Call for evidence supporting an analysis of restriction options for PFAS

I. Reasons and aims of this analysis

The competent authorities for REACH of several member states, namely the Netherlands, Germany, Denmark, Sweden and Norway are currently preparing an analysis of restriction options for the PFAS group of substances (per- and polyfluoroalkyl substances) described below (as defined under Section II. Substances) since all these substances are considered to be persistent.

The consequences of this persistence include that the presence of these substances in the environment is practically irreversible, and pose an unacceptable risk to the environment and humans. All uses of PFAS (professional and industrial uses, consumer uses of mixtures and articles) result in emissions into the environment and contribute to the overall concentrations of PFAS in the environment. Many members of this group already occur ubiquitously in the environment and contaminate the ground- and untreated water due to their high mobility. In addition, some of these substances accumulate in biota and/or are suspected to be toxic.

In view of these properties, the above mentioned competent authorities for REACH are considering proposing EU-wide measures covering all PFAS (as defined under Section II. Substances) to reduce those risks.

This questionnaire is intended to generate data and knowledge with regard to PFAS and their uses in order to decide on the initial chemical scope as well as the use scope of a restriction proposal. The questionnaire further aims at understanding for which of the PFAS in scope chemical alternatives or technical replacements exist, voluntary measures or substitution processes etc. are onging. Based on that basic information appropriate options for a restriction proposal will be taken forward in the development of a REACH Annex XV Restriction Dossier.

II. PFAS in scope

As indicated by the name, per- and polyfluoroalkyl substances (PFASs) comprise a group of organic substances containing alkyl groups on which all or many of the hydrogen atoms have been replaced with

fluorine as structural fragments.

Hence, as the scope of the current Call for Evidence have been selected:

Substances that contain at least one aliphatic -CF_2- or -CF_3 element.

Although all PFAS will be considered for regulation, a non-exhaustive list of the most frequently used substances and substance groups may be found in the supplementary document accompanying this questionnaire and consultation which can be downloaded under following link: Supplementary document.docx

III. Target group of this questionnaire

Questions are addressed to the whole supply chain including **manufacturers, importers, distributors and downstream users** (please see supplementary document for further explanation).

Of interest is information on **PFAS** and **alternatives to PFAS.** PFAS and PFAS contained in mixtures and articles are of relevance. Alternatives include chemical (non-fluorinated) as well as technical replacements for PFAS.

This questionnaire contains the possibility to redirect through blocks of questions depending on your type of information or data. Hence, you are able to specifically respond to the questions relevant to you.

IV. Information on institute/organisation/person & Data protection rights

Data subject rights: Access, rectification, erasure, blocking, right of revocation

By participating in this survey, personal data may be processed in terms of the General Data Protection Regulation (GDPR) of the European Union. “Personal data” is any piece of information that allows a natural person to be identified directly or indirectly, for example a name or a personified e-mail address. “Processing” may mean, for example, the collection, recording and storing of these data.
There is no legal obligation whatsoever to grant such permission. Your permission is granted at your free discretion.

Pursuant to Article 15 GDPR, you have at any time the right to request comprehensive **information** on the stored personal data concerning you from the German Federal Institute for Occupational Safety and Health.
According to Article 16 et seq. GDPR, you may ask the Federal Institute for Occupational Safety and Health at any time to **rectify, erase and block** individual personal data.
According to Art. 7(3) GDPR, you furthermore have the right to **withdraw this consent at any time**. The withdrawal may be sent by post or by e-mail to the data controller named below:

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin / German Federal Institute for Occupational Safety and Health
Division 5: Federal Office for Chemicals
Postfach 17 02 02
44061 Dortmund

E-Mail: chemg@baua.bund.de

You can contact our *Data Protection Officer* under the postal address above or by e-mail to bds@baua.bund.de.
Should you be of the opinion that the BAuA does not process your data in accordance with applicable data protection regulations, you have the right to contact *The Federal Commissioner for Data Protection and Freedom of Information*, Husarenstraße 30, 53117 Bonn

When exercising your rights, you will not incur any costs other than postage or transmission costs according to current base rates. Should you withdraw your consent, your personal data will be deleted immediately after receipt of the withdrawal notice. A withdrawal shall not affect the lawfulness of the processing of your data up until the time of the withdrawal.
Your personal data will be stored until the present survey has been fully evaluated and until no further questions may arise.

