



**Alliance for Telomer Chemistry Stewardship's
Response to the Public Consultation on
Restriction Proposal on all PFAS**

3rd Contribution

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Introduction

The Alliance for Telomer Chemistry Stewardship (ATCS) represents some of the leading producers of C6 short-chain fluorotelomer-based chemistry, including C6 side chain fluorinated polymers (SPFs) and C6 fluorosurfactants. We welcome the opportunity to submit our opinion to the public consultation on all poly- and perfluoroalkyl substances (PFAS).

In the present document, we wish to complement our previous input by strengthening the points made in our first submission, providing more detailed information on the sector-specific uses for which we request additional derogations.

Below you will find a table with our suggested derogation formulations per sector. Please note that the ATCS focused on avoiding repetitive information compared to its previous submission. It is therefore advisable to consult the previous submission where necessary.

Table 1 – Non-exclusive list of derogation requests¹

Application	ATCS' suggested derogations
Firefighting foams	4. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] d. mixtures and articles subject to Regulation (EU) XXXX/XXX [to be included once it is published in EU OJ] on the use of per- and polyfluoroalkyl substances (PFASs) in fire-fighting foams.
Second-hand and recycled articles	4. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] e. second-hand clothing, footwear and related accessories;
TULAC (PPE)	5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] b. textiles used in personal protective equipment (PPE) intended to protect users against risks as specified in Regulation (EU) 2016/425, Annex I, Risk Category III (a), and (c), (d), (e), (f), (g) (h), (j), (l) until 13.5 years after EiF; c. textiles used in personal protective equipment (PPE) in professional firefighting activities intended to protect users against risks as specified in Regulation (EU) 2016/425, Annex I, Risk Category III (a) – (m) and

¹ Please note that this includes an **updated** list of derogation requests and amendments to current derogations based on feedback from other industry stakeholders.

Application	ATCS' suggested derogations
	<i>clothing designed for use by the armed forces, in the maintenance of law and order and by emergency responders</i> until 13.5 years after EiF; <i>[...] xx. high visibility clothing fulfilling the requirements of EN ISO 20471;</i>
TULAC (Technical textiles)	5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] e. textiles for the use in filtration and separation media used in high performance air and liquid applications in industrial or professional settings that require a combination of water and oil repellence until 6.5 years after EiF; f. textiles used in engine bays for <i>ignition protection and</i> noise and vibration insulation in automotive <i>means of transport and non-road mobile machinery (NRMM)</i> until 13.5 years after EiF; <i>[...] xx. woven, knitted and nonwoven medical textiles in scope of 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;</i>
Medical devices	5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] cc. membranes used for venting of medical devices until 13.5 years after EiF; <i>[...] 6.i. xx. wound treatment products</i> until 13.5 years after EiF;²
Lubricants	5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...] <i>xx. epilame mixtures used in watch making and servicing;</i> <i>xx. epilame in watches;</i>
Electronics	5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...]

² Unless a derogation for medical textiles is included, the proposed derogation for wound treatment products should be moved from paragraph 6 to paragraph 5, as C6 SFPs are also used in professional medical adhesive tapes.

Application	ATCS' suggested derogations
	<i>ee. the semiconductor manufacturing process until 13.5 year after EiT³;</i> <i>[...] xx. functional coating used in electrical and electronic equipment and the components thereof until 6.5 years after EiT;</i>
Metal plating	<i>By way of derogation, paragraphs 1 and 2 shall not apply to: [...]</i> <i>v. hard chrome plating until 13.5 6.5 years after EiT;</i>

In addition to the derogation needs covered above, we understand that the textile value chain is also strongly concerned about the absence of a derogation for professional protective equipment Classes 1 and 2 as well as for other technical textiles, for which additional derogations would be needed. For information on this matter, please refer to the submission(s) by EURATEX.

Moreover, for semiconductors and TULAC applications requiring a 13,5-year transition period, we support the inclusion of a review clause that would allow to assess the status of the transition to alternatives before the restriction becomes effective.

³ While we welcome the inclusion of a derogation, we are still assessing whether the wording is sufficiently comprehensive. We, therefore, refer to the proposals of ESIA and SEMI.

