

MATERIAL SAFETY DATA SHEET

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ATTN: PLANT MGR/SAFETY DIR

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MSDS File id: MSDSLT14
Customer No:
Whse No: 0022

This MSDS complies with 29 CFR 1910.1200 (The Hazard Communication Standard)

I. IDENTIFICATION

Product Name: Styrene
Formula: C₆H₅CHCH₂

II. INGREDIENTS AND RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

Component: Styrene
% Weight: Approximately 100
CAS No.: 100-42-5
Exposure Limits: OSHA-PEL: TWA-50 ppm; STEL-100 ppm
ACGIH-TLV: TWA-50 ppm; STEL-100 ppm

HAZARD DATA - DANGER!

Extremely flammable liquid and vapor. May cause eye, skin, and upper respiratory tract irritation.

INGREDIENT HAZARD INFORMATION

Identified as a SARA Section 313 chemical.

III. PHYSICAL DATA

Boiling Point (oF): 295
Melting Point (oF): -138
Vapor Pressure (mm Hg.) @ 20oC: 4.3
Vapor Density (AIR=1): 4.5
Appearance and Odor: Colorless liquid; aromatic, sweet odor
Specific Gravity (H₂O=1) @ 25o/25: 0.90
Evaporation Rate (n-BuAc=1.0): 5.6 Fast
pH: Not Applicable
Solubility in Water: Negligible

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)

90oF (Closed Cup)

Flammable Limits: Lel: 1.1%

Uel: 6.0%

FIRE AND EXPLOSION HAZARDS

Heat/inhibitor depletion/accidental impurities/exposure to air/radiation may cause spontaneous reaction/generate heat/pressure/rupture container. Liquid normally inhibited, but not vapors. Vapors may condense as solids. Plugging pressure relief devices, causing overpressure/rupture of storage containers during runaway polymerization.

EXTINGUISHING MEDIA

Dry chemical, CO₂, and foam. Use water spray/water fog for cooling.

SPECIAL FIREFIGHTING PROCEDURES

Do not enter fire area without proper protection. See "Decomposition Products Possible." Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Water may be ineffective in firefighting due to low solubility. Use water spray/fog for cooling. Pressure relief system may plug with solids, increasing risk of overpressure. Notify authorities if liquid enters sewer/public waters.

V. REACTIVITY DATA

Stable: No

INCOMPATIBILITY (Materials to Avoid)

Oxidizing agents, peroxides, strong acids, oleum, aluminum chloride, alkali, and butoxide

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide, acrid fumes

Polymerization may occur.

CONDITIONS TO AVOID

Heat, flame, and contaminants. Styrene is corrosive to copper and copper alloys. Styrene dissolves rubber.

VI. SPILL OR LEAK PROCEDURES

TRANSPORTATION EMERGENCIES

Call CHEMTREC (800) 424-9300

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Release can cause fire/explosion. May polymerize/release heat/gases. Liquids/vapors may ignite. Evacuate/limit access. Equip responders with proper protection. Extinguish all ignition sources. Stop release, prevent flow to sewers/public waters. Notify fire/environmental authorities. Blanket with firefighting foam. Restrict water use for clean-up. Impound/recover large land spill. Soak up small spill with inert solids. Use vented disposal containers. On water, material insoluble/floats. Contain/minimize dispersion/collect. Disperse residue to reduce aquatic harm. If spill hardens, contain/collect as any solid. Report per regulatory requirements.

WASTE DISPOSAL METHODS

Contaminated product/soil/water may be RCRA/OSHA hazardous waste due to potential for internal heat generation. (See 40 CFR 261 and 29 CFR 1910.) Landfill solids at permitted sites. Use registered transporters. Burn concentrated liquids in systems that use compatible fuel. Dilute with clean, low viscosity fuel. Avoid flameouts. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade. Avoid overloading/poisoning plant biomass. Assure effluent complies with applicable regulations.

VII. HEALTH HAZARD DATA

MAJOR EXPOSURE HAZARDS

Inhalation: Yes
Skin Contact: Yes
Eye Contact: Yes
Ingestion: Yes

EFFECTS OF OVEREXPOSURE

INHALATION: Overexposure may cause irritation to the respiratory tract and to other mucous membranes.

EYE CONTACT: May cause moderate irritation, including burning sensation, tearing, redness, or swelling.

SKIN ABSORPTION: No significant signs or symptoms indicative of any health hazard are expected to occur as a result of skin absorption exposure.

SKIN IRRITATION: May cause delayed skin irritation and blistering.

INGESTION: This material may be a slight health hazard if ingested in large quantities.

SUMMARY OF CHRONIC HAZARDS AND SPECIAL HEALTH EFFECTS

Chronic exposure to styrene may cause nausea, loss of appetite, CNS depression, and general weakness.

This material or its emissions may affect the central nervous system and/or aggravate pre-existing CNS disorders. Prolonged observation may be indicated.

Nine long-term animal studies provide no clear evidence of a carcinogenic response related to styrene. Human studies have also failed to demonstrate an increase human cancer risk from styrene exposure. IARC concluded the evidence for carcinogen was inadequate and that the evidence for carcinogen in animals was limited. IARC classifies styrene as a possible human carcinogen. Exposure to extremely high levels of styrene produce hearing loss in rats.

VIII. EMERGENCY AND FIRST AID PROCEDURES

INHALATION: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

EYE CONTACT: In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.

SKIN CONTACT: Immediately remove contamination clothing. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

INGESTION: If large quantity swallowed, give lukewarm water (pint) if victim completely conscious/alert. Do not induce vomiting/risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

EMERGENCY MEDICAL TREATMENT PROCEDURES: Airway protection may be necessary. Be prepared to give oxygen and, if necessary, intubate.

Maintain airway. If patient is cyanotic, provide artificial ventilation/oxygen immediately. CPR may be indicated.

IX. SPECIAL PROTECTION INFORMATION

RESPIRATORY: If exposure can exceed the PEL/TLV, use only NIOSH/MSHA approved air-purifying or supplied air respirator operated in a positive pressure mode per the NIOSH/OSHA occupational health guidelines for chemical hazards.

EYE: Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn.

SKIN: When skin contact is possible, protective clothing, including gloves, apron, sleeves, boots, head, and face protection should be worn. This equipment must be cleaned thoroughly after each use.

ENGINEERING CONTROLS: Local exhaust ventilation may be required to meet exposure standard(s) in addition to general room ventilation.

OTHER HYGIENIC AND WORK PRACTICES: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before re-use. Shower after work using plenty of soap and water.

X. REGULATORY STATUS

TSCA STATUS: This product (or its ingredients if it is a mixture) appears on the Toxic Substances Control Act Inventory (TSCA).

SARA HAZARD CATEGORIES (Section 311 and Section 312):

Reactivity: Yes
Immediate Health: Yes
Delayed Health: Yes
Fire: Yes

SARA Section 313: See Section II, Ingredient Hazard Statement

DOT SHIPPING NAME: Styrene Monomer, stabilized

DOT HAZARD CLASS: Flammable Liquid

IDENTIFICATION NUMBER: UN2055

HMIS RATINGS (Hazardous Materials Identification System, Scale 0-4):

Health: 2
Flammability: 3
Reactivity: 2

NFPA RATINGS (National Fire Protection Association, Scale 0-4):

Health: 2
Flammability: 3
Reactivity: 2