Consent may be withheld, with the consequence of only participating in a survey without the option for asking the individual participant specific follow-up questions. In this case, company information will have to be provided.

PERMISSION FOR INFORMATION PURPOSES: I agree to the personal data I provide in the present survey, including my name and my e-mail address, to be collected, processed and stored for potential follow-up questions regarding this survey by the service provider of Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA), namely Webropol Deutschland GmbH, and to these being subsequently stored in the database of the Federal Chemicals Office.

*

- (●) Yes
- ( ) No

The following information marked with * on institute/organisation/person are mandatory fields.

Information on institute/organisation/person

Name *

Surname *

Name of institute/organisation *

E-Mail *

Can we contact you with follow-up questions? *

- ◯ Yes
- ◯ No

Are you interested in attending a meeting on specific uses of PFAS, mixtures and articles containing PFAS?
*

- ◯ Yes
- ◯ No

Note on Confidentiality of information and data

I understand that it is my responsibility not to include confidential information in responses to general comments and in any responses to requests for specific information (e.g. company name, email addresses, phone numbers, signatures etc.). The competent authorities for REACH will not be held liable for any damages caused.
*

- ◯ Yes

I understand that it is my responsibility to mark confidential data and attachments as confidential. *

- ◯ Yes

1. Please choose one of the following options. Do you have information on **PFAS**, PFAS-containing mixtures and articles or **alternatives** being able to replace PFAS.
*

- ◯ PFAS, PFAS-containing mixtures and/or articles
- ◯ alternatives i.e. other substances, non-chemical or functional replacement

V. Questions - Section A -PFAS and PFAS-containing mixtures and

articles

2. Please define your role(s) with regard to PFAS and/or PFAS-containing mixtures and articles (see above for definitions of different roles). Please choose according to your primary role but multiple roles can be indicated. (please see Supplementary document for further explanation) *

- [ ] Manufacturer of PFAS and/or PFAS-containing mixtures
- [ ] Manufacturer of PFAS-containging articles
- [ ] Importer of PFAS and/or PFAS-containing mixtures
- [ ] Importer of PFAS-containing articles
- [ ] Distributor of PFAS and/or PFAS-containing mixtures
- [ ] Distributor of PFAS-containing articles
- [ ] Downstream User of PFAS and/or PFAS-containing mixtures
- [ ] Downstream User of PFAS-containing articles
- [ ] Other (e.g. NGOs, Scientists)

V. Questions - Section A -PFAS and PFAS-containing mixtures and articles

Information on substance identity and quantities *

- ( ) I have information
- ( ) I have no information

3. Please fill in following information for PFAS and/or PFAS contained in mixtures and/or articles:

- chemical names, trade names, CAS and EC numbers
- quantities you produce/import/use per year for each individual PFAS
- number of manufacturing/use sites
- number of workers involved in handling at company/customer sites
- production process of your substance (electrochemically or other methods)

- description of the production of polymers, fluororesins or other complex perfluorinated compounds in
  detail.
- if relevant description of your fluorinated non-intentionally added substance(s) (NIAS)
  (e.g. oligomers, impurities) which might be present in your substance
- if relevant description of fluorinated substances produced/formed during the production process including
  e.g. volatile substances that could be released to the environment

This can be done using an Excel file which can be downloaded and expanded according to your needs via the following link: Substance identity and quantities.xlsx

Here, the Excel file "Substance identity and quantities.xlsx" can be attached to the questionnaire:

V. Questions - Section A -PFAS and PFAS-containing mixtures and articles

Information on hazards *

- ◯ I have information
- ◯ I have no information

The carbon-fluorine bonds are one of the strongest chemical bonds in organic chemistry. This means substances containing this chemical bond resist degradation when used and also in the environment. All PFAS subject to the description above (as defined in Section II.) are, or ultimately transform into,are therefore persistent substances. Perfluorinated chemicals are thermally, chemically and biologically highly inert. Due to the very strong carbon-fluorine bound, these substances can resist degradation by acids, bases, oxidants, reductants, photolytic processes, microbes and metabolic processes (Parsons et al., 2008; Schultz et al., 2003; Siegemund et al., 2000).