General Concerns

1. Scope

- Overall, substances that are already restricted, banned or have been assessed as part of parallel restriction processes should not be part of the risk assessment of this restriction proposal.
- C6 fluorotelomers are already subject to the PFHxA and PFAS in firefighting foams restriction proposals. To avoid duplication of regulation, the proposed legal text of the PFAS restriction should exclude firefighting foams as well as the uses covered by the PFHxA restriction proposal.
- The proposed definition of PFAS should only be used for structural identification, not regulation, as proposed by the OECD PFAS project in its latest report.

2. Legal basis

- There is no scientific basis to refer to the potential irreversible adverse effects on the environment and on human health over time, especially not for PFHxA. Such vague assumptions do not constitute a demonstration of unacceptable risk as required by REACH, nor a sufficient basis to justify the use of the precautionary principle.
- The all PFAS restriction proposal dismisses the outcome of previous decisions, such as the failure to identify PFHxA as SVHC on the basis of equivalent concern to PBT/vPvB properties. It also disregards the ruling of the European Court of Justice that established concrete criteria for substances to be considered of an "equivalent level of concern" to PBT or vPvB, namely that (1) the substance's intrinsic properties must likely cause serious harm to human health or the environment, and (2) there must be scientific evidence that the harm is equivalent to that of CMR, PBT, or vPvB substances.

3. Hazard

- The Restriction Dossier considers persistence in combination with other potential additional hazard properties as equivalent to PBT/vPvB properties, which could lead to the ban of any persistent substance without having to prove unacceptable risk. However, it is worth noting that persistence in and of itself is not an intrinsic hazard, and should not be used as the main justification for chemical regulation.
- Not all PFAS have the same properties. Particularly, the PFHxA Restriction Dossier indicated that there are currently no impacts to be expected from exposure to this substance. In addition, it was acknowledged that PFHxA poses no harm to the

environment, and it does not accumulate in living organisms, cause cancer, reproductive or developmental harm, or endocrine disruption.⁴

4. Exposure

- Contrary to the assumption made in the Restriction Dossier, the end-use markets are already transitioning to non-C6-based fluorotelomer products and solutions in consumer applications. The transition is surely a result of the upcoming implementation of the PFHxA restriction proposal, which restricts the use of C6 in the consumer sectors that historically led to the highest potential emissions. This is expected to further reduce emissions of PFHxA and lessen any potential risk to human health and the environment.
- In addition, we would like to highlight that ATCS members actively promote the use of Best Available Techniques to minimize emissions for end-users, for instance, by contributing to the development of best practice guidance for the textile sector, including closed loop water management to avoid discharges to water.

5. Analytical methods

- The lack of harmonised analytical methods and suitable standards, if the proposed restriction is adopted as it is, could pose significant implementation and enforceability challenges for both industry and regulators. The necessity for harmonised analytical methods as a prerequisite for regulatory action, including restriction, is highlighted.
- Total fluorine methods are useful for screening but lack suitability for compliance certification or enforcement without validation and certification.⁵ These methods also cannot differentiate between PFAS and non-PFAS organofluorine substances.⁶
- There are also challenges when applying some of the analytical techniques mentioned in the Restriction Dossier. For instance, the Total Oxidizable Precursor

⁴ Federal Institute for Occupational Safety and Health (BAuA), Annex XV Restriction Report Undecafluorohexanoic acid (PFHxA), its salts and related substances, p. 73, <https://echa.europa.eu/documents/10162/c4e04484-c989-733d-33ed-0f023e2a200e>.

⁵ E. F. Houtz and D. L. Sedlak, Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff, *Environmental Science & Technology* 46(17), 9342-9349, 2012, doi: 10.1021/es302274g.

⁶ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, p. 171, <https://echa.europa.eu/documents/10162/97eb5263-90be-ed5-0dd9-7d8c50865c7e>.

Assay (TOPA) technique⁷ lacks validation and certification for measuring and speciating PFAS. In addition, it fails to quantify individual compounds, operates under extreme oxidative conditions not representative of real-world scenarios, and does not account for certain precursors that are resistant to the oxidation method.⁸

- Concerning C6 chemistry, the ECHA Enforcement Forum questioned the possibility of using analytical methods applicable to PFOS and PFOA and called for standardised analysis methods for PFHxA, its salts, and C6 fluorotelomers.

