



Italian Industries Federation for Aerospace, Defence and Security (AIAD)

POSITION PAPER ON THE ANNEX XV RESTRICTION REPORT FOR PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Reference: ECHA Public Consultation on the Annex XV restriction report of 22 March 2023 for Per- and polyfluoroalkyl substances (PFASs)

AIAD includes almost all the National enterprises that operate with advanced technology in the design, production, research and services activities for the civil and military aerospace, military navy and army sectors, along with all the related electronic systems connected. As of today, direct members are 197: n.194 companies and n.3 national associations, ANPAM Italian National Association of Manufacturers of Firearms and Ammunition for Sport and Civil Uses, UNAVIA Italian Association for standardization in the Aeronautical Sector and ASAS Association for Space-based Applications and Services.

As representative of the Italian Industry, it is a member of the equivalent European Association (**ASD**). In this context it acts as point of reference for all the national and foreign institutions, and for the coordination of all those activities in which there is a need to represent the sector's national interest.

ASD (Aerospace, Security and Defence Industries Association of Europe) represents European Aerospace, Security and Defence Industries, representing directly or indirectly (through national association members) over 3,000 companies of all sizes from 18 countries.

As member of ASD, AIAD contribute and fully support the Dossier on PFAS Restriction presented by ASD during the ECHA public consultation.

In particular, **AIAD highlight that some uses by the aeronautic, space, security and defence (A&D from here on) sector have not been considered in the Annex XV.**

The restriction as currently proposed would have a catastrophic impact as it would bring aviation, space and defence to a standstill (no production, no imports, no maintenance) already 18 months after the entry into force.

A&D products include civilian and military aeronautics (aircraft of all types including all technologies for propulsion, hydraulics, flight control, etc.) and associated ground equipment e.g. air traffic control, ground support equipment and maintenance/inspection equipment. They also include a diversity of security and defence products ranging from naval vessels, armoured vehicles to weapon systems and munitions and all associated ground platforms for example involved in surveillance, communication, critical infrastructure protection and ground support equipment and maintenance/inspection equipment. Space equipment includes satellites, launchers and communication systems. **All these diverse products have the commonality that they operate under extreme conditions and must comply with very strict safety and reliability requirements over their service lives.** These requirements mean that there are stringent performance requirements for the chemicals/formulations/materials that are used in the manufacture of the parts, components, systems, etc. that make up A&D products. There are formal quality management systems in place for the manufacture, operation and maintenance (so called maintenance, repair and overhaul - MRO) to ensure compliance with these safety and reliability requirements (e.g. AS9100). The qualification and certification processes in place mean that once a product design is approved, there are formal change management processes that need to be followed to make changes to any part. MRO of products can only be done with the parts/components/system manufactured as per the approved design.

In ASD Dossier, we give an overview of where and why PFAS chemicals are used in A&D products. We explain that PFAS chemicals are essential to the production, operation and MRO. We give examples of the

most common uses and include 20 illustrative case studies. Each case study includes an overview of the application, the role of the PFAS chemicals in performance, the availability of alternatives and the impact of the proposed restriction on the application. The ASD dossier explain that fluoropolymers are in particular ubiquitous as seals, sealants, gaskets, lubricants, bearings, bushings, etc. across all the parts, components, systems that make up A&D products. Due to the formal quality management systems in place, change management is in general a lengthy process due to the qualification and certification requirements and likely redesign requirement for MRO. However, in this case, there are no drop-in alternatives available that can fulfil the performance requirements that underpin the safety and reliability of A&D products. This means that the timeline for substitution depends on the availability of alternatives not yet identified, commercialised or industrialised. For example, it is unlikely that 1 to 1 alternatives to PTFE for all current uses will be identified meaning that multiple new materials will need to be innovated.

We highlight that the scale of the substitution requirement that would be triggered by this proposal has no precedent. It impacts the availability of 1000's of parts, components, systems etc. across all A&D products needed for their production, operation and MRO. We cannot overstate the impact.

RO2 would have wider economic impacts that go beyond lost jobs in manufacturing – it would stop all EEA production of civilian aircraft, require scheduled maintenance for in-service aircraft to be done outside the EEA and make the EEA dependent on an aging and depleting fleet that could not be replenished. Defence forces would be crippled as they would not be able to maintain existing products, could not procure new products from either EEA or non-EEA providers and could not replenish depleted stocks of weapons and munitions. This does not describe a plausible scenario as it would a loss of sovereignty for Europe.

For the above reasons, we ask the dossier submitters to amend their restriction proposal to explicitly include A&D sector and its specificities in their assessment.

