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**INFORMATION COLLECTION**

**PFASs and Alternatives: Commercial Availability and Current Uses in Coatings, Paints and Varnishes**

The goal of this questionnaire is to collect information on current uses of alternatives to per- and polyfluoroalkyl substances (PFAS) in the production of products in the sector of **coatings, paints and varnishes**(see annex for the detailed scope of the study). Information collected through this questionnaire will be used to develop an OECD report on Commercial Availability and Current Uses of Alternatives to PFASs.

For the purpose of this questionnaire, alternatives include:

* Chemical alternatives: short chains PFASs (as alternatives to long chain PFASs)[[1]](#footnote-1) and non-fluorinated alternatives,
* Non chemical alternatives[[2]](#footnote-2), including technical alternatives.

The information requested in this questionnaire is likely spread amongst different stakeholders (e.g. actors along the supply chain will have access to different information). **You are invited to fill in only those sections in the questionnaire for which you have information, you can leave the others blank**.

Information and data provided through this questionnaire are gathered for the purpose of dissemination and knowledge sharing and therefore those providing information should mask any confidential business information (e.g. provide ranges if necessary etc.). A review of publically available information will complement the information collected.

Industry (chemical manufacturers and downstream users), public authorities, NGOs and academia are invited to fill-in this questionnaire.

*This project is developed by the joint OECD/UN Environment Global PFC Group. The Group was established in response to the International Conference on Chemicals Management - ICCM Resolution II/5set up to facilitate the exchange of information on per and poly-fluorinated chemicals, focusing specifically on PFASs, and to support a global transition towards safer alternatives.*

Please return the completed questionnaire to marie-ange.baucher@oecd.org by the **30th of October 2020.**

**Respondent Information**

Name of the entity/company/association represented: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**I. Description of the alternative**

You are invited to provide in this section general information on alternatives to PFASs used in coatings, paints and varnishes (see annex for the detailed scope of the study). You can provide information on alternative developed to a specific chemical or to a product formulation containing PFASs. The first sub-section is for chemical alternatives and the second for non-chemical alternatives.

 **1. In the case of chemical alternatives:**

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| --- | --- | --- | --- | --- | --- |
| **Original chemical**  | **Name of chemical alternative and identity (CAS number[[3]](#footnote-3), EC number)**  | **Type of chemical alternative *(short chain PFASs or non-fluorinated)*** | **Functional Use of the alternative[[4]](#footnote-4)** | **Product Or Article Use Category[[5]](#footnote-5)**  | **Product or article brand (if relevant)** |
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***or***

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| --- | --- | --- | --- | --- | --- |
| **Original product formulation containing PFASs** | **Alternative product formulation**  | **Type of chemical alternative *(short chain PFASs or non-fluorinated)*** | **Functional Use of the alternative[[6]](#footnote-6)** | **Product Or Article Use Category[[7]](#footnote-7)** | **Product or article brand (if relevant)** |
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**2. In the case of non-chemical alternatives:**

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| --- | --- | --- | --- |
| **Original Chemical or product formulation**  | **Name of the alternative** | **Description of the process/application** | **Uses of the alternative** |
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**II. Information on Efficacy of the Alternatives (chemical and non-chemical)**

For each alternative identified in I, provide a brief summary of the relative functional performance of the alternative and the resulting capital, operating and use costs changes (positive or negative) when switching to the alternative.

**III. Uptake/market penetration of the alternative and reasons for the level of uptake (chemical and non-chemical)**

For each of the alternative identified in I, provide a brief summary indicating whether the alternative has received regulatory approval, if it has been used commercially, to which extent and for how long?

**IV. Challenges by sector or for particular uses of PFASs (chemical and non-chemical)**

For each of the alternative identified in I, please provide a brief summary on the estimated cost and time to qualify the alternative and the main challenges during the substitution process

**Annex – Scope of the Study**

In scope

At least the following are considered in scope:

* Paints and varnishes: fluorosurfactants used as wetting, levelling, and dispersing agents, and may also be used to improve gloss and antistatic properties and laminates for conserving landmarks;
* Cable and Wiring: coatings and jackets made of fluoropolymers (such as PTFE and PVDF) for weather, flame, and soil resistance;
* Electronics industry and semiconductors: to the extent relevant e.g. in antireflective coatings and coating materials to prevent corrosion;
* Energy, oil and gas: e.g. polymer lining of gas pipes and fluoropolymer films (such as FEP, PVDF) to cover solar panel collectors;
* Cleaning agents, waxes and floor polishes.

