



Chemical Data Sheet

Chemical Name: STYRENE MONOMER, INHIBITED

Section 1 - Chemical Identifiers

CAS Number	UN/NA Number	STCC Number	CHRIS Code
100-42-5	2055	4907265 4907235	STY

DOT Hazard Label: FLAMMABLE LIQUID

NFPA 704

Blue - Health Hazard - 2 - Hazardous - use breathing apparatus

Red - Flammability - 3 - Ignites at normal temperatures

Yellow - Reactivity - 2 - Violent chemical change possible

White - Special -

General Description

A clear colorless to dark liquid with an aromatic odor. Flash point 90°F. Density 7.6 lb/gal. Vapors heavier than air and irritating to the eyes and mucous membranes. Subject to polymerization. If the polymerization takes place inside a closed container, the container may rupture violently. Less dense than water and insoluble in water. Used to make plastics, paints, and synthetic rubber. (NOAA Reactivity 2007)

Section 2 - Hazards

Reactivity Alerts

- Highly Flammable
- Polymerizable
- Peroxidizable Compound

Air & Water Reactions

Highly flammable. Insoluble in water.

Fire Hazard

Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. At elevated temperatures such as in fire conditions, polymerization may take place which may lead to container explosion. (USCG, 1999)

Health Hazard

Moderate irritation of eyes and skin. High vapor concentrations cause dizziness, drunkenness, and anesthesia. (USCG, 1999)

Reactivity Profile

STYRENE MONOMER is a colorless, oily liquid, moderately toxic, flammable. A storage hazard above 32°C, involved in several industrial explosions caused by violent, exothermic polymerization [Bond, J., Loss Prev. Bull., 1985, (065), p. 25]. Polymerization becomes self-sustaining above 95°C [MCA SD-37, 1971]. Presence of an inhibitor lessens but does not eliminate the possibility of unwanted polymerization. Violent polymerization leading to explosion may be initiated by peroxides (e.g., di-tert-butyl peroxide, dibenzoyl peroxide), butyllithium, azoisobutyronitrile. Reacts violently with strong acids (sulfuric acid, oleum, chlorosulfonic acid), strong oxidizing agents [Lewis, 3rd ed., 1993, p. 1185]. Reacts with oxygen above 40°C to form explosive peroxide [Barnes, C. E. et al., J. Amer. Chem. Soc., 1950, 72, p. 210]. Oxidizes readily in air to form unstable peroxides that may explode spontaneously [Bretherick 1979 p.151-154, 164]. Mixing styrene in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, oleum, and sulfuric acid [NFPA 1991]. (NOAA REACTIVITY, 2007)

Belongs to reactive group(s)

- Hydrocarbons, Aliphatic Unsaturated
- Hydrocarbons, Aromatics

Section 3 - Response Recommendations

Fire Fighting

Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. (© AAR, 2003)

Non-Fire Response

Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers. Build dikes to contain flow as necessary. Attempt to stop leak if without undue personnel hazard. Use water spray to knock-down vapors. Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. Apply "universal" gelling agent to immobilize spill. Apply appropriate foam to diminish vapor and fire hazard. Water spill: Use natural barriers or oil spill control booms to limit spill travel. Use surface active agent (e.g. detergent, soaps, alcohols), if approved by epa. Inject "universal" gelling agent to solidify encircled spill and increase effectiveness of booms. If dissolved, in region of 10 ppm or greater concentration, apply activated carbon at ten times the spilled amount. Remove trapped material with suction hoses. Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates. (© AAR, 2003)

Protective Clothing

Skin: Wear appropriate personal protective clothing to prevent skin contact.

Eyes: Wear appropriate eye protection to prevent eye contact.

Wash skin: The worker should immediately wash the skin when it becomes contaminated.

Remove: Work clothing that becomes wet should be immediately removed due to its flammability hazard(i.e. for liquids with flash point < 100°F)

Change: No recommendation is made specifying the need for the worker to change clothing after the work shift. (NIOSH, 2003)

First Aid

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.

IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: **IMMEDIATELY** flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. **IMMEDIATELY** call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. **IMMEDIATELY** transport the victim to a hospital for treatment after washing the affected areas.

INHALATION: **IMMEDIATELY** leave the contaminated area; take deep breaths of fresh air. **IMMEDIATELY** call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: **DO NOT INDUCE VOMITING.** If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and **IMMEDIATELY** call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. **DO NOT INDUCE VOMITING.** **IMMEDIATELY** transport the victim to a hospital.

OTHER: Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and toxicity properties, the exposure level, length of exposure, and the route of exposure. (NTP, 1992)

Section 4 - Physical Properties

Molecular Formula: C₈H₈

Flash Point: 88.0 ° F (NTP, 1992)

Lower Explosive Limit: 1.1 % (NTP, 1992)

Upper Explosive Limit: 6.1 % (NTP, 1992)

Auto Ignition Temperature: 914.0 ° F (USCG, 1999)

Melting Point: -24 to -23 ° F (NTP, 1992)

Vapor Pressure: 4.3 mm Hg at 59.0 ° F ; 9.5 mm Hg at 86° F; 10 mm Hg at 95° F (NTP, 1992)

Vapor Density: 1.1 (NTP, 1992)

Specific Gravity: 0.906 at 68.0 ° F (USCG, 1999)

Boiling Point: 293-295 ° F at 760 mm Hg (NTP, 1992)

Molecular Weight: 104.16 (NTP, 1992)

Water Solubility: <1 mg/mL at 66° F (NTP, 1992)

AEGL: data unavailable

ERPG-1
50.0 ppm

ERPG-2
250.0 ppm

ERPG-3
1000.0 ppm

(AIHA, 2003)

TEEL: ERPG supersedes TEEL

IDLH: 700.0 ppm (NIOSH, 2003)

Section 5 - Regulatory Information

Regulatory Names

- STYRENE

CAA RMP: Not a regulated chemical.

CERCLA: Regulated chemical with a Reportable Quantity of 1000 pounds.

EPCRA 302 EHS: Not a regulated chemical.

TRI (EPCRA 313): Regulated chemical.

RCRA chemical code: none

