EURATEX
THE EUROPEAN APPAREL AND TEXTILE CONFEDERATION

EURATEX submission to ECHA consultation on the U-PFAS restriction

September 2023

The European textile and apparel industry represents 160 000 companies with diverse manufacturing - clothing, home textiles and specialised applications that are pivotal for their performance and safety such as technical and medical textiles and personal protective equipment (PPE).

Technical, medical and PPE applications require fluorinated substance finishing as these are critical uses that need to fulfil the highest degree of safety and performance standards imposed by public or private customers (e.g. EU legislation, EU/national standards, ISO standards, Technical Performance Profile, EU industrial standards (VDI-, IMO-, BDLI-, ESA-), company standards and other global legislation and standards).

EURATEX in its ECHA consultation feedback submission will be advocating for the derogations outlined below. In addition to this document, we are submitting the following Annexes:

Non-confidential

- Annex I – Additional list of standards
- Annex II – PPE Cat III (j) and (l)
- Annex III – BREF
- Annex IV – Emissions on PFHxA

Confidential

- Annex A – Updated database on PFAS
- Annex B – C3F6 in low pressure plasma coating processes
- Annex C – EURATEX input for TULAC study
- Annex D – PFAS contaminations in regenerated and virgin textile materials

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Reply to specific information requests under the ECHA consultation

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Sectors and uses

Question 1: Sectors and (sub-)uses

Why textiles need PFAS substances?

C6 chemistry is currently the only technically feasible and available alternative to already restricted C8 that can deliver water, oil, dirt, and chemical repellence even though there are certain limitations compared to C8. Additional properties of resistance to viruses and bacteria make the chemistry essential for medical textiles. Research evidence shows that shorter chain fluorinated chemistry and non-fluorinated alternatives cannot fulfil those requirements.

The textile industry companies need to ensure that their products meet the high safety and product standards, for example for protection against soaking, blood, aerosols such as infectious agents, oil, chemicals, liquid hazardous substances, NBC warfare agents. This is particularly important for medical textiles, personal protective equipment and technical textiles. The C6 chemistry ensures a water, oil and dirt repellent function and thus significantly extends the service life of the products and thus results in resource-saving handling.

EURATEX emphasises that the European textile industry companies are highly specialised and world market leaders in many areas with innovative and high-quality special products for occupational, environmental, climate and health protection. Our highly specialised companies supply protective textiles to the police, customs, the Federal Border Guard, fire brigades and defence, but also to private institutions such as security services or aid organisations, where the aim is to protect the employees in the field. This important goal must not be endangered, nor must the existence of the producing companies which produce textiles finished with C6 chemistry – applied in line with stringent provisions to minimise release of leftover in the environment as defined under the BREF.

Specific uses and need for derogations

In parallel to EURATEX's answers to the questions in the ECHA's public consultation and use sectors outlined in table 9, please note that EURATEX is submitting a separate confidential excel sheet (Annex A) collected with a direct consultation with manufacturers of textiles products through substantial efforts of the EURATEX Members and stakeholder experts.

The Database contains a list 96 entries that have been updated since the PFHxA restriction ECHA consultations, however it should be noted that majority of entries concern the usage of C6 chemistry.

The entries are elaborating on the following points:

- Category: it indicates the type of textiles application as usually identified in the industry, e.g. apparel (including PPE), medical, mobility, industrial, geotextiles etc.
- Use: it indicates typical application as professional uses, industrial, consumers or others
- Subcategory-uses: it further details the use and provide examples

- Technical function: it specifies required performances as oil-repellence, water-repellence, flame retardancy, stain-resistance, soil protection
- Comment: it provides additional information and clarification
- Standards/Approvals/Test methods: it specifies which standards must be fulfilled to guarantee the requested performances; test methods and approval procedures may also be included.
- What PFAS: indicates what substances or PFAS-group is used
- What is the minimum concentration of PFAS that is necessary to maintain function (to be in accordance with standards or customer need)

A number of specific questions attempt to investigate companies' experiences with substitution, alternatives, etc. namely:

- "Did you try to substitute PFAS? […] "
- "Do you have data or other experiences for reduced service life (alternatives)?"
- "Please explain shortly the technic for the wastewater management […]"

The Database is not exhaustive, and it should be considered as a living document as it is expected to further evolve based on new inputs collected.

The information included in the Database is here referred as essential use as it indicates most (but not all) textile products for which based on the available inputs there is no suitable alternative to the use of PFAS.

In the absence of appropriate derogations in the restriction process, these products would not be able to guarantee the requested performances, including those for health and safety, and therefore they would not be produced.

Table 9 of the U-PFAS restriction proposal identifies the TULAC uses. Please note that many uses are missing or not properly considered under table 9 and they are outlined in the database or in this consultation submission, especially in questions 1 and 6.

a) Technical textiles

The term for "technical textiles" can be found in the Report from the European Economic and Social Committee (EESC) [1], which is widely used in the textile industry and a term from Messe Frankfurt, which is the world-wide leader of technical textiles trade fairs. The definition outlines that technical textiles are defined as textiles fibres, materials and support materials meeting technical rather than aesthetic criteria, even if, for certain markets like work wear or sports equipment, both types of criteria are met.

Furthermore, technical textiles bring a functional answer to a wide range of specific requirements: lightness, resistance, reinforcement, filtration, fire-retardancy, conductivity, insulation, flexibility, absorption and so on.

[1] Technical textiles. European Economic and Social Committee. Reference: CCMI/105-EESC-2012-1966, https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/technical-textiles

Thanks to the nature of the fibres (polyester, polypropylene, viscose, cotton, carbon, glass, aramid, etc.), as well as the choice of the most relevant manufacturing techniques (spinning, weaving, braiding, knitting, non-woven ...) including finishing processes (dyeing, printing, coating, laminating ...), technical textile producers are able to propose textile solutions offering the mechanical, exchange or protective properties suited to the specific needs of the final users.

Hence, the definition does not depend on the raw material, the fibre or the technology used, but on the end-use of the product itself.

Technical textiles includes the following sub-groups: 1. Agrotech: agriculture, forestry, and fishing. 2. Buildtech: building and construction. 3. Clothtech: functional components of shoes and clothing. 4. Geotech: geotextiles and civil engineering. 5. Hometech: components of furniture, floor coverings. 6. Indutech: filtration and other products used in industry. 7. Medtech: hygiene and medical. 8. Mobiltech: transport construction, equipment and furnishing. 9. Oekotech: environmental protection. 10. Packtech: packaging and storage. 11. Protech: personal and property protection. 12. Sporttech: sports and leisure.

The proposal by the Dossier Submitters acknowledges the term technical textiles, but the examples that are given are very limited.

