

1. Choose all sectors that are relevant or covered by your responses in this general survey.

Minimum 1 selection(s)

- ~~{01} PFAS manufacturing~~
- ~~{02} Textiles, upholstery, leather, apparel and carpets (TULAC)~~
- ~~{03} Food contact materials (FCM) and packaging~~
- X [04] Metal plating and manufacture of metal products
- ~~X {05} Consumer mixtures and miscellaneous consumer articles~~
- ~~{06} Cosmetics~~
- ~~{07} Ski wax~~
- X [08] Applications of fluorinated gases
- X [09] Medical devices
- ~~{10} Transport~~
- X [11] Electronics and semiconductors
- X [12] Energy
- X [13] Construction products
- X [14] Lubricants
- X [15] Petroleum and mining
- X [16] Printing applications
- X [17] Sealing applications
- X [18] Machinery applications
- X [19] Other medical applications
- X [20] Military applications
- X [21] Explosives
- X [22] Technical Textiles
- X [23] Broader industrial uses
- X [24] Other sector

2. Please provide a general description of the use(s) of PFAS (or alternatives) you are providing comments on. - Briefly describe the use(s) of PFAS (or alternatives) in this sector(s). Limit 2000 characters

The member companies of Technology Industries Finland (TIF) use PFAS substances in various applications and articles due to their properties that make them very difficult to replace in numerous technological components and contexts. PFAS substances are used in industry across many areas, as they withstand high temperatures, pressure, wear, and other extreme conditions.

The uses of PFAS may vary greatly even within one company. The task of analysing alternatives for hundreds of product families is itself a major task, not to mention the substitution process of hundreds of components across hundreds of products, production equipment, and process chemicals.

In many cases, alternatives that are currently available do not reach the same level of performance and their durability is lower and may increase safety risks for people and the

environment. The PFAS restriction under SEAC's draft opinion would likely degrade industrial performance, which could negatively affect safety, emissions, and waste management, as well as increase energy and chemical consumption. The PFAS restriction under SEAC's draft opinion could result in European industries taking steps back in terms of technological, environmental and safety improvements if a more risk-based approach is not applied.

TIF highlights that many technological advances that are essential for the green transition, the energy objectives, the safety, the functionality of technologies, and critical infrastructure would be impossible without components or applications containing PFAS substances. Use cases include seals, valves, coatings, hoses, filters and membranes, lubricants, surface treatments, circuit boards, semiconductors, capacitors, cables and wiring, automation and control systems, energy storage, solar panels, fuel cells, and lithium-ion battery materials. Many PFAS substances are integrated into complex, multi-tier global supply chains, where tracking and replacing them presents significant challenges.

3. Please provide your comments on section 1.2. SEAC opinion. Limit 5000 characters

TIF agrees with SEAC's notion that a full ban combined with an 18-month transition period is not proportionate. Many PFAS-dependent functions serve cross-sector industrial and societal needs, including weather forecasting, process technology, life sciences, machinery, sealing, high-reliability electronics and specialised detection and monitoring equipment. These applications support safety, regulatory compliance and industrial continuity, and cannot be rapidly substituted without significant socio-economic consequences.

For example, fluoropolymers are needed in high-performing industrial seals, valves, pumps and hydrogen pipelines to prevent leakages. Fluoropolymers are also essential for pressure regulators reducing hysteresis (low friction), seals and gaskets needed for demanding industrial gas and liquid measurements, lithium batteries to eliminate short circuits and thermal runaway, automation and control systems in harsh industrial environments to ensure reliability, breathing vents to seal enclosed equipment against humidity and eventual corrosion, membrane or porous filters to control the flow of gases through the probe of a measurement instrument, and radio frequency coaxial cables as a dielectric with low energy losses and inherent flame retardancy, and so on.

TIF notes that the greatest challenge regarding the PFAS restriction under SEAC's draft opinion does not relate to individual uses and their alternatives but to the cumulative effect of changes both in the supply chain and in our member companies' own operations. The approach of SEAC's draft opinion carries a risk of over-generalisation across many PFAS uses, which could lead to disproportionate impacts in cases where replacing PFAS substances is not technically feasible within the timelines proposed by SEAC. The PFAS restriction under SEAC's draft opinion would result in unpredictability, even though derogations would be set.

This is because PFAS substances are used in many different and commonly used components, which is why the engineering costs would be significant, as changes would be needed to be made to multiple components and production process in a phased manner. In practice, it would be highly burdensome for downstream users to monitor the developments for alternatives and their respective derogations. For the most part, the responsibility would fall

on manufacturers, both with regard to PFAS data and potential alternatives, and there are shortcomings in both areas.

