

## **The health and environmental impact of the East Palestine train derailment**

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On February 3, 2023, a freight train derailed in East Palestine, Ohio, causing fires and environmental damage across the area. When the train derailed, hundreds of thousands of pounds of hazardous materials spilled across the town. These [hazardous chemicals](#) included—vinyl chloride, acrolein, butyl acrylate, isobutylene, ethylene glycol and many others. Among these, vinyl chloride worried authorities the most, as it's highly flammable, toxic, carcinogenic and damaging to the central nervous system.

With vinyl chloride being highly flammable, authorities were worried it would explode, so they decided to burn and release it slowly. However, burning it presented new challenges. Burning vinyl chloride has the potential to release phosgene and hydrogen chloride too. Why is this a problem you may ask? Well, [phosgene](#) is a substance that causes vomiting, troubled breathing, pulmonary edema and death. Moreover, phosgene was used as a [bioweapon or choking agent in World War I](#), causing many deaths and injuries in that war.

If the production of phosgene wasn't alarming enough, burning vinyl chloride can also produce dioxins. This is also troubling, as [dioxins cause cancer](#) at higher rates than vinyl chloride along with reproductive and developmental problems. Moreover, [dioxins have a half-life](#) of 9 to 15 years in the surface soil and 25-100 years in the subsurface soil. Actually, most people who are harmed by dioxins don't breathe them in. [More than 90%](#) of human exposure to dioxin occurs through the consumption of meat, dairy or fish that are contaminated with this substance.

To assess this matter, the Environmental Protection Agency (EPA) performed an [independent analysis](#) near the crash site and found nine air pollutants that could cause long-term health risks. These findings contradicted with Texas A&M University researchers who determined the air near the site was completely safe. However, both Texas A&M and EPA researchers agreed it would take months, if not years, of constant exposure to these pollutants to cause serious harm, and both entities believed the toxic air from the crash wouldn't last that long.

Despite authorities stating the chemical fallout posed little risk to residents, many people around East Palestine continue reporting a range of ailments since the crash and burn including—rashes, headaches, sore throats, nausea and respiratory issues. It doesn't stop there, as residents are also reporting a myriad of animal deaths in the area, including dogs, cats, chickens, hens, rabbits, frogs and fish. Sadly, authorities even estimate that [roughly 45,000 animals have died](#) from the chemical fallout. With this being true, how can anyone be confident that the environment is safe or will be safe for residents and animals of East Palestine moving forward?

For people thinking this tragedy is isolated in Ohio, please think again. [Residents in Michigan and Texas should know](#) hazardous materials from East Palestine were shipped to their perspective states without them being notified. Specifically, about half a million gallons of firefighting water from East Palestine were disposed in Harris County, Texas with another 1.5 million gallons expected to be dumped there later. Judge Linda Hidalgo from Harris County stated, *"It's a very real problem. We were told yesterday the materials were shipping only to learn today they've been here for a week."*

Michigan experienced a similar fate as Harris County, Texas, when contaminated soil from East Palestine was shipped to the US Ecology Wayne Disposal in Belleville, Michigan. Like in Texas, US Representative Debbie Dingell and Governor Whitmer from Michigan were unaware of these disposal plans in Michigan.

Precisely, fifteen truckloads of hazardous waste from East Palestine were disposed at a waste treatment facility in Belleville. Upon learning this, officials and residents from both Michigan and Texas were disturbed by this troubling news. Why weren't officials notified beforehand? Are residents in these states at risk? These questions are currently being pondered, as people rush to learn the potential harm vinyl chloride and dioxins can cause humans, animals and the environment.

Unfortunately, this environmental tragedy is all too familiar for residents in the Midwest. It wasn't long ago when [Flint, Michigan was the epicenter](#) for environmental tragedies, when city officials decided to switch water sources, exposing thousands to lead from aging pipes. This simple switch caused "elevated blood lead rates" in children under age 6 to double, sparking a nationwide outrage and dozens of health and political investigations. Today, blood lead levels in children have improved in Flint, but resources are still needed to remedy the damages that were done there.

As this matter (also being called Ohio's Chernobyl) unveils itself, public health officials and leaders should take extreme caution and measures to monitor the potential health and environmental risks from this tragedy. Even though city officials in East Palestine claim the water and environment are safe, room for error doesn't exist with innocent lives at stake. Thus, people in Ohio and across the country should continue gauging this matter along with the water and air quality in their perspective states. It will take years of research and investigation to truly understand the summative effects of this environmental tragedy in East Palestine.