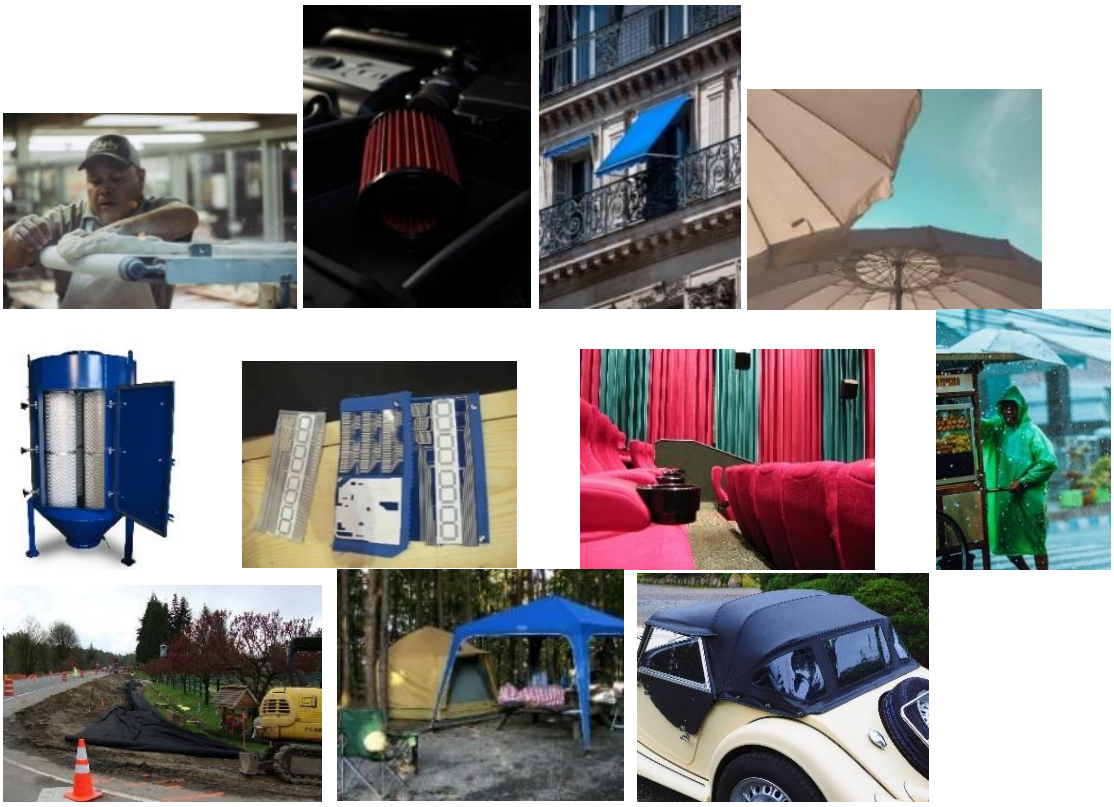
Technical textiles with a fluorine-carbon finish are used in many industries, especially when increased ambient temperatures, reduction of frictional resistance or chemical inertness require it. They are therefore often irreplaceable by alternatives in the wide range of applications due to the requirements. They are used for the efficient and resource-saving manufacture of products, as well as for increasing service life and reliability. Fluorinated chemicals thus make a decisive contribution to the durability and safety of products. They also provide protection against hazardous liquids, radioactive dust, infection/aerosols, fire, UV-radiation, etc.

In addition to the examples provided in the EURATEX database (Annex A), the following are also examples of technical textiles that would need to continue to use C6 chemistry:

- C6 treated textile carbon fibre-based fuel-cell membranes
- C6 treated textile electronic protection plasters
- Textiles for renewable energy production, e.g. in the construction of blades for wind turbines[2]
- Textiles in engine bays in the automotive and aerospace industry (to keep EU and international Flame-Retardant Standards)
- Home Textiles in combination with Flame-Retardant Properties[3] (to keep EU and international Flame-Retardant Standards)
- Textiles for construction with Flame-Retardant Properties[4] (to keep EU and international Flame-Retardant Standards)
- Textiles related to the Food-Contact Material Regulation (EC) 1935/2004, e.g., C6-impregnated textile transport belts for the food industry

[2] See e.g. https://www.youtube.com/watch?v=CCME0_FjHCo
[3] See e.g. https://www.youtube.com/watch?v=WdPtbgSbP5Y
[4] See the report below: '*Textile flame protection - flying blind or ECHA restriction master plan*'. 2018 Thumm S., Melliand International. [2018-03-28_Mellian d International_Textile].

- Air and liquid filtration and separation media (woven/knitted/non-woven media, not paper media) that require a combination of water and oil repellence for filters used in industrial settings or by professionals, including but not limited to textile filter bags to treat polluted air in incineration plants, industrial fabrics for electronic devices, and others.
- Textiles designed for extreme weather conditions, e.g. fireproof & waterproof canvas for sleeping tents' and yurts' covers, awnings covers, camping covers, etc.
- Textiles related to technical building regulations, e.g. acoustic products with textile covering, geotextiles, etc.
- Anti-stain treatments for tablecloths, waterproof treatments for fabrics intended e.g. for umbrellas, raincoats, etc.
- Carrier fabric for industrial belts and tapes
- Carrier fabric for adhesive tapes
- Fabrics for sports equipment (balloon fabrics, spinnaker sails)
- Seat upholstery fabrics for buses and trains
- Seat upholstery fabrics for automotive



Many technical textiles must meet specific safety or product standards (see confidential Annex A and Annex I on additional standards) and many of them have a requirement of a minimum surface tension of 27.5 (mN/m) according to ISO 14419 and/or oil number 3 or better. Currently only the C6 chemistry is able to deliver the needed characteristics.

The restriction proposal lists "*textiles for use in engine bays for noise and vibration insulation users in the automotive industry*" which is certainly a very important use case. However as mentioned above, there are many very specific use cases that need to have a C6 finishing.

When it comes to outdoor upholstery, fluorochemistry is crucial to protect from three most occurring stress factors: UV radiation, temperature variation (max. 70°C, min. -30°C), and water aspersion (hydrolysis of materials). Additionally, secondary factors may also increase the material degradation such as urban pollutants, acid or salty rain. Since none of these factors may act individually and in real world are interlinked, this may further increase fabric degradation.

Such combination effect of different factors can be prevented with fluorochemistry. It provides for: durable and high-water protection from rain for technical solar textiles and upholstered outdoor furniture; protection against weathering conditions; high resistance to pollution (oil protection) combined with high waterproofness (hydro protection); durability, since such fabrics cannot be washed (5-10 years warranty for outdoor fabrics), this is also in line with the circular economy and longevity of products.

In other technical textile application, for instance, construction, specialised membranes with C6 chemistry are used as reinforcement cloths in roofing. C6 is added for non-wicking purpose only, which is a standard requirement of the roofing waterproof membrane industry. Stability of the roof is greatly dependent on anti-wicking properties. In case these textiles absorb water, it can cause membranes to separate from the reinforcement material which may deteriorate the construction stability with fatal outcomes.

In order to ensure that technical textiles, which do not need the to use C6 chemistry would still be restricted and only those which need to comply with the highest standards would receive a derogation (until suitable alternatives become available), EURATEX proposes the following strict derogation wording for technical textiles:

“minimum surface tension of 27.5 (mN/m) according to ISO 14419 and/or Oil number 3 or better is required according to a corresponding product standard.”

27.5 (mN/m) is the surface tension of n-hexadecane. N-hexadecane is a test agent in EN ISO 14419 or AATCC 118 for assessing oleophobicity. This requirement for oleophobicity can be found in many public tenders (e.g. for police uniforms) up to the concretisation of material provisions of a legislative nature.

Everyday clothing or home textiles (such as bedlinen, towels etc) do not need oleophobic properties; they need hydrophobic properties (water-repellent properties) depending on the conditions. The latter however has alternatives available, so therefore EURATEX is not advocating for a derogation for clothing or home textiles, which only need water-repellence.

Furthermore, when considering market surveillance and enforcement, the testing according to EN ISO 14419 or AATCC 118 is very simple and inexpensive. Market surveillance authorities could thus easily check whether PFHxA is in the textile, an example of a practical test can be found in this video. Therefore, authorities could identify the presence of PFHxA and also non-compliance to ensure that only legally derogated articles are placed on the EU market.

b) Personal protective equipment (PPE)

While the U-PFAS proposal's table 9 outlines PPE as part of only professional apparel, this classification is incorrect. When it comes to PPE, it is difficult to have a clear division between consumer use and professional use as ultimately it comes down to **risk**.

The function of protective clothing used in the context of occupational safety is to protect the wearer (employee) from harmful influence during work. This damage can be thermal, mechanical, chemical or other physical nature. Often the protective clothing protects against a combination of the hazards mentioned above. Here, consumers who are not exposed to these risks through work, but for example through hobby activities, should be able to still equip themselves to be protected.

As for Table 9, EURATEX would like to provide additional information on the PPE uses:

1) Personal protective equipment (PPE) under Regulation (EU) 2016/425

PPE is needed to minimise exposure to hazards that cause serious injuries and illnesses, which may result from contact with chemical, radiological, physical, electrical, mechanical, or other hazards. The protective clothing has to be efficient to protect the wearer and since the derogation for C8 for protective clothing expired in July 2023, C6 chemistry is highly important to maintain as it is considered as a minimum to conform to safety standards.

The Dossier Submitters propose a derogation for PPE Regulation[5] Category III (a) and (c), and (a)-(m) only if it is in relation to professional firefighting activities. However, PPE needs much wider derogation than this very narrow scope.

