# DOWNSTREAM USER QUESTIONNAIRE FOR PLASTICSEUROPE FLUORO

## *Background information*

On 14 October 2020, as part of the EU's zero pollution and circular economy ambitions (key comm
'key actions', one of which is to phase out per- and polyfluoroalkyl substances (PFAS) in the EU, unl
At the time of publication of the CSS, REACH competent authorities for Denmark, Germany, the Ne
at ECHA and the recent Restriction proposal submission date by the Competent Authorities of 13 Ja
to collect information and arguments for potential derogations / exemptions or other changes in th
about the impacts of the Restriction proposal during that public consultation, as all comments are
In anticipation of this public consultation, and of subsequent advocacy activities to communicate th
prepare a socioeconomic impact assessment (SEIA) on the importance of fluoropolymers to the EU
critical for the EU economy and society.
To prepare the SEIA, it is important that ERM is provided with information on the substances, uses
robust the data, the stronger the support of arguments that FPG can use in this PFAS Restriction Pr
We therefore kindly request that you answer the questions below. Providing comprehensive respo
**Please send your responses to the highlighted in orange priority questions and any questions you**

[1] There is as yet no definition, clarity or methodology on how to demonstrate "essential use".

## *Confidentiality*

Note: Part of the information that is requested in this questionnaire may be business sensitive or c
you consider necessary to support the confidentiality.
Any confidential information provided will be suitably aggregated and anonymised prior to inclusio
ERM premises. ERM operates strict and robust IT management processes globally to ensure that ou
Management System (QMS).

## *Privacy notice*

ERM will be processing personal details you provide to us as part of this survey (i.e. contact person
https://www.erm.com/privacy/.

## *Scope of survey*

This survey is relevant to all manufacturing and use of fluoropolymers (FP) taking place in countries **which includes the 27 EU Member States in addition to Iceland, Liechtenstein and Norway**. The U

[2] https://www.gov.uk/government/publications/uk-reach-rationale-for-priorities-in-2022-to-2023/rationale-for-p

***Fluoropolymer definition***

The draft restriction proposal on PFAS defines PFAS as:
substances that contain at least one fully fluorinated methyl (CF3-) or methylene (-CF2-) carbon ato
Fluoropolymers are polymers consisting of a polymeric fluorinated carbon backbone.
Fluoropolymers are divided into two subsets: 'fluoroplastics' and 'fluoroelastomers'. Fluoroplastics vinylidene fluoride (VDF), chlorotrifluoroethylene (CTFE), vinyl fluoride (VF), trifluoroethylene (TrFE heptafluoropropyl trifluorovinyl ether (PPVE). In the case of copolymers, monomers that do not co ethylenes.
Fluoroplastics that are produced by homo- or copolymerization of the monomers listed above inclu (PCTFE), polyvinyl fluoride (PVF), the ethylene-TFE copolymer (ETFE), the ethylene-CTFE copolymer perfluoroalkyl trifluorovinyl ether and chlorotrifluoroethylene (CPT), terpolymers of TFE, HFP and e tetrafluoroethylene with either trifluoromethyl trifluorovinyl ether (MFA) or other perfluoroalkyl tr
Fluoroelastomers or 'fluorocarbon elastomers' are rubbery materials based mainly on several of th hydropentafluoropropene (HPFP) and 2,3,3,3- Tetrafluoropropene (HFO-1234yf). They are produce commonly used are multi-nucleophiles (diamines, bisphenols, diisocyanates (e.g. triallyl isocyanura on many of the same monomers as those used for synthesizing fluoroplastics, the main difference glass transition temperatures (Tg).
The definitions provided above would include, but not be limited to, the following:

**ECTFE:** ECTFE is a copolymer of ethylene and chlorotrifluoroethylene having the formula [(CH2-CH2 pellets and as a fine powder.

**EFEP**: EFEP is a copolymer of ethylene, tetrafluoroethylene, and hexafluoropropylene, with the for

**ETFE**: ETFE is a copolymer of ethylene and tetrafluoroethylene of the formula [(CF2-CF2)x-(CH2-CH form.

**F-TPV (fluoro thermoplastic vulcanizates)**: "Ready to use" fluoro thermoplastic fluoroelastomers w flexibility), and excellent processability with a melting point about 230°C.

**FEP**: FEP resin is a copolymer of tetrafluoroethylene and hexafluoropropylene with the formula [(C
pellets, powder, or as an aqueous dispersion.

