



AFBW

**Allianz Faserbasierte Werkstoffe
Baden-Württemberg e.V.**

Europe is facing irreversible consequences of upcoming EU-PFAS regulation and the current ECHA restriction process for PFHxA/C6-fluorochemicals :

Essential use cases

Munich, 23.07.2020

Web based cross-sectoral information of REACH-restrictions in fluorochemistry

VTB - Association of the Bavarian
Textile and Fashion Industry

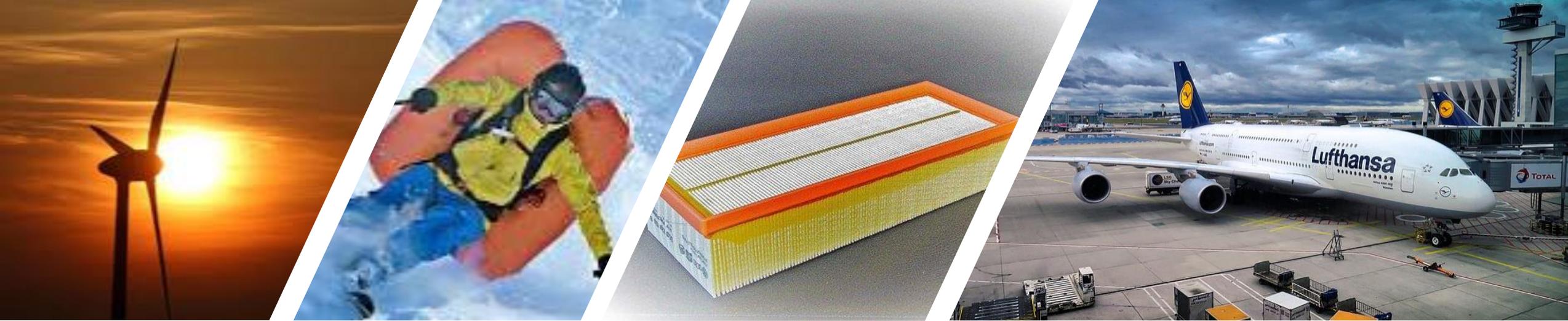
SWT/AFBW- South West German Textile and Fashion industry

Stefan Thumm

Head of Environment, Technology and Innovation

Dipl.-Ing (FH) textile chemistry and textile processing engineer

Master of Technical Management (IHK)



A jack of all trades - The German and EU textile industry

The world market leader in technical textiles

- The cross-sectional industry among the chemical downstream user industries.
- Multiple REACH precedent industry
- The "REACH indicator industry" among the post-consumer industries
- Since 2018, VTB / SWT has also been a member of the REACH advisory group of the Federal Ministry of Economics (BMWi)



Upcoming ECHA- regulation on PFAS

will affect e.g. PFOA-alternative substances for the manufacturing of fluoro-polymers (emulsifiers for emulsion polymerisation of fluoropolymers)

- Ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propanoate ...
SVHC candidate substance since June 2019
- Ammonium 2,2,3-trifluoro-3-(1,1,2,2,3,3-hexafluoro-3-trifluoromethoxypropoxy)propionate
- Ammonium difluoro[1,1,2,2-tetrafluoro-2-(pentafluoroethoxy)ethoxy]acetate



Facing consequences of upcoming PFAS-restriction

e.g. fluoropolymer applications in the automotive
value chain

Engines: • Crankshaft seals • Front cover gaskets • Cylinder head gaskets • O-rings • Gaskets • Valve stem seals • Camshaft seals • Oil sump seals • Engine oil coolers • EGR valve seals • Water pump seals • PTFE bearings • Support rings • V-packings • Valve packings

Gears: • PTFE seals • PTFE bearings • Piston seals • Shaft seals • Gaskets • O-rings • Fluid transmission seals • Sensor modules

Steering systems: • Sprocket seals • PTFE bearings • Column adjustment • Pump seals • Sprocket bearings • Rack seals

Electronics: • Engine wiring • Gearbox wiring • Under-bonnet wiring • Fibre optic cables

Ambient systems: • Hinges for bonnet, door and boot • PTFE bearings • Push/pull cables • Seal for electrical door locking system • Seat adjustment systems • Active headlight seal

Axle systems: • Wheel bearing seals • Hub seals • Differential seals • Shaft seals • O-rings

Fuel systems: • Seals • Oil coolers • Valve bodies • Fluid pipes • Steam pipes • Fuel tanks • Filler necks • Connections • Oxygen sensors

Suspension/ brakes: • Strut seals • Shock absorbers • Piston seals • Brake lining additives • Brake piston seals





Upcoming PFAS-Regulation of ECHA: The end of EU high-technology and most downstream user industries ?

