

PFAS 'Universe' Mapped – Nearly 15,000 Chemicals, Scant Human Data

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STORY AT-A-GLANCE

- › Nearly 15,000 PFAS chemicals have been identified, but less than 2% have any safety data, leaving you exposed daily to toxins that haven't been tested or regulated
- › DuPont's use of PFOA, also known as C8, in Teflon production led to widespread water and air contamination, with blood levels in workers and residents reaching hundreds of times above safe limits
- › PFAS chemicals don't break down and stay in your body for years, binding to proteins and accumulating in organs like your liver and brain, which increases your long-term health risks
- › Major sources of exposure include contaminated drinking water, food packaging, nonstick cookware, waterproof clothing, and stain-resistant furniture, making daily contact nearly unavoidable without intervention
- › You can lower your toxic burden by filtering your water, avoiding PFAS-treated products, donating blood or plasma, supporting liver detox with sulfur-rich foods, improving mitochondrial health, and pushing for regulatory change

You've been exposed to toxic chemicals that your doctor hasn't ever mentioned, and they're likely in your blood right now. You didn't choose this, but industry did. Over the last century, companies have quietly released thousands of synthetic compounds into

the environment, embedding them in everyday items like packaging, cookware, and clothing. These substances were designed to last forever — and that's exactly what they're doing inside your body.

Even low levels of these chemicals are now being linked to serious health problems, including hormone disruption, immune suppression, and cancer. Yet almost none of them have ever been tested for safety in humans.

And while the U.S. Environmental Protection Agency (EPA) has begun regulating a few of the oldest and most well-known types, the vast majority remain completely unmonitored, with no warnings, no restrictions, and no accountability. This article traces how one chemical invention spiraled into a global contamination crisis — and what you can do to protect yourself.

A Kitchen Coating Triggered One of the Worst Toxic Disasters in US History

The documentary *How One Company Secretly Poisoned the Planet* traces the shocking history of per- and polyfluoroalkyl substances (PFAS) back to a single lab accident.¹ In 1938, a chemist at [DuPont](#) named Roy Plunkett accidentally created a slippery white powder — polytetrafluoroethylene — later branded as Teflon.

It seemed miraculous: it resisted heat, water, acid, and almost every chemical. That same indestructibility made it valuable to the military and industry. But manufacturing it required a separate chemical called PFOA (also known as C8), which would later be linked to [widespread human health harm](#).

- **Factory workers and residents living near DuPont's plant were exposed to extremely toxic water and air** — DuPont began producing Teflon at its Washington Works plant in Parkersburg, West Virginia, using C8 to polymerize the material. Instead of safely disposing of the waste, the company dumped thousands of

pounds of C8 into the Ohio River, local landfills, and the air. The company's own internal records from the 1960s showed that C8 caused organ damage and cancer in lab animals.

Still, they kept quiet and continued production. One local farmer, Earl Tennant, lost dozens of cattle that developed tumors, blackened teeth, and skin lesions. His creek had white foam pouring out from a DuPont discharge pipe. When Tennant sued, DuPont settled privately and did not admit fault.

- **DuPont workers had blood levels of C8 more than 1,000 times higher than the U.S. average** — According to the film, when 3M — the original supplier of C8 — found PFOA in the blood of the general U.S. population in the 1970s, they approached DuPont. DuPont tested its workers and discovered astronomically high levels.

Some employees already showed signs of liver dysfunction, and **pregnant employees** had birth defects in their children. Despite the alarming data, DuPont calculated its own “safe” limit for PFOA in water: one part per billion (ppb).

- **Exposure spread far beyond the plant, with drinking water contamination reaching tens of thousands of residents** — DuPont's internal tests found 1,600 ppb of C8 in landfill water near Tennant's farm — 1,600 times higher than their own safety threshold.