Against this background, TIF considers that greater emphasis is needed on use-specific evaluations and realistic transition pathways, particularly where industrial safety and reliability are concerned, and uncertainties regarding the availability, performance and qualification of alternatives should be more explicitly reflected in SEAC's conclusions.

SEAC's draft opinion does not sufficiently evaluate the benefits of a more targeted mechanism that would focus on the riskiest uses of PFAS from the perspective of human health and the environment, resulting in a draft opinion that does not respect the capital investments made into current technologies, nor does it consider the essential use of certain PFAS substances. PFAS substances should be treated as enabling materials in safety-critical and long-life technology applications where they are necessary for safety, reliability or regulatory compliance. In such cases, alternatives should be assessed on a case-by-case basis, and not as a straightforward material swap. The use of PFAS should remain possible for as long as there is no full-scale availability of suitable and technically developed alternatives.

TIF supports risk management measures that target the PFAS uses and emission pathways that drive actual environmental exposure, rather than a broad restriction that treats all PFAS and all uses as equivalent. As many PFAS uses in industrial equipment, components and complex high-tech products are contained within engineered systems and have limited release during normal operation, but high transformation costs, regulatory focus should prioritise high-release/dispersive uses and life-cycle stages with higher emission potential.

Lastly, TIF highlights that spare parts, repair, refurbishment and resale of products already placed on the market should be clearly safeguarded (repair-as-produced principle) in the further preparation of the restriction. This is because strict restrictions on the use of spare parts could prevent the reuse of certain goods and substances (if they contain excessive levels of PFAS), which could shorten product lifespans, set costly maintenance requirements, increase waste generation and undermine EU's circular economy objectives. To avoid such outcomes, spare parts, repair activities, and refurbished products should be explicitly excluded from the scope of the restriction.

4. Please provide your comments on section 2.2. Summary of the opinion and 2.2.2. Limit 5000 characters

As noted, TIF agrees with SEAC's conclusion that RO1 (full ban with a transition period of 18 months) is not proportionate. TIF also agrees that a broad restriction must be accompanied by use-specific derogations to remain proportionate. However, TIF considers a more targeted and risk-based restriction as a proportionate restriction rather than RO2 (a ban with use-specific, mostly time-limited derogations of a duration of 5 or 12 years in addition to a transition period of 18 months). As some of the derogations (additional industrial sectors) are linked to the completion of future sector-specific evaluations, TIF considers open-ended derogations more proportionate than time-limited derogations as currently stated in SEAC's draft opinion. The derogation should not expire where no technically and economically suitable PFAS-free alternative has been proved to be available at the scale and quality required, and

where expiry would result in market withdrawal of essential products without a viable replacement pathway.

TIF's reasoning in this context relates to the fact that proportionate additional derogations will be required for certain (sub-)uses, but due to the uncertainties in the available information for the assessed uses, as well as unknown or unidentified uses, SEAC has not been able to specify such additional derogations. This lack of information on additional derogations creates a disproportionate risk of uncertainty for European companies and could result in a future situation where a previously unidentified use would be categorically banned with the current approach of RO2, with currently no information on how and whether further derogations may be applied for.

Overall, section 2.2.2 of the opinion would need clearer acknowledgment of capital investments made into current and widely used technologies, certification requirements and complex supply chain dependencies, as well as the implications for global competitiveness of European companies. It is important to distinguish between dispersive uses and non-dispersive, embedded uses in durable equipment, where PFAS are typically used in contained conditions with low exposure potential during use. Without adequately addressing these aspects, the SEAC draft opinion risks presenting an overly simplified opinion of both the feasibility of alternatives and the overall impact of the proposed restriction.

5. Please provide your comments on section 3.2. Justification that action is required on a Union-wide level Limit. 5000 characters

TIF agrees with SEAC's opinion that a harmonised EU-wide approach is justified to address transboundary human health and environmental concerns, and to avoid creating barriers to the free movement of goods within the EU's internal market. Applying the same PFAS restrictions across all EU Member States is necessary to prevent single market fragmentation and to ensure consistent conditions for economic operators within the EU.

However, TIF highlights that a more targeted and risk-based mechanism focusing on PFAS uses with higher emission potential that drive actual environmental exposure would better align with the EU's principle of proportionality. In addition, since industrial PFAS uses vary in terms of operating environments, qualification requirements, performance parameters and product lifespans, PFAS restrictions should allow for functional differentiation.

