

VOLUNTARY RISK REDUCTION MEASURES TAKEN BY CORPORATIONS

In addition to the risk reduction measures by jurisdictions summarized in Table 3, voluntary programs by either PFAS manufacturers or by PFAS users, sometimes sponsored by authorities, have been implemented successfully.

Voluntary Risk Reduction Measures by PFAS Manufacturers:

In 2000, as a result of negotiations between the U.S. EPA and 3M, the company announced “that it will voluntarily phase out and find substitutes for perfluorooctanyl sulfonate (PFOS) chemistry” (EPA, 2000). 3M was the only US manufacturer of PFOS and ceased manufacturing of PFOS and the related compounds by the end of 2002.

In 2006, the US EPA invited major fluoropolymer and fluorotelomer manufacturers to join in a global stewardship program with two goals (US EPA, 2015):

- To achieve a 95 percent reduction, measured from a year 2000 baseline, in both facility emissions to all media of PFOA, precursor chemicals that can break down to PFOA, and related higher homologue chemicals, and product content levels of these chemicals by the end of 2010, and;
- To commit to working toward the elimination of these chemicals from emissions and products by the end of 2015.
- In 2006 eight companies (i.e., Arkema, Asahi, BASF Corp.(successor to Ciba), Clariant (now Archroma), Daikin, 3M/Dyneon, DuPont, Solvay Solexis (now Solvay Specialty Polymers)) committed to the 2010/2015 PFOA Stewardship Program. In addition, the participating companies also agreed to submit annual progress reports, to work cooperatively with EPA and to establish scientifically credible analytical standards and laboratory methods to ensure comparability of reporting (US EPA, 2015).

Furthermore, the U.S. fluoropolymer manufacturers, known as the Fluoropolymers Manufacturing Group, committed to and achieved a 90% reduction of PFOA content in their worldwide dispersion products by 2007.

The annual progress reports for 2013 achievements were published on U.S EPA's website in January 2015 and show that several of the participating companies have already fulfilled their 2015 commitments or are on track to reach the 2015 goal (US EPA, 2015).

In 2010, the “Environmental Performance Agreement Respecting Perfluorocarboxylic Acids (PFCAs) and their Precursors in Perfluorinated Products Sold in Canada” (Environment Canada, 2010) was signed between Environment Canada, Health Canada and four companies - Arkema Canada Inc., Asahi Glass Company Ltd., Clariant Canada Inc., and E.I. DuPont Canada Company – and is in effect until December 31, 2015. The agreement is a key component of Canada’s comprehensive risk management strategy for PFCAs. “The participating companies voluntarily commit to: 1. Reducing by 95% the product content levels of residual PFOA, long-chain PFCAs and their precursors in their perfluorochemical products sold in Canada by December 31, 2010; 2. Working towards eliminating the remaining 5% of these substances in the products by December 31, 2015; and 3. Reporting annually to Environment Canada information on the residual and non-residual (i.e., active ingredient) content of their perfluorochemical products sold in Canada.”

The annual progress report summaries can be found on Environment Canada’s website (Environment Canada, 2010). The most recent achievements (posted for 2012) demonstrate that all but one company report reductions of 97% or greater for “Total Quantity of Residual PFOA, Long-Chain PFCAs, and Precursors Measured Against Baseline Year”.

Voluntary Risk Reduction Measures by PFAS Users

Although PFASs are used in many different industries, only the semiconductor industry and the apparel and footwear sector publicly implemented voluntary approaches to limit or ban certain long-chain PFASs from their supply chain.⁴²

- In 2006, the World Semiconductor Council (WSC), an industry association of regional and country semiconductor industry associations, committed to “ending all non-critical uses of PFOS and”to

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Please note, individual companies might have made such commitments but collecting such information was outside the scope of this report. Additionally, some industry sectors (for example, the carpet and paper industry in the USA) transitioned to using short-chain alternatives without public commitments. The carpet industry transitioned in the 2008 timeframe whereas the paper industry transitioned in the 2010 timeframe).

“work to identify substitutes for PFOS in essential uses for which no other materials are presently available” (WSC, 2006). In 2007, the WSC reported elimination of non-critical PFOS uses in Europe, Japan, Korea and Chinese Taipei (WSC, 2007). In 2011, the last year the WSC reported in detail on this voluntary effort (WSC, 2011) elimination of non-critical PFOS uses had been completed, the PFOS use for some critical applications continued and the overall global PFOS emissions had been reduced by 99% when compared to a 2005 baseline. In addition, the report states the following: “... manufacturers who synthesize and supply PFOS to the photolithography chemical suppliers have terminated production of these PFOS materials. The WSC SC manufacturers have agreed not to seek new uses of photolithography chemicals containing PFOS and the suppliers have publicly stated that they will not provide PFOS-containing chemicals for any new uses.”

- The AFIRM Group (Apparel & Footwear International RSL Management Group) which was founded in 2004 by adidas, C&A, Gap, Levi Strauss & Co., Nike and Marks & Spencer list the restriction of PFOS and PFOA in their “2011 AFIRM Supplier Toolkit” (AFIRM, 2011). It is unclear whether or not the restriction was in-place in earlier versions of their supplier tool kit. Current members in the AFIRM Group include Adidas Group, Asics, Bestseller, Carhartt, Esprit, Gap, Gymboree, H&M, Hugo Boss, J. Crew, Lacoste, Levi Strauss & Co., New Balance, Nike, Pentland, Puma, PVH, S. Oliver, and VF Corp.
- The apparel and footwear trade group Zero Discharge of Hazardous Chemicals (ZDHC) which was founded in 2011 and now has 18 signatory brands (adidas Group, Burberry, C&A, United Colors of Benetton, Esprit, G-Star Raw, Gap Co., H&M, Inditex, Jack Wolfskin, Lbrands, Levi Strauss & Co., Li Ning, Marks & Spencer, New Balance, Nike, Puma, PVH) published their Manufacturer Restricted Substances List (MRSL) in 2014 (ZDHC, 2014). It lists the following commitment: “Beginning January 1, 2015, the members are banning the intentional use of durable water, oil and stain repellent finishes and soil release finishes (fluorinated polymers) based on long-chain technology”. The ZDHC group has adopted OECD’s definition of long-chain and short-chain PFAS.
- bluesign® system is a company that works with chemical suppliers, textile manufacturers and brands to improve and implement best

practices in their supply chain. The company developed a positive list of approved chemicals called bluesign® bluefinder. As of January 1, 2015 all long-chain fluorinated durable water, oil, and stain repellent chemicals have been removed from the bluesign® bluefinder (bluesign®, 2015; bluesign® 2012). According to information on the company's website (accessed on April 30, 2015), bluesign® lists more than 20 brands, ca. 100 manufacturers, and more than 50 chemical suppliers as members.