



April 18, 2018

Re: PFAS, PFOA, PFOS, C8 water repellent, disperse dyes and bromine

**PFOA** (Per Fluoro Octanoic Acid) was a processing aid used to produce PTFE. After much litigation and study, PTFE manufacturers removed PFOA from the production of PTFE. Due to a focused effort, PFOA has been removed from the PTFE films used in STEDAIR® Laminates. It is also important to understand Stedfast's PTFE film suppliers do not produce PTFE. They buy the PTFE from several companies. They convert it into the films we use. Even when PFOA was used to produce PTFE, the films used in STEDAIR® Laminates had only trace amounts of residual PFOA.

**DWR** (Durable Water Repellent) finishes for STEDAIR® Laminates no longer contain PFOA as well. PFOA in DWR chemistries is commonly referred to as C8. Since 2006, Stedfast and others in the industry were preparing for the elimination of C8 in DWR finishes as well as the elimination of these chemicals from emissions and other products. This work was conducted under the "2010/2015 PFOA Product Stewardship Program". As of January 1, 2016 PFOA and C8 finishes cannot be imported or manufactured in the US without a special exemption by the EPA.

**PFOS** (Per Fluoro Octane Sulfonic acid) was a key ingredient for a common water and stain repellent spray available to industry and consumers. STEDAIR® Laminates never used this compound.

**PFAS** (Per- and Poly FluoroAlkyl Substances) is a general description for many per- and poly fluoro chemicals. PTFE (Teflon®) does not fall into this category of substances. STEDAIR® laminates do not contain PFAS chemicals.

STEDAIR® Moisture Barrier Laminates do not use any type of disperse dyes. The fabrics used in STEDAIR® Moisture Barrier Laminates are 'natural' in color. The color is obtained from the 'nature' of the fibers used. The yellowish-tint results from the blend of the fibers used. The color of the STEDAIR® Moisture Barrier textile substrate is not from any type of chemical disperse dye or any other dye-type.

Bromine is a compound commonly used as a sanitizer for pools and hot tubs. The main benefit is that it does not have the strong smell of chlorine. So, if people are familiar with pools and hot tubs that do not smell like chlorine, they are probably being sanitized by Bromine. There are also bromine compounds that historically have been added to textiles to make them more flame and fire resistant. They were particularly used in bedding, draperies, furniture and children's sleepwear. The main problem with these compounds is that they would flake off and become part of the dust in our surroundings. They would be inhaled, ingested and washed out to become part of the waste stream. Some of these bromine compounds do not easily degrade and the concentration can build in the human body and food chain. The elevated concentrations are believed to cause health problems. These bromine compounds have been banned. Many were banned globally in 2004. Additional bromine compounds were banned in 2012 in Europe and many states.

Even 20 years ago when these now banned compounds may have been incorporated into STEDAIR® Laminates, they were and would continue to be encapsulated and remain bonded to our materials. They would not have been released to the environment in the same manner as what created the perceived problem. It is also important to understand that personnel will not be exposed to the growing list of concerning materials via skin contact, ingestion or inhalation from the STEDAIR® Moisture Barrier under normal use, cleaning, inspection and wear (including tears and abrasion). The moisture barrier is sandwiched between the shell textile and thermal liner in the gear. STEDAIR® Moisture Barriers further isolate the PTFE membrane from possible contact by sandwiching it between a polyurethane coating and the textile substrate.