Please note that the competent authorities who prepared this questionnaire consider all PFAS as defined in Section II to be persistent and therefore harmful to the environment and human health. (see also Supplementary document for CfE.docx)

4. Do you consider your PFAS and/or PFAS present in your mixtures and/or articles to be persistent including any impurity, known contaminants or degradation products?
*

- ◯ Yes
- ◯ No

5. If you do not consider your PFAS and/or PFAS present in your mixtures and/or articles to be persistent. Please explain why and ideally provide data why they are not persistent. Additional data can be uploaded at the end of the questionnaire.

6. Please list any self-classification and hazards other than persistence relevant for human health and the environment known for each individual PFAS and/or PFAS present in the mixture and/or article that you manufacture, import and/or use? Please link this information with a corresponding CAS-number.

This can be done using an Excel file, which can be downloaded and expanded according to your needs via the following link: Hazards.xlsx

Here, the Excel file "Hazards.xlsx" can be attached to the questionnaire:

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on uses *

- ◯ I have information
- ◯ I have no information

7. Which are the area(s) of use and application or your PFAS and/or PFAS containing mixtures and/or articles.

	Please tick
Textiles, leather and apparel, and textile related products	☐
Cosmetic products	☐
Food contact materials and non-stick kitchenware	☐
Paper and packaging	☐
Firefighting foams	☐
Household articles/Consumer mixtures (e.g. non-sticking coating, impregnation agents, polishes etc.)	☐
Construction products (e.g. surface treatments (paints, coatings)	☐
Lubricants and greases	☐
Chrome plating (including mist suppressing agents)	☐
Semiconductors	☐
Ski waxes	☐
Medical devices and applications	☐

	Please tick
Applications of PFAS within oil, gas and mining (apart from firefighting foam)	☐
F-gases e.g. (PFC, HFC, HCFC, HFE, HFO) in air-conditioning, heat-pump equipment, aerosol cans, foams etc.	☐
Uses of C1 perfluorinated carboxylic and sulfonic acids (trifluoroacetic acid (TFA) or trifluoromethanesulfonic acid (triflic acid, TfOH))	☐
Transportation (automotive, aviation etc.) other than listed above (e.g. greases)	☐
Photographic surface layers	☐
Other	☐

8. If possible, please assign or estimate annual quantities of your PFAS and/or PFAS containingmixture and/or article to the individual uses. If possible, list products in the relevant application area that contain your PFAS and provide information or an estimate on quantities (i.e. concentrations or applied amount per cm2).

This can be done using the Excel file, which can be expanded according to your needs under following link: Quantities_Concentrations_per Use.xlsx

Here, the Excel file "Quantities_Concentrations_per Use.xlsx" can be attached to the questionnaire:

9. You have ticked other(s), please specify the use(s) or area(s) of application respectively.

V. Questions - Section A - Specific Uses: Textiles, leather, apparel and textile related products

10. What specific functions do PFAS fulfil?

11. In what types of textiles are they used?

12. In what types of personal protective equipment are PFAS used?

13. What PFAS-substances or PFAS-groups are used?

14. Please give information for every textile you are producing/using on the tonnage of PFAS you are producing/using per year.

15. Please indicate the concentration (or concentration range) of the PFAS(s) in your textile products and uses. Please also indicate the technical function of the PFAS(s) in the products.

16. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentration ranges.

17. Please specify any robust data you might have on reduced service life when only water-repellent properties are available (but no grease-, stain-repellence).

18. Please specify any information you might have on technical textiles (e.g. can you differentiate between essential and non-essential uses in automotive/aerospace, quantities used in medical applications would be valuable, information on sacks/tarpaulins. Do they mainly

need water repellence?)

V. Questions - Section A - Specific Uses: Cosmetic Products

10. What specific functions do PFAS fulfil?

11. In what types of cosmetic products are they used?

12.. What PFAS-substances or PFAS-groups are used?

13. Please give information for every cosmetic product you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of PFAS(s) in your cosmetic product and uses. Please indicate the technical function of the PFAS(s) in the products.

15. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

16. Some large manufacturers have been able to phase out PFAS or pledged to phase out PFAS soon from all their products (NGO initiative). How fast can you follow this?