**HTE**: HTE is a copolymer of hexafluoropropylene, tetrafluoroethylene, and ethylene. HTE is melt pr

**MFA**: MFA is a copolymer of tetrafluoroethylene and perfluoromethylvinylether. It belongs to the g

**PCTFE**: PCTFE is a polymer of chlorotrifluoroethylene with the formula [CF2-CFCl]n. It has a melting

**PFA**: PFA resins are copolymers of TFE fluorocarbon monomers containing perfluoroalkoxy side cha

**CPT**: CPT is terpolymer of TFE, perfluoroalkyl trifluorovinyl ether and chlorotrifluoroethylene. CPT h

**PTFE**: PTFE is a polymer consisting of recurring tetrafluoroethylene monomer units, whose formula
±18° (330° C ±15°). Once processed, the gel point (often referred to as the melting point) is 18oF (1
manner.

**PVDF**: PVDF is a homopolymer of vinylidene fluoride having the formula [CH2-CF2]n or a copolyme
produced with (1) chlorotrifluoroethylene, (2) tetrafluoroethylene, and (3) tetrafluoroethylene and
are supplied in the form of powder, pellets, and dispersions.

**THV**: THV is a copolymer containing tetrafluoroethylene, hexafluoropropylene and vinylidenefluori
aqueous dispersions.

## 1.1 Stakeholder details and substance ID

| | Stakeholder |
|---|---|
| **Organisation name** | **Contact person** |
| | |

Q.1: Please list below products or group of products made by your company using Fluoropol

| **Product** | **Field of application. (Please select one from the drop down menu or the list on the right by adding the relevant descriptor number)** |
|---|---|
| Magnetic Drive Pump | Food contact materials & packaging |
| Mechanical Sealed Pump | FP manufacturing |
| Ball Valves | Petroleum (oil & gas) & mining |
| Butterfly Valves | Electronics and semiconductors |
| Diaphragm Valves | Transportation |
| Sight Glasse | Industrial applications (chemical industry) |
| Control Valves | |
| Check Valves | |
| Sample Valves | |

**The products are used in all industries**

| details and substance ID | |
|---|---|
| **Contact email** | **Contact telephone number** |
| | |

ymers (FP) (please add rows as required).

| **Short description of the product** | **Industrial, Professional, Consumer use (or a combination thereof)?** |
|---|---|
| Centrifugal Pump to convey fluid | All products are used in specific application (plants, skids, dangerous goods transportaton, …) to convey highly aggressive or ultra purity gases or liquids. The wetted parts (fluid contact) are made of PFA, PTFE or SSiC to protect the envirment for spills or to fluid itself for dilution. |
| Centrifugal Pump to convey fluid | |
| On / off Valve or control Valve for fluids | |
| On / off Valve or control Valve for fluids | |
| On / off Valve or control Valve for fluids | |
| Fitting | |
| Control Valve | |
| Fitting | |
| Valves to draw a sample for quality check | |

| | priority question |
|---|---|

| Products' field of application | |
|---|---|
| **Use / Application** | **Descriptor number** |
| Cleaning agents, polishes and waxes (non-industrial) | 1 |
| Cosmetics & personal care | 2 |
| Food contact materials & packaging | 3 |
| Construction materials and products | 4 |
| Lubricants | 5 |
| Medical devices | 6 |
| Medicinal products | 7 |
| Metal plating & manufacturing of metal products | 8 |
| FP manufacturing | 9 |
| Ski treatment (waxes) | 10 |
| TULAC (textiles, upholstery, leather, apparel and carpets) | 11 |
| Petroleum (oil & gas) & mining | 12 |
| Electronics and semiconductors | 13 |

| | |
|---|---|
| Energy applications, including batteries and hydrogen | 14 |
| Transportation | 15 |
| Waste & recycling | 16 |
| Consumer mixtures | 17 |
| Aerospace | 18 |
| Industrial applications (chemical industry) | 19 |
| Water and wastewater treatment | 20 |
| Other… (please describe) | 21 |

## 1.2 Use mapping

### 1.2.1 Volumes of FP

Q.2: In what form are you using FP in your products? (e.g., resin, pelle
description of the fluoropolymer product you use.