Lastly, the phase-out of PFAS substances should be accelerated by sharing information on alternatives and substitutes across different Member States and industry sectors. This also applies to analytical methods for determining PFAS concentrations. From the perspective of EU's circular economy objectives, it is critically important to ensure that the methods used by different Member States to determine PFAS concentrations are consistent so that a PFAS concentration determined acceptable in one Member State is not prohibited in another.

6. Please provide your comments on section 3.3.1 Availability and technical and economic feasibility of alternatives. Limit 5000 characters

SEAC's draft opinion does not consider the current technical limitations for replacing PFAS in several industrial sectors and the overall impact of alternatives, such as increased energy consumption, loss of reliability, durability or service life, increase of waste and possible safety risks.

For companies providing e.g. complex high-tech products, the uses of PFAS vary greatly even within one company. The task of analysing alternatives for over many hundred product families is itself a major task, not to mention the actual substitution process of hundreds of components across hundreds of products, production equipment, and process chemicals. For companies providing high-tech products the greatest challenge lies not in individual uses and their alternatives but in the cumulative effect of changes both in the supply chain and in their own operations.

These cumulative effects exacerbate the implications of redesign, revalidation and recertification needs. There is a great risk of unpredictable and uncontrollable cascading of component and product changes that exceeds the engineering resources of a specialized product area that European companies currently have. On top of this, there will likely be a need for process changes, new process equipment and chemicals and their testing and qualification, potentially all at the same time as the final products themselves must be re-engineered.

Even if there were viable PFAS-free alternatives, replacing the whole PFAS-containing component base would take an immense amount of work in first identifying the alternatives, testing them in product runs, validating them in actual operating conditions and with actual customers, and possibly repeating the cycle if the results were subpar – and all of this for each subassembly and each product. In some cases, also expensive and time-consuming 3rd party approval tests (e.g. IEC/UL safety approvals, FAA/NWS configuration management control) would be necessary.

Case example 1: An example on implementing a substitute once identified in one product model (lifts):

1. Qualify substitutes at material level, develop test samples & initial performance & reliability testing (1-2 years);
2. Develop Production part, produce & qualify production samples of the part (1-2 years depending on type of product);
3. Build product with the new part, ensure volumes be available for production; test & qualify at system level (1-2 years);
4. Conformity testing: Initiate and pass 3rd party conformity testing (1 year);
5. Production ramp up: Start-up of volume production from material vendors through to final product assembly (1 year).

It critical to highlight that each of our companies would have to do this for each individual part and every application requires a new evaluation.

Case example 2: Valves used in process industry:

1. Find alternative materials (1 to X years);
2. Feasibility testing with prototypes (5-10 years);
3. Standardize new materials (2 years);

4. Re-design valves with new materials (5-10 years);
5. Certification testing of valves (20 years);
6. Offering updated with alternative material (> 25 years). Total time required: more than 25 years.

The acceptable loss of performance perspective is an important factor that also needs to be considered in the determination of alternatives. SEAC correctly notes that performance tolerances in safety-critical applications of PFAS alternatives in aviation are stricter than in consumer applications. However, the same applies to many other industries. These include process industries that require continuous monitoring and measurement instruments e.g. for weather, energy and water usage, as well as industrial applications that must fulfil strict requirements for safety, reliability and accuracy, and where service life is often a key requirement.

From the perspective of acceptable loss of performance, it must be ensured that no compromises are made in fields where human lives are at risk, such as healthtech, weather forecasting and process technologies. Even where human lives are not directly at risk, any loss of performance must be weighed against the EU's competitiveness and sustainability objectives. This is particularly relevant for industrial processes, where quality must be maintained in fields such as battery manufacturing, electricity grids, data centres and other industrial applications where stable conditions are required for process quality or energy efficiency.

For example, fluoropolymers are used commonly in high-performing industrial seals, valves, pumps, hoses and hydrogen pipelines to prevent leakages. Additionally, in energy-efficient systems, low friction is critical, as friction in valves, especially in pressure regulators, causes increasing hysteresis, meaning decreased regulation performance. The majority of valves contain these guides and coated o-rings.

7. Please provide your comments on section 3.4.1. Regulatory risk management options other than restriction. Limit 5000 characters

The PFAS restriction approach in SEAC's draft opinion, with a number of derogations, highlights the fact that proportional legislative solution requires flexibility for essential uses of PFAS. Overlapping EU regulation should be avoided in all cases (e.g. Ecodesign on Sustainable Products Regulation and Right to Repair Directive), and measures to restrict PFAS substances must be aligned with the EU's objectives on the green transition, competitiveness and the circular economy.

