

Is PVC Safe? The Vinyl Debate

Reader Contribution

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We recently posted a poll on our website asking you, “Do you try to avoid using vinyl in your home?” Forty-two percent of responders answered, “Yes, whenever I can,” while 40 percent of responders answered, “No – what’s wrong with vinyl?” For those of you who haven’t been introduced to the vinyl debate, here’s some information on the history and pros and cons of vinyl.

What is polyvinyl chloride?

Polyvinyl chloride is more often referred to by its less-technical names, PVC and vinyl. Most often used in construction, PVC is a plastic composed of three elements: carbon, hydrogen and chlorine. You’ve probably heard of PVC piping, but PVC appears in other surprising places such as shower curtains and electrical wires. PVC plastics are number 3 recyclables, so if you’re wondering whether one of your products contains vinyl, look for a “3” somewhere on the product or packaging.

A more in-depth look at PVC is available in Healthy Building Network’s [Sorting Out the Vinyls](#).

Should I be concerned about using PVC in my home?

Varying opinions exist on this subject. Over the course of the last few decades, environmental groups such as Greenpeace have been quick to bash PVC. [Greenpeace’s stance](#) is rooted in the idea that PVC in every stage – from production to disposal – is dangerous. PVC supporters have fought back, pointing to research that suggests that the vinyl controversy is nothing more than hype.

Both sides present strong arguments. Here are the three most commonly discussed issues in the vinyl debate, presented from each side’s perspective.

The production of PVC is bad for the environment and factory workers.



The anti-vinyl case:

In the 1970s, vinyl chloride monomer (VCM) exposure was linked to a rare form of liver cancer, angiosarcoma. The EPA classified PVC as a known human carcinogen, with factory workers being the most common victims of VCM overexposure. By the late 1970s, strict regulations were established to protect workers. Unfortunately, the production of PVC still releases hundreds of thousands of

pounds of nasty chemicals into the air every year, including VCM.

For more information on the EPA's vinyl research, read their [Toxicological Review of Vinyl Chloride](#).

The pro-vinyl case:

There has not been a single documented case of angiosarcoma in vinyl factory workers who began working in factories after the U.S. Occupational Safety and Health Administration began regulating VCM emissions in the 70s. In 1976, the EPA enacted an air toxins rule, and VCM emissions into the air were cut drastically. Today, less than one in every million people in the U.S. will be affected by VCM in the air.

The Centers for Disease Control's [Angiosarcoma of the Liver among Polyvinyl Chloride Workers](#) overviews the dangers VCM presented in vinyl factories prior to 1974 and the current state of vinyl workers' health risks.

PVC releases carcinogens that endanger those who use it.

The anti-vinyl case:

PVC contains harmful carcinogens, most notably VCM. Other chemicals such as dioxin and phthalates, both carcinogenic, may also be released into an indoor environment, endangering the people who work and live in buildings that use PVC. Dioxin is a super-toxic chemical released when plastic that contains chlorine is burned. Aside from cancer, Dioxin can also trigger nervous system disorders and birth defects. Phthalates are carcinogenic chemicals often used in plastics to make them flexible. While the fact that vinyl contains carcinogens should be reason enough to avoid it, PVC is increasingly dangerous when burned. Therefore, house and building fires involving PVC are

dangerous not only for homeowners and workers, but for firefighters and rescue workers as well.

The pro-vinyl case:

While PVC does contain harmful carcinogens, VCM is merely a part of the production of vinyl. Once PVC is produced, VCM is no longer emitted, so it doesn't pose a threat to anybody who uses vinyl. Dioxin can only be released from PVC when it is burned at low or extremely high temperatures. In the case of a building fire, dioxin may be released into the air, but firefighters are prepared for dangerous fumes, which is why most of them wear oxygen masks. Many other building materials release harmful toxins when burned, so PVC shouldn't be pinpointed. Finally, research involving plasticizers (such as phthalates) has never been done on humans. Lab rats that developed cancer after exposure to plasticizers were exposed to the equivalent of a human ingesting 500 grams of plasticizer every day for 100 days, which is highly unlikely.

Read Environmental Design & Construction's [Navigating Fact from Fiction in the White-Hot Debate over PVC and the Environment](#) for more information on why using PVC in an indoor environment may not be dangerous.

PVC disposal is unsafe.

The anti-vinyl case:

When PVC is incinerated, it produces dioxin. Post-consumer PVC is difficult to recycle and, when compared to the recycling efforts of other plastics, vinyl is doing a poor job. The final option for disposing vinyl is to throw it in landfills, but additives in PVC can sometimes result in hazardous waste.

Read about the problems involved in recycling PVC in Building Green's [Should We Phase Out PVC?](#)

The pro-vinyl case:

Vinyl typically lasts longer than other materials, so it appears in landfills less often than its non-vinyl equivalents. PVC only releases dioxin if it is not incinerated properly, and claims that vinyl in landfills could break down and release toxins into groundwater are unsupported. On the contrary, most landfill liners today are made with PVC because of its enduring strength.

We want to know what you think about the vinyl debate. Share your thoughts by leaving a comment below.

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