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New Report Finds Toxic Substances in Every Major U.S. Carpet Tested

Study provides roadmap to a cleaner carpet future that protects human health and environment

[A new report](#) by Ecology Center (EC), Global Alliance for Incinerator Alternatives (GAIA), and Changing Markets Foundation (CM) reveals the presence of toxic substances in most of the carpets tested that were produced and sold by the nation's six largest carpet manufacturers: Engineered Flooring (J+J), Interface, Milliken, Mohawk, Shaw and Tandus Centiva (Tarkett). Toxic chemicals detected have been linked to cancer, hormone disruption, respiratory disease, heart attacks, strokes, asthma, and immune and developmental health problems in children.

The landmark study is the first of its kind to test the nation's leading carpet brands for specific toxic chemicals. The report also outlines proven strategies to better protect human health and the environment by designing healthier carpet, increasing product transparency, and enabling safer carpet recycling.

Most flooring sold in the U.S. is carpet. Carpets hold a 60% share of the U.S. flooring market, with 11 billion square feet sold per year. Of that, less than 5% is recycled, and less than 1% is recycled in a closed loop (i.e., turned back into carpet). [Over four billion pounds](#) of carpets are annually dumped in American landfills or burned in incinerators - releasing deadly pollutants into the air, soil, and water. Carpet production is projected to grow 4.5% annually in the U.S. to 14.6 billion square feet by 2019, so carpet production, use, and disposal will continue to have major repercussions for human health and the environment.

"Toxics in carpets make our homes, offices, and schools less healthy places to live, work, study, and play," said Jeff Gearhart, Research Director of EC. "Further, when carpet materials burn, as they did in California's recent fires, the combustion of hazardous chemicals increase the toxicity of the air people breathe. By designing carpets without toxic substances, we can better protect human health and the environment, while making it possible to recycle them into new, safer carpet."

The report detected Per- and Polyfluoroalkyl Substances (PFAS) in half of all carpet samples tested (6 out of 12). Exposure to PFAS chemicals is associated with cancer, hormone disruption, obesity, developmental disorders, and other adverse health effects. One carpet, sold by the largest U.S. carpet manufacturer Shaw, contained high levels of six different types of PFAS. There is a growing concern around PFAS, as they bioaccumulate and are persistent in the environment. In recent months, several cases have emerged where communities' drinking water has been contaminated by PFAS; it's estimated that 95% of people in the U.S. have traces of them [in their blood](#).

Five carpets were found to contain phthalates, a type of plasticizer often used in PVC carpet backing. Phthalates have been shown to migrate from the carpet into the air people breathe. Phthalate exposure has been linked to hormone disruption and adverse developmental effects in children, including reproductive and neurobehavioral impacts. The Curtain Call carpet sold by J+J Flooring (a subsidiary of Engineered Floors) is marketed as an 'eco' product due to its high recycled content. However, testing revealed 20% of the toxic phthalate DNOP in the backing, which has been linked to hormone disruption, developmental problems in children (such as birth defects, low birth weight, biological dysfunctions, and psychological and behavioral deficits), and asthma. DNOP is banned in children's products at levels higher than 0.1% in California, as well as Washington and Vermont.

The Super Flor carpet sold by Interface was found to contain 3.1% 4-nonylphenol (branched) in its backing. This chemical is a hormone disrupting chemical, as well as a developmental and reproductive toxicant, and is classified as a Chemical of Concern by the U.S. EPA. The Super Flor carpet is widely used in [affordable housing projects](#).

Results from earlier testing of carpets sold on the European market, published in October, detected no toxic substances in three carpet samples, including two carpets with recycled content. And only one European carpet tested for PFAS, compared to six US samples.

"The fact that a similar analysis found none of the specific toxic substances in three products sold on the European market shows it is high time for U.S. companies to clean up their act and start providing customers with safer, 100% recyclable carpets," said Nusa Urbancic, Campaigns Director of CM. "This is a formula that works: it boosts recycling rates by creating clean material streams, protects human health and the environment, and saves carbon emissions and other resources."

"Considering America's growing carpet waste crisis, municipal governments are rightly under increasing pressure to increase recycling rates. While we applaud California's groundbreaking 2017 law mandating that 24% of carpets are recycled by 2020 much more needs to be done," said Monica Wilson, Associate Director of GAIA. "We must fundamentally transform the carpet industry to minimize waste, including banning toxic substances from carpet and incentivizing the design of safe and fully recyclable carpets. Recycling cannot come at the expense of human health."

"Developing fetuses, infants, and children, are especially vulnerable, and exposure to even small amounts of the chemicals detected in this study can lead to disease early in life, later in life, or even across generations," said Judy Levin, Pollution Prevention Director of the Center for Environmental Health. "The youngest, who spend much of their time at floor ground level, will benefit the most from efforts to remove these unnecessary toxic substances from carpet."

The report builds on a recent [Healthy Building Network](#) study which highlighted the possible presence of 44 toxic substances in American carpets. The study recommends the immediate phase-out of toxic substances in carpets. Stronger federal and state regulations. Banning or restricting toxic chemicals in carpets just as they have been in children's toys. Mandatory EPR ("Extended Producer Responsibility") programs should oblige carpet manufacturers to also be responsible for ensuring their products no longer contain toxic chemicals and can be safely recycled at end of life. And the enactment of federal and state laws that mandate full disclosure of all carpet ingredients and additives to consumers.

Report findings were based on testing conducted by Vrije Universiteit Amsterdam, the Ecology Center and the University of Notre Dame.