For more information on the above elements, we refer you to the General Comments document that was submitted with the ATCS' first contribution to this public consultation (Comment #4274).

⁷ European Chemicals Agency (ECHA), Annex XV Restriction Report on Per- and polyfluoroalkyl substances (PFASs), p. 183, <https://echa.europa.eu/documents/10162/1c480180-ece9-1bdd-1eb8-0f3f8e7c0c49>.

⁸ Dora Chiang, *What Total Oxidizable Precursor Assay Can and Cannot Tell Us about Precursors of Perfluoroalkyl Acids*, January 2019, <https://www.semanticscholar.org/paper/What-Total-Oxidizable-Precursor-Assay-Can-and-Tell-Chiang/480762d58de0a62b5d137db7ad59f4be7882c500>.

Specific Information Requests

2. Emissions in the end-of-life phase: The environmental impact assessment does not cover emissions resulting from the end-of-life phase. To get a better understanding of the extent of the resulting underestimation, (sub-)use-specific information is requested on emissions across the different stages of the lifecycle of products, i.e. the manufacture phase, the use phase and the end-of-life phase. Please provide justifications for the representativeness of the provided information. In particular:

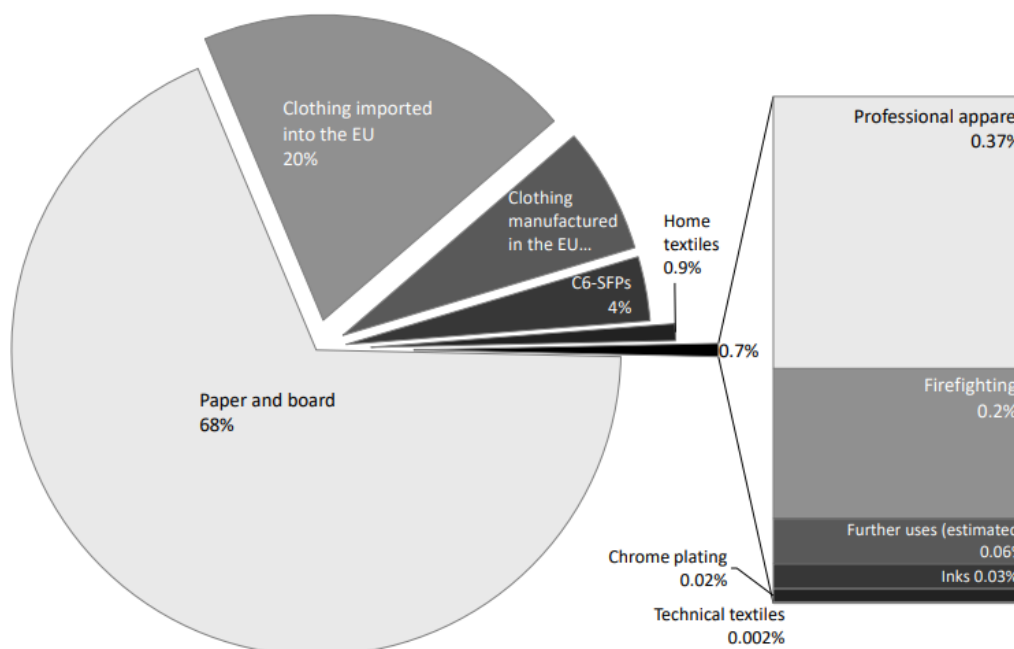
- a) Please provide, at the (sub-)use level, an indication of the share of emissions (as percentages) attributable to these three different stages. An indication of annual emission volumes in the end-of-life phase at sector or sub-sector level would also be appreciated.*

Paper food contact materials were identified as the major polluting sector relying on C6/PFHxA related substances (68%) under the PFHxA restriction proposal.⁹ On this basis, the Commission proposed its restriction two years after entry into force, which is expected to become effective in 2026/2027.¹⁰ Emissions from this sector should be reassessed based on the latest legislative development, and the sector should not be considered as part of the general assessment.

