

Subject: PFAS restriction proposal and the use of fluoropolymers in critical water, gas and liquid fuels infrastructure

Introduction and aims

This comment is submitted in the name of **figawa e.V.**¹, the German association of companies for gas and water technologies supported by **DGMT e.V.**² (German society for membrane technology) and **Aqua Europa AISBL**³. Our members provide products and services for the utilisation and distribution of gas and liquid fuels as well as the distribution and the treatment of drinking water and water for industrial and communal purposes including wastewater and pool water treatment.

To fulfil their responsibility of providing millions of private households, municipalities and industry with resources such as gas, oil, and water, our members depend on a variety of **fluoropolymers-based technical components**, all of which with high requirements towards their mechanical and chemical properties. This does not only guarantee a functioning infrastructure with an enormous economic impact on the European society but also the very safety of the European population.

Fluoropolymers have very high molecular weight (usually > 10,000 Da) and show excellent thermal, chemical, photochemical, oxidative, hydrolytic and biological stability with low flammability, neutral electrical charge and resistance to degradation. No reactive groups are present in the structure of fluoropolymers. They are characterized by a carbon-only polymer backbone with F atoms directly attached to it, a unique feature in the chemical space. Fluoropolymers do not bioaccumulate, are not mobile and **fulfil the Polymer of Low Concern (PLC) criteria**.

The replacement of fluoropolymers-based components in devices in operation, which are designed for a service life of decades, is a great challenge. There is a lack of alternative materials and corresponding revised approvals, and safety tests would be necessary. A hasty substitution would entail enormous risks, not only for the security of supply but also for health and safety of the population (e.g. gas leaks, degradation of water quality and lack of hygiene). Numerous approved and certified products would quickly become unavailable once a ban comes into force. For all these technologies alternative materials must be developed, tested, and certified. This would result in enormous investments for industry and customers that would be disproportionate to the benefits, namely the potential reduction of emissions into the environment.

¹ <https://figawa.org/>

² <https://www.dgmt.org/the-dgmt.html>

³ <https://aqua-europa.eu/>

Position

figawa and its members are aware of the concerns related to the use of some PFASs and, as an organization committed to safe products and services, figawa explicitly supports the initiative to restrict the use of any hazardous PFAS classes which are scientifically proven to be associated with risks to human health and environment. **It must however be noted that not all PFAS classes are associated with one same hazard profile and, therefore, a segmentation according to risk must be made in the restriction proposal instead of grouping together all PFASs.**

Given:

- the above-listed excellent characteristics of fluoropolymers (e.g. PLC)
- how critical the use of fluoropolymers is in the applications covered by figawa members
- major difficulties for substitution of fluoropolymers in affected infrastructure

figawa primarily supports an exemption of fluoropolymers by way of a time-unlimited derogation for the applications relevant for its members (see details below) or at least the longest derogation period to perform the research necessary to find and implement alternatives that meet our high standards, which would certainly require far more than 13.5 years.

figawa is currently evaluating the effects of the proposed PFAS restriction for the fields where our member companies are commercially active in. After this evaluation process is completed, we will submit detailed comments for the **following three sectors specifically:**

(1) Water treatment (drinking water, wastewater, industrial water, and pool water)

(2) Water supply (public infrastructure, water distribution in buildings and water measurement) and

(3) Gas & liquid fuels (application and distribution)

Companies active in these sectors have joined forces to develop detailed impact assessments. However, we would like to draw the attention of the ECHA Committees with this first early comment to the fact that due to the currently very broad scope of the PFAS restriction proposal, materials are affected that our member companies use in a variety of products. Ultimately these are necessary to supply water and energy to the general population and industry.

Overview of the use of fluoropolymers by figawa members: three key sectors

- **Fluoropolymers in water treatment**

Water treatment systems protect people and the environment every day and enable industrial processes. The known technologies (chemical, physical, mechanical) have proven to be energy efficient and operationally safe but rely directly on the use of high-performance plastics containing PFAS. To remove pollutants and microbiology from water, highly reactive disinfectants and oxidants such as chlorine, chlorine dioxide or ozone are used. Therefore, fluoropolymers are required in treatment systems as sealings, hoses, linings and coatings or as a material for other components with high demands on chemical resistance.

Other materials are quickly attacked by chemical corrosion, and safe operation of disinfection and oxidation plants would hardly be possible at present without the use of fluoropolymers. Fluoropolymers are also used in equipment for physical processes such as UV disinfection because of their resistance to high doses of UV radiation or membrane filtration (here mainly PVDF) because of their resistance to corrosion by necessary chemical cleaning cycles and aggressive substances in water to be treated.

In addition, measuring and control systems in water treatment processes also rely on fluoropolymers. Monitoring through sensors is essential for efficient, safe, and reliable water treatment processes and cannot be substituted.

Without the use of fluoropolymers, the removal of often highly problematic substances for human health and the environment by water treatment systems would have to be abandoned. Although alternative materials have been sought in research for years, there are unfortunately still no promising results in this area. It must also be considered that any substitute materials must be tested in meaningful trials over long periods of time to be used in critical applications such as water treatment. Existing products, which are often certified, will have to be redesigned, as altered components will have an impact on the overall functionality and in particular the service life of the systems. Unavailability of maintenance parts will result in complete replacement of entire system well before their planned end of service life. The large number of affected plants would cause immense costs for industry and the public sector. Overall, this would jeopardise public water supply, wastewater treatment plants and water treatment in the industrial sector as well as the operation of swimming pools.