- Hydrogen-Technology
- E-Mobility-Solutions
- Medicalproducts
- Waterpurifictaion
- Food production
- Aircraft construction
- Semiconductor production
- Electroplating
- Chemical and pharmaceutical industry
- Sealing industry
- Electrical industry
- Construction
- Defence
-



Read more in the 2017 socio-economic
analysis of the fluoropolymer value
chain by *Plastics-Europe*

Current, fundamental ECHA C6/PFHxA restriction process:

Why restricting a PFOA-alternative chemistry ?

From the C6/PFHxA restriction dossier.....and the question of commensurability with other protective goals for the life and health of the EU population:

Link:

<https://www.suedwesttextil.de/nachrichten/reach-im-zielkonflikt>

"2.5.2 Human health impacts

The human exposure to PFHxA, its salts and related substances has the potential to cause adverse health effects. The toxicological profile of PFHxA is described in **Annex B.5. Studies suggest that PFHxA might cause risks with regard to developmental and reproductive toxicity.**

To date no indications of serious human health risks are documented. Human exposure to PFHxA is limited and the studies available suggest a considerable gap between effect levels and measured exposure levels and **the current state of research suggests that human exposure to PFHxA is unlikely to increase to levels that cause risks to the human health.** But since PFHxA is extremely persistent and the releases are not reversible the magnitude of future exposure cannot be predicted conclusively. The extreme persistence means that the exposure via environment is intergenerational, and inevitably increasing, in case the releases are not minimised. **It may thus be possible that serious health concerns related to PFHxA-exposure may be documented in the future.** It is important that releases are reduced to a minimum and possible future uses of the substances are prevented.

Considering the absence of clear evidence regarding human health impacts from exposure to PFHxA, the Dossier Submitter concludes that there are currently no impacts to be expected. However, with a rising environmental concentration of PFHxA this may change in the future."

Consequences for the EU:

Some of examples of essential uses of C6-chemistry in textiles and beyond

Realworld sector-specific total PFC-immission-calculations were never made in any PFOA, PFHxA, etc. REACH-restriction procedure ! The total direct immissions of e.g. PFHxA of Europe's textile industry, because of best practice production procedures, are today less than 2 kg/a.

What will be the total PFC-immission scenario if we shift all EU-productions to China, where full-scale fluorochemistry is still build up with a strategic approach to be the technology world leader in 2025 ?

Link: <http://htfluo.us/index.php?route=information/filter>



Example I

The production of medical protective textiles is facing termination in the EU

At the present time, for example, the PFHxA/C6 restriction proposal e.g. **are no derogations for reusable medical protective textiles** (EU-Medical Device Directive) are suggested.

In addition to REACH in the BPR (EU-Biocidal-Product Regulation) ECHA restrict via REACH/CLP, etc. further and further biocidal substances to “Zero”, which are essential to keep the EU-infection-protection standards for the EU-population/ workers.

[The link to the soon upcoming final result:](#)

<https://www.welt.de/wirtschaft/article207543623/Masken-Made-in-Germany-Durch-neue-Umweltgesetze-droht-das-Aus.html>



Example II:

The production of protective clothing for firefighters, workers, and public authorities is facing termination in the EU

in the EU because of multiple/sum impacts of REACH-restrictions

The only exceptions made in the PFHxA/C6 restriction dossier are for Class III protective textiles (PPE directive), but these Textiles could also be cancelled out by the cumulative effect of multiple REACH-restrictions (e.g. skin sensitizer restrictions for leather and textiles worn close to the skin and other SVHC substances like aprotic solvents, used to produce flame resistant aramide fibers)

Breathable firefighter protective clothing that is flame proof (PU coating made with **DMF solvent**) and optimised for heat congestion, on flame retardant aramid fibre (**DMAC/NMP** fibre solvent) with maximum strength chemical- or fuel repellent impregnation (C8/C6 technology/**PFOA**), i.e. a fluoropolymer membrane, will only remain an exception under EU-POP Regulation until 2023 :



Example III

The production of protective textiles such as bullet-proof waistcoats for EU public authorities and the army is facing termination in the EU

The PFHxA restriction dossier does not provide derogations for such textiles. C6-Fluoropolymers are protecting life, by protecting bulletproof vests from getting wet = losing the bulletproof functionality.

In the restriction dossier proposed fluorine free water repellent “alternatives” work as lubricants for the bullets.....

