



Material Safety Data Sheet

STYRENE

September 30, 1994

PHILLIPS 66 COMPANY	PHONE NUMBERS
A Division of Phillips Petroleum Company	Emergency: (918) 661-8118
Bartlesville, Oklahoma 74004	General MSDS Information: (918) 661-8327
	For Additional MSDSs: (918) 661-5952

A. Product Identification

Synonyms: Phenylethylene; Vinylbenzene; Styrol; Inhibited Styrene
 Chemical Name: Ethenylbenzene
 Chemical Family: Aromatic Hydrocarbon
 Chemical Formula: C₈H₈
 CAS Reg. No.: 100-42-5
 Product No.: 000311

Product and/or Components Entered on EPA's TSCA Inventory: Yes

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. Components

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Styrene	100-42-5	> 99	50 ppm	50 ppm

C. Personal Protection Information

Ventilation: Use adequate ventilation to control concentration below recommended exposure limits.

Respiratory Protection: For concentrations exceeding the recommended exposure limit, use NIOSH/MSHA approved air purifying respirator. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator.

Eye Protection: For splash protection use chemical goggles and face shield.

Skin Protection: Use gloves resistant to the material being used. (ie. Nitrile, or Polyvinyl Alcohol (PVA)). Use

protective garments to prevent skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. Handling and Storage Precautions

Do not swallow. May be aspirated into lungs. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, mist, fumes or dust. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. Use only with adequate ventilation.

Store in tightly closed container. Store in well-ventilated area. Keep away from heat, sparks, and flames. Bond and ground during transfer.

E. Reactivity Data

Stability: Stable

Conditions to Avoid: Low inhibitor concentrations, low oxygen concentration, exposure to heat.

Incompatibility (Materials to Avoid): Oxygen or strong oxidizing materials, water, caustic, peroxides, aluminium chloride, copper, copper alloys and metal halides.

Hazardous Polymerization: Will Not Occur

Conditions to Avoid: Exposure to heat, light or ignition

sources.

Loss of inhibitor or dissolved oxygen

level.

Hazardous Decomposition Products: Carbon oxides formed when burned. May also produce irritating and/or toxic fumes.

F. Health Hazard Data

Recommended Exposure Limits:

See Section B.

Acute Effects of Overexposure:

Eye: The liquid or vapor will cause transient irritation.

Skin: Slight irritation. Prolonged or repeated contact with the liquid may cause defatting of the skin resulting in drying, redness, and possibly blistering.

Inhalation: May cause headache, nausea, dizziness, muscle weakness. Produces central nervous system depression. Irritates nose, throat and lungs.

Ingestion: May cause nausea, headache, dizziness, muscle weakness. Produces central nervous system depression, and diarrhea. If swallowed, may be aspirated resulting in inflammation and possible fluid accumulation in the lungs.

Subchronic and Chronic Effects of Overexposure:

Styrene has been judged by IARC (International Agency for Research on Cancer) as animal positive for the production of cancer but re-examination in inhalation and feeding studies has not confirmed this finding. Styrene exposures in laboratory animals have been reported to cause physiological changes to liver and kidneys with the absence of any observable histopathology.

Styrene has been found to cause chromosome changes plus changes to the genetic material in the nucleus of cells. Toxicity to the fetus has been reported in laboratory animal tests but this has not been confirmed in repeated testing. No reproduction abnormalities have been reported.

Other Health Effects:

No known applicable information.

Health Hazard Categories:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	___	___
Suspect Carcinogen	<u>X</u>	___	Corrosive	___	___
Mutagen	<u>X</u>	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	<u>X</u>	<u>X</u>
Allergic Sensitizer	___	___	Specify - Reproductive Toxin-Organ and		
Highly Toxic	___	___	Function; Liver & Kidney Toxin;		
			Lung-Aspiration Hazard		

First Aid and Emergency Procedures:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Remove from exposure. If breathing becomes difficult or irritation develops, seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Note to Physician: Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

G. Physical Data

Appearance:	Colorless Liquid
Odor:	Sweet, pungent odor
Boiling Point:	293F (145C)
Vapor Pressure:	4.5 mm Hg at 68F (20C)
Vapor Density (Air = 1):	3.6
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	< 1
Percent Volatile by Volume:	90-92
Evaporation Rate (Butyl Acetate = 1):	< 1
Viscosity:	Not Established

H. Fire and Explosion Data

Flash Point (Method Used): 88F (31C) (ASTM D56, TCC)
Flammable Limits (% by Volume in Air): LEL - 1.1
UEL - 6.1

Fire Extinguishing Media: Dry chemical, foam, water fog,
carbon dioxide (CO2)

Special Fire Fighting Procedures: Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA self-contained breathing apparatus (SCBA) and other protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source. Use water fog or spray to cool exposed equipment and containers and to disperse flammable vapors. Do not spray water directly on fire - product will float and could be reignited on surface of water.

Fire and Explosion Hazards: Vapors which are heavier than air may accumulate in low areas and/or spread along the ground. Flashback along vapor trail may occur. Carbon oxides may be released when burned along with other irritating and/or toxic fumes.

I. Spill, Leak and Disposal Procedures

Precautions Required if Material is Released or Spilled:

Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments as described in Section C if exposure conditions warrant. Shut off source, and contain spill. Protect from ignition. Keep out of water sources and sewers. Absorb in dry, inert material. Transfer using non-sparking equipment to disposal containers.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):

Incinerate or otherwise manage in a RCRA permitted waste management facility.

J. DOT Transportation

Shipping Name: Styrene monomer, inhibited
Hazard Class: 3 (Flammable liquid)
ID Number: UN 2055
Packing Group: III
Marking: Styrene monomer, inhibited, UN 2055, RQ*,
Marine Pollutant**
Label: Flammable liquid
Placard: Flammable/2055
Hazardous Substance/RQ: Styrene/#1000
Shipping Description: Styrene monomer, inhibited, 3 (Flammable
liquid), UN 2055, PG III, RQ*, Marine Pollutant**
Packaging References: 49 CFR 173.150, 173.203, 173.242

* Enter the letters "RQ" as shown only if the hazardous substance is present in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) shown for the hazardous substance.

** Marine pollutant mark and shipping paper notation required for all bulk domestic shipments and for non-bulk shipments by water.

K. RCRA Classification - Unadulterated Product as a Waste

Ignitable-(D001)

Prior to disposal, consult your environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. Protection Required for Work on Contaminated Equipment

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. Hazard Classification

This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

<input type="checkbox"/> Combustible Liquid	<input type="checkbox"/> Flammable Aerosol	<input type="checkbox"/> Oxidizer
<input type="checkbox"/> Compressed Gas	<input type="checkbox"/> Explosive	<input type="checkbox"/> Pyrophoric
<input type="checkbox"/> Flammable Gas	<input checked="" type="checkbox"/> Health Hazard (Section F)	<input type="checkbox"/> Unstable
<input checked="" type="checkbox"/> Flammable Liquid	<input type="checkbox"/> Organic Peroxide	<input type="checkbox"/> Water Reactive
<input type="checkbox"/> Flammable Solid		

Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. Additional Comments

SARA 313

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. (See Section B).

Styrene

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