

Teflon – The Devil We Know

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✓ Fact Checked

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STORY AT-A-GLANCE

- › What was not in existence a century ago is now found in the blood samples of over 99% of Americans and is responsible for the rising rate of cancer in the Ohio Valley
- › DuPont willfully dumped thousands of pounds of C8 into the waterways around their plant in West Virginia, effectively poisoning residents, employees and farm animals
- › A Sundance Film Festival release chronicles the fight for justice against the manipulation and deception of DuPont, who chose financial gain over the health of their community
- › Studies demonstrate your risk of obesity rises as you may absorb C8 from products in your home, such as nonstick cookware and stain-resistant products

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While C8 was not in existence a century ago, it is now found in over 99% of American blood samples, according to analysis from the Centers for Disease Control and Prevention (CDC).¹ This chemical has been found in newborn babies, umbilical cord blood and breast milk. Many animals have suffered the consequences as the chemical is ubiquitous in the environment and does not degrade. In fact, scientists expect it will remain on the planet well after humans are all gone.²

C8, also known as perfluorooctanoic acid (PFOA), is man-made and used in the process of producing Teflon, known for its nonstick qualities.³ Following a barrage of lawsuits against DuPont for the release of C8 into the environment, production ended in 2015.

However, C8 continues to be released into the air and water through use of products that are already on the market. Additionally, DuPont and other companies have only substituted a shorter chain version of C8 in the production of stain-resistant materials and Teflon-coated pans.

DuPont has been a master of deceptive and manipulative public relations strategies that have helped ensure their financial success, while at the same time creating chemicals that are destroying the environment and your health. What's worse, the company has known of the effects on the environment and human health and has repeatedly lied to federal and local regulators, consumers and even their own employees about toxicity from exposure.

The film "The Devil We Know," released at the Sundance Film Festival in 2018, depicts the struggle employees and residents of the Ohio Valley went through to ensure DuPont chemical company takes responsibility for their actions, which will be experienced for centuries to come.

Better Living Through Chemistry

One of the largest experiments performed on humans began in the postwar era of 1935, when DuPont invented the slogan "Better Living Through Chemistry." It wasn't until 1982 that the tagline "Through Chemistry" was dropped. Ultimately, the intent of the slogan was to change public opinion and perception about the role of chemical industry in society. If you aren't afraid of the product, you're more likely to use it on a daily basis.

However, most health experts and advocates believe nonstick pans should have been banned many years ago to mitigate risks, as both animal and human diseases have been linked to exposure.

Many Americans are exposed to Teflon-coated pans either at home or in meals prepared at restaurants. The epic legal battles fought against DuPont have shed some light on the deceptive practices the company used in order to keep their product on the market.

PFOA is not only an ingredient in nonstick cookware, but can also be found in stain-resistant products, microwave popcorn bags and fast food wrappers. Waterproof clothing and soil-repellent carpet and furniture treatments also contain PFOA.

C8 is a fluorinated chemical. It is the fluorine atoms that provide the nonstick slipperiness that gives Teflon its unique qualities. During the legal process of suing DuPont, hundreds of internal documents were uncovered showing the company knew about the chemical's danger to the public and employees, likely as early as 1961.

Although this information is only recently reaching the courts, over a decade ago the U.S. Environmental Protection Agency (EPA) fined DuPont \$16.5 million for withholding decade's worth of information about health hazards. Although it was the largest fine the EPA had ever assessed, it did not act as a deterrent to the company and DuPont continue to manufacture and release C8 into the environment.

Understanding of the Risk, DuPont Did Not Curb Emissions

DuPont had evidence of harm to livestock ranging from liver toxicity and kidney damage to death. Company workers gave birth to children with birth defects, while DuPont merely tracked the health effects in their workers without informing regulators of their findings. As they continued to study the effect on their workers they were also tracking the spread of the chemical into nearby waterways, and emissions through their smokestacks. According to The Intercept:⁴

"... [F]rom that point on, DuPont increased its use and emissions of the chemical... the plant put an estimated 19,000 pounds of C8 into the air in 1984, the year of the meeting. By 1999, the peak of its air emissions, the West Virginia plant put some 87,000 pounds of C8 into local air and water. That same year, the company emitted more than 25,000 pounds of the chemical into the air and water around its New Jersey plant ...