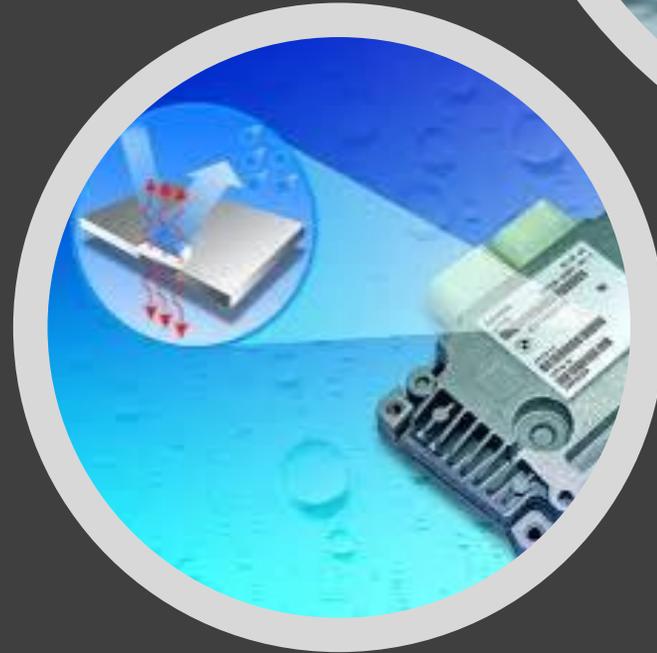


Example IV

The production of innovative technical textiles for EU-future technologies and environmental protection is facing elimination in the EU

- PTFE/C6-treated carbon fibre fleece for fuel cells for hydrogen-technology/electromobility
- Textile PTFE fluoropolymer membranes treated with C6-fluorinated-polymers protecting electronic equipment for eco-friendly mobility solutions.
- PTFE fluoropolymer membranes/fibres treated with C6-fluorinated polymers for hot gas filtration in waste incineration plants, large power stations, etc.
- Textile PTFE/C6-fluorinated polymer-treated landfill coverings.
-

Throwing all away ?



Example V

Termination of textile coating in the EU

C6 fluorinated polymers as process aid

Textiles pre-impregnated with C6-fluorinated polymers are essential for penetration control of the coating paste during coating processes for all kinds of coated textiles.

- UV-protection textiles
- Food contact material textiles
- Energy efficiency construction textiles
- Rescue- and Survival-Textiles
-

Without C6-fluorinated polymers the majority of EU-textile coating companies/productions must be closed or shifted to China, US, etc.



How to protect EU Down Stream User Industries from being extinguished by ECHA's C6/PFHxA Restriction and in the upcoming PFAS-restriction ?

Affected C6/PFHxA fluorochemical using sectors and industrial applications:

Semiconductor, electroplating, paint/coating industries...

- **C6-fluorosurfactants**

Textile, paper, automotive, aircraft, construction industries....

- **C6-fluorinated polymers**

Glass industry, semiconductor industry....

- **C6-fluorosilanes**

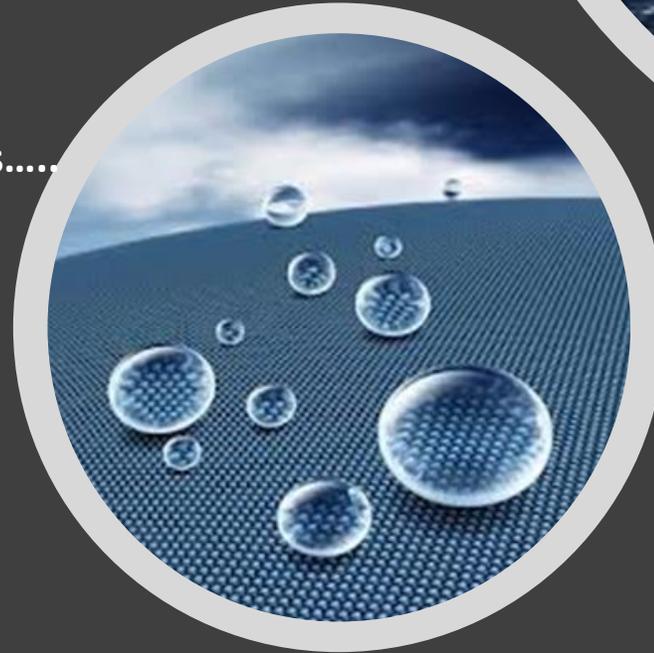
Lubricants industry....

- **C6-fluoro waxes**

countless highly specialised industrial applications.....

- **C6-precursors**

.....



Thank you for your attention

