

Toxic Ohio Train Derailment

By [Dr. Joseph Mercola](#)

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[Mercola](#)

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February 3, 2023, a train carrying toxic chemicals derailed in East Palestine, Ohio

Five of the cars that derailed were carrying vinyl chloride, a flammable gas that can lead to life-threatening respiratory issues and an increased risk of cancer

Other toxic chemicals on the derailed train cars include butyl acrylate, which can cause breathing difficulties, and ethylene glycol monobutyl, linked to chronic health effects, including liver toxicity

Residents have reported fish, hens and roosters dying, along with persistent coughs, sore throats, burning eyes and a lingering odor in the air, even as officials claim there's no risk

Every day, about 12,000 rail cars transporting toxic chemicals travel through cities across the U.S.; another disaster is imminent, according to railroad workers, due to cutbacks in staffing, scheduling designed to maximize profits and lack of maintenance to cars, locomotives and tracks

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February 3, 2023, a train carrying toxic chemicals derailed in East Palestine, Ohio, a town near the Ohio-Pennsylvania border. In total, 38 rail cars derailed, and a massive fire that broke out damaged an additional 12 cars.¹

While no immediate fatalities or injuries were reported, the hazardous materials released from the cars — and concerns over a potential explosion — prompted evacuations from the area. Now residents are wondering if it's really safe to return to their homes, or whether their long-term health, as well as their air, water and soil, has been permanently affected.

Derailed Cars Carried Vinyl Chloride and Other Toxins

The train, operated by Norfolk Southern, included 20 cars carrying hazardous materials.

Eleven of them derailed.² The National Transportation Safety Board (NTSB) published a list of the contents of the 11 cars, which included vinyl chloride.³

A flammable gas carried on five of the cars, vinyl chloride is used to make hard plastic resin and is found in many consumer products, from credit cards and furniture to plastic PVC piping.⁴ Inhaling vinyl chloride could lead to life-threatening respiratory issues.⁵ When it breaks down in the air or burns, it can lead to the creation of hydrogen chloride, a respiratory irritant, and phosgene, which was used as a deadly poison gas in World War I.⁶

It's also carcinogenic. According to the National Cancer Institute, "Vinyl chloride exposure is associated with an increased risk of a rare form of liver cancer (hepatic angiosarcoma), as well as primary liver cancer (hepatocellular carcinoma), brain and lung cancers, lymphoma and leukemia."

In addition to outdoor air contamination, if vinyl chloride contaminates a water supply, it can enter household air if that water is used for showering, cooking or laundry.⁷ February 13, 2023, Congressman Jamaal Bowman tweeted:⁸

"Nearly 1 million pounds of vinyl chloride were on this train. Now, the EPA has confirmed it's entered the Ohio River basin which is home to 25 million people. This is one of the deadliest environmental emergencies in decades and no one is talking about it."

Other toxic chemicals on the derailed train cars include:⁹

- Butyl acrylate — This flammable liquid is dangerous if swallowed and can irritate the respiratory system, skin and eyes. It poses a "serious" health hazard and can cause breathing difficulties.
- Ethylene glycol monobutyl ether (2-butoxy ethanol) — This chemical, used in paint strippers and household cleaners, can cause "serious or irreversible" chronic health effects, including liver toxicity and damage to the eyes, skin, kidneys and blood.
- Ethylhexyl acrylate — This potential carcinogen is used to make plastics and protective coatings. Inhalation can lead to convulsions, shortness of breath and a buildup of fluid in the lungs.
- Isobutylene — This gas is used to make rubber for tires and inner tubes. It can cause dizziness and unconsciousness if inhaled, along with skin and eye irritation.
- Benzene — This carcinogen also causes genetic mutations. Exposure can lead to coma, irregular heartbeat and damage to blood cells. While the train wasn't carrying benzene when it derailed, residues existed because two empty cars had previously carried the toxic chemical.

Chemical Profile for Vinyl Chloride Just Updated — After 17 Years

In a strange turn of events, the Agency for Toxic Substances and Disease Registry (ATSDR), a division of the U.S. Department of Health and Human Services, released an updated toxicological profile for vinyl chloride in January 2023. The last time the profile was updated

was in 2006 — 17 years ago.¹⁰

One change observed so far significantly increased the level of exposure causing heart damage. Strange Sounds¹¹ revealed the 2006 version, archived via the Wayback Machine,¹² states, “At high concentrations (>30,000 ppm), vinyl chloride was been [sic] shown to sensitize the heart to epinephrine, resulting in cardiac arrhythmias in dogs.”

The 2023 version has a significantly higher limit, stating, “At high concentrations (>150,000 ppm), vinyl chloride was shown to sensitize the heart to epinephrine, resulting in cardiac arrhythmias in dogs.”¹³

The U.S. Centers for Disease Control and Prevention also recently modified its vinyl chloride webpage, removing sections titled, “How can vinyl chloride affect children?” and “Has the federal government made recommendations to protect human health?”¹⁴ Reportedly, the section related to children included the following before it was removed:¹⁵

“It has not been proven that vinyl chloride causes birth defects in humans, but studies in animals suggest that vinyl chloride might affect growth and development. Animal studies also suggest that infants and young children might be more susceptible than adults to vinyl chloride-induced cancer.”

