

The Impact of PFAS Regulations on Water Testing Laboratories

Read more to find out about the exciting new growth opportunities for testing laboratories that come with new PFAS regulations.

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EINPresswire.com/ -- With the Biden administration, there is a new sheriff in town when it comes to regulating PFAS chemicals.

We take a look at the different ways Washington could increase regulatory oversight of PFAS chemicals — as well as the new potential business opportunities for water [testing laboratories](#) — thanks to proposed increased Federal funding for environmental testing and site cleanup.



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PFAS Backgrounder: What Are “Forever Chemicals?”

What does the term PFAS refer to, and how did it get the memorable nickname “forever chemicals?”

PFAS is an acronym for Perfluoroalkyl and Polyfluoroalkyl substances, a large group of man-made synthetic chemical compounds comprised of a chain of carbon and fluorine atoms that first came into widespread use in the late 1940s.

PFAS chemicals have unique qualities that led to their popularization in many products; for example, they are an exceptionally powerful surfactant; e.g. they are slippery, and they can repel water, oil, and grease stains. These properties were put to use in Teflon coated frying pans, Scotch Gard stain-resistant carpets, and Gore-Tex water repellents sportswear.

PFAS chemicals are also inherently long-lasting, meaning compared to other substances, they do not break down easily and can persist in the environment for many years — because the chemical bond between fluorine and carbon atoms (C-F in chemical notation) is one of the strongest ones found in nature.

While chemical longevity can often be considered a benefit in material science, it's also a potential health risk. Once PFAS chemicals are ingested into the human body, they do not break down quickly (e.g. depending on the specific compound, the half-life might be four or five years), so repeated exposure can raise the level of these chemicals in our blood over time (making them similar to another troubling industrial chemical, Polychlorinated Biphenyls, commonly known as PCBs.)



Shown above is a custom steel casework installation featuring a gray epoxy top and backsplash, black epoxy resin sink, faucet, epoxy pegboard drying rack, eyewash station, and a stainless steel drip tray.

As a result, PFAS compounds have become commonly known as “forever chemicals,” which not only refers to their inability to break down easily but also refers to their characteristic carbon-fluorine (C-F) chemical bond (albeit reversed as “FC”).

New Discoveries Of PFAS Chemicals In Common Consumer Cosmetics Goods

As we mentioned earlier, PFAS is an umbrella term for Perfluoroalkyl and Polyfluoroalkyl substances, a category of more than 4,700 different chemical compounds.

PFAS chemicals fall into three main categories:

PFOA or C8 – PFOA is perfluorooctanoic acid, a surfactant with a long 8-carbon chain (C8) structure.

PFOS – PFOS is perfluoro octane sulfonate, a highly stable fluorinated aliphatic compound, also with a long 8-carbon chain (C8) structure.

GenX – GenX is ammonium salt of hexafluoropropylene oxide dimer acid (HFPO-DA) fluoride, a synthetic short-chain organofluorine chemical compound designed by DuPont as a replacement

for PFOA / C8.

As we'll touch on shortly, the industry has been moving away from the long carbon chain chemicals in favor of newer, short-chain chemicals (such as GenX) to develop alternative chemicals that could (theoretically) break down more rapidly in the environment, hopefully making them safer.

However, PFAS chemicals have been in the news again recently, as researchers at the University of Notre Dame found high levels of fluorine (a test indicator proxy for PFAS chemicals) among 230 commonly used cosmetic products, including 56% of eye and foundation products, 48% of lipstick products, and 47% of mascara products.

PFAS Environmental Hot Spots And Exposure Health Risks

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Shown above is a customized Benchmarx™ workbench from Formaspace that features upper and lower storage, a drop-in epoxy resin sink, and a stainless steel pencil lip.

Consumer watchdogs, such as the Environmental Working Group, have been pointing out the potential health dangers of PFAS chemicals for years.

But the news that PFAS chemicals have been detected in cosmetics (in addition to non-stick cookware, waterproof clothing, carpets, fast-food containers, and human blood) has pushed the issue back in the headlines, and, as we'll see in a moment, onto the top of the legislative agenda.

Concerns about PFAS compounds have been mounting for years. Researchers first noted that certain professions were associated with higher levels of PFAS chemicals in the blood, including industrial workers at PFAS manufacturing plants, firefighters wearing PFAS treated gear or deploying flame retardant, DoD personnel, and even workers who treat skis with wax coatings.

Certain areas of the country are also thought to be environmental hot spots, such as parts of the Ohio River valley, where these chemicals were produced and waste was discharged into waters – where it can now be detected in groundwater. The film Dark Waters highlighted the health risks associated with PFAS polluted waters in this region, now estimated to affect more than 6 million Americans.

Military installations are also thought to be at risk, including nine bases located in the Chesapeake Bay watershed.

So too are areas where oil and gas developers have used fracking chemicals to extract hydrocarbons from underground — which also affects those living in the surrounding areas who could potentially draw well water that's been contaminated with drilling fluids.

The American Cancer Society reports that workers and those living near PFOA-related chemical plants have a higher risk of testicular cancer. They note there are also possible links to kidney, thyroid, prostate, bladder, and ovarian cancer.

More recently, the famous environmental activist Erin Brockovich has written about how humanity's long-term survival depends on taking action to limit PFAS compounds, as it's thought to be a contributing factor in lower human sperm counts, which plummeted 59% between 2011 and 1973. According to the sperm count study author Shanna Swan, an environmental and reproductive epidemiologist at Icahn School of Medicine at Mount Sinai in New York, sperm counts could reach zero by 2045, signally the end of the human race.

Current Legislative And Executive Action On PFAS By The Biden Administration

What is the Biden administration doing about PFAS chemicals?

Following a pledge made during the 2020 presidential campaign, the Biden administration has set forth a plan to significantly increase funding for PFAS toxicity studies as well as designate PFAS as a "hazardous substance," which could trigger national cleanup measures at hazardous sites, such as DoD military installations and surrounding communities.

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