For example, waterproof laminates for PPE and clothing for authorities (not only for fire brigades, but also police and ambulance) - repellency of substances such as oil, fuel, blood, chemicals is important in order not to endanger the life of the user and to be able to act fully functional in the event of an emergency or a mission.

There are currently no known substitutes that can meet the required standards 1:1, since PFAS or PFHxA can achieve an effective repellency of liquids, for example, due to their chemical properties. This is also due to the position of fluorine in the periodic system and its property as the most electronegative element. That is why it is so difficult and time-consuming to develop substitutes with identical technical performance. It is not verifiable whether suitable 1:1 substitutes can be developed at all for these applications due to the electronegative properties.

The impregnation protects against moisture being absorbed through the fabric like blood. Sweat should also be transported to the outside in the form of vapor, similar to a valve. It is important to repel liquids such as chemicals or blood, etc. over a long period so that the important physiological properties - such as liquid repellency, breathability - are retained for as long as possible to guarantee safety and functionality.

[5] Regulation (EU) 2016/425 on personal protective equipment and repealing Council Directive 89/686/EEC, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R0425

PFAS in general are necessary to meet regulatory requirements, for example in safety-relevant areas in plants. These must withstand extreme conditions and remain functional over the entire service life (e.g., of industrial plants), which is made possible by the use of fluorocarbons.

For example PPE for workers in chemical plants, who may face unexpected chemical spills or splashes and who are in therefore in need of protective gear, which prevents chemical penetration into clothing, reduces skin contact risk and burns. PPE treated with PFAS also lowers the chance of carrying chemical residues to other areas, improving overall safety.

Another example is offshore oil and gas platform workers, who face a constant fire and explosion risk due to flammable vapours and gases, like well gases, vapours, and hydrogen sulfide. These hazards can be released unexpectedly from various sources, including wells, trucks, and production equipment. To protect these workers, it is crucial that their protective gear not only shields them from exposure but also reduces ignition risk.

We would like to draw attention to the final opinion of the European Chemicals Agency (ECHA) on PFHxA[6], which acknowledges the diversity of the textile sector and SEAC supports a non-time limited derogation for certain products under the PPE Regulation (Regulation (EU) 2016/425). Such derogation is crucial to maintain a high degree of safety for critical uses of PPE for which flourochemistry (mainly C6) is the only feasible alternative.

SEAC supported under PFHxA restriction the following: "P*ersonal protective equipment intended to protect users against risks as specified in Regulation (EU) 2016/425 of the European Parliament and of the Council, Annex I, Risk Category III (a), (c), (d), (e), (f), (h), (l).*"

While SEAC supported most parts of Category III ((a), (c), (d), (e), (f), (h), (l)), it is also vital to include (g) falling from a height and (j) cuts by hand-held chainsaws.

For (g) an example is ropes that are used for climbing. The safety and durability of the guarantee of load-bearing capacity and serviceability under conditions of humidity, heat and cold and in the event of an accident is crucial. These types of ropes are needed, for example, in professional and industrial setting in shipping, construction, mountain rescue, but also in the consumer sector - climbing, sailing, mountaineering.

The repellent properties are important so that ropes in belay devices and descenders do not become heavy and impossible to handle. User safety must be guaranteed for the recreational climber as well as for the industrial climber. Ropes can also freeze and become unusable. Ropes must meet the requirements of the International Climbing and Mountaineering Federation (UIAA) standard: New UIAA standard developed for water repellent ropes – UIAA (theuiaa.org).

A substitution project is under development, but it cannot currently be proven that a comparable function can be achieved with C6-free alternative products. Therefore, a sufficiently long exemption period is essential.

As for (j) - publicly available articles show the necessity of PFHxA for treated protective legwear. The chain moving at 20-28 m/s is lubricated, this oil is projected on the outer fabric and if this is not oil

[6] ECHA Opinion on an Annex XV dossier proposing restrictions on undecafluorohexanoic acid (PFHxA), its salts and related substances, https://echa.europa.eu/documents/10162/97eb5263-90be-ede5-0dd9-7d8c50865c7e

repellent the oil penetrates and changes the protective property of the inlays against chainsaws. This level of protection is especially needed for logging workers. Please find Annex II on "*PPE Cat III (j) and (l)*" more information about the necessity to have C6 treatment on protective legwear made needed for handheld chain saw usage.

In the PPE Regulation, while Category III lists risks that may cause very serious consequences such as death or irreversible damage to health, Categories I and II still include important risk areas, for which effective PPE is needed to ensure that the employee/user is properly protected.

The following are examples of PPE that go under Cat I and II, but would be vital to produce to ensure that the wearer is protected. Until suitable alternatives are available, these Categories should also receive a derogation:

- Head protection equipment including head protection for sports against mechanical impact (Category II)
- All items of clothing and/or accessories (whether or not detachable) designed and manufactured to provide specific protection (Category II)
- Clothing and/or accessories (whether or not detachable) for professional use designed and manufactured to provide protection against weather conditions which are neither exceptional nor extreme, such as rain, ocean spray and water splash (Category I)
- Clothing and/or accessories (whether or not detachable) designed and manufactured to provide protection against mechanical action the effects of which are superficial (Category I)
- Clothing and/or accessories (whether or not detachable) designed and manufactured to provide protection against risks arising from handling hot components which do not expose the user to a temperature of over 50 °C or to dangerous impacts (Category I)
- All equipment and/or accessories (whether or not detachable) designed and manufactured specifically to protect the foot and/or the leg and to provide anti-slip protection, e.g. snow- and ice-spikes (note: protection against static electricity is included in this category since this equipment is used in environments with potential risk of explosion) (Category II)
- Equipment and/or accessories for professional use (whether or not detachable) designed and manufactured to provide protection against weather conditions which are neither exceptional nor extreme (Category I)
- All equipment and/or accessories (whether or not detachable) designed and manufactured specifically to protect the arm and/or the hand (Category II)
- Equipment and/or accessories for professional use (whether or not detachable) designed and manufactured to protect against cleaning materials of weak action (for dishwashing, cleaning etc.) (Category I)
- Equipment and/or accessories (whether or not detachable) designed and manufactured to provide protection against mechanical action the effects of which are superficial (pricks due to sewing, gardening, dirty work, sports – including bag gloves for boxing – etc.) (Category I)
- Equipment and/or accessories (whether or not detachable) designed and manufactured to protect against heat and risks encountered in the handling of hot components which do not expose the user to a temperature exceeding 50 °C or to dangerous impacts and against and for professional use against unexceptional cold weather (Category I)
- All equipment designed and manufactured for use as buoyancy aids, including swimming aids and inflatable buoys which are not regarded as toys (for use exclusively in shallow water) (Category II)

- Protective equipment[7] (such as shoes, garments, etc.) against static electricity (Category II)
- All PPE designed and manufactured to protect the wearer against vibrations (Category II)
- PPE designed and manufactured to protect the wearer against increased risk levels arising from impacts with other persons or from falling while performing sports (e.g. back protectors for mountain bikers, football shin-guards, ice hockey protectors, etc.) (Category II)
- PPE designed and manufactured to protect the wearer against impacts resulting from g-forces (e.g. karting collar, racing neck braces, etc.) (Category II)
- Resuscitation masks: if the mask has, apart from allowing adequate artificial breathing, also a protective function for the rescuer (protection against contagion by contact with the mouth of the victim for instance) then they are PPE (Category depends on the type of protection)
- If the rescue equipment is worn before the accident which prompts the rescue, then it is PPE – A wet suit worn continuously to prevent hypothermia in the event of falling into water is PPE (Category depends on the type of protection)
- Equipment used by a rescuer to protect the rescuer himself (example: respiratory protective devices used by firemen when retrieving people from smoke-filled buildings (Category depends on the type of protection)
- Anti-avalanche airbags (Category II)
- Motorcyclists' garments and additional protection (e.g. gloves, boots) only protecting against climatic conditions for professional use (Category I)
- Motorcyclists' garments and additional protection (e.g. gloves, footwear) for which additional protection is provided (e.g. airbag, impact protectors for limb or back, pads for elbow or shoulders, protection against cuts and abrasion, etc.) (Category II)
- High visibility clothing & accessories (e.g. reflective stickers, free hanging accessories such as dangling tags) (Category II)
- Hunters' jacket made of fluorescent material to signal the presence of the users (Category II)
- Eyes and skin protection against artificial UV radiation (Category II)
- Skin protection against artificial UV radiation (all garments, including partial or whole-body clothing, caps and helmets, gloves, and shoes, designed and manufactured to have specific UV-protective properties against artificial UV radiation, e.g. welder's clothing) (Category II)
- Skin protection against natural UV radiation (all garments, including partial or whole-body clothing, caps and helmets, gloves, and shoes, designed and manufactured to have specific UV-protective properties against natural UV radiation) (Category I)



In conclusion, when it comes to PPE the protection of the wearer is a priority and PPE is designed to keep the user, both professional and consumer, safe. Until suitable alternatives are available,

[7] Note: this equipment is used in environments with potential risk of explosion due to sparks.