| **Fluoropolymer** | **Form** |
|---|---|
| PFA | Resin |
| PTFE | bar, parts |
| FFKM | elastomere |
| FKM | elastomere |
| PVDF | Resin |
| | |

| ets, pre-form, fully formed article). Please provide a brief |
|---|
| **Description** |
| The PFA resin is melted and injected in the mould |
| PTFE supplier (intermediate manufacture) sinter and machine the parts according to own drawings |
| Component connections are seale with FFKM |
| Component connections are seale with FFKM |
| The PFA resin is melted and injected in the mould |
| |

| Q.3: Please provide infor |
|---|
| **Substance** |
| PFA |
| PTFE |
| FFKM, FKM |
| **Total** |

| priority question |
|---|

| mation of the origin of the FP relevant to your organisation (in tons). | | |
|---|---|---|
| **Origin of substance** | | |
| **Manufactured** | **Purchased from inside EEA** | **Imported from outside EEA** |
| 100 to | 70to | 30to |
| 10 to | 10 to | 0 to |
| 0,1 to | 0,1 to | |
| 110 | 80 | 30 |

**Comment**

Due to Dyneon exit it will be moved to 100% ouside of EEA

## 1.2 Use mapping

### 1.2.2 Market information

Q.4: **For each product or group of products** containing FP, pleas
If you do not want to provide spec ific numbers, please use a ran
- For value of sales: <€ 1 million, € 1-5 million, € 5-10 million, € 1
- For volumes sold: <1 million units, 1-5 million units, etc. / < 10 t

| **Product or group of products** | **Volumes sold (please specify units; e.g. tonnes or no. items sold)** |
|---|---|
| All Products | 2500 Pumps<br>35000 Valves |
| | |
| | |
| Add rows as needed… | |

| | |
|---|---|
| | **priority question** |

se provide information on the sales and market share of products relevant to FP. (For 2021)
ge as suggested below.
0-50 million, >€ 50 million
tons, 10-100, 100-1,000, 1000-5,000, >5,000 tons per year

| **Value of sales (in €)** | **Estimated market share in EEA (%)** | **Estimated future trends** |
|---|---|---|
| 10-100 | 55% | Deindustrialization in EEA and industrial revival in US, Asia Pacific, MENA |
| | | |
| | | |
| | | |

| Q.5: Please provide information on the extent that your op |
| --- |
| Number of facilities using FP in the EEA |
| One |

| |
|---|
| erations are relevant to FP? |
| Share of your operations (in terms of volume) relying on FP |
| |

## 1.3 Information on function and alternatives

| Q.6a: What is the function of the FP in your products? |
| --- |
| **PFA + PTFE**<br>All products are used in specific applications (plants, skids, dangerous goods transport, ...) to convey highly aggressive or high purity gases or liquids. Wetted parts are made of PFA, PTFE or SSiC to protect the environment from contamination or to protect the liquid itself from contamination. |
| **FFKM, FKM**<br>Elastomers are used to seal components and prevent environmental and health damage. |

| Q.6b: Why do you need to use FP in each of your (groups of) products? Are there certain desirable properties the FP provides to your products, and which cannot be substituted by other materials? Please describe.<br>*For example, does the material have certain technical properties or strengths that cannot be met by other materials (e.g., resistance to radiation, resilience to the conditions of sterilisation, flexibility, water resistance, etc.)* |
| --- |
| The compound between carbon and fluorine is the strongest compound in organic chemistry. Other polymers do not achieve the corrosion resistance because the chemical compound is destroyed earlier |
| Specific FFKM grades guarantee general corrosion resistance to seal components |

| Q.6c: Are there specific requirements by your customers or (regulatory or industry) specifications that FP contribute to meeting?<br>*For example, the automotive industry often has very strict technical requirements (on waterproof, heat and stress resistances) that have to be met. Are there any such customer/ industry/sector/regulatory specifications that only FP materials can meet them?* |
| --- |
| Corrosion resistance for toxic liquids up to 200°C and 16bar.<br>Maintenance of purity and avoidance of liquid contamination according to SEMI standard.<br>Compliance with the German Clean Air Ordinance and global fugitive emissions standards for valves and flanged connections. |
| Corrosion resistance for toxic liquids up to 200°C and 16bar.<br>Compliance with the German Clean Air Ordinance and global fugitive emissions standards for valves and flanged connections. |

| | |
|---|---|
| | **priority question** |

| |
|---|
| Q.6d: Are you producing or aware of similar / competitor products that do not use FP? Can they replace the ones that do? If not, why? |
| No, we would be happy to know alternatives material. |
| No, we would be happy to know alternatives material. |

