



Benzene

What is benzene?

Benzene is a colorless or light-yellow liquid chemical at room temperature. It is used primarily as a solvent in the chemical and pharmaceutical industries, as a starting material and an intermediate in the synthesis of numerous chemicals, and in gasoline. Benzene is produced by both natural and man-made processes. It is a natural component of crude oil, which is the main source of benzene produced today. Other natural sources include gas emissions from volcanoes and forest fires.



Outdoor air contains low levels of benzene from gasoline fumes, secondhand smoke, and other sources.

How are people exposed to benzene?

People are exposed to benzene primarily by breathing air that contains the chemical. Workers in industries that produce or use benzene may be exposed to the highest levels of the chemical, although federal and state regulations have reduced these exposures in recent decades. Similarly, limits on the amount of benzene allowed in gasoline have contributed to reduced exposures.

Mainstream cigarette smoke is another source of benzene exposure, accounting for about half of the total U.S. population exposure to this chemical. Among smokers, 90 percent of benzene exposures come from smoking. Benzene may also be found in glues, adhesives, cleaning products, and paint strippers. Outdoor air contains low levels of benzene from secondhand tobacco smoke, gasoline fumes, motor vehicle exhaust, and industrial emissions.

Which cancers are associated with exposure to benzene?

Exposure to benzene increases the risk of developing [leukemia](#) and other blood disorders.

How can exposure be reduced?

Don't smoke and avoid exposure to secondhand tobacco smoke. Try to limit exposure to gasoline fumes. For workers who may be exposed to benzene on the job, the U.S. Centers for Disease Control and Prevention has [information](#) about how you can protect yourself and what to do if you are exposed.

Selected References:

- International Agency for Research on Cancer. Benzene, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100F. Lyon, France: World Health Organization, 2012. [Also available online](#). Last accessed August 6, 2024.
- National Institute of Occupational Safety and Health. Benzene, NIOSH Pocket Guide to Chemical Hazards. Atlanta, GA: Centers for Disease Control and Prevention, 2010. [Also available online](#). Last accessed January 14, 2019.
- National Toxicology Program. Benzene, Report on Carcinogens, Fifteenth Edition. Triangle Park, NC: National Institute of Environmental Health and Safety, 2021. [Also available online](#). Last accessed December 5, 2022.
- Occupational Safety and Health Administration. Benzene, Safety and Health Topics. Washington, DC: U.S. Department of Labor. [Available online](#). Last accessed January 14, 2019.
- Public Health Service. 2014 Surgeon General's Report: The Health Consequences of Smoking—50 Years of Progress. Rockville, MD: U.S. Department of Health and Human Services, 2014. [Also available online](#). Last accessed January 14, 2019.

Related Resources

[Cancer Trends Progress Report - Benzene](#)

Reviewed: August 6, 2024

If you would like to reproduce some or all of this content, see [Reuse of NCI Information](#) for guidance about copyright and permissions. In the case of permitted digital reproduction, please credit the National Cancer Institute as the source and link to the original NCI product using the original product's title; e.g., "Benzene was originally published by the National Cancer Institute."