EURATEX requests a derogation for all three PPE categories to ensure that the European textile industry can continue to produce PPE.

- ***High visibility clothing fulfilling the requirements of EN ISO 20471***

Another derogation, which is supported by SEAC in the PFHxA restriction is in relation to high visibility clothing. SEAC supported "*high visibility clothing fulfilling the requirements of EN ISO 20471 Class 3*;

While such a derogation is very much needed also in the U-PFAS restriction, the derogation to EN ISO 20471 class 3 alone would lead to an ambiguous regulation.

EN ISO 20471 explicitly allows the combination of garments to achieve a higher class. So it may well be that a class 2 waistcoat combined with class 1 trousers will result in class 3. Furthermore, the standard specifies that a waistcoat can achieve a maximum of Class 2. For a Class 3, the torso and a pair of limbs must always be covered. In this respect, the exemption has to be extended to all high-visibility PPE cat. II parts. The use of PFHxA soil release finish means, on average, a doubling of service life and is thus not only an essential aspect of protecting the health and safety of wearers but also an essential aspect of sustainability.

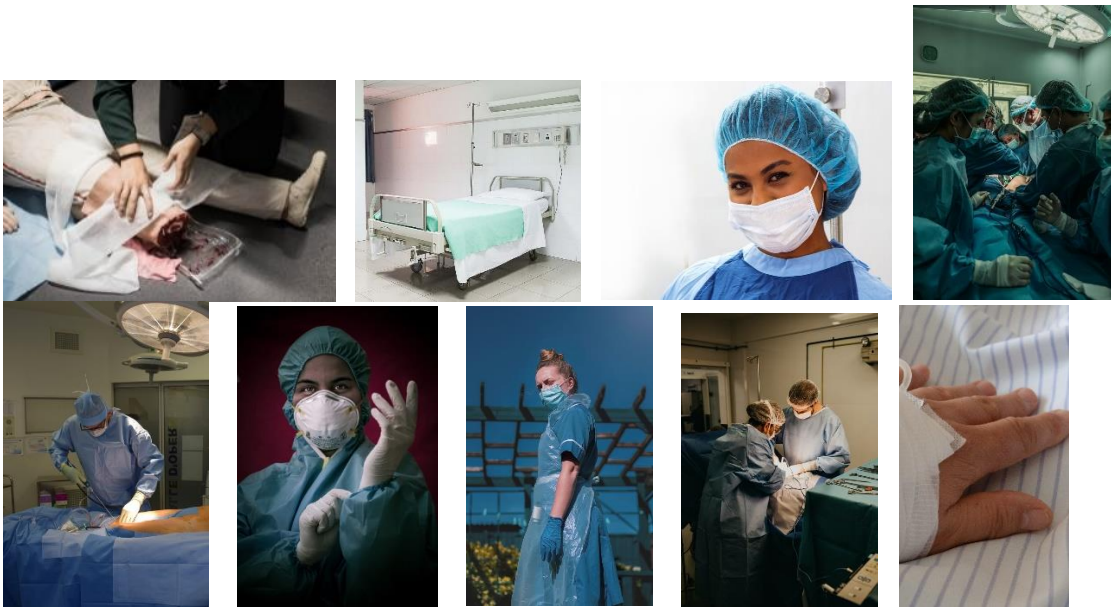
c) Medical textiles (including wound treatment products)

Table 9 outlines a potential derogation for "wound treatment products", however that severely limits the medical textiles, which need to continue to use C6 chemistry.

Here we would like to show support to the SEAC opinion on PFHxA, where the Committee supported the following wording:

Woven, knitted and nonwoven medical textiles as specified in Medical Device Regulation (EU) 2017/745 of the European Parliament and of the Council with a minimum performance requirement of >20 cm hydrostatic head according to EN 13795

It is relevant for surgical fabrics such as surgical drapes and gowns to provide effective barrier characteristics and the ability of the fabric to prevent splashes of fluid and droplets, possibly carrying viable micro-organisms, penetrating the fabric under mechanical pressure. Accepted test method for evaluating barrier characteristics to liquid penetration is EN 13795-1:2019 with a minimum performance requirement of >20 cm hydrostatic head throughout the lifecycle of the medical device.



It is crucial that all relevant medical textiles are covered in the derogation scope[8].

Alternative products such as silicones, waxes and oils cannot achieve these effects, i.e. the fat-repellent properties. There is a certain rejection, but it is not sufficient to fulfil the necessary functions. There is also a risk that oils or waxes will impede the textile's ability to breathe. Breathable materials are an important contribution to operations.

From our point of view, a derogation for all medical textiles, regardless of their material properties (woven, non-woven and others), is necessary. For example, reusable surgical textiles must be equipped with C6 chemistry so that they meet the standards of the Medical Devices Regulation and also the PPE Regulation. This finish ensures the breathability of the textile, thanks to which both the surgeons sweat less and the patients have better thermoregulation, which is essential for their blood coagulation.

The following standards are relevant:

- EN 13795 for surgical textiles
- Chemical protection type 6 EN 13034
- Examination coat PPE EN 14126 category III type PB6B - protection for the nursing staff of corona patients in hospital - as a replacement for the disposable coats
- Reusable face masks EN 14683

In medical textiles, in addition to water, oil, dirt and chemical repellence, resistance to viruses and bacteria is an important factor that makes PFAS essential for medical textiles. It is important to stress that the Entry 68 that is now replaced with the EU POP amendment on PFOA included well-established

[8] See for reference to practical examples the content of this file: **[** List%20of%20medical%20textiles.xlsx **]**.

and discussed derogations such as the one on medical devices (including medical textiles) until 2032 which was now significantly shortened until December 2020.

Both woven and non-woven medical textiles, require the highest standards of safety to protect wearers, patients and equipment. Evidence from companies producing medical textiles and a Belgian testing laboratory suggest that C6 is at minimum required to pass EN 13795 (part 1 and 2), EN 14126 (in combination with chemical protection) and EN 14683 standards. EN 13795 applies to both disposable and reusable medical textiles, while EN 14683 applies to reusable and surgical masks and reusable protective clothing.

d) Re-impregnation

While the Dossier Submitters propose to have a derogation on re-impregnation[9], their wording is very limited and would leave out important use cases.

Firstly, re-impregnation is absolutely necessary in order to guarantee the full functionality and service life (durability) of not only PPE, but also for example reusable medical textiles.

Reusable medical textiles (surgical drapes and gowns) can be reused many times e.g. 50 times, which save resources. They must meet the requirements of EN 13795 (which is also required for single used drapes and gowns), which can only be achieved with C6 chemistry. Textiles in the medical sector need a water, grease and blood-repellent finish. This only can be achieved with C6.

Another example from the PPE side is re-impregnation of fire brigade clothing. The service life of an average firefighter's clothing is about 20-30 washing cycles, a maximum of 50 washing cycles. Washed at least twice a year. Approximately every 5th wash it has to be re-impregnated. In professional cleaning, a spray test is used to determine when it is necessary to re-impregnate.

