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AATCC conference: Speakers seek to navigate path forward for PFAS in textiles

- Glenna Musante July 27, 2023

DURHAM, N.C. – PFAS – or per-and polyfluoroalkyl chemistries – have long been considered a miracle worker in the textile realm, capable of making almost any fiber substrate water, soil and oil repellent. From firefighter and military gear to rain jackets and home upholstery, finishes containing PFAS have kept textiles cleaner, drier, safer and more durable since the mid-1900s.

Fluorine-based textile chemistries have also become a white-hot topic, but at the same time are not well understood by a global textile industry suddenly challenged with massive change. Scientists have begun tying PFAS to a wide variety of serious health issues, including cancer and hormone disruption. In turn, consumer groups have begun calling for change, and that's led to a growing list of PFAS bans in the United States and Europe.

In response, AATCC – The American Association of Textile Colorists and Chemists – held a comprehensive, two-day workshop, “Navigating a Path Forward for PFAS in Textiles,” this month near their headquarters in Research Triangle Park, N.C., to help

stakeholders throughout the textile industry understand the potential hazards, current legislative actions and the pros and cons of alternative chemicals.

Speakers represented a diverse array of views, from textile industry regulatory experts and attorneys reviewing the legal and lobbying issues to college professors discussing the health impacts on water resources and constituencies, such as firefighters, who are regularly exposed to PFAS through their turnout gear.



Regardless of perspective, the speakers all agreed the PFAS have become ubiquitous throughout the natural world. PFAS have even been found in water in the Arctic, carried there through wind and rain from manufacturing sites around the globe.

There are hundreds of different PFAS compounds, and each has different properties and varied levels of toxicity. As Frank Adamsky of Daikin America pointed out, PFAS is an umbrella term that refers to hundreds of different chemical structures, and one size does not fit all with regard to regulation. “To calculate risk, you need to be more specific,” he pointed out in his presentation. “You can’t calculate risk using an umbrella term.”

PFOA and PFOS, which do not easily break down, are two of the most studied, he added, “but what about all of the PFAS that don’t build up ... over time?” If we aren’t careful, “it may be regulated out of existence,” he added.

At the same time, Detlef Knappe, a professor at North Carolina State University, emphasized that measures need to be taken to reduce continued exposure. PFAS, he said, are released into the environment in a vast number of ways. “Fluoropolymer production is polluting the environment with compounds we know very little about,”

that can take hundreds of years to degrade. “Some control is important in protecting our water resources,” he said, adding, “I implore you, do not let this stuff go out into the environment.”

But whether a particular PFAS compound is nontoxic or poses a significant public health issue, the stark reality is that PFAS bans are on the close horizon throughout the United States and the European Union. California, as one example, will begin banning PFAS from all new non-essential textile products, such as linens, furnishings and clothes on January 1, 2025. California has the fourth largest economy in the world, and other states in the U.S. are following their model. As a result, consumer brands, especially, are facing an urgent need to replace PFAS-based finishes.

Several speakers pointed out that bans such as the one in California only apply to consumer products, or what the regulations refer to as “non-essential” textiles. Longer chain C8 compounds have been banned for several years. But shorter chain C6 PFAS compounds are still allowed on a limited basis in textiles considered by the bans as “essential.” This includes military gear, some categories of workwear (such as for oil rig workers), medical textiles, fire fighter turnout gear and general PPE.

Several textile industry chemical companies have begun developing PFAS-free finishes that offer good rain repellence. However, as a number of the conference’s speakers pointed out, the new PFAS-free finishes do not protect against saturation from oil and gas, chemical spills, drenching water and heavy soil. That level of protection is essential for the safety of the workers in higher risk industries.

Marketing language has also become a potential landmine for manufacturers of so-called non-essential textiles – including those that have never been made with or initially contained PFAS.

Brands can say that a product is “manufactured without PFAS” but can’t use a phrase such as “PFAS-free,” without potentially getting sued. PFAS are present throughout the global water supply, and small amounts can occasionally be found in products.

Most of the bans allow for this and specify that PFAS must be “intentionally” added to a “non-essential” product for it to be banned.

Given its status as a “white-hot” topic, significant research is still needed to determine the best course of future action, said Sean Sullivan, an attorney with Williams Mullen law firm.

“Sooner or later PFAS compounds will become a consumer differentiation criteria. The EPA will impose pollution control regulations,” including clean-up requirements, and “public perception is key,” Sullivan explained. “Not every PFAS compound is the same. And what we need to know about these compounds is much less than what we do know to make sound decisions.”

In other words, the industry needs to get ahead of the narrative.



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