TOXIC-FREE FUTURE
SCIENCE • ADVOCACY • RESULTS

ISSUE BRIEF:
PFAS - Toxic Nonstick Chemicals




PFAS (per and polyfluorylalkyl substances), best known for their use in non-stick Teflon pans, are commonly found in consumer products including food packaging such as microwave popcorn bags and fast food wrappers, stainproof textiles, waterproof outdoor gear, firefighting foams, and additional uses.[1]

PFAS chemicals repel both oil and water, but with this special chemistry comes a special problem: they are so highly persistent that scientists call them "virtually indestructible." Their widespread usage has made them global pollutants that threaten the health of people and our environment.

Due to health and environmental concerns, most chemical companies phased out the best-known problematic PFAS chemicals - PFOS and PFOA. However, new research shows the newer manufactured PFAS chemicals may be just as problematic for our health and environment.

PFAS chemicals in food packaging are widespread. Recent testing, published in a peer-reviewed journal, found nearly half of paper wrappers were treated with fluorinated chemicals.[2] Out of 248 samples from 27 restaurants in five states, 48% of paper wrappers used for sandwiches, burgers, and bakery items tested positive for fluorinated chemicals.

PFAS chemicals can migrate from packaging paper to the food it holds. Migration can occur when food comes in contact with PFAS treated packaging. Migration has been found from microwave popcorn bags, paperboard for burgers, and food wrappers. Out of all tested products, microwave popcorn was found to have the highest levels of PFAS chemicals.[3, 4] When eating these foods, consumers are also ingesting the migrated PFAS chemicals. And once they are in our bodies, some stick around with half-lives of at least three years.[5]

PFAS chemicals are found in bodies of water and are threatening Washington state drinking water supplies. The Washington state Department of Ecology sampled freshwater in Washington in 2008, finding PFAS chemicals in all water samples and elevated concentrations in water bodies impacted by wastewater treatment plant effluent.[6] University of Washington scientists sampled 15 saltwater and four freshwater Puget Sound locations between 2009 and 2011, detecting PFASs in all samples with the highest concentrations at sites near urban areas.[7] Current PFAS contaminated drinking water in communities in Washington include DuPont, Issaquah, Oak Harbor, and Spokane.

Exposure to these compounds has been linked to a number of health concerns. These include cancer,[8-10] hormone disruption,[11,12] liver toxicity,[8] harm to the immune system,[13] and reduced birth weight.[14]

Now that we know PFAS chemicals are contaminating Washington's drinking water, food, and people, what can be done?

Washington state must act to phase out the widespread use of these chemicals. Right now, Toxic-Free Future is mobilizing communities throughout Washington to advocate for city, state and federal protections that ban sources of these chemicals including its use in food packaging and fire fighting foams, and we're calling for Governor Inslee and the State Department of Health to conduct a complete review of drinking water standards.

Interested in joining the fight to protect your community from toxic chemicals? Contact: acallahan@toxicfreefuture.org (206) 632-1545 ex. 112

References

1. Fluorotechnology: Critical to modern life. FluoroCouncil Web site. http://www.fluorocouncil.com/Applications

2. Schaider LA, Balan SA, Blum A, et al. Fluorinated compounds in U.S. fast food packaging. Environ Sci Technol Lett. 2017; 4(3): 105-111. doi:10.1021/acs.estlett.6b00435

3. Trier X, Granby K, Christensen JH. Polyfluorinated surfactants (PFS) in paper and board coatings for food packaging. Environ Sci Pollut Res. 2011; 18: 1108-1120. doi: 10.1007/s11356-010-0439-3

4. Begley TH, Hsu W, Noonan G, Diachenko G. Migration of fluorochemical paper additives from food-contact paper into foods and food simulants. Food Addit Contam Part A Chem Anal Control Expo Risk Assess. 2008; 25(3): 384-390. doi: 10.1080/02652030701513784

5. Olsen GW, Burris JM, Ehresman DJ, et al. Half-life of serum elimination of perfluorooctanesulfonate, perfluorohexanesulfonate, and perfluorooctanoate in retired fluorochemical production workers. Environ Health Perspect. 2007; 115(9): 1298-1305. doi: 10.1021/es103562v

6. Perfluorinated compounds in Washington rivers and lakes; 1003034; Toxic Studies Unit, Environmental Assessment Program, Washington State Department of Ecology: Olympia, 2010.

7. Dinglasan-Panlilio M, Prakash S, Baker J. Perfluorinated compounds in the surface waters of Puget Sound, Washington, and Clayoquot and Barkley Sounds, British Columbia. Mar Poll Bull. 2014; 78: 173-180. doi: 10.1016/j.marpolbul.2013.10.046

8. Lau C, Anitole K, Hodes C, Lai D, Pfahles-Hutchens A, Seed J. Perfluoroalkyl acids: A review of monitoring and toxicological findings. Toxicol Sci. 2007; 99(2): 366-394. doi:10.1093/toxsci/kfm128

9. Benbrahim-Tallaa L, Lauby-Secretan B, Loomis D, et al. Carcinogenicity of perfluorooctanoic acid, tetrafluoroethylene, dichloromethane, 1,2-dichloropropane, and 1,3-propane sultone. Lancet Oncol. 2014; 15(9): 924-925. doi:10.1016/S1470-2045(14)70316-X

10. Barry V, Winquist A, Steenland K. Perfluorooctanoic acid (PFOA) exposures and incident cancers among adults living near a chemical plant. Environ Health Perspect. 2013; 121(11-12): 1313-1318. doi:10.1289/ehp.1306615

11. Lau C, Anitole K, Hodes C, Lai D, Pfahles-Hutchens A, Seed J. Perfluoroalkyl acids: A review of monitoring and toxicological findings. Toxicol Sci. 2007; 99(2): 366-394. doi:10.1093/toxsci/kfm128

12. Lopez-Espinosa MJ, Fletcher T, Armstrong B, et al. Association of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) with age of puberty among children living near a chemical plant. Environ Sci Technol. 2011; 45(19): 8160–8166. doi: 10.1021/es1038694

13. Grandjean P, Andersen EW, Budtz-Jørgensen E. Serum vaccine antibody concentrations in children exposed to perfluorinated compounds. JAMA. 2015; 307(4): 391-397. doi: 10.1001/jama.2011.2034

14. Bach CC, Bech BH, Brix N, Nohr EA, Bonde JPE, Henriksen TB. Perfluoroalkyl and polyfluoroalkyl substances and human fetal growth: A systematic review. Crit Rev Toxicol. 2015; 45(1): 53-67. doi: 10.3109/10408444.2014.952400