If reimpregnation is forbidden, these articles would have to be thrown away after each operation, if there was contact with, foam, dirt, blood, chemicals. There are no other alternatives with which the requirements of the standard can be met. With a plasma coating, a better stability of the impregnation for the fabric can be achieved and the cycles of a reimpregnation can be extended.

e) Non-virgin textile raw materials

For “non virgin” textile raw materials (“recycled” if coming from waste, “regenerated” if coming from other sources such as by-products), especially those coming from post-consumer cycles, today it is sure they can only come from articles put on the market for the first time even 10-20 years ago, well before the recycling/regenerating process.

In the restriction proposal (Annex E.2.2. TULAC [Textiles, Upholstery, Leather, Apparel and Carpets]), specific derogations are not proposed for “non virgin” textile raw materials. In order to allow a correct management with consequent positive impacts on the Green Deal targets, on socio-economic figures and on circularity and sustainability of textiles, we believe appropriate to include, in the already

[9] “impregnation agents for re-impregnation of articles referred to in paragraph 5b and 5c until 13.5 years after EiF;”

mentioned Table 13, a specific derogation which refers to textile articles made up, in whole or in part, of “non virgin” textile raw materials.

Further information on this can be found in confidential Annex D.

Emissions

Questions 2 and 3: Emissions in the end-of-life phase

EURATEX resubmits emissions estimations from the PFHxA restriction:

EURATEX observes that the available estimations of emissions of PFHxA from textiles appear significantly overestimated. This may be linked to general assumptions about the type and quantities of PFAS treated textile products and by an overestimation of PFHxA releases in production process.

Concerning the largest amount of textile products available in the market notably garments, it can be pointed out that apparel products for consumers amount at 647,277 tons EU productions and 2,290,800 tons for extra EU imports, whereas EU-exports amount at 208,782 tons[10].

Regarding PPE products no PPE-specific classification exits in Eurostat, however the official statistics monitor the production, import and export of products which can be impregnated and thus conventionally include PPE and may include some outdoor but also include other treatments unrelated to PFAS such as coating[11]. These data for 2018 indicates the EU production amounted at 50 million pieces (production data in tons not available), and imports from extra EU amounted at 160,191 tons whereas exports amounted at 20,270 tons in 2018 (trade figures in number of pieces not available). Regarding Outdoor products, it shall be stressed that a large part of those provides light-water protection through laminating and coating hence the automatic use of PFAS in this category cannot be assumed.

As regard to use/consumption of any type of garment, to our knowledge no reliable statistical data exist.

As most consumer goods products would normally not be treated with PFHxA a sound estimation of emission from textiles shall be differentiated based on the type of products and it shall consider the disposal of discarded textiles. On the latter, incineration is a common practice in many Member States whereas the revised legislative proposal on waste foresees a binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030 and a ban on landfilling of separately collected waste. As for textiles waste, the Waste Framework Directive (EU) 2018/851, foresees a mandatory separate collection of textiles waste (including discarded garment) as of 31 December 2025.

[10] Reference EURATEX Elaboration on EUROSTAT data 2018, referred to PRODCOM codes 14111000-14391090; for EU-made products average weight per item is assumed of 0,128 Kg
[11] Reference EUROSTAT, Prodcome code 14193200:Garments made up of felt or non-wovens, textile fabrics impregnated or coated

With regards to production processes, the European textile industry has reached a significant decrease of these emissions by implementing technical solutions through voluntary emission reduction measures in the initial textile finishing. These include reuse of impregnation liquor, separate equipment-rinsing water disposal and others both for PFOA / RS and PFHxA / RS reducing emission from a few grams in 2010 to close to zero. Accordingly, the PFHxA-Emission in initial textile finishing to wastewater, before waste-water treatment, are below 0,020 Kg/a.

Modern low-volume chassis are designed, among other things, to minimise the residual liquors in such a way that only the amount of liquors that is actually required for the desired effect is provided in the chassis. The filling volume is minimised by displacement bodies and low distances of the chassis walls to the fabric. Residual impregnation liquors and if necessary, the first rinsing water are not drained, but pumped into a container and reused or discarded as waste. This system has reduced emissions over 95%.

In the 1990s the wastewater treatment plants connected to textile sites have been subject to intensive surveillance by the authorities regarding fluorinated substances. Despite low thresholds of 300 ng/L the wastewater treatment plants are for several years no topic any more regarding relevant emissions of fluorinated substances. A proposal for best-available technology (BVT) in the context of the BREF process is enclosed (Annex III).

EURATEX would also like to draw attention to conclusions drawn in the PFHxA restriction. On emissions in the Background Document to the Opinion on PFHxA[12], it is concluded that about 75% of clothing that come to the European market is imported into the EU. The bulk of garments is imported from the Asia-Pacific region, e.g. from China, Vietnam or from Indonesia. These textiles significantly contribute to environmental releases of PFHxA, its salts and related substances. From the Figure 1 below it is also clear that clothing articles use the lowest molecular PFHxA-related substance, while home textiles and personal protective clothing have a significantly smaller impact.

Please also see Annex IV for more information on emissions.

[12] Background Document to the Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances.
https://echa.europa.eu/documents/10162/5c011606-5891-d26a-03e7-ceba0a35126f, p. 16

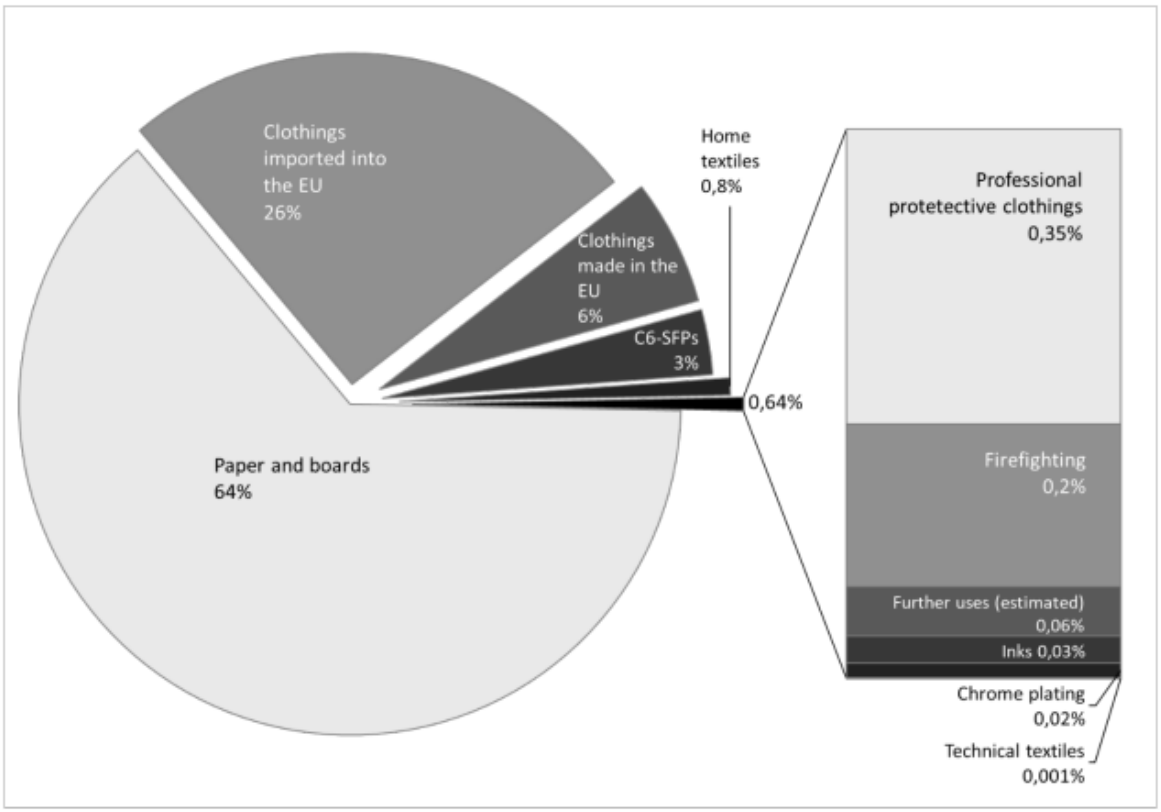


Figure 1 - End use of low molecular PFHxA-related substances itemised to the sectors of use in the European Union.

