

## MATERIAL SAFETY DATA SHEET

Date Printed: 03/03/2004

Date Updated: 09/02/2002

Version 1.4

## Section 1 - Product and Company Information

Product Name	ETHYLBENZENE, 99%
Product Number	E12508
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
ETHYLBENZENE	100-41-4	Yes
Formula	C8H10	
Synonyms	Aethylbenzol (German) * Ethylbenzeen (Dutch) * Ethyl benzene (ACGIH:OSHA) * Ethylbenzol * Etilbenzene (Italian) * Etylobenzen (Polish) * NCI-C56393 * Phenylethane	
RTECS Number:	DA0700000	

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Harmful.  
Harmful by inhalation. Risk of serious damage to eyes.  
Target organ(s): Central nervous system. Blood.

## HMIS RATING

HEALTH: 2\*  
FLAMMABILITY: 3  
REACTIVITY: 1

## NFPA RATING

HEALTH: 2  
FLAMMABILITY: 3  
REACTIVITY: 1

\*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.

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### Section 5 - Fire Fighting Measures

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#### FLAMMABLE HAZARDS

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 Method: closed cup

#### EXPLOSION LIMITS

Lower: 1 % Upper: 6.7 %

#### AUTOIGNITION TEMP

432 °C

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable: Water may be effective for cooling, but may not effect extinguishment.

#### FIREFIGHTING

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

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

Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

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### Section 6 - Accidental Release Measures

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#### 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 non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

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

#### STORAGE

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

#### SPECIAL REQUIREMENTS

Hygroscopic.

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### Section 8 - Exposure Controls / PPE

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#### ENGINEERING CONTROLS

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

#### PERSONAL PROTECTIVE EQUIPMENT

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

#### GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

#### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	100 PPM
		STEL	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			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	100 PPM
		STEL	125 PPM

#### EXPOSURE LIMITS

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

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### Section 9 - Physical/Chemical Properties

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#### Appearance

Physical State: Liquid  
Color: Colorless

#### Property

Value At Temperature or Pressure

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	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	59 °F 15 °C	Method: closed cup
Explosion Limits	Lower: 1 % Upper: 6.7 %	
Flammability	N/A	
Autoignition Temp	432 °C	
Refractive Index	1.495	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Protect from moisture.

Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. 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.

### 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.

Species: Rat  
Route of Application: Inhalation  
Dose: 750 PPM  
Exposure Time: 6H/2Y  
Frequency: I  
Result: Tumorigenic: Carcinogenic by RTECS criteria. Kidney, Ureter, Bladder: Tumors.

Species: Mouse  
Route of Application: Inhalation  
Dose: 750 PPM  
Exposure Time: 6H/2Y  
Frequency: I  
Result: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Bronchiogenic carcinoma. Liver: Tumors.

#### NTP CARCINOGEN LIST

Rating: Clear evidence.  
Route: Inhalation

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rat  
Dose: 985 PPM/7H  
Route of Application: Inhalation  
Exposure Time: (1-19D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rat  
Dose: 96 PPM/7H  
Route of Application: Inhalation  
Exposure Time: (1-19D PREG)  
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat  
Dose: 2400 MG/M3/24H  
Route of Application: Inhalation  
Exposure Time: (7-15D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rabbit  
Dose: 500 MG/M3/24H  
Route of Application: Inhalation  
Exposure Time: (7-20D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

#### CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 10 MMOL/L  
Cell Type: lymphocyte  
Mutation test: Sister chromatid exchange

Species: Mouse  
Dose: 80 MG/L  
Cell Type: lymphocyte  
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster  
Dose: 25 MG/L  
Cell Type: Embryo  
Mutation test: Micronucleus test

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 97 PPM/7H  
Route of Application: Inhalation  
Exposure Time: (15D PRE)  
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated ).

Species: Rat  
Dose: 600 MG/M3/24H  
Route of Application: Inhalation  
Exposure Time: (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.

Species: Rabbit  
Dose: 99 PPM/7H  
Route of Application: Inhalation  
Exposure Time: (1-18D PREG)  
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Rabbit  
Dose: 1 GM/M3/24H  
Route of Application: Inhalation  
Exposure Time: (7-20D PREG)

Section 12 - Ecological Information

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N/A

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 48 h  
Value: 2.9 mg/l

Test Type: LC50 Fish  
Species: Cyprinodon variegatus (Sheepshead minnow)  
Time: 96 h  
Value: 88 mg/l

Test Type: LC50 Fish  
Species: Lepomis macrochirus (Bluegill)  
Time: 96 h  
Value: 80 mg/l

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Section 13 - Disposal Considerations

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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.

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Section 14 - Transport Information

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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

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Section 15 - Regulatory Information

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EU DIRECTIVES CLASSIFICATION

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

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU).  
Harmful.

Risk Statements: Harmful by inhalation. Risk of serious damage to eyes.

Safety Statements: Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. Do not empty into drains.

US Statements: 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

#### 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. 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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.