17. If you use alternative substances, do you have any information on their risk profiles?

18. Please specify any information you have on reformulation costs.

19. Please specify any information you have on impact on exports.

V. Questions - Section A - Specific Uses: Food contact materials (fcm) and non-stick kitchenware (not from paper and board)

10. Please give information on PFAS containing fcm, you are producing/using (e.g. pan, storage vessel).

11. Please give information for every fcm you are producing/using on the tonnage you are producing/using per year.

12. Please give information for every fcm you are producing/using on the material group it is produced from (e.g. plastics, rubber).

13. Please give information for every fcm you are producing on the fluorinated substance(s) (including polymers and non-intentionally added substances (NIAS)) occurring in the production, its annual tonnage and technical function (if any).

14. Please give information (if you have any) for every fcm you are producing/using on the residues of PFAS contained in the fcm.

15. Please give information (if you have any) for every fcm you are producing/using on the migration or release of PFAS contained in the fcm into food(simulants).

16. Please give information (if you have any) on analytical methods used for determination of residues, migration or release of PFAS from your fcm.

V. Questions - Section A - Specific Uses: Paper and board

10. Please give information on paper and board articles, you are producing/using (e.g. packaging, popcorn bags etc.) and give information whether or not the product is intended for food contact.

11. Please give information for every article you are producing/using on the tonnage you are producing/using per year.

12. Please give information for every article you are producing on the fluorinated substance(s) (including polymers and NIAS) occurring in the production, its annual tonnage and technical function (if any).

13. Please give information (if you have any) for every article you are producing/using on the

residues of PFAS contained in the article.

14. Please give information (if you have any) for every article you are using on the release of PFAS contained in the article into food(simulants) or other relevant media.

15. Please give information on analytical methods used for determination of residues or release of PFAS from you article(s).

V. Questions - Section A - Specific Uses: Firefighting foams

Defence sector

10. In which area did you or are you planning to shift to fluorine free foams (e.g. seagoing units, storage of fuel)?

11. What are/were the challenges when performing such a transition?

12. Are you using AFFF for training purposes? If yes, please specify why.

13. Are you using AFFF for testing purposes? If yes, please specify why.

Storage tanks - If working in a sector with storage tanks with a surface area above 500m²:

14. What are/were the challenges when performing a transition to fluorine free foams that are in store for fire of storage tanks with a surface area above 500 m²?

15. Do you think an adaptation of testing requirements (such as application rate, application techniques etc.) will allow the usage of fluorine free foams for such cases of fire? If not, please

specify why.

16. If you already have substituted to non-fluorine fire-fighting foam: what is your experience with the fluorine free foam? Did you gain experience using this foam in case of fires of a storage tank of the mentioned size? Are you aware of tests of the use of your foam in cases of fires of a storage tank of the mentioned size?

17. If you have not substituted yet: Does the foam you are currently using/having in store for such a case of fire contain a fluorosurfactant based on a perfluorohexane or a perfluorooctane chain? Did you gain experience using this foam in cases of fire of a storage tank of the mentioned size? Are you aware of the use of your foam in cases of fires of a storage tank in the mentioned size?

V. Questions - Section A - Specific Uses: Household articles/Consumer mixtures

10. To whom do you supply the consumer mixtures and/or articles (containing PFAS) you manufacture/import/formulate?

11. Please describe the relevant use(s) of the PFAS in your household articles/consumer mixtures. If possible, specify for each product the amount of the mixture/article per use and the estimated frequency of use by consumers.

12. Please give information for every household article/consumer mixture you are producing/using on the tonnage of PFAS you are producing/using per year.

13. Please indicate the concentration (or concentration range) of the PFAS in your consumer articles and/or mixtures and uses. Please also indicate the technical function of the PFAS in the articles and/or mixtures.

14. Please also specify potential fluorinated impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

15. Can you exclude the possibility that further PFAS are present in your articles and/or mixtures (e.g. as residues or impurities)? If yes, please explain why.

16. Does the handling of the aforementioned consumer article and/or mixtures by the intended user possibly lead to an aerosol formation or processes by which the included PFAS become(s) air-borne (e.g. final article and or mixture in form of sprays or powders)?

