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## **Scented laundry products emit hazardous chemicals through dryer vents**

The same University of Washington researcher who used chemical sleuthing to deduce what's in fragranced consumer products now has turned her attention to the scented air wafting from household laundry vents.

Findings, published online this week in the journal [Air Quality, Atmosphere and Health](#), show that air vented from machines using the top-selling scented liquid laundry detergent and scented dryer sheet contains hazardous chemicals, including two that are classified as carcinogens.

“This is an interesting source of pollution because emissions from dryer vents are essentially unregulated and unmonitored,” said lead author [Anne Steinemann](#), a UW professor of civil and environmental engineering and of public affairs. “If they’re coming out of a smokestack or tail pipe, they’re regulated, but if they’re coming out of a dryer vent, they’re not.”

The research builds on [earlier work](#) that looked at what chemicals are released by laundry products, air fresheners, cleaners, lotions and other fragranced consumer products. Manufacturers are not required to disclose the ingredients used in fragrances, or in laundry products.

For the new study, which focuses on chemicals emitted through laundry vents, researchers first purchased and pre-rinsed new, organic cotton towels. They asked two homeowners to volunteer their washers and dryers, cleaned the inside of the machines with vinegar, and ran full cycles using only water to eliminate as much residue as possible.

At the first home, they ran a regular laundry cycle and analyzed the vent fumes for three cases: once with no products, once with the leading brand of scented liquid laundry detergent, and finally with both the detergent and a leading brand of scented dryer sheets. A canister placed inside the dryer vent opening captured the exhaust 15 minutes into each drying cycle.

Researchers then repeated the procedure with a different washer and dryer at a second home.

Analysis of the captured gases found more than 25 volatile organic compounds, including seven hazardous air pollutants, coming out of the vents. Of those, two chemicals – acetaldehyde and benzene – are classified by the Environmental Protection Agency as carcinogens, for which the agency has established no safe exposure level.

“These products can affect not only personal health, but also public and environmental health. The chemicals can go into the air, down the drain and into water bodies,” Steinemann said.

The researchers estimate that in the Seattle area, where the study was conducted, acetaldehyde emissions from this brand of laundry detergent would be equivalent to 3 percent of the total acetaldehyde emissions coming from automobiles. Emissions from the top five brands, they estimate, would constitute about 6 percent of automobiles’ acetaldehyde emissions.

“We focus a lot of attention on how to reduce emissions of pollutants from automobiles,” Steinemann said. “And here’s one source of pollutants that could be reduced.”

The project’s [website](#) also includes letters from the public reporting health effects from scented consumer products. Steinemann says that people’s reports of adverse reactions to fragranced air coming from laundry vents motivated her to conduct this study.

Steinemann recommends using laundry products without any fragrance or scent.

Co-authors are Lisa Gallagher and Amy Davis at the UW, and Ian MacGregor at Battelle Memorial Institute.

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For more information, contact Steinemann at [acstein@uw.edu](mailto:acstein@uw.edu). She is best reached via email.

More information about the research, including a copy of the article, is at <http://depts.washington.edu/exposure/>