

Participation in consultation on per- and polyfluoroalkyl substances (PFAS)

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1 Introduction

We are participating in this consultation on the restriction of PFASs (per- and polyfluoroalkyl substances) with great interest and would like to present our point of view as a machinery manufacturer. The restriction of substances which are harmful to health and the environment is of fundamental importance to us in order to promote a sustainable and responsible industry.

As a manufacturer of machinery and equipment we combine a multitude of individual components which may contain potential PFASs. We are aware that PFASs are known to be persistent and bioaccumulative and are a potential risk for humans and the environment. It is therefore of great importance to us that the use and possible effects of PFASs in our products is carefully investigated.

Our participation in this consultation provides us with the opportunity as a machinery manufacturer to contribute our experience and to address the challenges involved in the identification and restriction of materials containing PFASs in diverse individual components. We wish to make a contribution to ensuring that a reasonable balance is achieved between innovation, functionality and the protection of health and the environment.

We believe that a comprehensive consideration of the possible alternatives to PFASs and the promotion of research and development in this area are essential. By working with other stakeholders and interest groups, we aim to contribute to the identification of sensible and workable solutions for the gradual replacement of materials containing PFASs and the minimisation of environmental impact.

We wish to express our thanks in advance for the opportunity to present our views in this consultation and look forward to working together towards a responsible and sustainable future.

2 About us

technotrans SE is a global technology and service group. Its application-specific thermal management solutions are the core competence of the company. As an integral component of customer systems, these are used to optimise the energy consumption and control the temperature of sophisticated technological applications.

With 17 sites, the group has a presence in all of the major markets worldwide. Based on the "Future Ready 2025" strategy, technotrans has defined the plastics, energy management (including electromobility applications, high-power charging stations and data centres), health care & analytics, and print sectors as the four major markets. The technology provider also develops highly specific cooling and filtration solutions for the laser & machine tools sector.

In addition, technotrans offers its customers a wide range of services, including installations, maintenance, repairs, 24/7 spare parts supply and technical documentation services, for example. The group has 5 production sites in Germany and one production site each in China and the USA. technotrans SE is listed on the Prime Standard segment (ISIN: DE000A0XYGA7 / WKN: A0XYGA) and has a global workforce of 1,500 employees. In the 2022 financial year, the group achieved a turnover of 238.2 million euros.

3 Overview of affected components and their use.

The provision of a comprehensive overview of the affected components and their use requires considerable resources and can be regarded as an almost insurmountable challenge. This assessment is based on the considerable number of over 10,000 affected substances in the context of the dossier presented. In addition, checks and communication with our numerous suppliers (1,800) as well as taking account of a large number of components (approx. 30,000 items) requires an enormous amount of work.

This is confirmed by a survey of our suppliers (for further details see Fig. 1). Only 28% of the suppliers questioned are able to confirm that there are no PFASs in their products. 48% of the suppliers are already addressing PFASs as an issue to some extent, but they were unable to provide us with any conclusive feedback. 9% of the suppliers questioned provided no response to our survey. It is therefore possible that up to 72% of our suppliers have PFASs in their products.

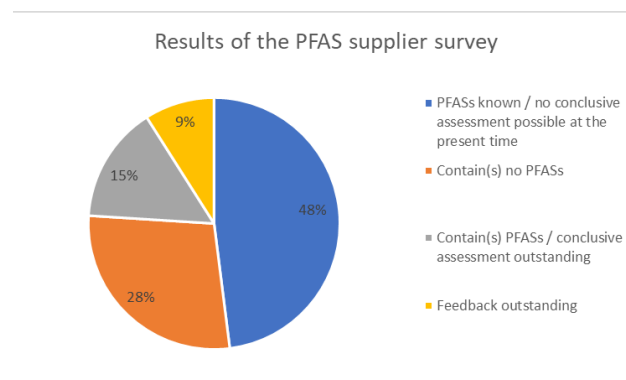


Fig. 1: Results of the PFAS supplier survey

Given the complexity involved, our consideration shall be limited in the following to the main components referred to in chapter 4 and to fluoropolymers as a group of substances.

4 Main components without alternatives

Given the large number of components we use, our focus is on the components listed below as examples, for which we have held in-depth discussions with suppliers on the basis of a general enquiry.

4.1 Refrigerant compressors (no contact with and discharge to the atmosphere during normal operation)

In in-depth discussions with our refrigerant producers and compressor suppliers, we obtained confirmation of our supposition that they contain PFASs directly and that PFASs are used for their production. During production, PFASs are contained, for example, in fluids to improve the removability of cast parts from the moulds, and they are used in the structural parts of compressors such as anti-friction coatings and seals, as well as in lubricants and winding coatings.