In addition, we would like to present retention methods, which are used in one Austrian company. To ensure that no emissions of PFAS can enter the wastewater stream, this Austrian company in the textile industry uses residual fleet disposal. Details on the methods can be found in the recently published document Best Available Techniques (BAT) for Textiles industry Document: https://publications.jrc.ec.europa.eu/repository/handle/JRC131874

EURATEX has already stated previously that for regular everyday clothing items there is no need for the use of C6 chemistry as water repellent alternatives are available.

Recycling

Question 4: Impacts on the recycling industry

It is to be expected that post-consumer waste used for textile recycling may contain PFAS impurities and that the use of fibres from post-consumer recycled materials will then no longer be possible. Here, too, longer transition periods are necessary so that industrial-ready technologies for the elimination of PFAS residues can be developed.

Derogations

Question 5: Proposed derogations

EURATEX refers to the question 1 on Sectors and (sub-)uses, which outlines the derogation needs, as well as the question 6 below on “missing uses”.

Missing uses

Question 6: Missing uses

Referring to the answer given under question 1 on uses and the PFAS database accompanying this consultation submission, many uses are missing or neglected by the Dossier Submitters.

a) Technical textiles

Under the TULAC sector in the proposal, the technical textile definition is very limited. If the restriction would only give a derogation to filtration and separation media, then many other important textiles would not be derogated. EURATEX refers again to the excel sheet accompanying this consultation submission, which outlines different uses of C6 chemistry where the highest degree of safety and performance standards need to be met.

The finishing of technical textiles with fluorinated chemicals is not an end but is essential for the fulfilment of regulatory and normative requirements. EURATEX therefore proposes to link the restriction for the field of “Technical Textiles” to a technical value that meets the fulfilment of normative and regulatory requirements and prevents that applications in entire value chains are excluded from the restriction.

The limit EURATEX is proposing is **minimum surface tension of 27.5 (mN/m) according to ISO 14419 and/or Oil number 3 or better is required according to a corresponding product standard**. 27.5 (mN/m) is the surface tension of n-hexadecane. N-hexadecane is a test agent in EN ISO 14419 or AATCC 118 for assessing oleophobicity.

This requirement for oleophobicity can be found in many public tenders (e.g. for police uniforms) up to the concretisation of material provisions of a legislative nature. Everyday textiles do not need oleophobic properties; they need hydrophobic properties (water-repellent properties) depending on the conditions. In the case of a police uniform, for example, it is essential that a fire accelerant does not penetrate the uniform but "beads off". Here, the oleophobic property is vital for survival. The requirement of 27.5 (mN/m) is thus a transparent and objective benchmark for when water-repellent is no longer sufficient.

Please also see further explanation on technical textiles under consultation question 1 on uses.

b) PPE for armed forces/maintenance of law and order

A sector that is completely missing from the derogation list is PPE specifically designed for use by the armed forces or in the maintenance of law and order. As acknowledged by the ECHA opinion on PFHxA, Regulation (EU) 2016/425 does not apply to this type of PPE and SEAC proposed the following derogation from the PFHxA restriction "*personal protective equipment specifically designed for armed forces and in the maintenance of law and order against the risk categories listed in paragraph 8(b)*[13] *and protective clothing specifically designed for armed forces and in the maintenance of law and order or other emergency response workers*."

As currently the discussions on the PFHxA restriction are ongoing at the REACH Committee level, it is also clear from the Commission's proposal that this restriction will mainly focus on everyday consumer clothing and textiles. Therefore it is highly necessary to add a separate derogation for PPE and also for use by the armed forces or in the maintenance of law and order.

Clothing and/or accessories (whether or not detachable) designed and manufactured specifically for use by the armed forces or in the maintenance of law and order are not covered under PPE Regulation, meaning that the majority of these textiles are considered as consumer apparel and would be therefore banned. This would include bullet-proof clothing or jackets, clothing protecting against biological contamination or ionising radiation as well as uniforms.

Examples of this type of clothing: i) bullet and splinter proof clothing; ii) CRBN clothing protecting against Chemical War Agents (CWA); iii) flame retardant protective clothing for "riot police" against Molotov cocktails.

i) Regarding bullet and splinter proof clothing, the multilayer protection packs from para-aramide (such as Kevlar or Twaron) need to ensure maximum water repellence. In case water leaks through microfilaments, it may act as a lubricant when a hot bullet penetrates the vest with a speed of 350 or 450 m/s, ultimately injuring or killing the wearer. Standards vary by country: NIJ 0101.06 (US police standard also being requested often by European police forces), UK Cast standard, the German VPAM, etc. These standards cannot be met with fluoro-free alternatives. Furthermore, another major concern is the effect of fluoro-free alternatives of the ageing (hydrolysis or depolymerisation) of para-aramids over time as manufacturers are considered to give 10 – 15 years warranty. Here we also refer to the Guideline on PPE EU Regulation 2016/425 Preliminary remark 3 "State of the art" which says that manufacturers of PPE cannot be expected to use solutions that are still in the research stage or not generally available on the market (further information in Annex II "EURATEX input on PPE Cat III (l) bullet wounds or knife stabs").

ii) Regarding CRBN clothing or suits, each country may have its own standards. NATO AEP-38 is considered to be a basic standard in NATO countries. The specific Chemical War Agents (CWA) requirements are mentioned in Volume 2 of NATO classified document. CWA can be solid, gaseous, vaporous, aerosol and liquid. As the protective suits need to be worn for more than 12 hours or even 24 hours in desert or tropical environments, they have to provide comfort and breathability.

[13] Regulation (EU) 2016/425 of the European Parliament and of the Council, Annex I, Risk Category III (a), (c), (d), (e), (f), (h), (l);

The gaseous and vaporous CWA are blocked by an active carbon filter as lining. For the filtration against liquid and aerosol CWA, the fire-retardant outer fabric often times needs to have a high and durable (post-washing) oil resistance due to the chemical nature of CWA.

iii) Regarding fire-retardant protective clothing, the fluorocarbon finishing is required to sufficiently protect against flammable Molotov cocktails during police riot interventions, otherwise the cocktail may be absorbed into the protective clothing and may burn the wearer.




Further examples:

- Gloves - When it comes to gloves for the military and authorities, there is a very high demand on oil-repellent finish. For protection against liquid hazardous substances, pesticides, fuels, infectious agents and NBC warfare agents or chemicals, only gloves with C6 chemistry are currently possible, as there are currently no equivalent alternatives for protection against these dangerous influences. 95% of all firefighting gloves must be equipped with C6 chemistry to meet the requirements for oil, blood, chemical repellence (in the event of an accident) and water (in the event of a fire).
- From a technical point of view, appropriate hydrophobic treatment is essential for soldiers' clothing and personal protective equipment; these are special products (ballistic protective vests, camouflage covers, filter materials, NBC protective suits, etc., but also to protect against moisture for other military clothing (combat suits), shoes and gloves. Standards for the military sector are available in the European Defence Standards Reference System European Defence Standards Reference System (EDSTAR)[14].
- For special clothing, footwear, gloves and personal protective equipment, a corresponding hydrophobization is essential and as long as no appropriate replacement is available, at least

[14] https://edstar.eda.europa.eu/

the C6 chemistry should be retained. Standards for the military sector are collected in the EDSTAR

- Military use sleeping bags: Water and oil repellency, air permeability so that sweat can diffuse out and hydrophobization and breathability is essential.

To ensure that all necessary use cases are covered, EURATEX supports the derogation wording proposed in the SEAC opinion for the PFHxA restriction.

c) Building materials/construction products

A Belgian company specialised in membranes for constructions points out that certain roofing applications (e.g. reinforcement cloth) need C6 chemistry to avoid forming bubbles. C6 is added for non-wicking purpose only, which is a standard requirement of the roofing waterproof membrane industry.

Stability of the roof is greatly dependent on anti-wicking properties. In case these textiles absorb water, it can cause membranes to separate from the reinforcement material which may deteriorate the construction stability with fatal outcomes. Complete water absorption can be avoided by using 5-6% C6 in the mix. The company tested possible lower contents of C6 (3-4%), but without success.

