

# High levels of PFAS detected in school uniforms

21 September 2022



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Millions of schoolchildren in the U.S. and Canada are exposed to potentially harmful levels of per- and polyfluoroalkyl substances (PFAS) everyday through their uniforms, according to a study published today in *Environmental Science & Technology*. The researchers detected PFAS in all the "stain-resistant" school uniforms they tested from nine popular brands. Most products had concentrations as high as those in outdoor clothing.

"PFAS don't belong in any clothing, but their use in school uniforms is particularly concerning," said Marta Venier, senior author and professor at Indiana University. "School uniforms are worn directly on the skin for up to eight hours per day by children, who are particularly vulnerable to harm."

PFAS in treated uniforms may end up in children through skin absorption as well as from eating with unwashed hands, hand-to-mouth behaviors and mouthing of clothing by [younger children](#). The fluorotelomer alcohols, which were the primary type of PFAS found in the uniforms, also pose an inhalation risk. Further, PFAS-treated uniforms are

a source of PFAS contamination in the environment when they are worn, laundered, and discarded or recycled.

Some PFAS have been associated with a wide range of serious health harms, from cancer to obesity to more severe COVID-19 outcomes, and they contaminate the [drinking water](#) of many millions. Only a small fraction of the thousands of PFAS have been tested for toxicity, and all PFAS are either extremely persistent in the environment or break down into extremely persistent PFAS. Additionally, some newer PFAS first claimed to be safe have been determined later to be harmful to our health.

About a quarter of U.S. children wear school uniforms. One-fifth of U.S. [public schools](#) require uniforms, with the greatest prevalence in elementary and low-income schools. They are even more common in Catholic and other [private schools](#) in the U.S. and Canada.

"I don't know any parent who values stain repellency over their child's health," said Miriam Diamond, co-author and professor at the University of Toronto.

Today's findings come as legislation to phase out PFAS in textiles—which would include school uniforms—moves forward in New York and California. New York's S6291A and California's AB1817 have both passed their legislatures and are expected to be signed by their respective governors soon.

"To protect our children and [future generations](#), the whole class of PFAS should be eliminated from school uniforms and all other products where they are not essential," said Arlene Blum, co-author and executive director of the Green Science Policy Institute. "Manufacturers can prevent harm by moving away from PFAS as soon as possible."

**More information:** Per- and Polyfluoroalkyl Substances in North American School Uniforms, *Environmental Science & Technology* (2022). [DOI: 10.1021/acs.est.2c02111](https://doi.org/10.1021/acs.est.2c02111)

Provided by Green Science Policy Institute

APA citation: High levels of PFAS detected in school uniforms (2022, September 21) retrieved 20 October 2022 from <https://medicalxpress.com/news/2022-09-high-pfas-school-uniforms-1.html>

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