

Life is plastic

That they are all over our homes, there is no denying. But are black plastic items a health hazard? **Emily Schmall** asks around

Recent headlines have urged people to immediately throw out any black plastic items lying around their homes, warning that they could contain toxic chemicals.

A study published in October 2024 in the journal *Chemosphere* spurred many of these reports. It found that some of these items—including spatulas, takeaway trays and children's toys—could shed flame retardants.

But whether they pose a risk to your health is a more complex question. Previous studies have shown that flame retardants can seep out of plastics, especially when heated. While exposure to high levels of these chemicals has been linked to serious health effects, it's not clear just how much any one household item increases risk.

Why are there flame retardants in spatulas?

Manufacturers started adding flame retardants to products like TV sets and computers in the 1970s to slow the spread of fire. But companies have had to phase them out as studies over the past two decades have shown that they are toxic and could be cancerous to animals and humans at high levels of exposure. Some of these chemicals, however, have resurfaced in plastic household items made from recycled electronic waste, since the regulations that reined in the use of certain flame retardants did not apply to such materials.

The fact that the banned chemicals have appeared in household products shows that they “can bite us a second time if we’re not careful,” said Joseph Allen, a professor of environmental health at Harvard University in the US, who has studied the health risks of flame retardants.

It's not possible for people to tell which black plastic items might contain flame retardants, but in the new study, researchers found the chemicals in 17 of the more than 200 household products they tested. Some products were found to contain



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decaBDE, a flame retardant linked to cancer that the US Environmental Protection Agency banned in 2021 based on studies that had shown it was dangerous for human health.

What are the health risks of exposure?

Some studies in animals and in humans have linked exposure to flame retardants with increased risks of cancer, endocrine disruption, and reproductive and neurodevelopmental health effects.

A study published last year

found that pregnant women exposed to these chemicals in electronics, textiles and building materials had a higher risk of premature birth. Other studies have shown that children of women exposed to high levels of flame retardants during pregnancy were more likely to have neurodevelopmental deficits later in life.

Some of these chemicals, including polybrominated diphenyl ethers, or PBDEs, have also been linked to an increased risk of thyroid disease.

The exact mechanisms of these effects aren't clear. One

theory is that the chemicals' structure looks so similar to that of thyroid hormones that it can cause the thyroid to malfunction.

“Thyroid disease is becoming more common in the US population, and nobody really knows what's driving it,” said Heather Stapleton, an environmental chemist at Duke University, US. “But it is thought that environmental exposures could be playing a role.”

Still, there are a number of questions scientists need to answer, including what levels of exposure lead to the most severe

health outcomes and how much risk people might face from the use of black plastic items every day.

The new study, which was conducted by a consumer advocacy group, Toxic-Free Future, based its estimates of the levels of toxins on research published in a 2018 paper. That study stress-tested utensils with the highest concentration of flame retardants by submerging them in hot cooking oil for 15 minutes. Stuart Harrad, a professor of environmental chemistry at the University of Birmingham, UK, and one of the study's authors, described that cooking method as a “worst-case scenario”.

Allen said that “under normal use conditions, it's very unlikely that these chemicals are going to come out into the food that you're cooking in any meaningful levels that you should be concerned.”

Should I throw out these products just to be safe?

Given the unsettled science, not all experts agree that these items are unsafe to use. But they do agree that you should treat them with care.

Experts suggest that you avoid leaving your plastic utensils in hot pots or pans. They also advise against reheating food in black plastic containers, and say you should throw away black plastic items that are chipped or dented to avoid the risk that the splintered plastic will contaminate food.

Megan Liu, science and policy manager for Toxic-Free Future, acknowledged that it is difficult to avoid black plastic entirely but said it's possible to minimise your exposure. She still buys takeaway sushi, for example, but transfers it from the black plastic tray onto a plate once she gets home, she said.

Stapleton said she uses a wooden spoon and metal utensils for most cooking. But she still uses a black plastic spatula to cook eggs the way she likes and to avoid scratching her non-stick pan. “Everything in moderation,” she said.