

# Previously unrecognized flame retardant found in Americans for the first time

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A new peer-reviewed study found that people are contaminated with several toxic flame retardants rarely studied in the US, including one that has never before been detected in Americans called TCEP. Scientists tested urine samples of California residents for biomarkers of six chemicals, all of which were present.

The scientists discovered a way to test for this class of toxic [flame retardants](#) (phosphates), which could open up a new wave of research into a group of pervasive flame retardants that were previously not studied nearly as much as some other flame retardants.

Funded in part by the National Institutes of Health (NIH), the study by researchers at Silent Spring Institute and the University of Antwerp was published online today in the peer-reviewed journal *Environmental Science & Technology*.

"We found that several toxic flame retardants are in people's bodies. When you sit on your couch, you want to relax, not get exposed to chemicals that may cause cancer," said lead author, Robin Dodson, ScD, a scientist with the nonprofit research group Silent Spring Institute. "Some flame retardants have been targeted for phase out, but unfortunately there are others that have largely been under the radar."

Fortunately, furniture without flame retardants is now available since the State of California recently revised its flammability standard after a public health outcry. The earlier standard resulted in high levels of flame

retardants used in upholstered furniture across the country without appreciably improving fire safety. Hopefully levels of the chemicals in people's bodies will decrease as consumers are able to choose flame retardant-free furniture.

The chemical detected in Americans for the first time, TCEP [tris-(2-chloroethyl) phosphate], is a carcinogen and can also harm people's nervous and reproductive systems. The biomarkers for the chemical were detected in the urine of 75% of the people tested. More than a half a million pounds of TCEP are produced every year for use in polyurethane foam, plastics, polyester resins and textiles. It is listed under California's Proposition 65 as a carcinogen and the European Union has classified it as a "Substance of Very High Concern."

Another carcinogenic chemical detected in the study is similar to TCEP, like an "evil cousin," called TDCIPP (chlorinated "tris"). Some had expected that it wouldn't be so prevalent because they thought its production diminished after it was phased out of children's pajamas years ago. Arlene Blum, PhD, Executive Director of the Green Science Policy Institute and Visiting Scholar at UC Berkeley, said, "It is hard to believe that a metabolite of chlorinated tris, the same flame retardant we helped remove from baby pajamas in the 1970s, was found in almost all of the study participants. It is such good news that, thanks to the new flammability standard, such harmful chemicals are no longer needed in our furniture."

This study adds to a previous analysis of flame retardants in dust samples that were taken from homes of the same people whose urine was tested. The researchers chose to test [urine samples](#) for this class of phosphate flame retardants after seeing a high prevalence of them in the dust, and recognizing the dearth of information on this group of chemicals. In the household dust, half of the homes exceeded EPA health guidelines for either TCEP or TDCIPP.

Another interesting finding from this new study is that the people with the highest level of TCEP and TDCIPP metabolites in their urine live in homes that had the highest quantity of the respective chemical in dust.

"This study provides more evidence that our homes are a primary source of exposure to toxic flame retardants," said Julia Brody, PhD, Executive Director and Senior Scientist at Silent Spring Institute.

Tony Stefani, President of the San Francisco Firefighters Cancer Prevention Foundation, said, "It has been proven that flame retardants do not provide the level of protection necessary to save lives and property. We have known how toxic these chemicals are for decades and yet they are still being used.

"It disturbs me that Californians have cancer-causing flame retardants in their bodies. Another recent study showed San Francisco firefighters had higher flame retardant levels in their blood than the general population of California. We feel that these chemicals are a very large piece of a toxic, complex chemical puzzle we encounter when fighting a fire."

Brody described some good news that came from the research: "There has been a breakthrough in that we now know what to look for when trying to figure out if someone has these toxic chemicals in their bodies. This should open up future research on several toxic flame retardants that haven't been scrutinized enough before." The study identifies which biomarkers to look for in urine for each chemical to indicate the presence of the contaminant.

Rachel Gibson, Director of the Safer Chemicals Program at Health Care Without Harm, commented, "We are pleased to see furniture manufacturers taking steps to remove flame retardants from their products, as a result of California's new flammability standard. In support of the Healthier Hospitals Initiative, already five major health

systems have pledged to buy furniture without these toxic chemicals." Those systems include Advocate Health Care, Beaumont Health System, Hackensack University Medical Center, Kaiser Permanente, and University Hospitals.

**What Can Consumers Do?** In addition to asking companies for flame retardant-free sofas at retailers like IKEA and Williams-Sonoma, which will begin selling these products early next year, consumers can also reduce their risk by cleaning surfaces with a wet cloth or mop and vacuuming with a HEPA filter, as these chemicals are emitted into the air and collect in dust. Consumers can also skip foam padding under carpets or request padding without flame retardants. People should also throw away foam that is deteriorating, as it likely sheds even more of the chemicals.

Senator Schumer recently introduced the Children and Firefighters Protection Act of 2014 (S.2811). The bill prohibits use of 10 designated flame retardants, including the three chlorinated phosphate flame retardants found in this study, in children's products and upholstered furniture.

Provided by Silent Spring Institute

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