

**Deminimis:** 1 %

**Notes:** This product is subject to SARA section 313 reporting requirements.

**TSCA Inventory Item:** Yes

**United States - State Regulatory Information**

**California Prop- 65**

This product is or contains chemical(s) known to the state of California to cause cancer.

**Canada Regulatory Information****WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** Yes

**NDSL:** No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**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. SigmaAldrich 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 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.