The manufacturers of compressors were unanimous in their assessment that PFAS-free alternatives are not known or do not exist for all applications at the present time, and that the search for and qualification of such alternatives will in all probability take some considerable time (>8 years), with somewhat doubtful prospects of success.

4.2 Circulation pumps (no contact with and discharge to the atmosphere during normal operation)

On the basis of discussions with selected manufacturers, the picture is more or less identical to that given by refrigerant producers. According to these discussions, PFASs are contained in various forms in the pumps themselves as well as in the manufacturing process and in primary products. The manufacturers of compressors are currently examining the uses for which PFAS-free alternatives are available, but also come to the conclusion the PFAS-free alternatives are not known or do not exist for all applications at the present time, and that the search for and qualification of such alternatives will in all probability take some considerable time (>8 years), with somewhat doubtful prospects of success.

4.3 Summary

At the present time there does not appear to be a reliable and complete knowledge base for possible substitutes for PFASs for the aforementioned components, which is largely due to the large range of applications for the components and/or the specific requirements involved. Research and development activity is required here, the expected scope of which, however, is not compatible with the planned timeline of regulation and its absoluteness.

5 Differentiated regulation of elastomers and fluoropolymers and consideration of the properties of the substances

Our reasoning with regard to the properties of the substances of elastomers in comparison to gaseous or liquid substances is set out below. We believe that it is reasonable and appropriate to take a differentiated approach to these substance classes and apply different regulations accordingly. Due to their solid form, elastomers are different to liquid or gaseous substances such as refrigerants or lubricants and have inherent properties. Being of solid form makes elastomers less susceptible to direct release to and dispersal in the environment. In contrast, liquid or gaseous substances can easily be released and disperse in the environment, posing potential risks to humans and the environment.

The proper disposal of elastomers can be a less complex matter, because of their substance properties, than is the case with liquid or gaseous substances. Solid materials typically require less specialised equipment for handling, and this may also be less expensive. It is important to take these differences into consideration when it comes to the specification of regulations, in order to ensure both environmental protection and economic feasibility.

In our view, the objective in connection with fluoropolymers does not appear to be expedient. The proposed scope of the restrictions covers all non-degradable substances containing at least one fully fluorinated methyl (CF₃-) or methylene (-CF₂-) group. The justification is based on concerns in terms of persistency, bioaccumulation capacity, mobility, transmissibility over long distances, accumulation in plants, potential global warming and toxicity.

Fluoropolymers such as, e.g. PTFE may be persistent, but it is necessary to check whether they are also bioaccumulative, carcinogenic or toxic. Differentiated regulation which takes account of the specific properties of substances would make it possible to target resources more effectively and focus on substances which have a higher risk potential.

It is important to note, however, that this in no way means that elastomers should be completely exempt from all regulations. Rather, a balanced measure of regulation needs to be found which both minimises the potential risks of these substances and sustains economic viability. A restriction of fluoropolymers would have a significant adverse impact on European industry. The impact of a ban on fluoropolymers on the supply chains in Europe was, in our view, not sufficiently taken into consideration. It is to be anticipated that small and medium-sized enterprises (SME) will be forced to cease business if the current restriction proposals were to be

implemented. In addition, the restriction would ban components which are indispensable for current processes. These restriction proposals create general uncertainty which would adversely affect our investment decisions and innovation.

The restriction proposals do not take account of the fact that there are no alternatives along the supply chain in Europe for key high-performance applications. The lack of recognised alternatives could lead to substitutes that are inferior in technical and ecological terms.

In addition, we also wish to point out that fluoropolymers have a toxicological profile which is different to that of PFASs. Even the OECD (Organisation for Economic Co-operation and Development) classifies fluoropolymers as polymers with a low risk.

In addition, the United Kingdom, in its risk management option analysis, excluded fluoropolymers from the scope of the PFAS restrictions. This allows the conclusion to be drawn that fluoropolymers are different to PFASs and may not pose the same risks for humans and the environment.

5.1 Sealing materials : A brief overview

We select different sealing materials for our devices according to requirements in terms of temperature, pressure and/or media resistance (see Table 1). It is apparent from this table that as from approx. 120°C, or as from 140°C at the latest, the choice of material is FKM or PTFE.