## 1.3 Information on function and alternatives

| Q.7: What R&D efforts have you carried out (alone or in cooperation with other companies) s<br>alternatives (literature review, laboratory trials, extensive collaborative research, etc.)? What |
|---|
| We are in contact with<br>- customer from the chemical, pharmaceutical and crop science industrie.<br>- association like Pro/K<br>- Universities<br>- Compoundeur<br>If FP as corrossion protector would be replaced by email, ceramic, graphite the sealing out<br>products.<br>We hasn´t found alternative materials for same application. |

| Q.8: Are you aware of any alternatives that may be technically and/or economically feasible<br>*Please also consider the possibility of alternative technologies, i.e., not just a replacement c*<br>*When assessing the technical feasibility of the alternatives, please describe what are the cri* |
|---|
| **Potential alternative** |
| Steel & other metals |
| High nickel alloys |
| Polypropylene |
| PVC |
| Glass / Ceramics / Mica |

| |
|---|
| Polyether sulphone |
| Polyimide |
| EPDM rubber |
| Nitrile rubber (NBR) |
| Hydrogenated NBR |
| Acrylic rubber |
| Ethylene-acrylic (AEM) rubber |
| Other (please describe) |

| |
|---|
| Q.9a: What steps would be needed to test, prove and adopt an alternative in your (groups of) products? How long will such a process take?<br>*For example, do you need to follow a strict procedure, involving long feasibility testing, consultation with customers and/or suppliers and regulatory submissions?* |
| |

so far to identify potential FP-free
t was the outcome?

of PTFE, FFKM are missedfor robust

e for your products or product groups? Have you considered them for use in your products?
*hemical or polymer.*
*itical reasons for not being acceptable, e.g., it does not meet an essential specification.*

| **Products or product groups examined** | **Technical feasibility (performance, technical characteristics, etc.)** |
|---|---|
| Pumps and Valves | Issue with corrosion resistinace |
| Pumps and Valves | Specific grades are suitable for specific application. Without PTFE and/or FFKM sealing no appropriate design possible. All sealing surfaces have to be welded. |
| Pumps and Valves | No, low corrosive resistance. |
| Pumps and Valves | No, low corrosive resistance. |
| Pumps and Valves | Glass, email and specifc ceramic grades are suitable, but without PTFE and FFKM as sealing not possible.<br>The freedom of design is less than to polymeres.<br>The materials are more brittle (Risk of cracks) |

| | |
|---|---|
| Pumps and Valves | A quick google research indicates weakness in the corrosion resistance |
| Pumps and Valves | Better resistance than PVC, PP, but not sufficient to replace PFA, PTFE. Same, the sealing are FFKM or PTFE |
| Pumps and Valves | Medium corrosion resistance |
| Pumps and Valves | Medium corrosion resistance |
| Pumps and Valves | Medium corrosion resistance |
| Pumps and Valves | Medium corrosion resistance |
| Pumps and Valves | Medium corrosion resistance |
| | |

| Q.9b: Are there regulatory approval / certification processes that must be considered in case alternatives are to be used?<br>What is the average / typical approval time? |
|---|
| |

| priority question |
| --- |

| If they are not suitable, why is that so? |
| --- |
| **Economic feasibility (cheaper, more expensive, reason)?** |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| The pricing depending on the high alloy grade<br>Pumps an Valves are in the market |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| more expensive,<br>Ceramic pumps and valves are in the market for niche applications - corrosive and abrasive applications |

| |
|---|
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| cheaper than FP, if this were an alternative it would already be used<br>Pumps and Valves are available |
| |

## 1.4 Impact assessment

### 1.4.1 No-derogation scenario

The draft restriction proposal states that PFAS:
1. Shall not be manufactured, used or placed on the market as substances on their own;
2. Shall not be placed on the market in [another substance, as a constituent, a mixture or an article], in a concentra
a. 25 ppb for any PFAS as measured with targeted PFAS analysis (polymeric PFASs excluded from quantification)
b. 250 ppb for the sum of PFASs measured as sum of targeted PFAS analysis, optionally with prior degradation of pı
c. 50 ppm for PFASs (polymeric PFASs included). If total fluorine exceeds 50 mg F/kg the manufacturer, importer or measured as content of either PFASs or non-PFASs.

Q.10: In a no derogation scenario, in which the restriction will apply fully, what will be the most likely response by your organisation? Please provide clear explanation on why you cannot follow a different response path (e.g., if you anticipate shutting down all EEA operations, why is this the most likely scenario as opposed to a partial shut-down?).
*Examples of responses can be:*
*- Substitution of FP in your products by 20XX, resulting in X years of disrupted supply*
*- Shutdown of certain product lines (with loss of respective sales), but continue other operations (no plant resizing or shutdowns)*
*- Shutdown of whole plants in the EEA (which may impact products not relying on FP)*
*- Shutdown of all operations in the EEA*
*- Move operations to non-EEA countries*
*- Other?*

Our sales is focusse to 100% to FP pumps and valves.