As noted, TIF supports risk management measures that target the PFAS uses and emission pathways that drive actual environmental exposure, rather than a universal restriction that treats all PFAS and all uses as equivalent. Industrial uses with high value added should be separated from consumer uses. Hence, alternative risk management measures should be examined, and information should be shared between Member States so that best practices and analytical methods for determining PFAS concentrations are consistent and easily accessible.

The potential alternative risk management measures could include stricter emission controls, the application of best available techniques, safety instructions for workers, improved waste management and recycling practices, and targeted measures based on a risk-based approach. For industrial and high-tech applications, such approaches could deliver substantial risk reduction while avoiding disproportionate socio-economic impacts of a universal restriction.

TIF agrees with SEAC's draft opinion that concerns regarding the use of PFAS are global in nature, which is why restricting PFAS at the international level would be the most appropriate solution. This highlights the fact that in the future, the EU should pursue PFAS reduction efforts on the international stage as well. Since the United States is the EU's largest export partner and PFAS restrictions has also been applied by US national and state legislation, transatlantic cooperation and the competitiveness of European industry must also be taken into account in the context of PFAS restrictions. The indirect effects on major import partners in terms of imports, such as China, must also be taken into account.

8. Please provide your comments on section 3.4.2.2.1. Socio-economic analysis: Approach. Limit 5000 characters

TIF agrees with SEAC's draft opinion that the socio-economic analysis must be structured and consistent across different economic sectors, and that currently most of the sectors and (sub-)uses assessed lack robust socio-economic information. This is also the case for the additional sectors for which the RAC or the SEAC did not carry out detailed sector-specific evaluations. This has resulted in the SEAC's draft opinion that adopts a broad approach but lacks sufficient granularity, which could result in higher costs than SEAC's draft opinion currently projects.

A more robust socio-economic analysis would require a risk-based and sector-specific analysis that would consider the specific characteristics of European industries, the possible alternatives and the associated socio-economic impacts as well as the cumulative effects in the value chains. Currently, SEAC's approach combines highly diverse economic sectors under a broad restriction, with limited differentiation between critical and non-critical uses, and does not adequately address existing uncertainties. The approach of SEAC's draft opinion is likely to lead to unpredictable consequences from the perspective of European industries.

9. Please provide your comments on section 3.4.2.2.2. Socio-economic analysis: Costs. Limit 5000 characters

TIF considers the SEAC draft opinion as contradictory with regard to costs, as SEAC notes that there is a general lack of data and partly substantial shortcomings in the cost assessment provided, but concludes that the costs associated with RO2 and RO3 are mitigated "due to the derogations and conditions proposed allowing the continued use of PFAS for specific (sub-)uses and/or applications (in many cases with a time limit), the magnitude of the mitigation is unknown."

The cost analysis of SEAC's draft opinion does not sufficiently consider the costs associated with the indirect and cumulative effects resulting from the implications of possible restrictions on redesign, revalidation and recertification needs concerning e.g. industrial monitoring and control systems, transport, potential production losses, supply-chain disruptions and

restructurings and overall loss of performance. The potential reductions in durability, increased energy consumption and waste generation, and costs of mitigating safety risks have not been thoroughly considered either in SEAC's draft opinion.

Overall, the restriction would result in cumulative effects of changes in components, products and processes in several product families and supply chains at the same time (in one company – not to mention entire industry ecosystems); the wide variety of end-user sectors affected by the restriction via loss of performance or obsolescence of critical instrumentation (e.g. end-user fields dependent on the electronics and semiconductors sector) that have not been taken into account sufficiently by SEAC or the Dossier Submitter according to the documentation.

Because many PFAS-dependent industrial systems operate over decades, continuity of spare parts and maintenance-compatible components is critical from the perspective of competitiveness. The risk of component unavailability or early obsolescence therefore represents a further cost factor for European companies.

While SEAC has not been able to fully assess the costs associated with the additional risk management measures and reporting requirements, another point to consider besides cost is the purpose and practicability of the measures i.e. cost-effectiveness. The EU SCIP database has been proposed to be shut down because it has not served its purpose and has, on the contrary, posed unreasonable economic and administrative burden on companies; it would be regrettable if a similar system was now created under the banner of PFAS risk management and later proved to be unsuccessful.