*Table 1: Overview of sealing materials according to temperature and media resistance
(Source: <https://www.fst.com/de/sealing/produkte/werkstoffe/fkm/>)*

Sealing material	Operating temperature range	Media resistance
EPDM	-50°C to 120°C, in some cases 150°C	Hot water, steam
NBR	-30°C to 100°C	
HNBR	-40°C to 140°C	Hot water
FKM	-25°C to 200°C	Polar solvents (e.g. acetone, MEK, ethyl acetate), low molecular weight organic acids, glycol, ammonia gas, amines, alkalis and superheated steam
PTFE	-200°C to 260°C (for short periods up to 300°C)	
FFKM (Simriz), FFKM	Up to 325°C	Broad chemical stability, like PTFE

A product mix analysis showed that for 20% of sales, the use of seals containing PFASs was due to high temperatures. In addition, as a consequence of the media used in combination with a broad temperature range, there is a requirement for particularly resistant seals or coatings such as, for example, FKM.

6 Differentiated regulations for user groups: A practical solution for products containing PFASs

In the following, we would like to focus on a differentiated consideration of the user groups "professional and industrial user" as opposed to the private user. We believe that it is reasonable and practical to take a differentiated approach to these two user groups and implement different regulations accordingly.

An example already exists for such differentiation, namely in the case of workwear, especially personal protective equipment (PPE). Exceptions are permitted here, with explicit reference to the "professional user". These exceptions take into consideration the fact that workwear is the responsibility of professional or industrial users, who are in a position to take appropriate measures for disposal. A similar approach could also be taken to other products, such as seals, for example, which remain in the hands of industrial users throughout their entire life cycle.

In the case of seals or other components used by industrial users, there is a direct link between the product and the industrial user, who is in a position to take the proper disposal measures. Conferring responsibility for proper disposal on the industrial user could provide a means of promoting an effective circular economy. The industrial user would be in a position to dispose of the component containing PFASs in accordance with applicable regulations and to ensure that it is returned to the cycle or treated in another environmentally acceptable manner.

The implementation of such a regulatory mechanism would not only facilitate the achievement of the selective assumption of responsibility, but also provide an added incentive for the industrial user to search for more sustainable alternatives and reduce the use of materials containing PFASs. This would benefit both the protection of the environment and the promotion of a sustainable circular economy.

7 Sustainable disposal of PFASs: Specific strategies for an environmentally friendly circular economy

Given the diversity of the applications for and properties of materials containing PFASs, it is crucial that they are disposed of in a manner which both protects the environment and promotes a sustainable circular economy.

Since PFASs may have different compositions, properties and potential risks in different products, it is important that specific disposal strategies which meet individual requirements are developed.

By implementing appropriate disposal strategies, market players can ensure that products containing PFASs are disposed of in an environmentally acceptable manner. At the same time, the potential for the recycling and reuse of materials containing PFASs should be considered, with a view to the minimisation of the ecological footprint and conservation of valuable resources.

In addition, differentiated disposal strategies can make a contribution to the conferral of responsibility on those who are in the best position to deal with it. This could mean that manufacturers, suppliers or professional/industrial users play a bigger role in the disposal and waste management of products containing PFASs. This would not only promote the selective assumption of responsibility, but would also provide incentives for developers to develop more environmentally friendly alternatives and the minimisation of the use of PFASs materials.

In our view it is important to develop custom-tailored disposal strategies which meet the specific requirements and challenges of products containing PFASs. The implementation of appropriate methods of disposal and the promotion of circular economy principles will enable a positive contribution to be made to environmental protection and the sustainable use of resources.

8 Safety and monitoring: The advantages of the use of products containing PFASs in closed-loop processes

Within the framework of the discussion about products containing PFASs, we would like to draw attention to the issue of safe use in connection with closed-loop processes or systems. Our products generally involve systems which include a closed-loop process. These closed-loop systems offer numerous advantages with respect to the safe use of products containing PFASs.

The use of products containing PFASs in closed-loop processes reduces the risk of release to the environment and reduces possible effects on humans and the environment.

In addition, a closed-loop process enables products containing PFASs to be efficiently monitored and maintained. Regular inspections and tests ensure that the systems are kept in proper working order and that possible leaks or other problems can be detected and rectified in a timely manner. This contributes to ensuring that products containing PFASs are used safely and minimises risks for employees and the environment. This is already implemented in the field of refrigerants on the basis of the regulation on fluorinated greenhouse gases, for example, since regular leak checks are mandatory and leakage detection systems recommended.

A further aspect is that closed-loop processes make it possible for the PFAS materials to be properly disposed of or recycled at the end of their service life. The closed-loop system enables products containing PFASs to be selectively treated and sent for proper disposal without any release to the environment. This helps the circular economy and reduces potential environmental impacts.

It is important to note that this reasoning does not mean that the potential risks of PFASs materials should be ignored. Rather, we would like to highlight the advantages of safe use in closed-loop processes which make controlled handling and disposal possible. Effective monitoring, regular inspections and the implementation of suitable safety measures are a key component of the safe use of products containing PFASs in closed-loop systems.

