

Perfluorinated Chemicals: They're in your carpet, your cookware, your bloodstream; have they reached your water supply?

By Alex Chrystal

PFOA (perfluorooctanoic acid) and PFOS (perfluorooctanesulfonic acid) are man-made chemicals used primarily in the manufacturing of non-stick cookware, stain resistant carpets, carpet cleaning liquids, and microwave popcorn bags. As CECs (constituents of emergent concern), public attention has focused on Teflon® products as main contributors to the human intake and environmental problems of PFOA and PFOS. The DuPont chemical company has for many years been a chief supplier of Teflon® and Teflon® products. However, facing criticism from the USEPA and a [lawsuit](#)^[1] from a PFOA contaminated community near their Washington plant in West Virginia, they have begun to phase out the use of these perfluorinated compounds in the production of their manufactured articles. As for now, people are still inevitably vulnerable to ingesting these chemicals and to potential exposure through waterways impacted by industrial waste runoff. So the question becomes: are people consuming unsafe amounts?

It is a question that the EPA is still trying to answer. “You have to understand, ‘detectable’ is still part per billion or trillion levels. In today’s world of technological advancements, instruments can now measure extremely small amounts but we don’t know what levels are significant,” explains Larry Chrystal, Laboratory Director at Babcock Laboratories. “As with many other contaminants of concern, people are exposed through normal daily activities as well as from the food and water they consume,” he says. PFOA and PFOS have yet to make it into the drinking water [regulations](#), but Mr. Chrystal clarifies that, “although it is not mandatory that water companies test for PFOA and PFOS, Babcock’s can test for these contaminants and has done so for large municipal water supplies.”

According to recently conducted studies, the possible human health concerns of these perfluorinated hydrocarbons are infertility, developmental problems, hormonal effects and liver cancer. PFOA is persistent in the environment, demonstrating resistance to natural degradation. According to a [study](#)^[2] published by the National Institute of Environmental Health Sciences, the half-life of PFOA in humans is estimated to be 3 years, and because of this, PFOA is considered bioaccumulative.

In January of 2009, the USEPA established a provisional [health advisory](#)^[3] level of 0.4 parts per billion in drinking water. However, there are still no standards for levels of PFOA and PFOS in consumer products. So what does the future hold? Presently the EPA and other researchers are gathering additional information regarding the health effects of these chemicals. With this information and

growing public concern, we may soon see PFOA and PFOS regulated under the Safe Drinking Water Act.

Resources

- [1] Richard, Clapp, and Hoppin Polly. "Perfluorooctanoic Acid." *Defending Science*. Scientific Knowledge and Public Policy. Web. 28 June 2010. <http://www.defendingscience.org/case_studies/perfluorooctanoic-acid.cfm>.
- [2] Steenland, Kyle, Tony Fletcher, and David A. Savitz. "Epidemiologic Evidence on the Health Effects of Perfluorooctanoic Acid (PFOA)." *Environmental Health Perspectives*. National Institute of Environmental Health Sciences, 27 Apr. 2010. Web. 27 June 2010. <<http://ehp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.0901827>>.
- [3] USEPA. "Drinking Water Health Advisories | Water Quality Criteria." *Water Science*. US Environmental Protection Agency, Oct. 2009. Web. 28 June 2010. <<http://www.epa.gov/waterscience/criteria/drinking/>>.