

The never-ending story: Chemicals that outlive—and harm—us

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Chemical manufacturers have agreed to pay \$670 million in [damages to people with cancer](#) and other health harm from exposure to a recently phased-out highly fluorinated chemical. In a peer-reviewed feature article to appear February 22nd in the journal *Environmental Science & Technology*, researchers highlight that thousands of related chemicals continue to provide water-repellant, stain-resistant, and non-stick properties to furniture, carpets, outdoor gear, clothing, cosmetics, cookware, food packaging, and other products worldwide.

The researchers from Sweden, Switzerland, and the United States call for regulation of the entire class of [highly fluorinated chemicals](#). Exposure to the most well-studied of these substances has been linked to kidney and testicular cancer, elevated cholesterol, decreased fertility, thyroid problems and changes in hormone functioning in adults as well as adverse developmental effects and decreased immune response in children.

This class of chemicals does not break down—ever—and can remain in the environment for thousands of years. "I am concerned that researchers and regulators are continuing to focus on a few phased-out chemicals rather than the thousands of related substances in use today," said [Dr. Ian Cousins](#), co-author of the paper and Professor at Stockholm University. "Unless we broaden our focus, future generations will be increasingly exposed via contaminated water, air, and food."

"Is the convenience of water and grease resistance worth risking our

health?" asked Dr. Arlene Blum of UC Berkeley and the Green Science Policy Institute. "Given their potential for serious harm, we must stop putting highly fluorinated chemicals into consumer products unless they are absolutely necessary."

"The phased-out chemicals, which were found to be harmful, have been replaced by hundreds of related 'chemical cousins'," explains Tom Bruton of UC Berkeley and the Green Science Policy Institute. "Like the older substances, these new fluorinated compounds stay forever in the environment and may be similarly toxic."

In the [2015 Madrid Statement](#), more than 200 scientists agreed that the production and use of highly fluorinated chemicals should be limited. "Due to the vast number of chemicals in this family, it is not feasible to evaluate all of them one at a time," says [Dr. Jamie DeWitt](#), a co-author of the feature and Associate Professor at East Carolina University.

The [chemical](#) industry claims the replacements for the phased-out chemicals are safe because many do not build up in humans like the old ones did. Nonetheless, we are constantly exposed if these chemicals are in the food we eat or the water we drink," explains [Dr. Christopher Higgins](#), a co-author of the paper and Associate Professor at the Colorado School of Mines. "Current data suggest that the replacement chemicals are just as likely—if not more likely—to end up in our drinking water and in our crops due to contamination of soil and water."

These chemicals travel the world in water and air currents and can now be found in the ocean depths, mountain tops and every living creature. "It is surprising and sad that the planet, all people and all wildlife are contaminated with highly fluorinated chemicals," said Blum. "It is indeed 'a small world after all' when it comes to toxics."

Some good news is that a number of leading retail brands including

IKEA, Crate and Barrel, H&M and Levi Strauss are eliminating all highly fluorinated chemicals from their products. And [Target](#) and [GoreTex](#) just announced they are also beginning the process of removing them.

"We are using these chemicals in a wide range of applications where they are non-essential," says [Dr. Zhanyun Wang](#), lead author of the article and Senior Scientist at ETH Zurich, Switzerland. "Maybe we need them for a Himalayan expedition, but do we really need them in our surf shorts or our blue jeans?" he asks. "The public should be involved in defining 'essential' and 'non-essential' uses, and the [chemical industry](#) needs to develop safer alternatives for essential uses."

More information: [greensciencepolicy.org/highly- ... luorinated-chemicals](https://www.greensciencepolicy.org/highly-fluorinated-chemicals)

Provided by Green Science Policy Institute

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