- **Fluoropolymers in water supply applications**

Public as well as private and industrial water supply systems are generally designed for a long service life (at least several decades) and there is limited access for maintenance and repair (e.g. in underground public water supply systems and wall installations. Therefore, especially components that have to meet mechanical requirements such as sliding or sealing must function for a long time without being serviced. Furthermore, their inherent stability prevents the migration of any harmful substances into drinking water.

Examples are shaft seals and O-rings such as parts in valves and fittings, pumps, pipelines and faucets that prevent water from leaking.

The commonly used materials for these components are fluoropolymers such as e.g. FKM, PTFE and PFA. In the long term, the use of substitute products might only be possible in certain areas but would require major design changes. Supply of spare and maintenance parts for existing networks in operation may not be possible and may result in expensive replacements before the end of service life. The vast number of affected networks with such technology would require immense investments. Altogether this could endanger public and industrial water supply and the benefit for the environment is marginal as materials in contact with drinking water are already subject to high standards.

- **Fluoropolymers in gas & liquid fuels applications**

Combustion technology is essential to provide heat for homes and energy for industrial processes. To ensure proper functionality of those applications there are several crucial parameters to control and measure. For example, it is important to control the internal pressure, for which pressure regulators and compressors are installed that contain fluoropolymers-based parts. This equipment safely prevents the build-up of overpressure which could result in an ecological and economic catastrophe in case there is a release of gas/liquid fuels into the environment.

Fluoropolymers-based sealings are currently without alternative in these installations. The most common fluoropolymers are FKM, PTFE and PVDF because of their highly favourable properties in regards of chemical and temperature resistance and mechanical properties. As of today, there are no alternative materials available that meet the required performance criteria and fulfil the high standards mandatory for these applications.

The sealings also play a crucial role in the private sector in gas heating to prevent leakage and thus accidents. A ban of fluoropolymers would entail huge costs for the substitution of all parts containing fluoropolymers, not to mention the costs for research and development to that end. Considering the high number of installations depending on fluoropolymers-sealings in today's infrastructure, substitution will take much more time than anticipated in the PFAS restriction proposal. Releases to the environment are not expected as production processes of fluoropolymers are technically designed to ensure prevention of dissipation of PFASs into the environment, or will be improved where necessary. The finished products are employed in very controlled applications and are mounted and dismantled by professionals.

Considering that substitution in this sector would have little environmental benefit, will only be possible at great expense and can potentially cause more harm than continued use due to a present lack of suitable substitutes, the decision to substitute in general is questionable.

Summary and outlook

Applications in water treatment (industrial/drinking/pool water and wastewater), water supply as well as gas and liquid fuels application and distribution rely on fluoropolymers in non-dispersive uses. These applications have been proven to be ecological, energy efficient and operationally safe. To ensure the advantages of the aforementioned applications without sacrificing environmental protection, energy consumption and operational safety goals, the use of fluoropolymers must remain possible.

figawa and its members understand the concerns regarding the use of some classes of PFASs, and we see the general effort to restrict them in a positive light. However we strongly believe that different judgement should be applied according to the specific hazard profiles of the different classes of PFASs instead of trying to address them as one broad group. Fluoropolymers have high molecular weight and do not bioaccumulate, are not mobile and fulfil the Polymer of Low Concern (PLC) criteria. The non-dispersive use of fluoropolymers as polymers of low concern in the applications described above is associated to major societal benefits while leading to minimal (if any) releases into the environment or exposure to humans. We are convinced that fluoropolymers as a subgroup of PFAS should be handled differently due to their insignificant contribution to the problem the restriction proposal aims to address.

This document is supposed to be a first overall impression of our current situation regarding the use of fluoropolymers. figawa, in cooperation with its member companies and supporting organizations, is in the process of preparing detailed comments and additional documents (analysis of alternatives, risk assessments, impact assessments) to be submitted before the commenting period ends in September. Furthermore, the document intends to raise awareness among the ECHA Committees that the use of fluoropolymers by the companies represented by figawa provides a high benefit to society at an absolute minimum risk.

As representatives of professional applications with the highest quality requirements in critical areas of our society, we plead for an appropriate, balanced and risk-based regulatory approach that improves – not risks – health, safety and environmental protection in the EU. We therefore call for an **exemption of fluoropolymers for our applications by way of a time-unlimited derogation from the current restriction procedure under REACH or a time-limited derogation with sufficient duration for technological adaptation**, which will certainly exceed 13.5 years.

About us



figawa is a technical-scientific association with over 275 member companies, particularly manufacturers and service providers, operating in the fields of gas, liquid fuels, and water. The industry association brings interests together, promotes uniform and demanding standardization and is involved in legislative processes to create the basis for approval, testing and certification, and to ensure legal certainty for all market players. Together with its member companies, figawa advocates for openness to technology in the heat and water supply sector and for the transition from fossil to climate-neutral fuels in Germany and Europe.



The DGMT was founded in 2000 as a non-company specific professional association following the initiative of companies, institutions and interested professionals from various fields of work. Since then, more than 100 members have accompanied and supported the use and dissemination of membrane technology in Germany. In the form of specialist events, lectures and discussions, the DGMT provides a forum for its members and cooperating partners for the exchange of knowledge and experience on membrane technology and to illustrate the diversity of creative and innovative membrane research and applications.



Aqua Europa AISBL represents the interest of the water business sector to develop technically and economically the European Water Sector, and thus our society can access to the best water solutions and professional practices. Aqua Europa gathers as European umbrella organization and accredited stakeholder to the European Commission and European Chemical Agency the interests of its national member associations and connects them to the European issues and policymakers. Aqua Europa promotes and facilitates the professional networking among the European countries and to EU institutions, boosting the technical and business cooperation for better products, services, standards and laws, in front of the high importance of European-level decisions to the national and companies' activities.