⁹ This remains relevant since C6/PFHxA-related substances are the main PFAS products used for textile applications. European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, p. 37, <https://echa.europa.eu/documents/10162/97eb5263-90be-ed5-0dd9-7d8c50865c7e>.

¹⁰ European Commission, 2023, *Draft Regulation amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council as regards undecafluorohexanoic acid (PFHxA), its salts and PFHxA-related substances*, p. 4, <https://ec.europa.eu/transparency/comitology-register/core/api/integration/ers/338585/090483/1/attachment>.

Figure 1 – Current use of PFHxA-related substances in the European Union¹¹



In addition, we would like to challenge the annual growth assumed in the baseline for home textiles and clothing, as well as the emissions attributed to technical textiles and PPE.

Regarding the former, it should be noted that these products are proposed to be banned from 2026/2027 under the PFHxA restriction proposal. Therefore, they should not be considered in the baseline from that date onwards, and the overall trend should not be expected to increase.

Concerning the latter, it seems misleading to attribute such high emissions to the TULAC sector considering that the sub-sectors with the most potential emissions will be restricted in the coming years. This can be reflected in the final opinion on the PFHxA restriction proposal:

¹¹ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, p. 37.

Table 2 – Estimated environmental releases of PFHxA and its salts by current uses from quantifiable sources¹²

Sector of use	Subsector	Current release of PFHxA its and salts [t/a]	
		Min	Max
1. Polymers	1.1. Manufacture of (acrylic-) polymers with C6 side chains	0.6	6
	1.2. Manufacture and use of fluoroelastomers with APFHx	0.10	1
2. Textiles and leather	2.1. Clothing manufactured in the EU*	22	67
	2.2. Clothing imported into the EU*	50	282
	2.3. Clothing used in the EU	82	285
	2.4. Professional apparel, incl. personal protective equipment (PPE)	2	4
	2.5 Home textiles	3	9
	2.6. Technical textiles	0.14	0.26
	2.7. Medical applications*	0.027	0.053
3. Paper and cardboard (food contact materials)	3.1. Grease proof papers	18	849
4. Extinguishing agents	4.1 Formulation and use for professional firefighting	7	39
5. Chrome plating	5.1 Hard chrome plating	0.01	0.3
	5.2 Decorative chrome plating	0.01	0.5
	5.3 Plastics chrome plating	0.02	0.05
6. Inks	6. Inks	0.6	6
	Summary:	113	1200

4. Impacts on the recycling industry: To get an understanding of the impacts of the proposed restriction on the recycling industry, information is requested on:

- a) *The impacts that the concentration limits proposed in paragraph 2 of the proposed restriction entry text (see table starting on page 4 of the summary of the Annex XV restriction report) have on the technical and economic feasibility of recycling processes (together with a clear indication on the waste streams to which the described impacts relate).*

During the evaluation of the PFHxA restriction proposal by ECHA, it was concluded that the paper sector was the most polluting, followed by the textile sector. Given that paper and cardboard fibres are mainly recycled through mechanical means, it is expected that the resulting recycled products, which are made of fibres that have not been chemically treated, will contain residues of C6/PFHxA above the proposed thresholds.

¹² European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, p. 38.

ATCS would like to underline that the restriction, as it stands, could make mechanical recycling of paper and cardboard virtually impossible. This is while it has been demonstrated that wood-based packaging solutions are more environmentally friendly than their alternatives, especially in the food sector.¹³

b) The measures that recyclers would need to take to achieve the proposed concentration limits.

In order to ensure that recycling operations can continue in line with the circular economy objectives, substance restrictions should focus on 'intentional use', as in the case of the REACH restriction on microplastics¹⁴, or propose suitable transition periods that allow for the eventual removal of substances from the recycling loop, as proposed for recycled paper in the context of the REACH restriction on bisphenols.¹⁵

Therefore, the restriction should provide a **derogation for placing on the market of recycled products –excluding manufacture and use– or a transition period of 6.5 years for recycled paper and cardboard.**

c) The costs associated with these measures.

