

# C6 Fluorotelomers Provide Critical Protection for Textiles

C6 Based Fluorotelomers are used to treat textiles and nonwovens to impart water, soil, oil and stain resistance, and to provide a protective barrier against infiltration by contaminants. These C6 Fluorotelomer coatings are designed to be bound to the fibers when applied, providing unique performance benefits such as:

- Exceptional durability and maintenance of apparel leading to long lifetime of products with reduced resource intensity (e.g., less frequent laundering, lower water/energy use to clean clothes, extended longevity of clothes so replaced less frequently, etc.) all of which are important to advancing enhanced sustainability of apparel products.
- Protective barriers to help safeguard against spread of infections and transmission of diseases in hospitals, health care and emergency response settings, including protection against microbial contaminants, such as viruses and bacteria, as well as other chemical and biological threats.
- Unique durable water- and oil-repellency (DWOR), including properties that help prevent hypothermia and resistance to extreme temperatures. Stain-resistance and soil release (repel-release).
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- High heat and chemical resistance.
- Protection against contamination in clean room environments.
- UV resistance.
- Abrasion resistant finishes.
- Preserving the integrity of protective equipment, including life-saving bullet-proof ballistic fabrics.
- Ability to meet and comply with key performance and safety standards.

For many applications of C6 Fluorotelomers, no suitable alternatives exist or have been identified that can match these performance benefits. This performance is critical for applications such as Personal Protective Equipment (PPE) for healthcare workers, where C6 Based Fluorotelomers provide the chemical barrier necessary to help protect healthcare personnel against contact with microbiological contaminants, including blood-borne pathogens.



## C6 Fluorotelomers Are Used in a Wide Range of Critical Textile Applications

- Woven and nonwoven medical textiles/apparel.
- PPE for fire fighters, first aid responders
- Other rescue equipment outside of PPE (e.g., safety vests, equipment, etc.)
- Military, police and civil security equipment
- Outdoor apparel for extreme conditions and environments
- Clean-room apparel for semiconductor manufacturing
- PPE for workers in the chemicals, oil & gas, environmental remediation fields
- Engine protection in automobiles
- Textiles for earthworks, road construction, erosion control and other infrastructure
- Composite manufacture for aerospace applications



# C6 Fluorotelomers Have Been Reviewed and Approved By Regulators Around the World

Our member companies that make and use C6 Fluorotelomer based products are committed to protecting public health and our environment, employing practices and technologies throughout the manufacturing process to curtail emissions of these chemistries.

These C6 Based Fluorotelomer products have undergone testing for potential effects on both human health and the environment, including regulatory reviews by the U.S. Environmental Protection Agency (EPA). In addition, regulatory bodies in Europe, Canada and Asia have determined C6 Fluorotelomer Based Products meet relevant standards for the protection of human health and the environment.



## C6 Fluorotelomer Safety Profile

C6 Fluorotelomers are neither PFOS nor PFOA and are not made with either chemical. In fact, our members voluntarily stopped manufacturing and using long-chain products in the U.S. and globally by year-end 2015 through the EPA's PFOA Stewardship Program, which began in early 2006. This program included an investment of over \$700 million in research and development and a commitment to cease the manufacture and use as well as essentially eliminate plant emissions of PFOA and PFOA-related chemicals. New C6 PFAS chemistries were also subject to enhanced regulatory review before being permitted on the market.

Notably, in 2020 EPA enacted regulations to restrict the use of long chain PFAS compounds in textile applications. EPA has not proposed to take similar regulatory action with respect to C6 Fluorotelomers used in textiles.

C6 Fluorotelomers have been thoroughly reviewed by regulators prior to introduction into commerce, are subject to ongoing oversight, and are supported by a body of scientific health and safety data. This assessment has also included review of potential breakdown (degradation) products. As reflected in the published scientific literature, studies have found that one of the primary potential breakdown products, perfluorohexanoic acid (PFHxA or C6 acid), does not cause cancer (NTP 2018; Klaunig et al. 2015; Loveless et al. 2009); does not disrupt endocrine (hormone) activity (Borghoff et al. 2018); does not cause reproductive or developmental harm (Loveless et al. 2009; Iwai et al. 2019, Iwai and Hoberman 2014); does not build up in the human body and does not become concentrated in the bodies of living organisms (Chengelis et al. 2009b; Iwai and Hoberman 2014; Russell et al. 2013, 2015; Nilsson et al. 2010, 2013; Fujii et al. 2015; Guruge et al. 2016; Gannon et al. 2011, 2016).