RESPONSE TO THE PUBLIC CONSULTATION

The Union of the European Lubricants Industry's response to the public consultation on the restriction to the use of Per- and polyfluoroalkyl substances (PFAS)

September 2023

UEIL supports the European Commission to protect human health and the environment from hazardous chemicals to its wide-ranging impact on sectorial applications, and to achieve the objectives of the Chemicals Strategy for Sustainability set in 2020. In this context, UEIL would like to take the opportunity given to provide its point of view in the PFAS restriction proposal.

Some PFASs are used in certain lubricants for very specific applications because of their special and unique properties. These PFAS are the **polymeric perfluoropolyethers (PFPE)** and the **polytetrafluoroethylenes (PTFE).**

Due to its wide range of applications and its core necessity to remain sustainable, **the lubricant industry requests that ECHA, the Member States and the European Commission consider the following elements whilst developing the restriction:**

1. **PFPE- and PTFE-based lubricants are used specifically for their unique properties.**
2. **Currently, conventional alternatives do not meet the same level of properties.**
3. **PFPE/PTFE emissions are controlled.**
4. **A PFPE- and PTFE-based lubricants restriction would impact a large range of downstream users.**
5. **PFPE and PTFE are not classified as hazardous.**

1. PFPE- and PTFE-based lubricants are used specifically for their unique properties.

PFPE- and PTFE-based lubricants are considered to be physically and chemically very **stable**, **durable, non-flammable, extremely inert, resistant to radiation and with high electrical resistance**[1]**.**

Due to these outstanding properties, they are specifically used for the following critical applications where other lubricants cannot be performant. All the following applications require the best possible compatibility between part material and lubricant:

- **High temperature applications**: Fluoropolymers are used to lubricate the rolling bearings of corrugating machines or the vulcanising rubber operations to manufacture tyres, where high temperatures and humidity prevail at the same time, or the bearings in ovens for heat treatment of plastic films. Similarly, the bearings in automated furnaces are lubricated with food-grade PFPE-based lubricants.
- **Contact with reactive, corrosive or explosive liquids and gases**: PFPE is used as sealing and working fluids in vacuum pumps exposed to aggressive environments (chemical and thermal).
- **Low outgassing applications**: in vacuum applications, optical instruments and light housings where lubricant condensation must be minimised, PFPE and PTFE-based lubricants are sometimes the only choice.
- **Power generation**: In nuclear power plants, PFPE-based lubricants are used as a bearing lubricant for pumps operating in an area where they are exposed to radiation. Radiation quickly degrades ordinary lubricants, but PFPE-based lubricants function for long periods without significant degradation.
- **Lifetime lubrication in automotive and machinery**: PTFE cannot easily be replaced by another solid lubricant without impairing functionality, including noise reduction. Apart from the inertness of PTFE, this is mainly due to its compatibility with plastics/elastomers and its lubricating properties under certain loads and conditions. These lifetime lubrications must cope with a huge range of temperatures from below freezing in the winters to the heat of the summer or when the engine is running *(from -60°C to +250°C).*
- **Valves**: PTFE offers optimum lubrication, for example in the chemical industry (oxygen valves), without dissolving or chemically reacting under harsh chemical conditions.
- **Machinery for emergency cases**: PFPE- and PTFE-based lubricants are also used for emergency applications when machinery needs to start quickly after years of stoppage (for example: fire doors that need to close, emergency power generators, gear boxes...).

Additionally, due to their excellent oxidation stability and suppression of deposits, PFPE- and PTFE-based lubricants are used in general industrial applications, for example for heavily loaded bearings and pivots. They reduce the number of lubricants changes and thus reduce the volumes of lubricants used.

[1] https://setac.onlinelibrary.wiley.com/doi/epdf/10.1002/ieam.4035

Eventually, PTFE and PFPE based lubricants are by far more expensive than conventional lubricants and therefore are used only when absolutely necessary.

2. Currently, conventional alternatives do not meet the same level of properties.

At the current stage of our knowledge, we do not have alternatives that meet the same level of performance of PFPE and PTFE-based lubricants. Potential options available, such as silicones or esters, make our customers redesign their product.

Based on the experience of our members and on our customers feedback, we have identified several major drawbacks for the alternatives:

- Due to certain toxicological properties and/or stability issues, alternatives cannot be used for certain applications such as food production, medical technology;
- Decompose rapidly in aggressive chemical environments;
- Cannot be used due to extreme temperatures (heat) because of the decomposition and the volatility of the alternatives;
- Increase risks for the health and the environment because of their hazardousness (toxicity, flammability, etc.);
- Restrict the safe functioning of equipment because of their physical and chemical properties (vapour pressure, hydrophilicity). For non-metallic polymeric materials, some cause shrinking in parts *(PAO)* and some cause swelling in parts *(Esters),* which is a serious safety concern*;* Or other issues such as spreading and migrating *(Silicones).*
- Lifetime lubrication would become difficult with any alternative;
- Result in more dangerous and/or costly maintenance work. There is going to be more frequent relubrication intervals, many more touch points and exposure points for workers and shortened lifetime of parts.

