

Section 1. Product and Company Identification

Product Name Styrene Monomer
CAS Number 100-42-5

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Section 2. Hazards Identification

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements

H226 Flammable liquid and vapor
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H401 Toxic to aquatic life.



Precautionary Statements

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- P332 + P313 If skin irritation occurs: Get medical advice/ attention.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: Lachrymator.

Section 3. Composition / Information on Ingredients

Common Name	Styrene Monomer
Synonym(s)	Styrene; Phenylethylene; Vinylbenzene
Formula	C ₈ H ₈
CAS Number	100-42-5

COMPONENT	CAS NUMBER	CONCENTRATION
Styrene Monomer	100-42-5	≤ 100%

Section 4. First Aid Measures

Description of first-aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin contact: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling and/or in section 11.

Indication of any immediate medical attention and special treatment needed: No data available

Section 5. Firefighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture: Carbon oxides

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Use water spray to cool unopened containers

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections: For disposal see section 13.

Section 7. Handling and Storage

Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Container explosion may occur under fire conditions. Vapors may form explosive mixture with air. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8°C

Storage class (TRGS 510): Flammable liquids

Section 8. Exposure Controls / Personal Protection

Control parameters

Components with workplace control parameters

Component	CAS Number	Value	Control Parameters	Basis
Styrene	100-42-5	TWA	50.000000 ppm 215.000000 mg/m ³	USA NIOSH Recommended Exposure Limits
		ST	100.000000 ppm 425.000000 mg/m ³	USA NIOSH Recommended Exposure Limits
	Remarks	See Table Z-2		
		TWA	100.000000 ppm	USA Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15 - 1969		
		CEIL	200.000000 ppm	USA Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15 - 1969		
		Peak	600.000000 ppm	USA Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15 - 1969		
		TWA	20.000000 ppm	USA ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	40.000000 ppm	USA ACGIH Threshold Limit Values (TLV)

		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen
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Biological occupational exposure limits

Component	CAS Number	Parameters	Value	Biological Specimen	Basis
Styrene	100-42-5	Mandelic Acid plus phenylglyoxylic acid	400 mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of Shift (As soon as possible after exposure ceases)			
		Styrene	0.2000 mg/L	In venous blood	ACGIH - Biological Exposure Indices (BEI)
		End of Shift (As soon as possible after exposure ceases)			
		Mandelic Acid plus phenylglyoxylic acid	400 mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of Shift (As soon as possible after exposure ceases)			
		Styrene	0.2 mg/L	In venous blood	ACGIH - Biological Exposure Indices (BEI)
		End of Shift (As soon as possible after exposure ceases)			

Exposure controls

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance: Liquid, clear

Color: Colorless

Odor: Sweet

Odor Threshold: No data available

pH: No data available

Melting point/range: -31°C (-24°F) - lit.

Initial boiling point and boiling range: 145 - 146°C (293 - 295°F) - lit.

Flash point (Closed Cup): 32.0°C (89.6°F)

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits

Upper explosion limit: 8.9% (V)

Lower explosion limit: 1.1% (V)

Vapor pressure: 6 hPa (5 mmHg) at 20°C (68°F)

Vapor density: 3.6

Relative density: 0.906 g/cm³ at 25°C (77°F)

Water solubility: 0.05 g/l at 25°C (77°F) - slightly soluble

Partition coefficient (n-Octanol/water): No data available

Auto-ignition temperature: 490.0°C (914.0°F) / 480.0°C (896.0°F)

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

Other safety information: Relative vapor density 3.6

Section 10. Stability and Reactivity

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions.

Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year. Stable under recommended storage conditions.

Possibility of hazardous reactions: Vapors may form explosive mixture with air. Vapors may form explosive mixture with air.

Conditions to avoid: May polymerize on exposure to light. Heat, flames, and sparks.

Incompatible materials: Oxidizing agents, Copper

Hazardous decomposition products

Other decomposition products: No data available

In the event of fire: see section 5

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat: > 6000 mg/kg

LC50 Inhalation - Rat: 12,000 mg/m³ (4h)

LD50 Dermal - Rat - male and female: > 2000 mg/kg

Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation - 24 h

Respiratory or skin sensitization

Maximization Test (GPMT) - Guinea pig

Does not cause skin sensitization

(OECD Test Guideline 406)

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Styrene)

NTP: Reasonably anticipated to be a human carcinogen (Styrene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Suspected of damaging the unborn child. Suspected human reproductive toxicant

Specific target organ toxicity - single exposure: No data available

Specific target organ toxicity - repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard: No data available

Additional Information

RTECS: WL3675000

Dermatitis, Central nervous system depression, Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12. Ecological Information

Toxicity

Toxicity to fish

NOEC - Pimephales promelas (fathead minnow): 4 mg/l - 96 h

LC50 - Pimephales promelas (fathead minnow): 32 mg/l - 96 h

LOEC - Pimephales promelas (fathead minnow): 7.6 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea): 4.7 mg/l - 48 h

(OECD Test Guideline 202)

Toxicity to algae

IC50 - Pseudokirchneriella subcapitata (green algae): 1.4 mg/l - 72 h

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: > 60 % - Readily biodegradable

Bioaccumulative potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.



Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (US)

UN number: 2055

Class: 3

Packing group: III

Proper shipping name: Styrene monomer, stabilized

Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2055

Class: 3

Packing group: III

EMS-No: F-E, S-D

Proper shipping name: Styrene monomer, stabilized

IATA

UN number: 2055

Class: 3

Packing group: III

Proper shipping name: Styrene monomer, stabilized

Section 15. Regulatory Information

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

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Revision Date: 2007-07-01

SARA 311/312 Hazards: Fire Hazard, Chronic Health Hazard

Massachusetts Right to Know Components

Styrene (CAS-No. 100-42-5)

Revision Date: 2007-07-01



Pennsylvania Right to Know Components

Styrene (CAS-No. 100-42-5)

Revision Date: 2007-07-01

New Jersey Right to Know Components

Styrene (CAS-No. 100-42-5)

Revision Date: 2007-07-01

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

HMIS Rating

Health: 1*

Flammability: 3

Reactivity: 0

NFPA Rating

Health: 2

Flammability: 3

Reactivity: 0

Section 16. Other Information

Disclaimer: 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.

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