A scientist prepares a plastic pellet containing Tripsin, an enzyme that scientist and public need more than that are advertised to the fate of the harmful chemicals known as PFAS—they still contain substances with "forever chemicals" in them. PHOTOGRAPH BY JOANNA PINNEO, SPECIAL GROUP.

TECHNOLOGY ENVIRONMENT

'Forever chemicals' are hiding in your kitchen. Here's where—and what you can do

Nonstick pans. Pizza boxes. Even food itself. It's impossible to avoid PFAS and EPA entirely, but experts have tips on how to limit your exposure.

By Joel Mathis
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Linda Birnbaum used to have a set of nonstick pans. Not anymore. She got rid of them.

Why? Because Birnbaum—former director of the U.S. government's National Institute of Environmental Health Sciences—became increasingly uncomfortable with an essential fact about that oh-so-easy-to-clean cookware. It's very often made with PFAS, yes and polyfluoroalkyl substances, used to treat an array of products to make them resistant to heat, oil, stains, grease and water.

That's pretty useful. But PFAS also belong to the set of human-made compounds known as "forever chemicals" that can linger in the environment and human body, sometimes with toxic effects. They can be found everywhere—on the receipts from your drugstore, on your main resistant crock, in firefighting foams, in the water supply and, yes, in your kitchen.

That's why Birnbaum's pans went out the door.

"This huge class of chemicals is everywhere, in everything and in all of us," she says. "I don't use them anymore because I don't want to be exposed to this stuff."

What are PFAS?

PFAS are a "huge family of chemicals," says Tasha Stoiber, senior scientist for the Environmental Working Group. How huge? Nobody seems to know—estimates range as high as 10,000 different compounds or more. Each contains a fluorine-carbon bond "that gives them unique properties of being stain-resistant, grease-resistant, water-resistant," Stoiber says.

What's more: "Almost everyone has in their blood," she adds.

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Officially, the U.S. Centers for Disease Control and Prevention says the human health effects of PFAS exposure are "uncertain" and require more research. But the agency also acknowledges that existing animal studies indicate the chemicals "may affect reproduction, thyroid function, the immune system and injure the liver."

"You'd be hard pressed to find somebody to say that this stuff is not a health impact," says Kevin Hartman, director of the Pollution and Food Protection Committee at Iowa State University, which researches such issues for private-sector companies. "There's enough medical history now to say these compounds do cause some pretty serious health concerns."

How are PFAS different from BPA?

Bisphenol A is more than an entirely different class of chemicals, used to make hard polycarbonate plastics. The chemical is also found in protective linings of food cans—including soda cans—as well as dental sealants, plastic toys, and other products.

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Like PFAS, the CDC says the health effects of BPA are "unknown," though it adds that the chemical "has been shown to affect the reproductive systems of laboratory animals."

"It's basically an environmental estrogen," says EWG's Stoiber. "It can disrupt hormones in your body and lead to problems, things like increased risk of breast cancer, problems with fertility, things like that."

Where can these chemicals be found in the kitchen?

Everywhere. The nonstick pan is just is down the most uncertain, for a variety of food containers can contain some form of PFAS or BPA.

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"Plastic is a major problem in kitchens today," Birnbaum says.

Although consumers seem to have caught on to BPA use in water bottles, baby bottles, and other containers, PFAS are more insidious. They can often be found in containers like pizza boxes and microwave popcorn bags. "We know that people who eat more fast food tend to have higher levels of PFAS than people who eat more freshly prepared food," Birnbaum says.

That's why the U.S. Food and Drug Administration announced in February 2024 that companies are voluntarily phasing out the use of PFAS in food packaging. It's unclear how long it will take until products made with these substances are completely removed from the market.

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Still, PFAS are so pervasive in the environment that they're often found in food and water, regardless of packaging. "Food can also be contaminated with PFAS via the soil, water, and air where it's grown," reports the National Resources Defense Council. That includes produce, but also fish and shellfish.

How can you protect yourself?

"The answer is: As an individual, it's not easy," says Birnbaum.

Start with the pans. "You get away from that by going to non-coated pans, non-aerosol pans," says Vinet—meaning cookware made of glass, carbon steel, and cast iron. But that's not easy—they're harder to clean "and they're more expensive too," he says.

There might be more work on the food preparation side, as well. "As much as you can, we recommend cooking at home with whole ingredients," Stoiber said. If you must use nonstick pans, be careful not to overheat the food. "It may be if you have your food boil—cook at high temperatures—that's when you might get more exposure of chemicals from the pan or the fumes," she says.

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As for leftovers, it's probably best to keep plastic containers out of the microwave. "If you store in plastic, that's not terrible," Birnbaum says, "but certainly don't heat in plastic."

Labeling won't always help you. The experts describe a phenomenon known as "regrettable substitution" in which one harmful substance in a product can be swapped out for another one that is also harmful but less known. A label that touts a product as "BPA free" might instead contain bisphenol S, a related chemical that has also raised concerns. Similarly, cookware containing a "PFOA-free" label might still use another form of PFAS. When in doubt, you can check expert websites like those run by the Green Science Policy Institute for help in making shopping decisions.

What next?

These tips can help, but they probably won't produce a completely uncontaminated kitchen as the world is simply too saturated with forever chemicals. "It is impossible to shop your way out of it," Stoiber says.

But studies show that small changes—eating less microwave popcorn or takeout food—can lower the measurable amounts of PFAS in a person's blood. "A lot of these behaviors do make a difference," Stoiber adds.

Given the concerns, why do PFAS and BPA remain in use? Simple: They're useful. "They are so good at what they do," Vinet said. Nobody wants hamburger grease leaking through the wrapper onto a car seat, for example, and nobody has come up with a better way to keep that grease contained. "I don't think we have found an alternative chemistry that is as cost-effective and has the performance of these materials."

For now, the choices are largely left to individual consumers. "If we decide we really need them, we have to ask the question, well, is there a safe alternative?" Birnbaum said. "And if there's a safe alternative, we switch to the alternative."

Editor's note: This piece was originally published on January 26, 2024. It has been updated with news of the phasing out of PFAS from food packaging.

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