

Introduction

Our company is an international group active in the design, manufacture, and sale of finished watches, jewelry, watch movements, and components. Our group supplies nearly all components required by its watch brands which in turn supply watch movements (i.e. the mechanism of a watch) and components to third-party watchmakers in Switzerland and around the world.

One company of the group is specialized in the production and commercialization of lubricants and epilames, used primarily for watchmaking applications. This company is supplying the watch brands as well as third-party watch manufacturers.

Our company values the opportunity to submit comments regarding the proposed restriction of PFAS under the REACH Regulation. With this contribution, we would like to express our concerns regarding the absence of derogations for the manufacture and use of the so-called “epilame” and “epilame mixtures” for the lubrication process of internal watch movement parts. Epilame mixtures are manufactured using fluorinated polymers (epilame), considered as PFHxA-related substances in the context of the restriction proposal on PFHxA, and a fluorinated gas-based carrier fluid, which falls under the scope of the currently proposed PFAS definition.

To note, a derogation request for the epilame (fluorinated polymers) was submitted during the consultation phase of the restriction proposal on PFHxA. This derogation was included in the restriction proposal by the Dossier Submitter, and supported by the Risk Assessment Committee (RAC) and the Socio-Economic Assessment Committee (SEAC).¹

Despite this, the PFAS restriction proposal proposes to ban the placing on the market and use of epilame mixtures and watches containing epilames 18 months after entry into force. As the epilame coating is required to ensure the proper lubrication of the mechanical parts of watches, the ban will make it virtually impossible to ensure the proper manufacturing of watches, as well as the servicing of watches currently used by consumers. Our company is continuously evaluating and looking for alternatives to its materials from both an environmental and cost perspective. To date, no alternative materials have been identified that can replace PFAS on performance/functionality and that would be less harmful to the environment.

¹ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, June 9, 2021, ECHA/RAC/RES-O-0000006976-57-01/F, <https://echa.europa.eu/documents/10162/97eb5263-90be-ed5-0dd9-7d8c50865c7e>.

In the context of the PFAS restriction proposal, we want to request the following permanent derogation:

5. By way of derogation, paragraphs 1 and 2 shall not apply to:

xx. epilame used in watches;²

xx. epilame mixtures used in watch manufacturing and servicing;

xx. recycled fluorinated gases making use of a derogation according to paragraph 5

xx) [epilame mixtures used in watch manufacturing and servicing];

² In line with the wording proposed in the context of the PFHxA restriction proposal.

Specific Information Requests

Question 1: Sectors and (sub-)uses: Please specify the sectors and (sub-)uses to which your comment applies according to the sectors and (sub-)uses identified in the Annex XV restriction report (Table 9). If your comment applies to several sectors and (sub-)uses, please make sure to specify all of them.

This contribution applies to the following use sectors: lubricants (sector as a whole) and applications of fluorinated gases (solvents).

More specifically, it addresses the use of PFAS, including fluorinated polymers (lubricant sector) and fluorinated-based carrier fluids (solvent sector), for the manufacture of epilame mixtures to be used as a part of the lubrication process for internal watch movement parts in mechanical and quartz watches.

Question 2: Emissions in the end-of-life phase: The environmental impact assessment does not cover emissions resulting from the end-of-life phase. To get a better understanding of the extent of the resulting underestimation, (sub-)use-specific information is requested on emissions across the different stages of the lifecycle of products, i.e. the manufacture phase, the use phase and the end-of-life phase. Please provide justifications for the representativeness of the provided information. In particular:

- a) Please provide, at the (sub-)use level, an indication of the share of emissions (as percentages) attributable to these three different stages. An indication of annual emission volumes in the end-of-life phase at sector or sub-sector level would also be appreciated.

Please refer to Question 6(a).

- b) If possible, please provide for each (sub-)use what share of the waste (as percentages) is treated through incineration, landfilling and recycling. Please provide information to justify the estimates as well as information on the form of recycling referred to.

All wastes from production are collected and properly incinerated. Where we operate, special waste treatment companies are authorized by national authorities to collect the waste of fluorinated compounds. Subsequently, these substances are subject to high-temperature incineration.

In the last decade, a growing demand for recycling epilame mixtures has been observed. End users having large volumes of expensive epilame mixtures are increasingly asking for cost effective recycling solutions instead of destruction.

Question 4: Impacts on the recycling industry: To get an understanding of the impacts of the proposed restriction on the recycling industry, information is requested on questions a) – c).

- a) The impacts that the concentration limits proposed in paragraph 2 of the proposed restriction entry text (see table starting on page 4 of the summary of the Annex XV restriction report) have on the technical and economic feasibility of recycling processes (together with a clear indication on the waste streams to which the described impacts relate).