The proposed measures are expected to help prevent the destruction of processed secondary raw materials, while reducing enforcement and compliance efforts.

¹³ Press release: New study shows that paper-based single-use packaging can have a better environmental impact than reusable packaging | www.cepi.org. (n.d.). www.cepi.org. Retrieved August 31, 2023, from <https://www.cepi.org/press-release-new-study-shows-that-paper-based-single-use-packaging-can-have-a-better-environmental-impact-than-reusable-packaging/>

¹⁴ Commission Regulation (EU) amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards synthetic polymer microparticles, <https://data.consilium.europa.eu/doc/document/ST-9168-2023-INIT/en/pdf>.

¹⁵ European Chemicals Agency (ECHA), Annex XV dossier proposing restrictions on 4,4'-isopropylidenediphenol (Bisphenol A) and bisphenols of similar concern for the environment. October 7, 2022. <https://echa.europa.eu/documents/10162/6b2321cf-5334-9354-cbcd-57a9345ae0fb>.

Additional Information on Derogations

Sector: Firefighting foams (not identified)

The Dossier Submitters emphasised that the proposed restriction is only intended to supplement the restriction on firefighting foam, while the European Chemicals Agency (ECHA) stated that the most stringent regulation will be enforced. Therefore, the dedicated restriction on firefighting foam should without exceptions take precedence over the all PFAS restriction.

We suggest including an exemption for firefighting foams in paragraph 4 of the proposal to provide a clear legal ground for the abovementioned. Our proposal reads as follows:

4. By way of derogation, paragraphs 1 and 2 shall not apply to: [...]

e. mixtures subject to Regulation (EU) XXXX/XXX [to be included once it is published in EU OJ] on the use of per- and polyfluoroalkyl substances (PFASs) in fire-fighting foams.

Sector: TULAC

1. Personal protective equipment

Derogations for PPE have been proposed in paragraphs 5(b) and 5(c). Nevertheless, some types of PPE, like those used by emergency services, oil and gas workers and construction site workers or surgical medical apparel, are not fully covered under the proposed derogation for PPE.

This is particularly concerning, as occupational protective clothing –such as military uniforms and firefighting garments– require repellence towards non-polar stains for hazard management. PFAS-free alternatives lack oil repellence and have reduced water, blood, solvents, fuels and liquid chemicals repellence, which makes it difficult to meet standards such as ISO 14439.¹⁶

When considering alternatives, changes in technology, material production, formulation, and process conditions should be taken into account. Alternatives must undergo hazard

¹⁶ European Commission, Directorate-General for the Environment, Directorate B. Circular Economy, Unit B.2 Safe & Sustainable Chemicals, October 22, 2020, *The use of PFAS and fluorine-free alternatives in textiles, upholstery, carpets, leather and apparel*, Doc Ref. 42054-WOOD-XX-XX-RP-OP-0004_S4_P01.3, p.95, https://echa.europa.eu/documents/10162/13641/pfas_in_textiles_final_report_en.pdf/0a3b1c60-3427-5327-4a19-4d98ee06f041.

assessment and meet third-party chemical stewardship standards. It is crucial to consider the life cycle footprint of any potential alternatives.¹⁷

We believe that protection against hazardous liquids should be further addressed and, therefore, suggest the following revised wording:

5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...]

b. textiles used in personal protective equipment (PPE) intended to protect users against risks as specified in Regulation (EU) 2016/425, Annex I, Risk Category III (a), ~~and~~ (c), (d), (e), (f), (g) (h), (j), (l) until 13.5 years after EoF;

In comparison with our previous proposal, the wording above has been developed together with active actors representing the textile sector and appropriately reflects the applications that need to be derogated. We would like to note that, in addition to the 13,5-year transition period, **we support the inclusion of a review clause** that would allow to assess the status of the transition to alternatives before the restriction becomes effective.

Moreover, an additional derogation for Classes 1 and 2 would be needed. For information on this matter, please refer to EURATEX.

