

PFAS – Per-and-Polyfluoroalkyl Substances

Per-and-polyfluoroalkyl substances (PFAS) is an umbrella term for a class of organic chemicals that include nearly 5,000 different substances. PFAS are used in numerous manufacturing applications, including aerospace, automotive, energy, electronics, telecommunications, medical equipment, and textiles. In fabric applications, PFAS impart various performance enhancing characteristics such as strength, durability, heat-resistance, stability, oil and water repellency, and enhanced cleanability.

As the Armed Services Committees and Congress in general intensify their review of PFAS, we note two key facts from a U.S. textile industry perspective.

First, the U.S. textile industry does not utilize the specific PFAS chemicals that have been linked to significant environmental hazards, namely Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). PFOA/PFOS is older “long-chain” polymer technology and is no longer a factor in U.S. textile manufacturing. The U.S. textile industry has made great strides on reducing overall PFAS usage and in replacing long-chain fluorinated polymers with less environmentally impactful short-chain polymers.

Secondly, with that stated, currently there are no suitable substitutes for the remaining PFAS applications used in textile manufacturing that are needed to achieve the exacting performance standards required to properly equip and protect the U.S. warfighter. Numerous military items require performance specifications which can only be achieved through the use of fluorinated chemicals. Examples of high-performance military materials with essential performance characteristics imparted by PFAS include:

- Fabrics that maintain **waterproof barriers and moisture wicking capabilities** after exposure to battlefield contaminants like insecticides, chemicals, diesel fuel, and hydraulic fluid.

Applications for these fabrics include tents; tarps; fuel and water containment membranes; Extended Climate Warfighter Clothing Systems; 3 Season Sleep Systems; Navy working uniforms; Army desert camos; and the USMC All Purpose Environmental Clothing System.

- Fabrics possessing **fire retardant (FR) properties and thermal stability** that prevents membrane ruptures to provide burn protection and chemical penetration resistance to substances such as vehicle and aviation fuels. These fabrics often undergo additional PFAS treatments to develop waterproof properties and to prevent exposure to battlefield contaminants.

Applications for these fabrics include FR Fuel Handlers’ Coveralls and the Fire Resistant Environmental Ensemble Extreme Weather Outer Layer (FREE EWOL).

Consequently, we recommend that Congress adopt a science-based process to regulate PFAS on the characteristics of individual chemicals, not as a single class. Doing so will ensure that the specific PFAS chemicals actually found to present adverse environmental consequences are individually targeted and removed from DOD procurement activity. Additionally, a science-based approach will ensure that domestic textile manufacturers are able to continue to provide the U.S. military with the most advanced and technically capable materials of any global fighting force.