Besides, these other options would lead to higher lubricants consumptions and reduce component lifetime due to the shorten lifetime of these alternatives. Thus, much less environmentally friendly, jeopardizing the objectives of the Green Deal.

3. PFPE and PTFE emissions are controlled.

Lubricants, which are used in closed systems/parts, are disposed in a controlled way according to the EU list of waste, including its emissions. According to EU rules, these wastes are incinerated.

A recent study by Conversio[2], a consultancy based in Germany, has shown that at its end-of-life approximately 85% of all fluoropolymers end up in waste-to-energy recovery incinerators. A subsequent

[2] https://www.pro-kunststoff.de/fachwissen/conversio-studie-end-of-life-von-fluorpolymeren.html

question of regulators was to know whether any formation of short chain or long chain PFAS take place. A recent project[3] executed by the Karlsruhe Institute of Technology (KIT) in cooperation with Société Générale de Surveillance (SGS) was conducted to assess the same.

For the greases, due to their stability, PTFE-containing total loss lubricants are not leached out by extreme weather or conditions. Therefore, their emissions are close to zero.

Besides, PFPE/PTFE based lubricants are used in a very small quantity in applications and it is often a one-time sale lifetime lubrication (i.e. no emissions). Therefore the current derogation period proposal giving the sector 13.5 years after entry into force is more suitable.

The alternative technologies would lead to higher lubricants consumptions due to the shorten lifetime and lack of efficiency in performance.

4. A PFPE and PTFE-based lubricants restriction would impact a large range of downstream users.

Overall, we see an impact on the following downstream users, who currently have applications for which we believe PFPE/PTFE-based lubricants are indispensable:
Automotive industry; Food industry; Hydraulic and pneumatic equipment, valves and seals; Bearings of all kinds; Precision and electrical engineering/electronics (semiconductor industry); Service companies incl. leisure services; Automotive engineering; passenger cars; commercial vehicles; motorbikes; Basic industry, basic materials for the construction industry, glass; Chemical industry, refineries, rubber, plastics and leather industry; Systems and equipment carrying liquid or gaseous oxygen (e.g. gas cylinders); Energy transmission and connection systems; Power generation (wind and renewables, nuclear) and energy storage; Mechanical engineering; Robotics; Paper and printing industry; Film stretching industry; Railway and aircraft industry; Conveyor and transport equipment; Pharmaceutical and cosmetics; Medical technology; Compressors; Mining and coal-fired power plants; Shipping; Oil and gas; Cement, lime, gypsum; Weapons and military vehicles; Aerospace; Diving and underwater applications; Optical and analytical instruments; Hydrogen industry.

UEIL fully supports ACEA's response to the consultation, which we believe highlights perfectly how PFPE and PTFE are crucial for the automotive industry with no suitable alternative.

[3] Gehrmann et. al.: Pilot-Scale Fluoropolymer Incineration Study: Thermal Treatment of a Mixture of Fluoropolymers under Representative European Municipal Waste Combustor Conditions

5. PFPE and PTFE are not classified as hazardous.

The substance group of PFAS covers many different substances, some of which are known to be hazardous to humans and the environment and others, for which **no** negative effect is known despite decades of intensive use. For example, PFPE and PTFE are not classified as hazardous, nor classified as bioaccumulative. Therefore, they do not fulfil the requirements of SVHC.
In consequence, due to the very different properties of substances within the PFAS family, we believe that the collective restriction is disproportionate.

Furthermore, UEIL would like to invite ECHA and the Commission to consider the response from our partner association ATIEL, as it contains additional thoughts on the PFAS restriction.
The lubricants industry is committed to innovating in finding suitable alternatives that meet the needs of industry and society, while minimising their impact on the environment. Alternatives have to be suitable in terms of efficiency, toxicological and eco-toxicological properties. Besides, one should note that persistency is a key property of PFPE and PTFE. Alternatives are likely to require the same level of persistency to be viable.

THEREFORE:

1) **We would like to ensure a derogation of 13,5 years for lubricants used under harsh conditions, in order to allow the chemical industry to develop alternatives to PFPE- and PTFE with the same unique properties. (i.e also persistency)**

2) **We call for a differentiation according to chemical, physical and toxicological characteristics in order to separate hazardous PFAS from the PFAS which are only persistent and whose emissions are well controlled.**

3) **We invite ECHA and the Commission to include a review clause in order to assess the progress of alternatives after several years.**

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The Union of the European Lubricants Industry (UEIL) represents the interests of the lubricants industry in Europe, with a special focus on SMEs and independent companies that produce lubricants and metal processing fluids essential for the automotive and industrial sectors.