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You Know Styrene – A resource for
consumers, employees and
communities



Health and Safety: Expert Science Reviews



Numerous studies have been conducted on the health effects of styrene by government, academia and industry.

Reviews by Government, Academia and Industry

Since 1994, a number of expert science groups have been convened by government authorities, academia, industry and others to assess the health and safety of styrene. Some of these reviews have considered all of the scientific information, both “positive” (evidence of an effect) and “negative” (does not indicate an effect), while others have focused only on the positive information.

SIRC believes that regulation and public communication by government agencies about possible styrene health effects should be based on reviews by independent experts that rely on all of the available scientific information rather than those that are based on a more limited review of only the positive or the negative data.

1993-2003

Health Canada and Environment Canada classified styrene as a possible human carcinogen but found that “styrene is not entering the environment in quantities or under conditions that may constitute a danger...to human life or health.” [Sources^{\[1\]}](#)

2002

An expert panel convened by the [Harvard School of Public Health](#) found that the styrene health effects data do not suggest any concerns for the general public related to environmental exposures or consumer products. The panel also found that styrene emissions from businesses that use styrene are not associated with health effects, including cancer, for those who live nearby. [Source^{\[2\]}](#)

2002

The International Agency for Research on Cancer (IARC), part of the World Health Organization, retained its 1994 styrene classification of “possibly carcinogenic to humans.” It should be noted that this is the same classification they have given to coffee, pickled vegetables, and, in 2011, cell phones. Additionally, IARC has specifically stated that its classifications should not be used for regulatory purposes and that “IARC Monographs are the first step in carcinogen risk assessment.” [Sources^{\[3\]}](#)

2006

The U.S. National Toxicology Program (NTP), in a comprehensive review of the science, determined that there is “negligible concern” for adverse developmental and reproductive effects resulting from styrene exposures in humans. [Source^{\[4\]}](#)

2007

The Texas Commission on Environmental Quality (TCEQ) conducted a comprehensive review of the scientific information related to styrene and styrene's potential to impact human health. TCEQ stated "respiratory tract effects in rodents are not relevant for human risk assessment and no epidemiologic evidence exists to indicate styrene presents an excessive carcinogenic risk to humans" and concluded "data are inadequate for an assessment of human carcinogenic potential." [Source^{\[5\]}](#)

2008

The European Union's comprehensive risk assessment of styrene exposure determined that there is no concern for cancer in workers or community members and stated "there is no clear and consistent evidence for a causal link between specific cancer mortality and exposure to styrene." [Source^{\[6\]}](#) As styrene had not completed the risk assessment process before Risk Assessment Committee of the European Chemicals (REACH) became effective, the styrene risk assessment was submitted verbatim to the European Chemicals Agency to inform its work on styrene. [Source^{\[7\]}](#)

2009

An international "blue ribbon panel" of noted epidemiologists reviewed the studies of more than 60,000 workers exposed to styrene, and determined that there is no support for a concern for cancer in humans. The Boffetta, et al. report was published in the Journal of Occupational and Environmental Medicine in 2009. [Source^{\[8\]}](#)

2010

The Agency for Toxic Substances and Disease Registry (ATSDR), which is affiliated with the U.S. Centers for Disease Control and Prevention, following a thorough review, found that "taken together, the animal and human data indicate that styrene may possibly be a weak human carcinogen." [Source^{\[9\]}](#)

2011

In a limited review that only looked at what NTP defined as "positive" studies, NTP listed styrene as "reasonably anticipated to be a carcinogen" in its 12th Report on Carcinogens. NTP has also noted that "a listing in the RoC only indicates a potential hazard and does not estimate cancer risks to individuals associated with exposures in their daily lives." [Sources^{\[10\]}](#)

2011

A review by the Danish EPA concluded "... based on human studies, there is no clear and consistent evidence for a causal link between specific cancer mortality and exposure to styrene," and "... lung tumours seen in mice are unlikely to be of any relevance for human health." [Source^{\[11\]}](#)

2012

The Risk Assessment Committee of the European Chemicals Agency adopted the 2011 recommendations by the Danish EPA in an official opinion. [Source^{\[12\]}](#)

2014

A review by the U.S. National Research Council supported the findings of the 2011 review by NTP. [Source^{\[13\]}](#)

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DID YOU KNOW ?

You need not travel to the United Kingdom to experience Stonehenge. You can have it just a few miles off of I-81 in southwestern Virginia, where you will find an exact replica of the ancient site made entirely from polystyrene. "Foamhenge," located on the property of the famed Natural Bridge of Virginia, is free and open to the public year round. The Smithsonian Channel exclaims, "It's a Foamnomena."



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