We ask them to consider the following:

- The formal quality management systems and in particular the strict certification process that are in place to ensure safety and reliability of A&D products (e.g. AS9100, NATO standards)
- The absence of alternatives that can fulfil the performance requirements that underpin the safety and reliability of A&D products
- The formal change management process in place to ensure safety and reliability of A&D products mean that substitution is in general lengthy even when alternatives are available
- The scale of the R&D activities because of substitution needs that would be triggered by a restriction with the current broad scope
- The complexity of A&D products that are assembled from 10000's of parts, components, systems etc. provided via multi-tiered global supply chains
- The interdependencies of parts, components, systems, etc. across diverse products mean that the lack of a qualified part can impact products that operate in different market segments (e.g. seals in gas turbine engines where the engines are used in civilian and non-civilian applications)
- A shortage of even a limited number of parts/components will mean the product cannot be produced/operated/serviced meaning that derogation coverage must ensure availability of all parts/components over the entire service life of the product
- A 12 year derogation period is not adequate due to the absence of alternatives, the need to develop new chemicals/materials/formulations and the lengthy substitution process to take suitable alternatives into use for both new and existing products
- A review clause through innovation would always be necessary for derogations as there are no alternatives and the timelines needed for the identification, commercialisation and industrialisation of new chemicals/materials/parts/formulations is unknown
- The ubiquity of fluoropolymers in the seals, sealants, cabling, coatings, hosing, etc. across all the parts, components, systems that make up A&D products and lack of foreseen alternatives to these materials,

that do not also possess 'persistent' properties (fluoropolymers are often used for their durability/resilience)

- Any reporting requirement of uses relying on derogations would need to consider the administrative burden and allow adequate time to collect the enormous volume of information on all PFAS chemicals in complex A&D products (e.g. naval vessels, aircraft, armoured vehicles)

- A strong and unequivocal identification by CAS and/or EC number of the restricted PFAS in order to avoid misunderstandings along the varied supply chain and clearly address any substitution activity.

Specifically we ask them to:

- Exclude fluoropolymers** (and the precursor PFAS chemicals necessary for the manufacture) from the scope of the restriction given their ubiquity in A&D products and the absence of alternatives that fulfil the performance requirements for reliability and safety

- Include a sector derogation** for the use of non-polymeric PFAS chemicals necessary for the production and operation of A&D products with a review clause to allow for an extension/renewal of the derogation if needed due to the non-availability of suitable alternatives

- Exclude the use of PFAS chemicals on their own, in formulations and in articles that are necessary for the MRO of existing products**

- Include a time-unlimited derogation for specific PFAS chemicals used fire suppression systems**

Concerning fire suppression, we would like to point out that years of research to replace Halon to comply with the EU Ozone regulation deadline have demonstrated that PFAS are the only suitable Halon alternative, already implemented in some applications (cabin & cockpit portable and lavatory fire extinguisher systems) and in final stages of development for other (Cargo). The EU PFAS restriction as proposed would have devastating economic and operational consequences for aircraft OEMs and their customers associated with the regrettable substitution scenario. Considering the very high risk of not finding any other better alternatives to Halon 1211 & 1301 in due time, a time unlimited derogation is requested to allow current implemented halon replacement to be maintained and ongoing activities to continue with no disruption and uncertainties that the current proposal would generate.

We highlight that due to our sectors reliance on products from a wide range of industries (electronics, semiconductors, batteries etc.), A&D sector derogations for fluoropolymers would not be sufficient to protect our industry from widespread obsolescence of materials and processes and unpredictable side effects within the related industrial supply chains. A blanket ban on fluoropolymers is a disproportionate risk management option given that the dossier submitters concern is on the conditions of use and risk management measures in place at their sites of manufacture and not as such from their use. There are more proportionate risk management options that would address the concern e.g. specific obligations under the Industrial Emissions Directive. Their potential for emissions at end-of life requires different considerations from non-polymeric PFAS as while they are "persistent" due to their extreme inertness; they are non-mobile, non-bioaccumulative and non-toxic. **The potential for risk has not been demonstrated from these class of materials.**

Fluoropolymers have a unique combination of properties that make them ideally suited to applications with high performance requirements for safety and reliability for extended periods in harsh and extreme conditions of use. They are durable, stable and mechanically strong in harsh conditions, stable in air, water, sunlight, chemicals and microbes, chemically inert, non-wetting, non-stick, and highly resistant to temperature, fire and weather. There are no materials currently available that have this range of properties. A ban on their use will compromise existing safety standards in the A&D sector and in other sectors (e.g. manufacturing, transport and storage of chemicals)

Any of the consideration above have been deeply detailed in ASD Dossier, together with dedicated use cases.