

CALL FOR THE BAN ON PTFE MEMBRANES IN THE CLOTHING AND FOOTWEAR INDUSTRY

Based on the EU's zero pollution ambition, the textile industry bears great responsibility. The fundamental question of the EU Chemical Strategy for Sustainability is which materials produced by environmentally harmful processes are necessary or can be classified as non-essential.

Many companies, including lots of from the clothing and footwear industries, have already joined ChemSec's Corporate PFAS Movement "No to PFAS". Based on relevant studies and sources, the [report](#) "The use of PTFE in the clothing and footwear industry is harmful to the environment and health – and thanks to existing alternatives, not essential" now calls for PTFE membranes for clothing and footwear to be classified as non-essential uses. PTFE membranes can be produced neither safely nor sustainably. On the other hand, proven and non-hazardous alternatives exist. The production, use and disposal of PTFE membranes have massive health-hazardous and environmentally harmful effects.

PTFE affects human health and the environment

The production, use and disposal of PTFE membranes is undoubtedly suspected of causing massive health damage such as cancer, miscarriages, malformations in newborns, reduced vaccine effectiveness and weakened immune systems. Research in recent years shows massively increased cancer rates and other adverse health effects near PTFE production sites around the world, which have already reduced their PFOA production by 95% since 2000 to 2010. Meanwhile the Western fluorochemical industry has shifted the problem around PFOA to Asia. At the same time, PFOA substitutes used in the EU, such as GenX, are also considered as substances of very high concern, or about to through ECHA identification process. Thus, none of the current manufacturing processes for PTFE membranes are safe for human health and the environment. Further studies, all listed in the report, indicate that PFOA, but also PFOA substitutes, can migrate from the PTFE membrane and enter the body via dermal uptake, as can dusts containing PFAS. Research results also indicate that even modern analytical methods do not allow complete detection of PFAS despite high sensitivity. For example, one study shows that only 1% of the total amount of fluorine could be detected. Precursor substances and oxidation intermediates, for example, are difficult to detect in trace analysis. These can still be converted into hazardous substances such as PFOA by external influences such as solar radiation, advanced oxidation processes or microbes. The global claims for damages for fluorocarbon polluted soils and waters could become relevant for companies in the future in the course of extended producer responsibility legislation, such as the upcoming EU due diligence legislation.

PTFE hampers circular economy opportunities and causes hazardous waste

In addition to the health-endangering and environmentally harmful aspects of PTFE membranes, PTFE membranes and laminates containing fluorocarbon are hardly recyclable. While the persistence of PTFE is a necessary criterion for other areas of application, such as cable sheathing or medical implants, adequate alternatives provide suitable solutions to health hazards and disposal challenges for textile products. The report states that due to the lack of grade purity, the use of PTFE membranes cannot contribute to the fulfilment of the objectives of the European New Circular Economy Action Plan. Due to their difficult disposability in the textile sector, PTFE membranes prevent the more environmentally friendly recycling and thus the efforts towards a circular economy.

Another study shows that, in contrast to other textile membranes, high amounts of highly toxic hydrofluoric acid and hydrochloric acid are released when PTFE membrane material is incinerated.

Especially in non-EU countries, to which a large proportion of used textiles are shipped at the end of their lives, hazard-free disposal is therefore not guaranteed.

High GHG emissions from PTFE production

Greenhouse gas emissions from the production of PTFE membranes are also high. PTFE membranes have 30x higher CO₂ emissions than technically equivalent functional materials. HFC-23 measurements in the atmosphere clearly show that the globally increasing PTFE production contributes comparatively strongly to climate change. Consequently, the use of PTFE membranes contradicts the aspirations of the Montreal Protocol 2016, which aims for a global reduction of 85% in hydrofluorocarbon emissions.

Call for PTFE in membranes to be classified as non-essential use

Environmentally friendly and health-safe membranes made of polyester (PES), on the other hand, enable high-quality recycling and greatly reduced greenhouse gas emissions with the same technical performance. At the same time, they go hand in hand with all laws and legislative procedures for closing the loop, waste reduction, emission reduction and the required due diligence.

For more than five years, scientists worldwide have been calling for PFAS substances to be replaced wherever possible, as outlined in the Madrid Statement. The report conclusions as well as environmentally friendly and health safe alternative materials such as PES membranes proven for decades, call for PTFE membranes in the apparel and footwear industry to be classified as non-essential use. The Netherlands has already accepted a corresponding motion to use alternatives for clothing and footwear for public procurement, banning GenX and PFOA uses in membranes.

In the course of the EU Green Deal and as a forerunner to the envisaged American PFAS legislation, the EU Member States and the EU Commission should lead by example, classify PTFE membranes as non essential for the general textile and clothing industry, and ban their use. It would be a simple yet immense lever for better health protection and environmental sustainability through optimised circular economy, reduced CO₂ emissions and pollutant reduction.

About Sympatex® Technologies GmbH

As one of the worldwide leading producers, Sympatex® Technologies has been a synonym for high-tech functional materials in clothing, footwear, accessories and technical fields of application since 1986. Together with selected partners, Sympatex develops, produces and distributes membranes, laminates and functional textiles as well as finished products worldwide. The Sympatex membrane is highly breathable, 100% wind- and waterproof and regulates the climate. It is 100% recyclable, bluesign® certified, and it **received the 'Oeko-Tex®-Standard 100' certificate**. It is also PTFE-free and PFAS-free. The technologies and procedures are based on the principles of ecological responsibility and sustainability with a special focus on the optimal carbon footprint.

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