



Material Safety Data Sheet

Date Printed: 10/18/2007
Date Updated: 04/26/2006
Version 1.100

Section 1 - Product and Company Information

Product Name Ethylbenzene, ReagentPlus®, 99%
Product Number E12508
Brand Aldrich Chemical
Company Address Sigma-Aldrich
3050 Spruce Street
City, State, Zip, Country 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

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
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), NC1056393, 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.

Aldrich Chemical - E12508

Page 2

Sigma-Aldrich Corporation
www.sigma-aldrich.com

RECEIVED

OCT 29 2007

Safety & Environmental
Health

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		
Remarks: check ACGIH TLV			
USA	NIOSH	TWASTEL	100 PPM 125 PPM

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

Liquid

Color

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

Aldrich Chemical - E12508

Page 3

Sigma-Aldrich Corporation

www.sigma-aldrich.com

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

Method: closed cup

Method: closed cup

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

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

Aldrich Chemical - E12508

Page 4

Sigma-Aldrich Corporation

www.sigma-aldrich.com

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

Mouse - Inhalation: 750 PPM 6H/2Y I
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

Rating
Clear evidence.
Some evidence.

Route
Inhalation
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 PRE)
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

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

RECEIVED
OCT 29 2007
Safety & Environmental
Health

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

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. 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.