The executives, while conscious of probable future liability, did not act with great urgency about the potential legal predicament they faced. If they did decide to reduce emissions or stop using the chemical altogether, they still

couldn't undo the years of damage already done. As the meeting summary noted, 'We are already liable for the past 32 years of operation.'"

Switching From Long-Chain Has No Demonstrable Benefit

Although DuPont would like you to believe that switching from the longer chain C8 to a shorter chain version of the chemical in the production of their nonstick pans is healthier for the environment, more than 200 scientists from 40 countries disagree.⁵ In May 2015, these scientists signed the Madrid Statement that warned about the harms of all fluorochemicals and listed many of the health effects. At the heart of the statement, the scientists point out:

- Although some of the long-chain PFASs are being regulated or phased out, the most common replacements are short-chain PFASs with similar structures, or compounds with fluorinated segments joined by ether linkages.
- While some shorter-chain fluorinated alternatives seem to be less bioaccumulative, they are still as environmentally persistent as long-chain substances or have persistent degradation products. Thus, a switch to short-chain and other fluorinated alternatives may not reduce the amounts of PFASs in the environment. In addition, because some of the shorter-chain PFASs are less effective, larger quantities may be needed to provide the same performance.
- While many fluorinated alternatives are being marketed, little information is publicly available on their chemical structures, properties, uses and toxicological profiles.
- Increasing use of fluorinated alternatives will lead to increasing levels of stable perfluorinated degradation products in the environment, and possibly also in biota and humans. This would increase the risks of adverse effects on human health and the environment.

However, while independent studies have linked PFOAs and C8 to appalling damage to human and animal health, including cancers, the American Cancer Society continues to sit on the fence:⁶

"Some of these studies have suggested an increased risk of testicular cancer with increased PFOA exposure. Studies have also suggested possible links to kidney cancer and thyroid cancer, but the increases in risk have been small and could have been due to chance.

Other studies have suggested possible links to other cancers, including prostate, bladder and ovarian cancer. But not all studies have found such links, and more research is needed to clarify these findings."

Should the Canary Be Blamed for Dying in the Coal Mine?

Tracey Woodruff, director of the program on reproductive health and the environment at the University of California, San Francisco, explained that while PFOAs are being replaced with shorter-chained chemicals, there aren't many studies that support the idea that these chemicals are nontoxic.⁷ Unfortunately, Trump appointee to the EPA's Office of Water has rewritten a rule to make it more difficult to track health consequences of PFOAs and therefore to regulate use.⁸

The appointee, Nancy Beck, joined the EPA in May last year after spending the previous five years as an executive at the American Chemistry Council, the industry's main trade association.

These changes may result in underestimating the potential risk to health and the environment, but are part of a broader initiative by the Trump administration to align the EPA with industry and not protect consumers. In other words, if there was any hope that the federal government would step in to protect your health, it appears it has been erased.

Perfluorinated chemicals kill birds, both in the environment and at home. During a thunderstorm in 2010, lightning struck several oil tankers off the coast of the Caribbean islands. Huge fires resulted that were fought with foam sprays containing perfluorinated chemicals.

Over the next four months, the population of flamingos on the island dropped from several thousand to zero. Woodruff commented on the effect breathing perfluorinated chemicals has on birds in your own home, saying:⁹

"When you use a [nonstick] pan, you shouldn't heat it without putting anything in it. That will emit fumes. There have been reports of people heating those Teflon pans without adequate ventilation, and the birds in their house dying. When someone in the industry was asked about this, she said something like, 'people should know better than to cook in an enclosed kitchen.' Like, blaming the canary for being in the coal mine?"

DuPont's Reckless Disregard for Public Safety

While the average person is exposed to PFOA in the products they use, firefighters have a unique exposure level. C8 is also found in flame-retardant chemicals that may be used on children's items, furniture and electronics. Thus, when fighting a fire, firemen are breathing in PFOA released into the air from the burning products. Secondary exposure also occurs when firefighters use flame retardant foam, as it also contains perfluorinated chemicals.¹⁰

The efforts of Rob Bilott, an environmental attorney who has waged a legal battle against DuPont for over the past 15 years, is chronicled in the Sundance Film Festival release. Following his initial suit in 1999, DuPont and the EPA chose six veterinarians to evaluate a cattle rancher's claims chemicals from the plant were killing his animals. The veterinarians reported the problems were the result of poor husbandry, poor nutrition and inadequate veterinary care.¹¹

