

## **Forever chemicals-PFAS causing health hazard to be banned?**

Invisible "forever chemicals" have been linked to a wide range of serious effects on human health, prompting growing calls for them to be banned. Exposure to PFAS chemicals is associated with increased rates of cancer, obesity, thyroid, liver and kidney disease, higher cholesterol, low birthweight, infertility and even weaker responses to vaccines. It is nearly impossible to avoid consuming minuscule amounts of PFAS. But experts recommend reducing contact with **nonstick cookware** and **grease-proof food packaging such as fast food wrappers**. Drinking filtered or bottled water and storing leftovers in glass containers instead of plastic could also help.

The two most researched PFAS compounds have already been banned or restricted in many countries, though they remain detectable throughout the environment. Perfluorooctanoic acid (PFOA), which was once used to make the nonstick cookware coating Teflon, was in December classified as "carcinogenic to humans" by the International Agency for Research on Cancer (IARC). The World Health Organization agency said there was "sufficient evidence" that PFOA gave animals cancer during experiments, as well as "limited evidence" of renal cell and testicular cancer in humans. Perfluorooctanesulfonic acid (PFOS), once the key ingredient in the Scotchgard brand of fabric protector, was meanwhile ruled "possibly carcinogenic to humans".

While there is firm evidence that at least one of the more than 4,000 human-made chemicals called PFAS causes cancer, researchers are still attempting to fully understand their broader health impacts.

Per- and polyfluoroalkyl substances (PFAS) are synthetic chemicals first developed in the 1940s to withstand intense heat and repel water and grease. They have since been used in a vast range of household and industrial products including food packaging, make-up, stain-proof fabrics, nonstick cookware and flame retardants. Because PFAS take an extremely long time to break down—earning them their "forever" nickname—they have seeped into the soil and groundwater, and from there into the food chain and drinking water. These chemicals have been detected virtually everywhere on Earth, from the top of Mount Everest to inside human blood and brains.

There are thousands of PFAS, making it difficult to study them or to determine with certainty the impacts of any given substance. Risk can also vary greatly depending on levels of exposure—almost everyone on Earth is believed to have at least a little PFAS in their bodies. According to the IARC, most at risk for serious PFAS exposure are people who work with them directly in manufacturing, such as in the food, textile or electronic industries.

Exactly what level of PFAS exposure is hazardous has been a matter of debate. Previously, guidelines in numerous countries ruled that having less than 100 nanograms of PFAS per litre of tap water was safe. But the United States has proposed lowering the limit to four nanograms of PFOA and PFOS per litre—and the European Union is considering following suit. A 2023 media investigation found PFAS levels over 100 nanograms per litre at 2,100 sites across Europe and Britain. The level soared to over 10,000 nanograms at 300 of the sites, according to the investigation carried out by 16 newsrooms.

Environmentalists and health experts across the world have increasingly sounded the alarm. Recently, French MP Nicolas Thierry will introduce a bill that would ban non-essential PFAS in France from 2025. The European Union is also considering a Europe-wide ban on PFAS from as early as 2026.