Many are now questioning the curious timing of the updates. “I’m not a conspiracy theorist, but why did the CDC update their profile for vinyl chloride 11 DAYS before the train crash in Ohio?” James Bradley tweeted.^{16,17}

Reports of Dead Animals, Fish Near Derailment

The U.S. Environmental Protection Agency (EPA) stopped monitoring the community’s outdoor air for phosgene and hydrogen chloride February 13, stating, “After the fire was extinguished on February 8, the threat of vinyl chloride fire producing phosgene and hydrogen chloride no longer exists.”¹⁸ It continues to monitor for “other chemicals of concern,” however.

It’s also screening indoor air in homes nearby, and to date states it has “no detections of vinyl chloride or hydrogen chloride.” But even as officials claim it’s safe for residents to return to their homes, signs suggest otherwise.

Due to chemicals spilled from the train, an estimated 3,500 fish were killed in an area spanning 7.5 miles of streams, according to the Ohio Department of Natural Resources. Residents have also reported hens and roosters dying, along with persistent coughs, sore throats, burning eyes and a lingering odor in the air.¹⁹

Residents have also reported soot on their homes and vehicles, and are expressing concerns over how to clean it since it could be contaminated.²⁰ After the derailment, crews conducted a controlled burn, igniting the vinyl chloride in an attempt to get rid of it. Andrew Whelton, a professor of environmental and ecological engineering at Purdue University, told NBC News this may have created more problems, including chemicals the EPA isn’t testing for.

“When they combusted the materials, they created other chemicals. The question is what did they create?” he said.²¹ Meanwhile, February 10, the EPA stated in a letter to Norfolk Southern that hazardous materials “continue to be released to the air, surface soils, and surface waters.”²²

Residents File Lawsuits

Lawsuits have begun to roll in from business owners and residents against Norfolk Southern. According to reporter Julie Grant, speaking with NPR, “They say the company was negligent, and one thing they want is the company to fund court-supervised medical screenings for serious illnesses that may be caused by exposure to those chemicals.”²³ In addition to air pollution, the water supply may also be tainted. Grant explained:²⁴

“The U.S. EPA said it did find some of the chemicals in nearby creeks and streams. State regulators confirm that fish have been killed, but they said the area’s drinking water is supplied by groundwater, so it would take longer for these chemicals to move underground if that were to happen.

Norfolk Southern released a remediation plan, which lists a number of ways it plans to continue to monitor and clean up the site, including installing wells to monitor the groundwater. That’s at the site. It’s also near the Ohio River, which is a major drinking water source. And at least one company that’s supplied by the river says it’s looking at an alternative water source in case that’s needed.”

In a video posted by Democracy Now!, Emily Wright, a resident of Columbiana County in Ohio, a few miles from the derailment, called the derailment a “chemically-driven environmental nightmare.”²⁵ Initially, she says only those within one mile of the derailment were evacuated, even as the train kept burning overnight and into the next day.

“They kept saying the same thing over and over again in the media and in the press conferences. ‘There’s no toxins in the air ... don’t worry,’” she said. But about 48 hours after the derailment, she received an alert on her phone that another explosion had occurred and the fire was out of control.²⁶

At the time of the “controlled” burn, high wind gusts were forecasted. The resulting mushroom cloud was caught by winds, traveling over four to five counties in Ohio, Pennsylvania and West Virginia. In her home just a few miles away, Wright and her family experienced nausea, diarrhea and breathing difficulties.

They considered leaving, but then a shelter-in-place order was issued. At the same time, officials continued to state this was only out of an “abundance of caution,” and there were “no toxins in the air.” “From day one, we’ve been fed what wasn’t the truth,” Wright said.²⁷

While mainstream media have also downplayed the seriousness of the derailment, videos have spread on social media highlighting the potential disastrous effects²⁸ that could come from the approximately million pounds of toxic vinyl chloride that “spilled on the ground, boiled off into the air and then caught fire,” leading to hydrogen chloride as a byproduct. This then turns into hydrochloric acid in the atmosphere, with further unknown effects.²⁹

Next Train Derailment ‘Could Be Cataclysmic’

The East Palestine derailment serves as a wake-up call to potential disaster looming on U.S. railways. Speaking with The Guardian, Ron Kaminkow, an Amtrak locomotive engineer and secretary for the Railroad Workers United, said, “The Palestine wreck is the tip of the iceberg and a red flag. If something is not done, then it’s going to get worse, and the next derailment could be cataclysmic.”³⁰

Every day, about 12,000 rail cars transporting toxic chemicals travel through cities across the U.S. Annually, 4.5 million tons of hazardous materials are shipped by trains in the U.S.³¹ The Guardian pointed out the potential for more deadly freight rail derailments is high.³²

“The latest accident comes after 47 people were killed in the town of Lac-Mégantic, Quebec, in 2013 when a runaway train exploded. In February 2020, a crude oil train derailed and exploded outside Guernsey, Saskatchewan, and an ethanol train in Kentucky derailed and burst into flames a week later.

