

VINYL CHLORIDE: A TOXIC CHEMICAL THAT THREATENS HUMAN HEALTH

What Is Vinyl Chloride?

- Vinyl chloride is a toxic chemical used to make polyvinyl chloride (PVC) plastic.
- Vinyl chloride is used to create PVC pipes, vinyl siding, windows, flooring, packaging, furniture, car parts; children's toys, pet toys, shower curtains, credit cards, gift cards, and many other consumer goods.



Examples of building products and consumer goods that are made from polyvinyl chloride (PVC) plastic.

Health Risks of Vinyl Chloride

- There is no safe [level of exposure](#) to vinyl chloride.
- Vinyl chloride is not just *suspected* of causing cancer — the International Agency for Research on Cancer considers it a [Group 1 carcinogen](#).
- Vinyl chloride is known to cause [liver cancer](#) and is associated with [lymphoma, leukemia, and cancers of the brain and lungs](#).
- Pregnant women may have an [increased risk](#) of miscarriage and birth defects when exposed to vinyl chloride in the air.
- Exposure to vinyl chloride may [lead to](#) headaches, dizziness, and difficulty breathing, and severe exposure can be fatal.
- When vinyl chloride or [PVC burns](#), dioxins and other chemicals are often formed. Dioxins are [persistent organic pollutants](#), a class of toxic chemicals that harms human health and the environment and can be transported by wind and water. These long-lasting chemicals are stored in body fat, moving from species to species, and becoming more concentrated and dangerous as they work their way up the food chain.



Who Is Impacted by Vinyl Chloride?

- **Consumers.** Vinyl chloride can be present in from products made of PVC and/or vinyl and can migrate out during usage. For example, elevated levels of vinyl chloride have been measured inside of new cars with vinyl interiors. Vinyl chloride is also known to leach from PVC bottles or food-contact materials.
- **Children.** Young people can have greater exposure due to their higher lung surface area to body weight ratio and higher concentrations of vinyl chloride closer to the ground.
- **Firefighters and other first responders.** Dioxins from burning vinyl chloride and the PVC plastic it's used to make enter the air and water, putting people at risk of inhalation, and the environment at risk of contamination. As a result, PVC is [considered](#) a significant threat to the health of firefighters. Since 2002, almost [two out of three](#) firefighters who died in the line of duty died of cancer, according to the International Association of Fire Fighters.
- **Millions of U.S. residents in communities located along vinyl chloride's rail transport route.** When vinyl chloride burns in train derailments — as in the [February 2023 East Palestine, Ohio, disaster](#) — it threatens the health of the surrounding community as well as the first responders and workers tasked with cleaning up the hazardous materials. A [February 2024 report by Toxic-Free Future](#) estimated that more than 3 million Americans live within 1 mile of the railroad tracks on which vinyl chloride is transported, and that 36 million pounds of this toxic chemical may be traveling along rail lines at any given time in the U.S.
- **Workers in facilities that manufacture vinyl chloride and PVC.** Vinyl chloride's toxicity was first discovered in the 1970s when workers in production facilities began to develop angiosarcoma, a rare form of liver cancer. In addition to liver angiosarcoma, [occupational exposure to vinyl chloride monomer \(VCM\) causes chronic liver disease, hepatocellular carcinoma, portal hypertension, and liver fibrosis.](#)
- **Residents near municipal landfills and hazardous waste sites.** Elevated levels of vinyl chloride have been found not only in the air near manufacturing and processing facilities but also in the vicinity of many hazardous waste sites and municipal landfills, either as direct result of the disposal of vinyl chloride or from the microbial degradation of other chlorinated solvents used to form vinyl chloride. It's important to note that these environmental justice communities are overwhelmingly low-income and/or minority communities.
- **Residents of communities near vinyl chloride and PVC production facilities.** Many of the vinyl chloride and PVC production facilities in the United States are built along an 85-mile stretch of the Mississippi River in Louisiana, where local residents are predominantly Black and low-income and where both environmental regulations and the enforcement of them tend

to be lax. Rates of cancer in the area are so much higher than the American average that this corridor has sadly become known as “Cancer Alley.” Vinyl chloride is also produced in Texas and Kentucky.

- **Smokers and people exposed to cigarette and cigar smoke.** [According to the Centers for Disease Control and Prevention](#), you can also be exposed to vinyl chloride through cigarette and cigar smoke.



A man takes photos as a black plume rises over East Palestine, Ohio on February 6, 2023. (AP Photo/Gene J. Puskar)

Restrictions to Protect Human Health & Our Environment

- In 1974, FDA banned the use of vinyl chloride in aerosol drugs and cosmetics. In addition, the Consumer Product Safety Commission banned the use of vinyl chloride in other aerosol consumer products.
- The EPA has the legal authority to ban the manufacturing, processing, distribution and use of vinyl chloride (other than in food, drugs, and cosmetics) under the Toxic Substances Control Act (TSCA).
- Although [banning vinyl chloride](#) has been discussed for more than 40 years, PVC plastic made from vinyl chloride is still used widely in pipes, building materials, packaging, children’s toys, and many consumer products.
- Some of the other hazardous chemicals used in plastic goods have been restricted. For example, eight phthalates — chemical additives that make PVC plastic more durable — have been restricted from inclusion in children’s toys and other children’s products in the [United States](#), the European Union, and [many nations](#) around the world.

- In January 2022, the U.S. Plastics Pact (a stakeholder group endorsed by [100 major consumer companies](#)) made a [voluntary commitment to eliminate PVC in packaging by 2025](#). This includes companies like Apple, Nike, and Ikea.
- In December 2023, [the U.S. EPA announced it is including vinyl chloride in a short list of priority chemicals to evaluate for risk](#). This is the first step required in the process of limiting or banning a chemical under the Toxic Substances Control Act (TSCA). This process is our best hope of getting vinyl chloride banned in the U.S.

How Can You Reduce Your Exposure to Vinyl Chloride?

- Unfortunately, people who live near or work in the vinyl chloride or PVC industries cannot realistically avoid exposure to vinyl chloride. The best way to protect everyone is to [ban vinyl chloride!](#)
- Opt for household goods, clothing, and building materials that are free of PVC and vinyl. Items commonly made with PVC include flooring, pipes, wallpaper, upholstery, shower curtains, wire and cable coatings, raingear, and toys.
- If your home has vinyl siding, replace it with a non-toxic alternative such as wooden siding.
- If you purchase an automobile, choose one with seats that are not made out of vinyl. If you do have a car with vinyl seats, make sure to open the windows when you first enter the car, particularly in warm weather.
- Avoid food packaging and storage containers that contain PVC. Purchase a reusable water bottle made from either glass or stainless steel and avoid water sold in single-use plastic bottles.
- Make sure to run your water for a while before drinking and do not use hot water from the tap for drinking or cooking.
- If there is a vinyl chloride spill near you, or if you are concerned about vinyl chloride contamination in your community from a past spill or from manufacturing, look into testing services to check your air and water for presence of vinyl chloride.

More Information

- Visit our www.BanVinylChloride.org for even more information on this toxic petrochemical as well as more ways you can help encourage the U.S. EPA to ban it as quickly as possible.
- For more on the history of vinyl chloride, please see [Deceit and Denial: The Deadly Politics of Industrial Pollution](#) by Dr. Gerald Markowitz and Dr. David Rosner, 2002, University of California Press.