As explained under Question 2(b), there is an increasing trend to recycle the fluorinated gas-based carrier fluid from used epilame mixtures. This allows to reduce the manufacture of new fluorinated gases for the production of epilame mixtures and is in line with the overall objective of the restriction.

The concentration limits proposed in paragraph 2 of the proposed restriction entry text would impede the recycling of fluorinated gas-based carrier fluids.

We believe that for derogated uses, it should be possible to allow recycling of PFAS such as fluorinated gases. This should apply to fluorinated gases used in epilame mixtures.

- b) The measures that recyclers would need to take to achieve the proposed concentration limits.

Not relevant, as it would not be possible to achieve the proposed concentration limits.

- c) The costs associated with these measures.

Not relevant, as it would not be possible to achieve the proposed concentration limits.

Question 6: Missing uses – Analysis of alternatives and socio-economic analysis: Several PFAS uses have not been covered in detail in the Annex XV restriction report (see uses highlighted in blue and orange in Table A.1 of Annex A of the Annex XV restriction report). In addition, some relevant uses may not have been identified yet. For such uses, specific information is requested on alternatives and socio-economic impacts, covering the following elements:

- a) The annual tonnage and emissions (at sub-sector level) and type of PFAS associated with the relevant use.

i. Production of epilame and epilame mixtures

Production of epilame and epilame mixtures takes place at laboratory scale worldwide. Waste is collected as industrial chemical waste and is properly treated through high-temperature incineration.

ii. Use of epilame mixtures

The epilame mixtures are sold to end users (i.e., watch industries and watchmakers) for industrial and professional uses only. These mixtures are not accessible to consumers through retail outlets.

The annual tonnage of epilame mixtures used in EU (including Switzerland) could be estimated to approximately 8 tonnes (mainly F-Gas as carrier fluid). This tonnage is rather small (c.a. 0.002%) in comparison with the annual tonnage of F-Gas used in EU.

Considering the large variety of industrial equipment and processes from one user to another, it is not possible to have a precise estimation of the total emissions of PFAS during the entire watchmaking process. Based on our experience, considering that 90% of the volumes of used mixtures are collected and properly disposed, and considering the modern equipment (equipped with activated carbon collecting approx. 9%) used at industrial sites, we can reasonably assume that the estimated release to the environment is approximately 1%, below 100 kg/year.

During the service of a watch, the watch is opened, and some parts of the movement are removed and examined. It is mandatory to clean some of the epilame-containing pieces of the movement and renew the lubrication. The chemical waste resulting from this process is collected and properly disposed of.

For more detailed information concerning tonnage and potential release in the environment, please refer to our confidential contribution.

iii. Use of the watches

The carrier fluid (fluorinated gas) is not present on watch pieces. Only the epilame (fluorinated polymer) is coated on top of internal watch movement pieces.

Watches only contain a small amount of epilame (< 0.1 kg/year on a global scale). No releases of epilame coated onto all the watch parts can happen under normal conditions of use, as watch movement parts are contained in the hermetic water resistant watch case and are not accessible to the user nor the environment.

iv. End of life of watches

The large majority of watches produced are reused or recycled in a way depending on their type. Three different scenarios happen depending on the watch type:

- i. Mechanical watches have a very long lifetime, sometimes even exceeding human lifetime, passing from one generation to generation. Moreover, mechanical watches are expensive products and are not disposed of as domestic waste.
- ii. Electronic watches containing a quartz movement (analogue watches) fall under the EU RoHS Directive 2011/65/EU and therefore are appropriately collected and eliminated as every waste of electronic device.

b) The key functionalities provided by PFAS for the relevant use.

i. *Key properties of epilame (fluorinated polymers)*

The specific properties that are required for an efficient epilame are the following:

1. A low surface tension;
2. A chemical compatibility with all sorts of coated substrates as well as all lubricants used;
3. Ultrathin and transparent coating.

ii. *Key properties of carrier fluid (fluorinated gas)*

The carrier fluid used to solubilize the epilame polymer needs to fulfil the following requirements:

1. Compatibility with the epilame;
2. Good wettability resulting from a low surface tension and viscosity;
3. Fast drying and non-flammability;
4. Low Global Warming Potential (GWP) and low toxicity.

c) The number of companies in the sector estimated to be affected by the restriction.

As already mentioned, the epilame process is mandatory to ensure the proper lubrication of a watch movement. Without epilame a watch does not work properly. Therefore, as far as we know, we assume that all companies involved in this sector, watch-making industry, will be concerned.

d) The availability, technical and economic feasibility, hazards and risks of alternatives for the relevant use, including information on the extent (in terms of market shares) to which alternative-based products are already offered on the EU market and whether any shortages in the supply of relevant alternatives are expected.

