

MATERIAL SAFETY DATA SHEET

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Version 1.10

Section 1 - Product and Company Information

Product Name ETHYLBENZENE, ANHYDROUS, 99.8%
Product Number 296848
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

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. 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

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: 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. Vapor may travel considerable distance to source of ignition and flash back.
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

Molecular Weight	106.17 AMU	
pH	N/A	
BP/BP Range	136.0 - 137.0 °C	
MP/MP Range	- 95.0 °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	Log Kow: 2.924	
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

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. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Central nervous system. Blood.

SIGNS AND SYMPTOMS OF EXPOSURE

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

TOXICITY DATA

Oral
Rat
3500 mg/kg
LD50
Remarks: Kidney, Ureter, Bladder:Other changes. Liver:Other changes.

Intraperitoneal
Mouse
2624 UL/KG
LD50

Skin
Rabbit
17800 UL/KG
LD50

IRRITATION DATA

Eyes
Rabbit

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: Kidney, Ureter, Bladder:Tumors. Tumorigenic:Carcinogenic by RTECS criteria.

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.

IARC CARCINOGEN LIST

Rating: Group 2B Group 2B

Rating: Group 2B

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: Specific Developmental Abnormalities: Musculoskeletal system. Effects on Embryo or Fetus: Fetal death. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

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)
Result: Effects on Fertility: Abortion.

Section 12 - Ecological Information

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

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.
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. 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

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

Section 16 - Other Information

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

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