10. Please provide your comments on section 3.4.2.2.3. Socio-economic analysis: Benefits. Limit 5000 characters.

TIF acknowledges the long-term environmental and health benefits of PFAS restriction and highlights that its member companies are committed to reducing the presence of harmful PFAS substances in their products to promote a more circular economy and enhance human health. However, TIF points out that while the persistence of PFAS is a harmful property, the same persistence underlies properties such as heat resistance and long service life, which make PFAS substances difficult to replace in many industrial processes and applications.

For example, the benefits of including fluoropolymers in the restriction scope are not clearly demonstrated. Fluoropolymers are widely used and have been identified as persistent but not bioaccumulative, with emissions primarily occurring during the manufacturing and waste management phases. It is therefore unclear why regulatory measures are not more specifically targeted at these stages of the life cycle. Given their industrial importance, fluoropolymers should, in general, be excluded in applications where no technically viable and safer alternatives exist. In typical industrial uses, fluoropolymers and other PFAS-containing articles do not result in significant emissions during operations, while potential risks in manufacturing and end-of-life phases are more appropriately addressed under existing emissions, occupational safety and waste legislation.

This highlights the importance of a risk-based mechanism to reducing the harmful effects of PFAS on human health and the environment. Proportionate derogations would help to avoid

supply disruptions, preserve system safety and reliability, prevent premature waste generation, and allow innovation to proceed on realistic timelines rather than through forced redesign cycles.

11. Please provide your comments on section 3.4.2.2.4. Socio-economic analysis: Other relevant impacts. Limit 5000 characters

TIF agrees with SEAC draft opinion's notions on second-hand articles and spare parts availability, which are critical for equipment lifespan, circularity and sustainability. Restrictions on second-hand articles and spare parts should not be considered, since otherwise, premature replacement due to the unavailability of spare parts or repair services would contradict the EU's resource efficiency, competitiveness and circular economy objectives.

Spare parts and refurbished products should be excluded from the restriction indefinitely. The repair-as-produced principle should apply to the placing on the market of spare parts, as well as wear and used parts, in order to support sustainability and economic efficiency. Given that PFAS are present in products already on the market, it would otherwise be impossible to reuse, refurbish or repair products with PFAS free components. Compatibility between products and spare parts, as well as conformity testing, would be compromised without a clear exclusion.

SEAC also highlights several additional impacts relevant to industrial applications, including cumulative substitution effects where multiple PFAS dependent components coexist in a single system, supply chain visibility challenges and uncertainties related to recycling impacts for certain material streams. Cumulative impacts in the supply chain of the same complex object are likely to fall heaviest on the kinds of products that bring the most value to society, as they have been designed for harsh conditions with the best available technology. These include technologies relevant to process industry, renewable energy production, aviation, shipping, weather forecasting as well as industrial monitoring and control equipment for critical life sciences and enablers of digitalization and the green transition. These considerations further underline the need for clear definitions, careful scope design and pragmatic derogations.

12. Please provide your comments on section 3.4.2.2.5 Socio-economic analysis: Proportionality. Limit 5000 characters

From the perspective of TIF, the proportionality of a broad restriction is not adequately considered as noted in various previous comments. A risk-based and more targeted approach on PFAS restrictions is necessary in order to avoid disproportionate impacts on sectors with complex, safety-critical or long-lifecycle applications. In practice, the approach should allow more flexibility to European industries, since e.g. in process manufacturing the PFAS uses differ depending on the process, and a sector-specific approach is not necessarily the most practical one.

13. Please provide your comments on section 3.4.2.3. Practicality, including enforceability. Limit 5000 characters

The implementation of a broad PFAS restriction would be highly complex given the broad scope of the proposed restriction, the lack of clear definitions and the current limitations in analytical capabilities. Practicality and enforceability of the restriction depend on harmonised guidance, clear and unambiguous definitions, and realistic compliance obligations for companies as well laboratories. In the context of possible reporting obligations, the EU should not repeat the costly mistakes concerning the SCIP database. The reporting of PFAS uses should be justified, practicable, and put to actual use.

TIF highlights the need for clear and comprehensive guidance, particularly from the perspective of SMEs. From this perspective, it is certain that the 18-month transition period (RO1) would not be sufficient to produce such guidance. TIF also notes that a rush to develop the guidance would lead to uncertainty among companies operating in the EU and increased resource requirements in terms of compliance and technical expertise.