PFOA was mentioned in the documentation sent to the EPA. The environmental attorney had never heard of that chemical and after not finding details about the substance, he asked DuPont to share their information. Information was only released after a court ordered the company to send him the documentation. Within a year, Bilott had received more than 110,000 pages of material, some of which dated back 50 years.¹²

Private internal memos, medical reports and studies conducted by scientists at DuPont were included in the documentation that revealed their own disposal recommendations specified the chemical should not be flushed into surface water or sewers. However, over the previous decades this is exactly how the company had disposed of hundreds of thousands of pounds of PFOA powder. They'd simply dumped it into the Ohio River.

The attorney further found documentation showing that for four decades, 3M and DuPont had conducted secret medical studies, revealing potential health problems in rats and rabbits as early as 1961. Thus far, more than 3,500 individuals have sued DuPont for damages.

A panel of scientists convened to determine the chemicals' effect on human health, resulting in more than three dozen peer-reviewed papers finding PFOA chemicals are linked to ulcerative colitis, pregnancy-induced hypertension, thyroid disease and testicular and kidney cancers.¹³

Weight Management Efforts Impacted by Your Choice of Cookware

While those living in the Ohio Valley suffer an increased risk of these health conditions, levels of PFOAs in your tap water, stain-repellent clothing and furniture, and absorbed from your nonstick pans may be enough to trigger weight management problems. A study linked perfluoroalkyl substances (PFAS), a close cousin to PFOAs, to weight gain and obesity.¹⁴ Previous studies have associated the chemicals with immune dysregulation, hormone disruption and cancers.

In this two-year study performed in Massachusetts and Louisiana, researchers examined the effects of calorie-restricted diets compared against measured levels of PFAS in the participants. Over 600 people followed a diet plan for six months, documenting an average weight loss of 14 pounds. The participants were followed for the next 18 months when they averaged gaining 6 pounds.¹⁵

During the trial, the researchers measured the blood levels of PFAS in the participants and found that while the levels didn't appear to have an effect on the ability of the individual to lose weight, it was closely correlated with how much weight they regained. The link also appeared to be gender based, as women gained back more than men based on PFAS levels.

The researchers, led by Dr. Qi Sun, a nutritionist specializing in diseases correlated with obesity, found these women also had the slowest metabolism of the participants in the study.¹⁶ This study was observational, thus the researchers couldn't say the chemical caused the weight gain, but it is likely the PFAS negatively affected the participant's metabolism. However, weight gain is just one side effect of exposure to toxic chemicals. The researchers concluded:¹⁷

"In this diet-induced weight-loss trial, higher baseline plasma PFAS concentrations were associated with a greater weight regain, especially in women ... The possible impact of environmental chemicals on the obesity epidemic therefore deserves attention."

How to Reduce Your Exposure to PFOA and Related Chemicals

First and foremost, I recommend using a high-quality water filtration system. To be certain you're getting the purest water you can, filter the water both at the point of entry and at the point of use. This means filtering all the water that comes into the house, and then filtering again at the kitchen sink and shower.

In addition, minimize your use of common products that contain PFCs like PFOA and PFOS. PFCs are used in a wide variety of consumer products, particularly those made to repel water or resist oil stains. Products that may contain these chemicals include:¹⁸

Takeout containers such as pizza boxes and sandwich wrappers

Certain cosmetics, particularly eye shadow,

Stain treatments for clothing and furniture

foundation, facial powder,
bronzer and blush

Stain-repellent or water-
repellent clothing

Nonstick pots, pans and
utensils

Carpeting and carpet
treatments

Popcorn bags

Outdoor clothing

Camping tents

It's important to understand that while PFOA is no longer being used in the U.S., similar replacement chemicals have been added in its place. As recently as 2013, Greenpeace International tested 15 samples of waterproof clothing, shoes and swimsuits and found PFCs in all but one.¹⁹

Some food wrappers, beverage containers, pizza boxes and other food packaging may also be PFOA-free, but not necessarily safe, as the PFOA replacement chemicals have not been adequately tested for safety.

Also remember that eating organically or biodynamically grown whole foods is a primary strategy to minimize an array of toxic exposures while simultaneously optimizing your body's natural detoxification system. When your diet is mostly fresh foods, you'll also minimize exposure to PFCs common in takeout containers.

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