DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Frequently Asked Questions

STYRENE

What is styrene?
Pure styrene is a sweet smelling, colorless liquid that evaporates easily. Styrene often contains other chemicals that give it a bad odor. Styrene dissolves in some liquids but only slightly in water.

Where is styrene found and how is it used?
Styrene is used to make rubber and plastic. Products made with styrene include packaging, electrical and thermal insulation, fiberglass, pipes, automobile parts, carpet backing, drinking cups, and other items used to serve or package food.

Styrene is commonly detected in the air near hazardous waste sites, in motor vehicle tunnels, in indoor air, and in the workplace. Styrene may be found in soil. It is also detected in some foods.

How can people be exposed to styrene?

You could be exposed to styrene through:

- **Breathing** styrene if you work where it is used or made. This occurs if you work with polystyrene, plastics, coating, polyester resins, and other products. You can also breathe styrene near hazardous waste sites, in motor vehicle tunnels, and in indoor air. Cigarette smoke is a major source of styrene in indoor air.
- **Eating** foods that contain styrene. Styrene is detected in the natural components of roasted filberts, dried legumes, fried chicken, nectarines, and Beaufort cheese. Styrene may also enter food from styrene containers and packaging. Levels found in food are typically too low to be of concern.
- **Drinking** water contaminated with styrene. This can occur near a hazardous waste site, landfill, or disposal site.
- **Touching** liquid styrene or styrene resins if you work where it is used or made. Skin contact may occur if you touch soil contaminated with styrene. This can occur near a hazardous waste site, landfill, or disposal site.

How does styrene work and how can it affect my health?
Exposure to high concentrations of styrene in air can affect the central nervous system causing tiredness, muscle weakness, problems concentrating, nausea, and irritation to the eyes, nose, and throat. Styrene may cause cancer, though it is still unknown.

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How is styrene poisoning treated?
Medical professionals treat the symptoms of exposure. They may use different techniques to limit the health effects based on the type of exposure.

What should I do if exposed to styrene?

- **If you breathe styrene,** get fresh air and rest. Get medical help.
- **If you get styrene on your skin,** rinse skin with plenty of water or shower. Get medical help.
- **If you get styrene in your eyes**, remove contacts lenses if you can do it easily. Rinse with plenty of water for several minutes. Get medical help.

What factors limit use or exposure to styrene?
In the workplace, limit exposure by enclosing operations. Ventilation is needed. If good ventilation is not provided, wear a respirator. Workers should wear protective clothing. Wash well right after exposure. Wash again at the end of the work shift.

Limit exposure by not using products containing styrene, such as building materials, furniture, and other products. Avoid tobacco smoke.

Is there a medical test to show whether I've been exposed to styrene?
Styrene and its breakdown products can be found in blood, urine, and body tissues for a short time following exposure to moderate-to-high levels of styrene.

Technical information for styrene

CAS Number: 100-42-5

Chemical Formula: C_8H_8

Carcinogenicity (EPA): There currently is no EPA classification for styrene.

MCL (Drinking Water): The MCL is 0.1 mg/L.

OSHA Standards: The OSHA standard is 100 ppm (425 mg/m^3). Styrene has a permissible exposure limit (PEL) to protect workers during an eight-hour shift over a 40-hour workweek. The OSHA short-term limit (STEL) is 200 ppm. OSHA has also set a ceiling limit, a five-minute peak in any three hours of 600 ppm.

NIOSH Standards: The NIOSH time weighted average for a 10-hour day, 40-hour work week is 50 ppm (215 mg/m3). The NIOSH ceiling limit is 100 ppm (425 mg/m^3).

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2010. *Toxicological profile for styrene*. Atlanta, GA: U.S. Department of Health and Human Services. https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=421&tid=74

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services.