If there is no alternatvie material available to support the business today German site will be shut down and move the production to US, India and/or China. The final location depends on the local PFAS restriction.

ıtion of or above:

ecursors (polymeric PFASs excluded from quantification)
downstream user shall upon request provide to the enforcement authorities a proof for the fluorine

| |
|---|
| Q.11: In case of a no-derogation scenario, in which the restriction will apply fully, what will be the your customers?<br>*Examples of responses can be:*<br>*- Substitution with products not using FP from inside the EEA*<br>*- Supply of products from outside the EEA*<br>*- If using your products as components, stop offering the specific product lines*<br>*- Stop operations altogether*<br>*- Other (please describe)* |
| We assume that the full PFAS restriction will support the deindustrialization of the EEU. Global co their production to countries with adequate PFAS restrictions. |

**priority question**

most likely response by

mpanies will relocate

## 1.4 Impact assessment

### 1.4.2 Economic impacts - estimates for all products using FP

| Q.12a: Please describe the potential economic impacts for your company in case there is no derogation for the affected product lines. | Q.12b: Please select the ra<br>Please rate the impact of t<br>being zero/very low impac |
|---|---|
| | > 1 million |
| | 1 |
| | 5: 100% of the business |

| Q.13a: If you were to shut down one or more facilities or production lines, would there be a decommissioning cost? If so, how much?<br>What are the steps you will have to take to shut down the plant or a production line? |
|---|
| As a PfA granulate processor, we do not expect any PFAS contamination according to the current REACh regulation. |

nge of expected losses for your company.
hose losses to your company on a qualitative scale from 1 to 5, with 1
t and 5 being very high impact?

| Range of profit losses (€ per year) | | | |
|---|---|---|---|
| 1-10 million | | >10 million | |
| **Rating of impact** | | | |
| 2 | 3 | 4 | 5 |

Q.13b: Will there be other costs for your company not mentioned above?
*e.g., unrealised depreciation of equipment, losses of sales in other businesses*

| Q.12c: If you were to lose product sales, would this market (share) be gained by the competition and why? If so, how much of the sales would go to EEA and non-EEA competitors? |
| --- |
| The competitor will have the same issue |

| Q.12d: If you were to halt production/sales, would you be able to re-enter the market once you have a new FP-free product? How long would that take and how would your overall sales be affected? Are there products for which this process would be easier? |
| --- |
| Products make up only a small part of the industrial application. If science finds a polymer that has a stronger or equivalent link to FP, it too will be restricted. The question is rather whether EU society is prepared to live with the consequences of restricting PFAS. Applying today's saftey standards with a 1950 material portfolio, the choice of goods is likely to be severely limited. |

## 1.4 Impact assessment

### 1.4.3 Social and wider impacts - estimates

| Q.14a: How many of your employees will be affected<br>possible, break these down by area of operation (ma<br>marketing, administrative)? |
|---|
| Total No of workers (Full-time equivalent) |
| 200 |

| Q.15a: Can you describe how consumers in the EEA v<br>*For example, will they be faced with higher prices or* |
|---|
| The entire EMU population is affected. All industries<br>have their origins in chemical plants.<br>(Even FKM O-Rings will be banned..) |

d in case of a restriction with no derogations? If
nufacturing, supporting plant operations, sales and

Number of redundancies

will be affected?
*a lack of important / critical products?*

are affected. Even artists, since paint and canvas

priority question

| Q.14b: Will it be possible to transfer workers to a different plant or production line to avoid redundancies? If not, why not? |
| --- |
| No, hence our products 100% PFAS contains |

| Q.15b: Are your products or group of products performing a critical function or meeting a critical need (e.g., environmental: climate change mitigation/adaptation, circular economy, water sustainability, pollution prevention or biodiversity; human health: protection of public health) in the EEA society? If so, which one(s), and how will the society be impacted from a no-derogation restriction? |
| --- |
| Most FP-based products have been developed to support the EU concept of high safety in the chemical industry, e.g. in chlorine and sulfate production itself and in downstream intermediates such as MNB, TDI, MDI, VCM, HF, etc. The end products are used for all critical purposes, such as environmental protection: climate change mitigation/adaptation, circular economy, water supply sustainability, pollution prevention or biodiversity; human health: public health protection.<br>Society, governments and the military are affected by the lack of the above products, resulting in missing products and significantly reducing global power. |