The Pittsburgh region alone has seen eight train derailments over the last five years, according to the public health advocacy group Rail Pollution Protection Pittsburgh (RPPP), and about 1,700 annually occur nationally. The causes of the Pittsburgh accidents highlight the myriad ways in which things can go wrong.

A crack in a track ignored by rail companies caused a 2018 derailment, while another train hit a dump truck at a crossing with inadequate safety equipment. A broken axle on a train car is thought to be the source of the East Palestine accident.”

Liquefied natural gas (LNG) may pose a particularly significant concern. In 2020, the U.S. Department of Transportation approved rail transport of LNG with no extra safety precautions, even though an accident could be catastrophic. In a letter to the U.S. Department of Transportation opposing the rule change, environmental group Earth Justice wrote:^{33,34}

“The amount of energy contained in LNG is quite alarming. One gallon of LNG has 0.89975 therms of energy. One DOT-113 tank car has a capacity of approximately 30,000 gallons, meaning that there would be approximately 27,000 therms worth of energy per tank car.

With this much LNG per tank car, it would only take 22 tank cars to hold the equivalent energy of the Hiroshima bomb.⁵⁵ A unit train of 110 LNG tank cars would thus have five-times the energy of the Hiroshima bomb.”

Is Corporate Greed to Blame?

Speaking with Democracy Now!, Ross Grooters, a locomotive engineer and cochair of Railroad Workers United, stated:³⁵

“There are deep systemic problems with the freight railroads right now, and those need to be addressed for us to have some sort of normal response to events like this. Until we get at the root causes of the safety issues in the freight rail system in this country, it’s ... going to occur again ... it’s just a matter of when and where.”

Grooters blames corporate greed, including cutbacks to staffing, from companies making “obscene amounts of money,” and precision scheduled railroading, which he says is designed to maximize profits, not safety. “You’re cutting to the bone the amount of people doing the job. So you have fewer people doing a lot more work, faster.”

At the same time, cutbacks have been made on the maintenance of cars, locomotives and tracks, while trains are becoming increasingly long and heavy, raising the chances of derailment.

“Lastly, you have the railroads themselves,” Grooters says, “which are fighting any kind of regulation, whether it be train control systems that help manage the signal system or the lobbying efforts that we saw to kill electronic braking, which can make for safer operations and a quicker stop should a derailment like this occur.”³⁶

Norfolk Southern, in fact, has paid \$70 million in safety violations since 2000, along with \$21 million in environmental violations.³⁷ As it stands, an estimated 25 million Americans live on an oil train blast zone³⁸ and could potentially be killed if one of these “bomb trains” derails in their town.

Regarding the toxic Ohio train derailment, Julia Rock, investigative reporter with The Lever, explained, “This is the result of efforts by the railroad industry to ensure that they do not have to retrofit trains carrying hazardous materials and crude oil with safety features.”³⁹

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Notes

^{1, 2} [National Transportation Safety Board \(NTSB\) February 14, 2023](#)

³ [EPA, East Palestine Train Derailment](#)

⁴ [VOA News February 8, 2023](#)

⁵ [The New York Times February 14, 2023](#)

^{6, 9} [CBS News February 14, 2023](#)

⁷ [National Cancer Institute, Vinyl Chloride](#)

⁸ [Twitter, Congressman Jamaal Bowman February 13, 2023](#)

¹⁰ [ATSDR January 2023, Toxicological Profile for Vinyl Chloride, Draft for Public Comment, v, Version History](#)

- ¹¹ [Strange Sounds February 15, 2023](#)
- ¹² [Wayback Machine, ATSDR 2006, Toxicological Profile for Vinyl Chloride, Page 51](#)
- ¹³ [ATSDR January 2023, Toxicological Profile for Vinyl Chloride, Draft for Public Comment, p 42](#)
- ^{14, 15, 17} [Evie February 16, 2023](#)
- ¹⁶ [Twitter, James Bradley February 15, 2023](#)
- ¹⁸ [U.S. EPA, East Palestine Train Derailment](#)
- ^{19, 21} [NBC News February 13, 2023](#)
- ^{20, 23, 24} [NPR February 13, 2023](#)
- ²² [U.S. EPA February 10, 2023](#)
- ²⁵ [YouTube, Democracy Now! February 14, 2023, 3:16](#)
- ²⁶ [YouTube, Democracy Now! February 14, 2023, 6:00](#)
- ²⁷ [YouTube, Democracy Now! February 14, 2023, 8:35](#)
- ²⁸ [Twitter, Red Voice Media February 13, 2023](#)
- ²⁹ [Twitter, Justin Hart February 12, 2023](#)
- ^{30, 31, 32, 33, 38} [The Guardian February 11, 2023](#)
- ³⁴ Earth Justice January 13, 2020
- ³⁵ [YouTube, Democracy Now! February 14, 2023, 10:00](#)
- ³⁶ [YouTube, Democracy Now! February 14, 2023, 11:00](#)
- ³⁷ [YouTube, Democracy Now! February 14, 2023, 13:00](#)
- ³⁹ [YouTube, Democracy Now! February 14, 2023, 17:00](#)

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