House Committee on Climate, Energy, and Environment

HB 3512

Prohibits the distribution or sale of certain covered products that contain intentionally added perfluoroalkyl or polyfluoroalkyl substances

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Testimony

Distinguished Chair Lively, Co-Chairs Gamba and Levy, and Members of the House Committee on Climate, Energy, and Environment, thank you for the opportunity to testify on the health effects of a group of compounds known as per- and polyfluoroalkyl substances, or PFAS. For the record, my name is Dr. Jamie DeWitt and I am Professor of Environmental and Molecular Toxicology and Director of the Pacific Northwest Center for Translational Environmental Health Research at Oregon State University. In my laboratory at OSU I study the toxicological effects of PFAS, specifically, how they affect the immune system. However, I am testifying not as OSU faculty, but as a scientist who has been studying the toxicological effects of PFAS for two decades at three different institutions.

PFAS are a class of highly stable, heat and chemical resistant chemicals that are versatile in manufacturing processes and consumer goods such as described in the bill. PFAS are extremely long-lived in the environment and our bodies because they do not readily break down, earning them the nickname "forever chemicals." Because PFAS are so long-lasting in our environment, exposure is continuous, allowing some PFAS to accumulate in blood and tissues of living organisms[1]. Biomonitoring efforts by the Centers for Disease Control and Prevention have reported . Exposures even begins in the womb before babies are born and continues throughout a person's lifetime from the water they drink, the food that they eat, and the consumer products that they bring into their homes. Given that they are persistent chemicals, even if production is stopped today, human exposure will be ongoing into the distant future. Some PFAS also take years to leave human bodies. Therefore, concerns for human health are not going away, even with current efforts such as drinking water protections recently enacted by the US EPA.

Scientific evidence for a subset of PFAS that have been well-studied indicate adverse effects on multiple systems in the body. Liver damage, increased cholesterol levels, decreased responses to vaccinations, lowered birth weight, thyroid disease, and kidney and testicular cancer all are health risk that have been linked to exposure to PFAS[1,2]. More health risks are being identified as more scientists start to study these chemicals. These undesirable health effects also have been observed in

[1] ATSDR Toxicological Profile for PFAS. https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf.
[2] Guidance on PFAS Testing and Health Outcomes. https://www.nationalacademies.org/our-work/guidance-on-pfas-testing-and-health-outcomes

experimental animals exposed to individual PFAS through food, water, or skin, which are supportive of these findings of undesirable health effects in humans.

These health effects likely will lead to health-related costs that will eventually be shouldered by public authorities and taxpayers. These persistent chemicals possess tremendous risks to public health. The only way to reduce health risks from PFAS exposure is to reduce or eliminate exposures. Environmental remediation is extremely challenging, but reducing PFAS in products and processes will help to reduce additional PFAS into the environment and limit PFAS brought into the home through consumer products.

Appendix

Brief Summary of PFAS

Although scientists have studied only a handful of the nearly 15,000 synthetic compounds in the PFAS class, undesirable health effects have been uncovered for these more well-studied PFAS, which include perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). Once in our bodies, these PFAS and others that have been studied interact with a wide range of molecules and biological systems to produce multiple types of these undesirable health effects. Studies of humans exposed because they work with these and other PFAS, live in areas of that have high levels of these and other PFAS in the environment, or even of humans who are exposed by everyday activities have uncovered adverse health effects to include: kidney and testicular cancer, decreased antibody responses to vaccines, liver damage, changes in serum cholesterol, increased risk of thyroid disease, and decreases in birth weight. PFAS are truly "multi-system toxicants" and scientists studying PFAS uncover new health effects the more they are studied.

PFAS are a diverse class of chemicals but in their simplest form, they are carbon chains where the hydrogens that would normally be attached to the carbons are replaced with fluorine atoms[3]. They can vary in the number of carbons and they can very with the types of chemical groups that are attached to the end of the carbon chain. Some PFAS can have an oxygen in between carbons on the chain and some can have a straight chain of carbons or a chain that branches. Despite this diversity in chemical structures, PFAS share concerning characteristics[4]. First, they are persistent. The vast majority of PFAS aren't readily or easily broken down by sunlight, microbes, or other natural processes and those that do degrade break down into PFAS structures that do not degrade. Second, many PFAS that have been studied can accumulate from the environment into the bodies of living organisms. Third, many PFAS are highly mobile once released to the environment, which means that they can travel from points of release to points distant. PFAS have been found everywhere scientists have looked, from the Arctic Circle to umbilical cord blood connecting mothers with their developing babies. Finally, the well-studied PFAS appear to be toxic to living organisms.

[3] Physical and Chemical Properties of PFAS. https://pfas-1.itrcweb.org/4-physical-and-chemical-properties/.
[4] Kwiatkowski et al. 2020. https://pubs.acs.org/doi/10.1021/acs.estlett.0c00255.

Another concern with PFAS is that when they are produced and applied to products and/or when products are used or disposed of, PFAS can be released into the environment[5]. This is shown in the figure below for fluoropolymers. Fluoropolymers are a subset of fluorinated polymers and one fluoropolymer commonly encountered in consumer products is polytetrafluoroethylene (PTFE). Claims about fluoropolymers being non-toxic discount that toxic PFAS are emitted into the environment during fluoropolymer production, application, use, and disposal.

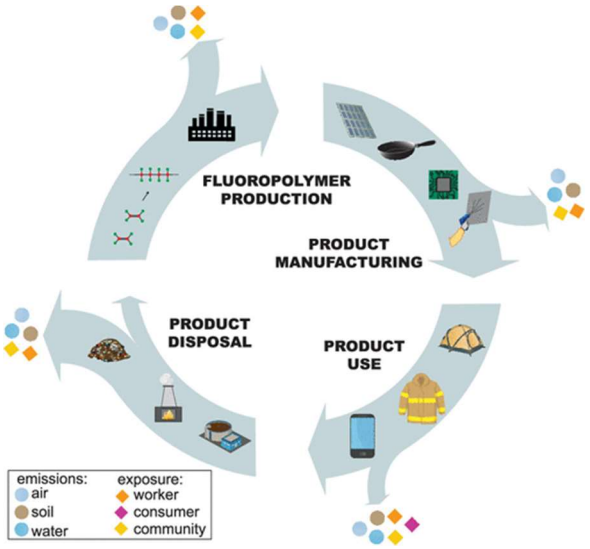

Figure from Lohmann et al. 2020[5] illustrating that PFAS can be emitted into the environment throughout the production cycle for fluoropolymers.

The only way to reduce health risks from PFAS exposure is to reduce or eliminate exposures. Environmental remediation is extremely challenging because right now, the only way to effectively remove PFAS from water, for example, is by filtration. Reducing PFAS in products and processes will help to reduce additional PFAS into the environment and limit PFAS brought into the home through consumer products.

[5] Lohmann et al., 2020. https://pubs.acs.org/doi/10.1021/acs.est.0c03244