Out of scope

At least the following are considered out of scope:

* Mist suppression in the electroplating industry;
* Coatings on textiles, leather and furniture e.g. outdoor clothing, PPE and carpets;
* Aqueous fire-fighting foams used to suppress fires by a coating effect;
* Coatings used in food packaging and food processing;
* Cosmetics/Personal Care Products: micro powders used in creams and lotions; shampoos, nail polish, eye makeup, denture cleaners, dental floss;
* Mechanical components made of (i.e. not coated with) fluoropolymers e.g. tubing, seals, bearings, gaskets and O rings e.g. in the automotive and aerospace sectors.

*Table 20 of the OECD document Internationally Harmonised Functional, Product and Article Use Categories of May 2017*

|  |  |
| --- | --- |
| Aerosol spray paints | Pressurized one-component paint released with a propellant and spray applied as a fine mist. |
| Paint strippers/removers | Liquid product applied to surfaces to remove paint, coatings and other finishes and also to clean the underlying surface. |
| Lacquers, stains, varnishes and floor finishes | Liquids applied to surfaces such as floors, countertops, appliances, furnishings, decking, and patios to impart colouring or resistance to fade, scuffing, marking, or wear. |
| Water-based paint | Paints that have been formulated to have water as the main vehicle. |
| Solvent-based paint | Paints that have been formulated to have a solvent as the vehicle. |
| Adhesive/caulk removers | Products applied to surfaces to unbind substances or remove sealants and to clean the underlying surface by softening adhesives, caulks and other glues so they can be removed. |
| Thinners | Liquids to dilute paints and coatings to obtain suitable viscosity for paint application. |
| Powder coatings | Dry powder coating that does not contain solvents and is cured under heat to create a coating film.  |
| Radiation curable coatings | Coatings designed to cure onto surface when exposed to radiation such as ultraviolet or electron beam radiation. |

1. As per [the OECD Synthesis Report on Per and Poly Fluorinated Chemicals](https://www.oecd.org/env/ehs/risk-management/PFC_FINAL-Web.pdf), the term “long-chain PFASs” refers to: (i) PFCAs with 7 and more perfluoroalkyl carbons, such as PFOA (with 8 carbons or C8 PFCA) and PFNA (with 9 carbons or C9 PFCA); (ii) PFSAs with 6 and more perfluoroalkyl carbons, such as PFHxS (with 6 perfluoroalkyl carbons, or C6 PFSA) and PFOS (with 8 perfluoroalkyl carbons or C8 PFSA); and (iii) Substances that have the potential to degrade to long-chain PFCAs or PFSAs, i.e. precursors such as PASF- and fluorotelomerbased compounds. Major substances groups with shorter per- or polyfluorinated carbon chain include:

6:2 fluorotelomer-based chemicals as replacements of their higher homologues;

perfluorobutane sulfonyl fluoride (PBSF)-based derivatives as replacements of chemicals based on perfluorooctane sulfonyl fluoride (POSF) in surface treatment and coatings;1

mono- and polyfluorinated-ether-functionality compounds (e.g., polyfluoroalkyl ether carboxylic acids are alternative processing aids for fluoropolymer manufacturing);

fluorinated oxetanes;

other fluorinated polymers. [↑](#footnote-ref-1)
2. Non chemical alternatives are for example process changes that eliminate the use of the chemical of concern, provide the function of the chemical through other means (e.g. physical vs chemical abrasion) or a redesign that obviates the need for the chemical of interest. [↑](#footnote-ref-2)
3. The respondent can refer to the newly released OECD [Database of Per- and Polyfluoroalkyl Substances (PFASs)](http://www.oecd.org/chemicalsafety/risk-management/global-database-of-per-and-polyfluoroalkyl-substances.xlsx); [↑](#footnote-ref-3)
4. For your description, please refer to Table 2 “*Functional Use Categories and Definitions*” of the Internationally Harmonised Functional, Product and Article Use Categories, <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2017)14&doclanguage=en> [↑](#footnote-ref-4)
5. For your description, please refer to Section 3 “*Product and Article Use Categories”* of the Internationally Harmonised Functional, Product and Article Use Categories, <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2017)14&doclanguage=en> [↑](#footnote-ref-5)
6. For your description, please refer to Table 2 “*Functional Use Categories and Definitions*” of the Internationally Harmonised Functional, Product and Article Use Categories, <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2017)14&doclanguage=en> [↑](#footnote-ref-6)
7. For your description, please refer to Section 3 “*Product and Article Use Categories”* of the Internationally Harmonised Functional, Product and Article Use Categories, <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2017)14&doclanguage=en> [↑](#footnote-ref-7)