2. Personal protective equipment and clothing used by military, police and emergency responders

Article 2 of [Regulation \(EU\) 2016/425](#), which sets the scope of the proposed derogations for PPE under paragraphs 5(b) and 5(c), does not apply to PPE designed for use by the armed forces or for law enforcement purposes, e.g., military¹⁸, navy, police. Moreover, equipment used by emergency responders may be covered by Regulation (EU) 2016/425 depending on the type of protection required.¹⁹

These uses require C6 SCFPs for optimal water and oil resistance, protection against liquid chemicals, and lasting durability in wash cycles and dry cleaning. Therefore, we

¹⁷ Comment #3015, Comments on REACH restriction proposal on PFHxA, its salts and related substances, p. 114-116, <https://echa.europa.eu/documents/10162/2b03c56b-8d05-d471-cca3-bd84efc4de79>.

¹⁸ While there is the possibility to request exemptions for defence uses, specifically, via Article 2(3) of REACH, these derogation requests require significant effort and administrative work by Member States; thus, a legal act of the European Union is necessary for transparency and legitimacy.

¹⁹ European Commission, 2018, *PPE Regulation Guidelines*, p. 162.

recommend following SEAC's final opinion on the PFHxA restriction proposal and proposing a derogation in line with it: ²⁰

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

c. textiles used in personal protective equipment (PPE) ~~in professional firefighting activities intended to protect users against risks as specified in Regulation (EU) 2016/425, Annex I, Risk Category III (a) - (m) and clothing designed for use by the armed forces, in the maintenance of law and order and by emergency responders~~ until 13.5 years after EiF;

3. High-visibility clothing

By providing oleophobicity, C6 SCFPs protect high visibility equipment from dirt, sweat, and sebum, reducing the risk of fuels and oils soaking into textiles and preventing the impaired visibility of workers. These properties are vital for workers in industries like railroad, garbage collection, road construction, and oil platforms.

Therefore, we support the inclusion of the derogation proposed by the German Federal Institute for Occupational Safety and Health in the proposed restriction of PFHxA²¹. However, we suggest extending the derogation beyond Class 3, as EN ISO 20471 stipulates strict requirements on the amount of *bleeding*²² between the reflective strips and the fluorescent and contrast materials, regardless of the items' classification.

Our proposal read as follows:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

xx. high visibility clothing fulfilling the requirements of EN ISO 20471;

4. Textiles used in transport and Non-Road Mobile Machinery (NRMM)

While we welcome the inclusion of a derogation for textiles used in automotive, we believe that certain modifications are required to allow the continued supply of cars, as

²⁰ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*.

²¹ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *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>.

²² "Bleeding" refers to residues of colour within the material that can stain the sensitive parts of hi-vis garments. As the fluorescent material is always a bright colour, it can be affected by the darker colour of the contrast material.

well as other means of transport and non-road mobile machinery, under safe and sustainable conditions. This would allow to cover applications which are not appropriately addressed by the current wording. Therefore, we propose to modify the derogation as follows:

5. By way of derogation, paragraphs 1 and 2 shall not apply to: [...]

f. textiles used ~~in engine bays~~ for ignition protection and noise and vibration insulation in ~~automotive~~ means of transport and non-road mobile machinery (NRMM) until 13.5 years after EoF,²³

In summary, we believe the term ‘automotive’ should be replaced by ‘means of transport and non-road mobile machinery’, as proposed in the SEAC Opinion on the PFHxA restriction proposal.²⁴ In addition, the derogation should refer to the functions of the textiles and not to their location in the vehicle. To clarify, in the transport and NRMM sectors C6 SFP-treated fabrics are used for three main purposes: ignition protection, NVH insulation and filtration and separation. The latter is already appropriately covered by derogation 5(e).

5. Filtration and separation media

C6 SCFPs are used for filtration and separation applications requiring water and oil repellence needs to provide pollutant and microbial protection, dust retention, pressure drop optimization, and glue-repellence. These media are used in safety-critical industries like healthcare, energy, food, and transportation.

The ATCS supports the inclusion of a derogation for filtration and separation media. However, we would like to propose some modifications to the current wording:

- The term "high-performance" may be confusing; we would like to clarify that it means same as media "that require a combination of water and oil repellency". Consequently, we suggest removing it.
- The term "textiles" should be removed as it does not encompass all types of filtration media, primarily based on nonwovens. Nonwovens are fabrics that are produced by mechanical, thermal or chemical processes, but without being woven and without the need to convert fibers into yarn, since the fiber webs are bonded together as a result

²³ It is our understanding that filtration and separation applications in transport would be covered by the separate derogation for filtration and separation media. As long as a derogation for filtration and separation media is granted, the reference to filtration will not be needed.