17. How are the final article and/or mixture intended to be used by consumers (e.g. as spray, diluted before application etc.)?

18. If available, could you provide the safety data sheet and/or other technical data sheets for your consumer article and/or mixture containing PFAS? Is it a data sheet created by yourself or is it provided to you within your supply chain?

19. Is your application of PFAS an application/use, which can lead to emissions to the environment? If not, please explain why, e.g. by what measures are possible emissions controlled?

20. Would it be possible for the application referred to in question 19 to switch to an application without environmental emissions?

21. Is your application of PFAS an application/use, which can lead to exposure of workers? If so, please describe the way of application, e.g. spraying, dipping, rolling and time of exposure. Which risk management measures are in place?

22. Please describe alternative substances or alternative technologies for your uses of PFAS.

23. What would be the technical and economic impact for you and your customers if using the alternative substances/technologies? What would be the costs of switching to these alternatives?

24. Which time frame would you require for a change from PFAS to alternative substances/technologies? Please substantiate the given time frame.

25. In your situation: Are there uses or articles and/or mixtures for which a change to alternative substances or technologies would be possible? If yes, which uses would this be and why is a change not possible?

26. In general: Are there uses for which the technical functions provided by the PFAS cannot be replaced by other substances?

V. Questions - Section A - Specific Uses: Construction Products

10. What specific function do PFAS fulfil in construction products?

11. In what types of construction products are they used?

12. What PFAS-substances or PFAS-groups are used?

13. Please give information for every construction product you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of the PFAS(s) in your construction products and uses. Please also indicate the technical function of the PFAS(s) in the products.

15. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

16. Please specify any robust data you might have on reduced service life when only water-repellent properties are available (but no grease-, stain-repellence) for coated construction products.

17. If you use alternative substances, do you have any information on their risk profiles?

18. Please specify any information you have on reformulation costs.

V. Questions - Section A - Specific Uses: Lubricants and greases

10. What specific function do PFAS fulfil in lubricants and/or greases?

11. In what types of applications are PFAS containing are lubricants and/or greases used?

12. What PFAS-substances or PFAS-groups are used?

13. Please give information for every lubricant and grease you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of the PFAS(s) in your lubricants and/or greases. Please also indicate the technical function of the PFAS(s) in the products.

15. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

16. If you use alternative substances, do you have any information on their risk profiles?

17. Please specify any information you have on reformulation costs.

18. Please specify any robust data you might have on reduced service life, when non-PFAS lubricants and/or greases are used.

V. Questions - Section A - Specific Uses: Chrome plating

10. For which chrome plating process(es) do you use PFAS (e.g. decorative chrome plating or functional/hard chrome plating)?

11. Please give information for every PFAS you are producing/using on the tonnage of PFAS you are producing/using per year for chrome plating.

12. Do you know what effects switching to fluorine-free alternatives will have on your chrome plating process(es)?

13. Is it possible to use a closed loop process technology for your application?

V. Questions - Section A - Specific Uses: Semiconductors

10. Please give information for every PFAS you are producing/using on the tonnage of PFAS

you are producing/using per year for semiconductors.

11. Do you, regardless of a possible restriction of PFAS, plan to change your process of semiconductor production, because the current fabrication processes are approaching technological limits?

12. Do you consider the processes of atomic layer deposition (ALD) and atomic layer etching (ALE) as suitable alternatives to the conventional processes of photolithography and continuous etching in semiconductor production? If not, please explain why.

13. Is it possible to use a closed loop process technology for your application?

V. Questions - Section A - Specific Uses: Mixtures for treatment of ski (ski wax)

10. Which PFAS-substances or PFAS-groups are used in products/mixtures for the treatment of skis?

11. What specific functions do PFAS fulfil for this application?

12. In what types of products are PFAS used?

13. Please give information for every mixture for treament of ski you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of PFAS(s) in the relevant products and uses.

15. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

16. What are the volumes of your manufacture, import and use of PFAS-containing mixtures for the treatment of skis? Can you provide any time trend?

17. If you use alternative substances to PFAS for the treatment of skis, do you have any information on their chemical identity and risk profiles?