Furthermore, several C6 alternatives were tested (based on C4, different fluor amounts), but not fluoro-free. Using silicone as anti-wick has not been tested so far, since it is not compatible with the relatively high adhesion/peeling force required with PVC membranes. Such multifunctional property can only be achieved with fluorochemistry.

Another use case to consider is membranes of textile architecture (e.g. stadium roofs), air dome material, large, durable tents. C6-based "anti-wicking" high-strength polyester yarns (PET), which are resistant to bacteria and mold because they do not absorb moisture, are used, as well as highly dirt-repellent PVDF coatings (polyvinylidene difluoride), which are also very UV-stable and have material guarantees from 15 to 20 years (compared to: corrosion with alternative acrylic paints after >10 years). The yarn used (= anti-wicking finish) is fully coated, which prevents the release of PFAS into the environment. A substitution for the anti-wicking equipment is currently being worked on. There is no technically equivalent alternative available for the PVDF coatings.

d) Textile manufacturing processes/machinery

C6 coating with plasma nano coating
The plasma coating of textiles is a dry process and takes place in a low-pressure plasma reactor, with no emissions being released into the air or wastewater.

There is currently no alternative to Plasma Nano Coating for various applications. Depending on the application, for oil / water, gas, blood and chemical separators, membranes as well as knitted fabric tiles or knitting materials are used.

In certain areas, many of these filtration-applications use 3D woven knit tiles, knitting materials or high-precision fabric filters, which cannot be coated by conventional wet-chemical methods, since otherwise the micro-cavities are closed. A standardised chemical repellency is necessary in many areas of filtration.

Ultrashort-chain fluorocarbon C3F6 in low pressure plasma coating processes

Low-pressure PECVD (Plasma-enhanced Chemical Vapor Deposition) systems and processes are used in many sectors, such as filtration, technical mesh and membranes, consumer textiles (apparel), medical plastics, industrial and consumer electronics. The use of fluorinated species is indispensable in certain coating applications requiring explicit oleophobic functionalities.

The likelihood of exposure to C3F6, and any possible hazard related to this, is very limited when being used in low-pressure plasma-enhanced chemical vapor deposition processes. The gas is used under vacuum as a precursor material in the manufacturing of fluoropolymer nano-coatings.

Despite research and development, suitable alternatives that comply with the proposed restriction have not yet been identified for specific applications requiring oleophobicity. The unique characteristics of ultrashort-chain C3F6 fluorocarbon makes it exceptionally effective for the intended purposes, however substitutes capable of replicating the same performance and properties have not been identified.

We therefore request an exemption for “The use of C3F6 gas as a precursor in low-pressure plasma-assisted chemical vapour deposition, in order to produce plasma fluoropolymer nanocoatings on products where an oleophobic property is indispensable for the product.”

Further information on ultrashort-chain fluorocarbon C3F6 in low pressure plasma coating processes is added in confidential information Annex B.

Machinery

In order to ensure that machines used for textile manufacturing can continue to be used, we also support a derogation for machinery that is used in industrial settings, here in this case textile manufacturing facilities.

e) Latex printing inks

PFHxA-related substances are used in latex printing inks, including applications for printing on textiles. A simple “drop in” substitution is not possible, and a more extensive reformulation will be necessary to develop competitive products without PFHxA-related substances and avoiding regrettable substitution. Such alternatives are in the process of development to be available for new printer generations, however, the new printing inks are not expected to be compatible with older printers.

Thus, for printers already placed on the market no latex printing inks will be available in case of a restriction, resulting in early obsolescence of all latex ink printers. Therefore, printers currently in use,

typically used by SMEs, still need the current generation of printing inks to avoid early replacement (these printers have a 7 – 10-year service life).

EURATEX therefore supports SEAC's derogation under the PFHxA restriction on "latex printing inks until 7 years after the entry into force" which would ensure that printer hardware can be used until the expected service life expires and that impacts from early replacement, such creation of additional waste, resources and costs, as will be negligible.

Question 7: Potential derogations marked for reconsideration

The following uses relevant for the textile industry were market as potential derogations:

1) *U. [textiles for the use in engine bays for noise and vibration insulation used in the automotive industry until 13.5 years after EiF]*

EURATEX will refer here to the derogation request on technical textiles

2) *i. [wound treatment products until 13.5 years after EiF]*

EURATEX will refer here to the derogation request on medical textiles

3) *o. [applications affecting the proper functioning related to the safety of transport vehicles, and affecting the safety of operators, passengers or goods until 13.5 years after EiF].*

EURATEX will refer here to the derogation request on technical textiles

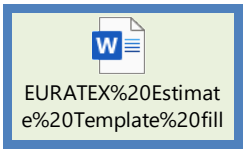
Other socio-economic considerations

Question 8: Other identified uses and socio-economic impacts

The restriction would have dramatic consequences for the entire European textile sector (and not only). EURATEX launched a second survey among its members for the PFHxA restriction to collect data on (i) the socio-economic impact on companies, value chains other than textiles and downstream users, and on (ii) the availability of alternatives.

The most remarkable conclusion is that the restriction would have a documentable financial impact on the EU textile industry of more than ***EUR 1,4 billion***. Likewise, the impact on employment could be as high as ***32 477 workers*** risking their job in the textile sector, without counting the ones in other value chains. Just these figures should suffice to demonstrate the substantial negative socio-economic impacts that would result from not granting the requested derogations.

The Table contained in the word file embedded below shows the main information received from our members (national federations which in turn collected evidence from their members/companies), broken down by specific textile articles produced:



As it follows from the Table, PFHxA related substances are essential to guarantee that the quality standards are met by textile products. At present, no alternatives have been found with regards to several features: oil and water repellency, marking, glueing, outdoor durability, oleophobic performances, rain protection.

The restriction would entail severe consequences directly affecting downstream users. For example, protection against chemical splashes, chemical penetrations, and harmful biological agents would no longer be guaranteed respectively for professional workers in specific sectors, firefighters (more than 1 018 000), and soldiers. Moreover, the products would be facing lower durability/lifetime issues (e.g. outdoor upholstery, electronics) to the detriment of both workers and consumers. Lastly, cases of regrettable substitution (e.g. use of PVC for indoor and outdoor textiles/upholstery) and increase in environmental footprint (in relation to e.g. building/construction materials, textiles for solar protection) would be generating as well.

In terms of repercussions for employment in the European textile sector, the consequences of the restriction would be significant as clearly inferable from the Table. More than ***5775 workers*** employed in the production of technical textiles (e.g. textiles for filtration/separation, indoor/outdoor upholstery, etc.) run the risk of losing their job; likewise, more than ***25702 employees*** within companies producing PPE (e.g. workwear, protective clothing, apparel for professionals in specific sectors, etc.) and textiles used by law enforcement, police, etc. (uniforms, battledress, etc.) would be at risk of being dismissed.

Concerning the financial impact, more than ***140 companies*** involved in the manufacturing of the products in question (including garment makers, fabric weavers, dye and finishing plants) would be affected by the restriction. The figures in the Table refers to the turnover loss based on the specific textile product share in the total production of the companies per annum. Overall, as for technical textiles, the losses would amount to at least ***EUR 174 230 000***, while for PPE and textiles used by law enforcement, police, etc. the losses would amount to nearly ***EUR 1,08 billion***. It should be noted that, in the sole Austria, the overall losses would amount to at least ***EUR 158 000 000***.

Furthermore, the restriction would severely impact not only the textile sector but several other ones too. Defence, automotive, building, consumer electronics, and many more value chains may all face unprecedented consequences (e.g. in Germany 10 European spinning mills and 5 finishing plants with related employees would be severely damaged) if the requested derogations are not granted.

As the textile industry is advocating to have PPE derogated, another element to consider is the costs for not providing protective equipment and putting people's health and safety at risk. PPE in general is used to predominantly protect workers doing an economic activity in all kind of sectors. Without effective PPE, employers will no longer be able to let workers 'do their job' in a safe way, hence stop the activity.

- **1.15. Use of PPE at the workplace**

Recital 23 of the PPE Regulation (EU) 2016/425 makes reference to the Occupational Safety and Health Directive 89/656/EEC on use of personal protective equipment, which is the "workplace" legislation related to the "product" legislation on PPE.