As indicated in the RAC and SEAC Opinion on PFHxA, silicone-based coatings have been investigated as potential alternatives, but they do not meet the technical requirements. In addition, stearic acid, which was used for epilamisation decades ago, does not fulfil current industry standards due to its poor oil repellence and its weak wash resistance.³

For further information, please refer to our confidential contribution.

³ European Chemicals Agency (ECHA), Committee for Risk Assessment (RAC) & Committee for Socio-economic Analysis (SEAC), Background Document to the Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances, June 9, 2021, <https://echa.europa.eu/documents/10162/5c011606-5891-d26a-03e7-ceba0a35126f>.

- e) For cases in which alternatives are not yet available, information on the status of R&D processes for finding suitable alternatives, including the extent of R&D initiatives in terms of time and/or financial investments, the likelihood of successful completion, the time expected to be required for substitution (including any relevant certification or regulatory approvals) and the major challenges encountered with alternatives which were considered but subsequently disregarded.

Please refer to our confidential contribution.

- f) For cases in which substitution is technically and economically feasible but more time is required to substitute.

Not relevant, as there are no alternatives available.

- g) For cases in which substitution is not technically or economically feasible, information on what the socio-economic impacts would be for companies, consumers, and other affected actors. If available, please provide the annual value of EU sales and profits of the relevant sector, and employment numbers for the sector

i. Impact on consumers

The lubrication of watches, especially mechanical watches, is a very complex and delicate process requiring several steps. A classical watch movement may require more than 60 lubrication steps, using many different products at specific locations.

Without an epilame to maintain the lubricant into the contact, a watch can stop within weeks or even days. Even though it is difficult to predict which function in the movement may fail first due the lubricant starvation, multiple failures will occur and the watch will rapidly stop working.

Moreover, servicing of watches already on the market will not be possible. As a result, customer services will not be able to oil watch movement parts, leading to the early obsolescence of watches.

ii. Impact on the watch industry:

Altogether, the restriction under consideration, without derogation, could put at risk between 167,000⁴ and 188,000⁵ jobs and potentially lead to €3.0 billion⁶ in loss of export revenues and €1.3 billion⁷ in loss of tax incomes and social security contributions.

Considering the small quantity of fluorinated polymer substances annually placed on the market and the proper waste collection and high-temperature incineration by specialised treatment centres, we can conclude that the socio-economic implications of not granting a derogation for the watch industry are largely disproportionate.

⁴ EuroStat, 2023.

⁵ Federation of the Swiss Watch Industry, 2022.

⁶ Francéclat, Trade Data Monitor, 2020.

⁷ European Union Intellectual Property Office, The economic cost of IPR infringement in the jewellery and watches sector, 2016.

iii. Annual value of EU sales and profits of the relevant sector

In 2020, watches generated €2.44 billion in export revenues for the EU, despite the significant impact of the Covid crisis (-19.6% compared to 2019). In addition, €536 million of EU watch components and straps were exported to Switzerland in 2020.⁸

Furthermore, according to these figures, the taxes generated in the EU by the analogue watchmaking industry could be estimated as follow: €780 million for VAT, €210 million for direct and indirect taxes on household income, and €70 million for direct and indirect corporate taxes. In addition, the analogue watchmaking industry contribution to social security is estimated at €230 million.⁹

iv. Employment numbers for the sector

In 2020, the watchmaking industry, jewellery industries and downstream sectors employed 167,000 workers in the EU,¹⁰ including production, aftersales services and product distribution. In Switzerland, around 61,000 workers are employed in the watch production (including 21,000 cross-border workers, mainly from France, Germany, and Italy).¹¹

Question 10: Analytical methods – Annex E of the Annex XV restriction report contains an assessment of the availability of analytical methods for PFAS. Analytical methods are rapidly evolving. Please provide any new or additional information on new developments in analytics not yet considered in the Annex XV restriction report.

We are not aware of any analytical methods available to enforce the proposed restriction with regard to internal watch parts. In the context of the PFHxA restriction proposal, the Enforcement Forum already highlighted the absence of applicable analytical methods addressing precursor compounds (e.g., fluorinated polymers).¹² This upcoming restriction could, therefore, jeopardise the production of epilames and watches in Europe while not being able to control imported watches.

⁸ Federation of the swiss watch industry, 2022.

⁹ Projections based on data from the document "The economic cost of IPR infringement in the jewellery and watches sector", European Union Intellectual Property Office, 2016.

¹⁰ EuroStat, 2023.

¹¹ BV Schmuck Uhren, 2019.

¹² RAC & SEAC, *Opinion on the Annex XV dossier proposing restrictions on Undecafluorohexanoic acid (PFHxA), its salts and related substances*, p. 146-147.