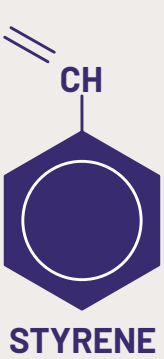
STYRENE RISK ASSESSMENT

SIRC Styrene Information & Research Center

SIRC sponsored an updated comprehensive human health risk assessment as a capstone to its 30-year research program.

SIRC assembled a group of independent experts to:

- → systematically review the scientific literature on styrene
- → develop hazard and exposure assessments
- → assess the current science on styrene and human health—with a focus on workers in environments where styrene is made or used in manufacturing as well as general population exposures from environmental and consumer product sources



The assessment was published by the peer-reviewed ***Journal of Toxicology and Environmental Health, Part B: Critical Reviews*** in July 2019. This assessment updates a 2002 styrene risk assessment conducted by Harvard University.

STYRENE IN CONSUMER PRODUCTS

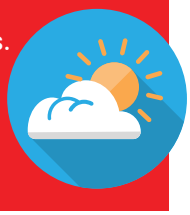
Consumer products made with styrene remain safe. There is negligible risk from exposures to styrene through everyday use of consumer products.

STYRENE IN THE WORKPLACE

Occupational risks are within acceptable ranges. To address potential health risks, workers in job categories with potentially high exposures, such as open molding of fiber-reinforced polymer (FRP) composites, should use proper respiratory protection.

STYRENE IN THE ENVIRONMENT

The general population is very unlikely to experience adverse health outcomes associated with styrene environmental or consumer exposures.



DOES STYRENE CAUSE CANCER?

There are *no strong or consistent indications* that styrene causes any form of cancer in humans. Although some studies suggest that styrene-exposed workers may be at increased cancer risk, the human evidence for styrene carcinogenicity is *inconclusive*.

WHAT ABOUT OTHER HEALTH EFFECTS?

Hearing impairment—ototoxicity—is an area of concern for workplace exposures. Simultaneous exposure to noise and styrene appears to increase potential adverse effects. Noise protection is important for workers exposed to styrene.

WHAT IS THE DISTINCTION BETWEEN HAZARD AND RISK?

"Hazard" refers to anything that has the *potential* to cause harm or an adverse effect under a particular circumstance.

By analogy, a wet floor poses a hazard because someone could slip and fall.

"Risk" is the likelihood that a hazard will cause harm to someone or something. Determining risk requires consideration of whether, how, and how much a person is *exposed* to a substance or activity.

Using the same analogy, the risk of slipping and falling is minimal if the wet area is blocked off and the moisture is removed. However, leaving an area of a floor wet presents a fall risk for people walking through the area.

A risk assessment seeks to quantify the probability that harm may occur based on both a known hazard and the probability of exposure to that hazard.