Yet they told no one. In a later class-action lawsuit covering 70,000 residents, an independent scientific panel found a “probable link” between C8 and six human diseases, including thyroid disease, ulcerative colitis, pregnancy-induced high blood pressure, and both testicular and kidney cancers. These health problems were observed at average blood concentrations of just 28 parts per billion.

- **PFAS is extremely difficult to remove from your body once it builds up** — C8 mimics fatty acids in the body, which means it binds to proteins in your blood and travels to organs like your liver, kidneys, and even your brain. Because your body doesn't have a natural way to break carbon-fluorine bonds, these chemicals take years to leave your system.

That long retention time increases the chance of cumulative harm, even from small exposures. Researchers found that firefighters who donated blood regularly reduced their PFAS levels by up to 30% within a year. But the documentary stressed that placing the burden on individuals to filter or detox is backward. The real solution is stopping production and holding manufacturers accountable.

- **The biggest risks were from packaging, food, and local water** — Most people assume they're exposed through nonstick cookware. While this is one route of exposure, another major risk is environmental — through [contaminated water](#), processed food packaging, stain-resistant furniture, and firefighting foams.

Microwave popcorn bags, in particular, leach PFAS directly into the food during heating. Even small concentrations in water — just a few parts per trillion — build up in your bloodstream over time and push your levels into the danger zone.

Thousands of Toxic Chemicals, but Almost No Safety Data

A systematic evidence map published in Environmental Health Perspectives noted that about 14,735 individual PFAS substances are currently known to exist.² Despite their widespread use, only 214 of those compounds have any published toxicology data. This means over 98% of PFAS have never been assessed for their health risks. For the average person, that translates into daily exposure to chemicals that regulatory agencies haven't even begun to study or monitor.

- **Toxicology studies focused heavily on just a few legacy chemicals, leaving major gaps** — Of all the PFAS with published data, nearly every study focused on a handful of well-known substances like PFOA, PFOS, PFHxS, and PFNA.

These four chemicals dominate the scientific literature because they've been in use longest and were involved in lawsuits. But that leaves newer, so-called "replacement" PFAS like GenX and ADONA largely unstudied, even though early evidence suggests they're just as harmful, or worse.

- **The study authors warned that these gaps are regulatory blind spots** — Just six PFAS are currently regulated under the EPA's 2024 national drinking water standard. That leaves nearly 15,000 chemicals essentially unregulated in food, water, air, and consumer products. This patchwork regulation is fundamentally inadequate. Without broad-spectrum testing and proactive bans, industries simply substitute one PFAS for another without ever proving that the replacement is safe.
- **PFAS manufacturers are exploiting the lack of data to delay regulations** — Because most PFAS don't have safety profiles, manufacturers claim there's "no evidence of harm" — even though there's also no evidence of safety.

This tactic, sometimes called the "regulatory data gap," allows companies to shift public pressure off themselves and onto regulators who are already overwhelmed. For consumers, this means you're likely using products daily that contain untested PFAS, and there's no law requiring disclosure or warning.

- **Scientists called for urgent reform to close the data gap and protect public health** — The paper recommended expanding the use of high-throughput toxicity screening, which uses automated tools to test large numbers of chemicals quickly. It also called for predictive modeling to estimate toxicity based on chemical structure and prioritized testing based on likelihood of human exposure.

Without these tools, regulatory agencies are left playing catch-up with industries that are constantly developing new PFAS faster than they're assessed. In the meantime, the public continues to be exposed, unknowingly and without protection.

How to Protect Yourself and Reduce Your Body Burden

You're not helpless in this. While the contamination began with industry, there are still smart steps you can take right now to reduce your exposure, support your body's detox systems, and push for real change. You'll need to take action on two fronts: what comes into your body and how well your body handles it once it's there.

If you've already been exposed, and nearly everyone has, your focus should be on stopping the source and helping your system eliminate what's already built up. These five steps are a powerful place to start.