We believe that the consideration of closed-loop processes for products containing PFASs is appropriate. This enables these materials to be used responsibly and on a sustainable basis, while potential risks are minimised.

9 Multiple regulation of fluorinated greenhouse gas refrigerants

We consider that regulation of fluorinated greenhouse gas refrigerants by REACH is unnecessary because they are already regulated by Fluorinated Gases Regulation 517/2014 (EU) and its revisions. Moreover, the objective of regulation by REACH is the prevention of TFAs which, to our knowledge, are only formed during the breakdown of fluorinated gases. Thanks to the use of fluorinated gas refrigerants in hermetically sealed systems, as well as the now well-established conditioning and disposal concepts, the release of fluorinated gas refrigerants to the atmosphere is now virtually zero. In addition, the regulation provides for regular checks for leaks in dependency on the amount of refrigerant, which also reduce the likelihood of any leaks being released to the atmosphere. These can also be reduced further by the use of leakage detection systems, which the legislator even rewards with generous deadlines for the leak checks. The reduction in fluorinated gas refrigerants in the atmosphere as well as in refrigerant leaks is documented by

statistical data. A further important aspect is the necessity for the use of fluorinated gas refrigerants for certain applications and for maintenance and repair.

10 Inequality in competition: Lack of labelling requirements for products containing PFASs in Europe

In connection with the discussion about products containing PFASs and their impacts on the market, we would like to draw attention to a potential competitive advantage which could ensue for non-European companies. We are concerned that these companies could place products containing PFASs on the European market without any requirement for labelling. This could lead to unfair competition and undermine efforts towards a responsible approach to the handling of PFASs materials.

As far as we are aware, there is currently no standardised mandatory requirement for the labelling of products containing PFASs in Europe. This means that companies from countries outside Europe can place products containing PFASs on the European market without consumers being informed about the PFAS content. This lack of transparency could lead to consumers purchasing products without the knowledge that they contain PFASs, and thereby being exposed to risks.

This represents a potential competitive advantage for non-European countries because they can place their products containing PFASs on the European market without the requirement for labelling. In contrast, European companies which take transparency and consumer protection seriously could be disadvantaged, since they have to bear the costs and effort involved in labelling their products properly and drawing attention to potential PFAS risks.

We are of the opinion that fair competition should be ensured in which all companies, irrespective of location, should be subject to the same requirements and obligations. This would ensure that consumers can make conscious decisions and European companies would not be disadvantaged.

11 Summary

As a machinery manufacturer we are actively participating in the consultation on the restriction of PFASs because the promotion of a sustainable and responsible industry is important to us. We are aware that PFASs can be harmful to health and the environment and that their use in our products therefore requires careful investigation.

We believe that a comprehensive consideration of the alternatives to PFASs and the promotion of research and development in this area are of great importance. Together with other interest groups we would like to find sensible solutions for the gradual replacement of materials containing PFASs and the minimisation of environmental impact. However, we consider that this will take considerably longer than the transition periods currently planned. In addition, we also consider that there is a possibility that, for certain requirements, there will still be no economically viable alternative to be found to materials containing PFASs.

With respect to regulations for elastomers and fluoropolymers we would advocate a differentiated approach because these substance classes differ in terms of their properties and therefore require different regulatory measures. Elastomers and fluoropolymers should not be treated on a generalised basis as PFASs because it has been demonstrated that they do not pose comparable risks for humans and the environment.

We have received information from a leading supplier of pumps who is conducting research into alternatives to seals containing PFASs. His findings make clear that previous alternative substances have shorter service lives compared to materials containing PFASs and that it will not be possible within the stipulated time period to find materials capable of withstanding both high temperatures and aggressive media. This fact underlines the complexity of the development of alternative substances and the need for further research.

We propose that products containing PFASs be used in closed-loop processes on a safe basis because this enables effective monitoring and ensures responsible disposal. In addition, specific disposal strategies should be developed which meet the individual requirements of products containing PFASs and promote a sustainable circular economy.

Summary of our key proposals:

- Complete exemption for fluorinated refrigerants
- Differentiated regulations for fluoropolymers with long transition periods
- Differentiated regulations for use in closed-loop systems
- Exemption with no time limit for refrigerants containing PFASs for existing systems
- Exemption with no time limit for spare parts containing PFASs for existing systems
- Avoidance of potential distortion of competition by non-EU market players

Finally, we wish to express our thanks for the opportunity to present our views in this consultation and are committed to a responsible and sustainable future.