Lack of alternatives

In general EURATEX sees that fluoro-free alternatives do not work for high performance critical applications due to the following:

- No oil- fuel-, solvent repellency
- No chemical repellency/or only very specific repellency for some chemicals
- Poor dry soiling properties
- Lack of stability to hydrolyses (e.g. steam sterilization in hospitals)
- Not stable under strong acid conditions (e.g. gas filters for incineration plants)
- Not stable to dry-cleaning
- Often times low wash-durability in industrial/professional washing
- Problems in dynamic water repellency for high performance applications
- Problems in direct coating with aqueous- and solvent based products
- Sensitive to process variations and variation of different treated substrates/fibres
- Often crease marking
- Often blocking breathable

Further input is added under confidential Annex C, which outlines EURATEX's submission to the study on the use of PFAS in textiles, upholstery, leather, apparel and carpets (TULAC).

Lastly, as mentioned above, we also voice concerns over the unknown effects of alternatives over time (10-15 years) on ageing and protective properties of PPE.

R&D funding

The substitution of PFAS is a time-consuming and costly research and development process so that a sufficiently good performance of a textile product can be achieved with an alternative hydrophobic agent. Substitution without R&D funding is currently not possible.

Unfair competition

The treatment and reprocessing of the above-mentioned textile products with PFAS or perfluorohexanoic acid/C6 chemistry is essential so that the companies concerned can continue to offer competitive products on the market in the future. If the production of these products or their

equipment for the companies ceases to exist, the economic benefit would be lost – there would be job losses and the sector would migrate to Asia or other parts of the world.

In particular, we would like to point out once again that the competitiveness of all EU companies in our sectors must be maintained vis-à-vis their main competitors, e.g. in Asia. This is both question of enforcement and ensuring that products entering the EU market are compliant with the REACH restrictions, but also what machinery and process chemicals will be banned in the EU.

- **An example from a Belgian company on unfair competition is related to the norm BS 7914/14 describes the requirements for garments worn by riot police.**

In the norm, a lot of parameters are asked for and the company can comply with all of them, except one small point: The gutter test with the product Methyl Isobutyl Ketone (AR Grade). Below are some screenshots from the norm.

Since many years, the company only use C6 technology, but their UK-competitors can still use C8-technology, and get better results for solvent-repellency, and washing fastness.

The company tries to convince the UK police that – if the production against this product is so important – they accept to retreat the cloths after every wash (like is done in Europe for cloths certified for 'protection against chemical liquids Type 6 – EN 13034). But as they still can get cloths where a simple iron after wash is enough to reactivate the C8-fluorocarbons, they do not want to do so.

4.6.3 **Testing of materials following pre-treatment processes**

4.6.3.1 **General**

All testing in **4.6.3.2** to **4.6.3.12** shall be completed after pre-treatment conforming to **5.1** and, where indicated, in accordance with other additional pre-treatment processes.

4.6.3.12 Resistance to penetration by liquids

Test samples, where possible, shall be taken from garments but may be taken from manufacturers' prepared samples.

Test samples shall comprise all functional layers of a coverall or composite system including outer materials, multi-layer composite test samples, and the outer and inner garments of systems which require a functional undergarment.

Testing shall be carried out in accordance with BS EN ISO 6530 and the additional requirements in **5.7**.

The following minimum requirements shall be met:

a) For all coveralls:
   - mean index of repellency: ≥80%;
   - mean index of penetration: ≤10%;
   - mean index of absorbancy: ≤10%.

b) For higher liquid repellency coveralls:
   - mean index of repellency: ≥80%;
   - mean index of penetration: ≤0.2%;
   - mean index of absorbancy: ≤10%.

A single test sample which has been exposed to each of the following chemicals:

1) 50% iso-octane/50% toluene (petrol substitute);
2) Methyl Isobutyl Ketone (AR grade);
3) 50% ethanol/50% water;

5 Test methods and method guidance

5.1 Cleaning pre-treatment

Coveralls and functional undergarments or, where indicated, material samples shall be subjected to five complete wash and dry cycles in accordance with the manufacturer's instructions using the appropriate procedures in accordance with BS EN ISO 6330.

itish Standards Institution 2015

If the manufacturer's instructions indicate that ironing is required after any drying process to reactivate a finish then a single cycle of hand ironing shall be performed after the last cleaning cycle as instructed in the manufacturer's information.

5.7 Resistance to penetration by liquids test method guidance

Testing shall be in accordance with BS EN ISO 6530 using the following liquids:

a) 50% iso-octane/50% toluene (petrol substitute);

b) Methyl Isobutyl Ketone (AR grade);

c) 50% ethanol/50% water;

d) 30% aqueous sulfuric acid;

e) 40% aqueous sodium hydroxide;

f) water at 20 °C ±5 °C;

g) water at 85 °C ±15 °C.

Samples shall be free from seams in the test area. Samples from chemical tests a), b) and c) shall be further tested for resistance to flame spread after cleaning and liquid exposure conforming to **4.6.3.12**.

NOTE 1 Care should be taken to follow exactly the manufacturer's instructions for reactivation of any applied finish as part of the pre-treatment process.

NOTE 2 Care should be taken to follow the equipment requirements of BS EN ISO 6530 exactly as the diameter of the needle, for example, can effect the pressure of the jet of liquid on the sample and subsequent penetration effects, and the use of the gutter ensures a consistent pressure is applied in the seconds following the test. If, following the tapping of the sample prior to weighing, excessive beading of liquid remains on the sample, this should be noted for reference on the test report.

Analytical methods

Question 10: Analytical methods

EURATEX would like to draw the attention to potential testing of the "minimum surface tension of 27.5 (mN/m) according to ISO 14419 and/or Oil number 3 or better" that we have proposed for the technical textiles area.

The testing according to EN ISO 14419 or AATCC 118 is very simple and inexpensive. Market surveillance authorities could thus easily check whether PFHxA is in the textile, an example of a practical test can be found in this video[15]. Therefore authorities could identify the presence of PFHxA and also non-compliance to ensure that only legally derogated articles are placed on the EU market.

However, for textiles, there is currently no test method that can measure the thousands of PFAS compounds within the U-PFAS restriction scope and provide a reliable test result. The current test methods cover only a few polyfluorinated and perfluorinated substances. Methods based, for example, on a sum determination of organic fluorine must be validated. False positive test results are possible with these methods.

That is why it is difficult to prove that textiles are PFAS-free because there are so many compounds involved. However, a PFAS restriction requires a valid and cost-effective test method that can measure the wide range of PFAS compounds; on the one hand, so that the restriction can be executed and, on

[15] Water and Oil repellency (Drop method) | AATCC TM118 | Textile testing. https://www.youtube.com/watch?v=GQ5RQy8L1q4&ab_channel=TestexTV

the other hand, so that companies can prove their compliance with the restriction according to the Ecodesign Regulation or the Green Claims Directive, etc. Furthermore, it is also not possible to prove that Asian main competitors do not equip their products with PFAS.

EURATEX has provided further input on this topic in the confidential Annex C.

Transitional periods and review clause

Regarding the derogations requested above, EURATEX advocates for the maximum transitional period, apart from to latex printing inks, which do not need more than 7 years after the entry into force.

As long as there are no suitable alternatives available and the research and development has not advanced enough to have an objective timeline, EURATEX proposes both gathering further data on the use of PFAS and a clear review clause where the Commission would make further decisions based on new scientific information. That would ensure proper monitoring as well as limiting the use once suitable alternatives have been made available.

Proposed review clause:
"*From (entry into force + 36 months), the Commission shall carry out a review on technical textiles and PPE related derogations in the light of new scientific information, including the availability of alternatives for articles benefitting from the derogation and proposing amendments if indicated by the outcome of the review.*
As long as the Commission concludes that there is still need for these derogations this review shall be carried out every three years."

At present, there is no alternative that would allow us to free ourselves from the substances related to PFAS substances to achieve the dual hydrophobic/oleophobic performance. EURATEX has members who are involved in research into fluorine-free alternatives which will not be viable in the short and medium term.