- 1. Filter your drinking water with a system that removes PFAS** — If you're not sure whether your area has contaminated water, check your local water utility's report or test your water with a PFAS-specific kit. If PFAS is detected, choose a high-quality water filtration system designed to remove it. This is an effective step to help limit daily exposure.
- 2. Stop bringing new PFAS into your home** — That means cutting out nonstick cookware, stain-resistant carpets and furniture, [waterproofed clothing](#) (like Gore-Tex), and fast food packaging. Look for PFAS-free or fluorine-free labels. If you're a parent, especially watch out for school uniforms and outdoor gear treated with water- and stain-proof chemicals. These are common sources of childhood exposure.
- 3. Donate blood or plasma to lower your PFAS levels** — If you meet donation criteria, this is one of the most effective ways to remove PFAS from your body. Several studies have shown that regular blood or plasma donations help clear compounds like PFOS and PFHxS, which otherwise take years to leave your system. This isn't just a nice thing to do — it's an active form of self-defense.
- 4. Support your liver and kidneys — your body's natural detox system** — You don't need a trendy cleanse or expensive detox powder. What you need is consistent support for your detoxification organs. Eat sulfur-rich foods like garlic, onions, and cruciferous vegetables to fuel glutathione production, your body's master detox compound.

Hydrate with filtered water, avoid alcohol, and remove vegetable oils from your diet — they're high in [linoleic acid \(LA\)](#) that impairs mitochondrial function and slows down toxin elimination.

5. Push back, because voluntary industry change won't protect you — The reason you've been exposed isn't personal. It's policy. Industry exploited a regulatory gap, and now the burden falls on you. So, don't stop at protecting your own home. Support state-level bans on PFAS in consumer products, demand full ingredient disclosure on packaging, and advocate for expanded testing and cleanup in contaminated communities.

Your voice matters more than you think. Each layer of exposure you remove lowers your lifetime toxic burden and gives your body a better shot at recovery. This isn't just about avoiding illness. It's about reclaiming control over what gets into your body — and what doesn't.

FAQs About PFAS

Q: What are PFAS and why should I be concerned?

A: PFAS are manmade chemicals used in nonstick cookware, stain-resistant fabrics, food packaging, waterproof clothing, and industrial processes. They're called "forever chemicals" because they don't break down in the environment or your body. Even low levels of PFAS are linked to serious health problems, including cancer, liver damage, thyroid dysfunction, and immune suppression.

Q: How widespread is PFAS contamination?

A: It's virtually everywhere. According to current estimates, more than 98% of Americans have PFAS in their blood. These chemicals contaminate water, air, soil, and food products. A single PFAS, PFOA, was found in water supplies near military bases, airports, and manufacturing plants at levels far exceeding safety guidelines.

Q: Why haven't more of these chemicals been regulated or tested?

A: Nearly 15,000 PFAS compounds are known to exist, but only about 200 have been studied for toxicity. Just six are currently regulated in U.S. drinking water. Industry often replaces banned PFAS with new versions that haven't been tested, creating a cycle of ongoing exposure with little accountability.

Q: How do I reduce my PFAS exposure at home?

A: Start by filtering your drinking water with a system designed to remove PFAS. Avoid products labeled stain-resistant or waterproof, skip fast food packaging and microwave popcorn bags, and switch to stainless steel cookware. These steps cut off major exposure sources.

Q: Can I remove PFAS from my body once I've been exposed?

A: PFAS are slow to leave your body, but you can accelerate the process by donating blood or plasma, which helps remove these compounds from your system. You should also support your detox pathways by eating sulfur-rich foods, staying hydrated with clean water, and eliminating vegetable oils that impair mitochondrial health.

Sources and References

- ¹ [YouTube, Veritasium, How One Company Secretly Poisoned the Planet, May 14, 2025](#)
- ² [Environ Health Perspect. 2025 Jun 12:10.1289/EHP16952. doi: 10.1289/EHP16952](#)