²⁴ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), June 9, 2021, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*.

of the inherent friction from one fiber to another. We suggest that, instead of referring to textiles, the wording keeps the term “media”.

Our amended derogation reads as follows:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

e. ~~textiles for the use in~~ filtration and separation media used in ~~high performance~~ air and liquid applications in industrial or professional settings that require a combination of water and oil repellence until 6.5 years after EiF;

6. Medical textiles

C6 SPFs are used in surgical textiles to repel water, oil, and stains. C6 SCFPs are crucial for effective barrier that helps prevent exposure and contamination, including the transmission of infectious agents. Current non-fluorinated repellent alternatives cannot achieve the same properties as fluorinated repellents, as shown by recent studies.²⁵

In addition, it should be noted that these products are subject to separate collection under Waste Codes 18 01 03*²⁶, among others.

Based on all this, we support the inclusion of a derogation for medical textiles, in line with the PFHxA restriction proposal, under paragraph 5:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

xx. woven, knitted and nonwoven medical textiles as specified in 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 until 13.5 years after EiF;

Sector: Medical devices

7. Membranes for venting devices and wound treatment products

Some medical devices require C6 SFP-treated media. This includes filters for respiratory equipment and Heat and Moisture Exchange (HME) devices used in anaesthesia and intensive care units. The substance provides highly hydrophobic properties to act as a

²⁵ Philippa J. Hill et al, 2017, “Substitution of PFAS chemistry in outdoor apparel and the impact on repellence performance,” *Chemosphere* 181: 500-507. <https://doi.org/10.1016/j.chemosphere.2017.04.122>; Danish Ministry of the Environment, Environmental Protection Agency, *Alternatives to perfluoroalkyl and polyfluoroalkyl substances (PFAS) in textiles, Survey of chemical substances in consumer products No.137*, 2015, 978-87-93352-16-2. <https://www2.mst.dk/Udgiv/publications/2015/05/978-87-93352-16-2.pdf>.

²⁶ Wastes whose collection and disposal is subject to special requirements in order to prevent infection.

barrier against airborne contaminants, protecting both patients and healthcare staff. For these uses, the ATCS supports the proposed derogation. However, we would like to underline that while the derogation is included under paragraph 5, **the term 'membrane' may be limiting and specifically linked to fluoropolymers, leaving out other types of relevant materials.**

Additionally, we would like to highlight that C6 SCFPs are also used in professional medical adhesive tapes, also known as surgical adhesive tapes. These must be repellent to water and other liquids with a lower surface tension. The ATCS believes that **unless a derogation for medical textiles is included, the proposed derogation for wound treatment products should be moved from paragraph 6 to paragraph 5.**

Sector: Lubricants

8. Epilame mixtures used for watch manufacturing and watch servicing in mechanical and quartz watches

The watchmaking industry uses solubilised C6 SCFPs as coating to lubricate mechanical and quartz watch movement parts during watchmaking and watch servicing. The production of *epilame* mixtures takes place mainly outside of the EU, in Switzerland, and watches annually placed on the EU market contain < 1 kg/y C6 SCFPs.

Based on the high socio-economic costs deriving from the potential absence of a derogation, and considering the low quantities of PFAS annually placed on the EU market, we support the inclusion of the following derogation:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

xx. epilame mixtures used in watch manufacturing and servicing;

xx. epilame in watches [articles];

Sector: Electronics

9. Semiconductor and semiconductor related equipment, and coating of electronic devices

We welcome the inclusion of a derogation for semiconductors in the restriction proposal under paragraph 5(ee). However, we understand that the proposed wording may not be appropriate and would like to refer to ESIA and SEMI for further clarifications. In addition, we suggest the inclusion of a review clause after the 12-year transition period since there are currently no alternatives available and it is uncertain when they will be developed.