From the perspective of TIF, site-specific PFAS management plans could be applied to industrial uses with high emission potential as a proportionate solution, rather than being imposed on various industrial operators and manufacturers on the basis of a broad PFAS restriction. As industrial applications typically contain numerous components sourced from global supply chains, documentation, reporting and management plan requirements for PFAS must not result in a disproportionate administrative burden for companies. The possible management plans and reporting obligations must be aligned across Member States to ensure consistent application.

Lastly, since information on PFAS content is not always fully available to downstream manufacturers, TIF has concerns about whether the proposed concentration limits are appropriate, considering the state of play on analytical methods especially when high-end multimaterial articles are in question. TIF notes that the proposed concentration limits are not practical for solid articles and should be expressed in % rather than ppm. This would give industrial operators a clearer and more testable threshold.

14. Please provide your comments on section 3.4.2.4. Monitorability. Limit 5000 characters

TIF does not support monitoring obligations through the enforcement of labelling requirements across all sectors. A single product may be relevant to several PFAS sectors and applications, each potentially subject to different derogation periods. This would result in excessive substance-related information on labels and make labelling impractical due to space limitations in products. This kind of labelling requirement risks creating impractical labelling and duplicative work for European companies, particularly when taking into account the upcoming requirements for digital product passports (DPP) under the Ecodesign for Sustainable Products Regulation (ESPR). It must be ensured that the labelling obligation does not generate unnecessary management and implementation costs for manufacturers, with limited effectiveness as a monitoring tool.

15. Please provide your comments on section 3.4.3.2.1. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: (i) PFAS definition. Limit 1000 characters

PFAS restriction under SEAC's draft opinion is too broad, as it includes substances with very different properties and risk profiles with limited analytical methods and capacity within companies to determine PFAS concentrations in their operations. A more targeted definition and approach would be more appropriate to ensure proportionality and regulatory clarity. The availability of targeted derogations and realistic transition periods becomes even more critical. This is particularly relevant for industrial uses that were added later in the assessment process and have not yet been thoroughly evaluated (8 additional sectors).

Fluoropolymers substitution feasibility and transition timelines have not yet been sufficiently assessed by RAC or SEAC. A broad definition should therefore be accompanied by risk-based mechanism on certain PFAS uses to avoid disproportionate impacts on essential industrial uses. The fluoropolymers should be excluded from the definition of PFAS.

16. Please provide your comments on section 3.4.3.2.1 Conclusion whether the suggested restriction is the most appropriate EU-wide measure: (ii) Exclusion of PFAS from the scope. Limit 1000 characters

Due to the high industrial importance, TIF considers a general exemption of fluoropolymers (see comments on section 1.2.) as necessary, especially if technically suitable and environmentally safer alternatives are not found. Fluoropolymers and safe uses of PFAS in industrial applications, equipment, and components generally do not cause relevant emissions to the environment when they are used as intended, also taking into account potential additional risk management measures under the PFAS restriction.

TIF considers risks in the manufacturing and waste phase to be more appropriately addressed in the relevant EU legislation, such as the Industrial Emissions Directive and the upcoming Circular Economy Act. An exemption concerning biodegradable substances could also be considered appropriate.

17. Please provide your comments on section 3.4.3.2.2 Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Scope of the proposed restriction. Limit 1000 characters

Currently there is insufficient information to determine derogations for specific articles. Where product stability during use and appropriate waste management without PFAS emissions can be ensured in the future, the continuation of derogations should be made possible. The opinion should adopt a more refined scope focusing on applications with an unacceptable risk, rather than a broad restriction. For sectors that have not been fully evaluated, open-ended derogations should be considered as an appropriate solution.

Where proportionality is ensured with use-specific derogations (RO2), a more cost-effective solution would be restriction only on the sectors and uses where the data is clear on the risks,

emissions and substitution potential and, if necessary, adding additional uses to the restriction in future as more information and alternatives become available. This would allow for complex supply chains to transition to alternatives use by use while maintaining operations in Europe.

18. Please provide your comments on section 3.4.3.2.3. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Concentration limits. Limit 1000 characters

The threshold of 25 ppb for solid materials should be replaced by 0.1% PFAS by weight when intentionally added in manufacturing, avoiding unreliable analysis of complex products. For liquids and gases, the threshold should be higher to allow practical analysis and to avoid restricting contaminated material with no intentionally added PFAS. The concentration limits risk creating obligations that are strict but not enforceable in practice, particularly where polymeric PFAS, trace contamination or complex matrices are concerned. Verification would require costly testing without providing certainty as to whether detected fluorine demonstrates non-compliance. Only intentionally added PFAS should be restricted (not trace contaminants and impurities) since laboratory analysis of all goods on the EU internal market is not feasible. A restriction relying on broad substance definitions and complex verification cannot be assumed to enable effective and uniform enforcement in practice.

19. Please provide your comments on section 3.4.3.2.4. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: General 18-month transition period. Limit 1000 characters

Testing capacity, availability and usability of analytical methods and the burden on companies must be taken into account when setting transition periods. Testing is often necessary after specific manufacturing steps and these procedures increase production costs, necessitating expenditure on testing equipment or external testing services. TIF therefore considers longer transition periods as proportionate. Transition periods should be aligned with the compliance steps required for each use: 1) redesign and material/component qualification; 2) product-level performance testing and system requalification; 3) applicable third-party certification and regulatory re-approval processes; and 4) supply-chain readiness across all relevant tiers. As qualification and certification cycles typically span between 4–8 years, sector-specific transition periods must be specified in the restriction text (not in guidance) as they determine whether an operator can continue placing products on the market.

20. Please provide your comments on section 3.4.3.2.5. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Derogations. Limit 5000 characters

The greatest challenges in SEAC's draft opinion concern the significant uncertainty of the opinion, given the limited availability of data across the wide range of PFAS uses, as well as the lack of in-depth assessment of cross-sectoral interdependencies, and that SEAC has been unable to reach a conclusion on several sectors on the appropriate duration of derogations. As a result, compliance within the proposed derogation periods may be difficult

or unachievable for certain PFAS uses, and additional or extended derogations may be necessary.

This highlights the fact that instead of fixed derogation periods, an open-ended derogation period for critical industrial applications should be introduced. In this regard, a review checkpoint could be introduced e.g. at 7–10 years. In practice this would entail that if commercially available alternatives are identified at these reviews, a restriction on PFAS use would be imposed after a certain transition period.

Overall, regarding derogations, it can be concluded that a more differentiated analysis would better reflect the diversity of applications and performance requirements. In particular, critical uses in transport, industrial production and monitoring as well as products that provide critical services to society are not sufficiently distinguished from non-essential uses. As noted above, the approach of SEAC's draft opinion carries a risk of over-generalisation across many PFAS uses, which could lead to disproportionate impacts in cases where replacing PFAS substances is not technically feasible within the timelines proposed by SEAC. The PFAS restriction under SEAC's draft opinion would result in unpredictability, even though derogations would be set.

Derogations should be considered as essential i.e. for metal plating processes, for fluorinated gases used in critical and high-tech applications, energy related applications in process industries, products that provide critical services to society and for certain transport components (including agricultural and forestry machinery). Where no viable alternatives exist, derogations should be granted on an open-ended basis, subject to regular review and based on clear and transparent criteria.

21. Please provide your comments on section 3.4.3.2.6.1. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Reporting requirements. Limit 1000 characters

Reporting requirements should be proportionate and require information on matters considered as relevant from the perspective of human health, environment and the functionality of EU's internal market.

TIF acknowledges SEAC's draft opinion's notion that reporting limited to tonnages alone does not clearly reflect the emissions potential or risks across diverse uses. Hence, including relevant emissions data reporting could materially improve monitoring and the evidence base decision-making for future proportionality reviews. The reporting requirements could include: (i) the specific PFAS and uses covered by the derogation; (ii) quantities placed on the market under the derogation; and (iii) associated emission estimates or release pathways where available. It is certain that the more detailed the reporting requirements are, the more difficult it is to comply with them in practice, and the higher the costs to companies associated with those requirements.

22. Please give an indication of the costs related to the reporting requirements.**Consult the SEAC draft opinion section 3.4.3.2.6.1. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Reporting requirements.**

Provide an estimate of the magnitude of the costs for the implementation of the reporting requirements, from very low when the impacts are estimated to be insignificant to very high when they may result in a decision to discontinue your business activities.

Very low or none

Low

Moderate

High

Very high

I do not know

23. Please provide your comments on section 3.4.3.2.6.2. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Site-specific PFAS management plan. Limit 1000 characters

While site-specific PFAS management plans may be supported to improve emission control, they risk creating a significant administrative burden, particularly for companies operating multiple sites. In practice, a company-wide PFAS management plan may be more practical than a site-specific one.

A proportionate approach would focus on sites with high emission potential and allow flexibility in implementation. Clear and harmonised EU guidance would assist implementation, but any condition (including the minimum content of a management plan, the definition of a 'site with high emission potential', and any associated reporting trigger) must be defined in the binding Annex XVII entry text with precision to enable uniform enforcement. Guidance documents cannot substitute for legally binding definitions where market access depends on compliance with those conditions. Without such targeting, the measure risks generating high costs without delivering proportionate environmental benefits.