Additionally, we suggest including a derogation for the coatings for electrical and electronic equipment, in line with the SEAC opinion on the PFHxA restriction proposal:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

xx. functional coating used in electrical and electronic equipment and the components thereof until 6.5 years after EoF;²⁷

This derogation is necessary as C6 SCFPs are used in coatings for electronic equipment that rely on electric currents and electromagnetic fields for proper function. Examples of the specific applications can be found in our second contribution to the public consultation. Also, coatings for electronic devices have zero emissions during use, as their application is conducted under clean room conditions. Additionally, proper treatment and collection methods ensure zero emissions at end of life.

Overall, C6 SCFPs are essential for high-performance and long-lasting semiconductors and electronics. No suitable alternatives currently exist. The increasing obligations for high energy efficient electronics makes C6 SCFPs indispensable to society for the time being. A restriction on their use would be ineffective without proper waste management and import controls.

Regarding the socio-economic implications of banning PFAS in semiconductors, specifically, the following impacts should be underlined:

- Transitioning to non-PFAS alternatives in semiconductor manufacturing is complex and uncertain, requiring evaluation on a case-by-case basis.
- Restricting PFAS in semiconductors will impact innovation, as PFAS and semiconductor advancements are interconnected. Currently, we see no viable non-PFAS alternatives for semiconductors.
- Semiconductor manufacturers will spend around \$10.8 million to qualify new materials. The etching process during photolithography takes 6-9 months per mask and costs \$250,000 to replace PFOS, PFOA, and related products. Precise calculations are required to determine hole spacing and feature dimensions.²⁸

²⁷ Please note that this transition period is specific to C6 and there may be different requirements for other substances.

²⁸ Semiconductor PFAS Consortium, Photolithography Working Group, *PFOS and PFOA Conversion to Short-Chain PFAS-Containing Materials Used in Semiconductor Manufacturing*, June 5, 2023. <https://www.semiconductors.org/pfas/>.

- According to the World Economic Forum, semiconductors can help reduce emissions by 15% by 2030, covering almost one-third of the required reductions.²⁹ The global market for semiconductors is expected to double from 550 million dollars in 2022 to over a trillion dollars by 2030, with the EU advocating for a sustainable chip value chain through initiatives like the European chips act.
- The EU's semiconductor market share has dropped to under 10%, coming from 20% in the 1990s. The industry is complex and relies on geographic specializations. While the EU produces larger chips, only two Asian companies make cutting-edge ones. However, the necessary equipment for these chips is produced solely in Europe. The EU market is expected to grow 12.6%, but restrictions could harm product performance and innovation.³⁰
- A far-reaching restriction such as proposed by the Dossier Submitters would force the production of products with C6 fluorotelomer chemistry to relocate outside the EU. Therefore, we suggest introducing additional reporting requirements rather than banning the production and critical use of these substances, as it is a proportional tool for obtaining better oversight of the volumes of C6 SCFPs in products.

Sector: Metal plating

10. Hard chrome plating

This substance is used as a mist suppressing agent to lower the surface tension of the plating solution and create a protective foam that prevents the formation of chromium-VI aerosols, limiting workers' exposure to this carcinogenic agent. In addition, chromium trioxide is considered critical for a vast range of industry sectors, including automotive, aerospace or oil and gas.

We expect that, if the timeline of the proposed derogation is not aligned with the authorization for the use of chromium trioxide, it is possible that the electroplating industry will not be able to operate under safe conditions, leading to a cessation of its activities in Europe, and bringing negative consequences for downstream sectors.

Therefore, we support the extension of the transition period for this derogation, as requested by other stakeholders.

²⁹ World Economic Forum, "Digital technology can cut global emissions by 15%. Here's how". January 15, 2019, <https://www.weforum.org/agenda/2019/01/why-digitalization-is-the-key-to-exponential-climate-action/>.

³⁰ European Parliament, European Parliamentary Research Service, European Strategy and Policy Analysis System, Global Semiconductor Trends and the Future of EU Chip Capabilities, 2022, <https://espas.eu/files/Global-Semiconductor-Trends-and-the-Future-of-EU-Chip-Capabilities-2022.pdf>.