24. Please give an indication of the costs related to the implementation of a site-specific PFAS management plan. Consult the SEAC draft opinion, section 3.4.3.2.6.2. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Site-specific PFAS management plan.

Provide an estimate of the costs for monitoring of emissions at industrial sites. Use the scale from very low (minimal impact) to very high (may result in a decision to discontinue business activities).

Very low or none

Low
Moderate
High
Very high
I do not know

25. Please give an indication of the costs related to monitoring of PFAS emissions at industrial sites

Consult the SEAC draft opinion, section 3.4.3.2.6.2. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Site-specific PFAS management plan.

Provide an estimate of the costs for monitoring of emissions at industrial sites. Use the scale from very low (minimal impact) to very high (may result in a decision to discontinue business activities).

Very low or none
Low
Moderate
High
Very high
I do not know

26. Please provide your comments on section 3.4.3.2.6.3. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Additional conditions considered by RAC. Limit 1000 characters

TIF opposes labelling as a PFAS supply-chain communication tool, as a single product may span multiple sectors and derogation periods, making labels excessively complex and impractical (see comments on section 3.4.2.4.). Moreover, monitoring PFAS across all applications remains technically challenging due to analytical limitations and the large number of substances involved.

Additional conditions proposed by RAC must be aligned with socio-economic considerations and existing EU legislation. Overlapping requirements risk duplication and unnecessary administrative burden for European companies. Again, a more targeted approach focusing on high-risk uses, supported by clear guidance and proportionality, would improve effectiveness while limiting unnecessary burden.

27. Please give an indication of the costs related to the additional conditions considered by RAC

Consult the SEAC draft opinion, section 3.4.3.2.6.3. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Additional conditions considered by RAC.

Provide an estimate of the costs for implementing these conditions. Use the scale from very low (minimal impact) to very high (may result in a decision to discontinue business activities)

Very low or none

Low

Moderate

High

Very high

I do not know

28. Please provide your comments on section 3.4.3.2.7. Conclusion whether the suggested restriction is the most appropriate EU-wide measure: Interaction with other relevant legislation. Limit 1000 characters.

TIF notes that the PFAS restriction, risk management measures and reporting obligations might overlap with many EU legislative instruments, including the EU F-gas Regulation, the Industrial Emissions Directive, the Ecodesign for Sustainable Products Regulation, the Right to Repair Directive, NLF Product Legislation, the upcoming Circular Economy Act as well as many EU objectives on sustainability and resource efficiency. The proposed restriction should be carefully aligned with existing legislation to prevent duplication of requirements, particularly regarding reporting, monitoring, and risk management measures. Without such alignment, there is a risk of conflicting obligations and increased administrative complexity.

29. Please provide your comments on section 3.5.2. Uncertainties evaluated by SEAC. Limit 5000 characters

Given the various PFAS uses and the diversity of sectors affected by the PFAS restriction, TIF acknowledges that it is difficult to determine appropriate derogation periods and their socio-economic impacts. Reporting requirements should therefore be connected to derogations in order to gather more information, with the European Commission retaining the option to adopt a more targeted and risk-based mechanism depending on future evaluations.

The uncertainties identified by SEAC are significant and should carry greater weight in the overall conclusions. Key areas of uncertainty include: (i) alternatives (for many sectors mentioned in these comments, technically feasible alternatives either do not yet exist or involve significant trade-offs in performance, safety or efficiency); (ii) cost estimates (cumulative effects and indirect costs related to redesign, requalification, certification and supply chain and operations adaptation are highly application-specific and likely underestimated); (iii) benefit quantification (while the persistence and risks of PFAS are recognised from the perspective of human health, the benefits of a broad restriction relative to its costs remain uncertain); (iv) data availability (for many PFAS uses, particularly in articles and complex supply chains, data is incomplete, affecting both emissions assessments and evaluations of alternatives); and (v) implementation and enforcement

(analytical limitations, the broad scope of the definition, and compliance feasibility across diverse sectors add further uncertainty).

Given these cumulative uncertainties, the socio-economic assessment should include greater transparency on assumptions, sensitivity analyses across a wider range of scenarios, and more differentiated sector-specific evaluations. Overall, the level of uncertainty calls for a cautious and proportionate regulatory approach, with adequate transition periods and targeted and risk-based derogations.