18. Please specify any information you have on reformulation costs.

V. Questions - Section A - Specific Uses: Medical devices

10. What specific funtion do PFAS fulfil?

11. In what types of medical devices are they used?

12. What PFAS-substances or PFAS-groups are used?

13. Please give information for every medical device you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of PFAS(s) in your medical devices and applications.

15. Please indicate the technical funtion of the PFAS(s) in the products.

16. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

17. Would you be able to phase out PFAS or pledged to phase out PFAS soon from all your products?

18. If you use alternative substances, do you have any information on their risk profiles?

19. Please specify any information you have on reformulation costs.

20. Please specify any information you have on impact on exports.

V. Questions - Section A - Specific Uses: Applications within oil, gas and mining industry

10. Which PFAS-substances or PFAS-groups are used in mixtures in oil, gas and mining industry?

11. What specific functions do PFASs fulfil for these applications?

12. Please give information on the tonnage of PFAS you are producing/using per year for

applications within oil, gas and mining industry.

13. Please indicate the concentration (or concentration range) of the PFAS(s) in the relevant use areas.

14. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

15. What are the volumes manufactured, imported or used of PFAS-containing mixtures in the oil, gas and mining industry? Can you provide any time trends?

16. If you use alternative substances to PFAS inthe oil, gas and mining industry, do you have any information on their chemical identity and risk profiles? Please provide CAS numbers for the alternative substances, if possible.

17. Please specify any information you have on reformulation costs.

V. Questions - Section A - Specific Uses: F-gases (PFC, HFE, HFC/HFO, HCFC/HCFO) and refrigerants

10. Which F-gas substances fulfilling the PFAS definition (at least one -CF2- unit) are used in your products (e.g. foam blowing agents, coolants and refrigerants)?

11. What is the specific function of the PFAS substances in your products?

12. In what types of products are PFAS substances used?

13. Please give information for every product you are producing/using on the tonnage of PFAS you are producing/using per year.

14. Please indicate the concentration (or concentration range) of the PFAS(s) in the relevant products and uses.

15. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

16. Are you familiar with any known degradation of your PFAS substances in the environment, and what is in that case the final degradation product?

17. What are the volumes of your manufacture, import and use of F-gases and refrigerants for your application? Can you provide any time trends?

18. If you use alternative substances to PFAS as foam blowing agents, coolants or refrigerants, do you have any information on their chemical identity and risk profiles?

19. Please specify any information you have on reformulation costs.

20. Do you know of any other types of uses for these substances?

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on functionality and final mixtures/articles *

- ◯ I have information
- ◯ I have no information

27. Please describe the technical function of the PFAS, also with regard to the presence of PFAS in mixtures.

28. Please specify the final mixtures/articles (with industrial, professional and consumer relevance) resulting from the use(s) of your PFAS. Please indicate whether your substance(s) is/are a component(s) of mixtures and/or articles. List the nature of these articles/mixtures as precisely as possible.

29. Please give information for every mixture/article you are producing/using on the tonnage of PFAS you are producing/using per year.

30. To whom do you supply the PFAS and mixtures/articles containing PFAS you manufacture/import?

31. If possible, indicate the concentration (or concentration range) of PFAS or application levels (i.e. in mg per m²) for the PFAS and/or PFAS in your articles/mixtures, including polymers, and uses. Are they impurities, residues or intended additives?

32. Which minimum concentration of PFAS alone or in your mixtures including polymers is feasible using the best available technique?

33. Is the concentration mentioned in question 32 necessary for the performance of your substance, mixture, polymer? What is the minimum concentration of PFAS, mixtures including polymers that is necessary to maintain its function?

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on releases and exposure *

- ◯ I have information
- ◯ I have no information

34. Does your manufacturing process lead to releases to the environment? If yes, please provide some information on potential pathways (including released quantities). Please provide information about the assumed release fractions or even the annual emission/release amounts. If not, please include reasoning why you assume no release and describe the risk management measures.

35. Is your application of PFAS a (technical) application/use that can lead to emissions into the environment? If not, please provide data.

36. Is your application of PFAS an application/use that can lead to exposure of workers? If so, please provide exposure estimates, describe the way of application, e.g. spraying, dipping, rolling and time and amount of exposure. What risk management measures are in place?

37. Please describe the measures you are taking to reduce emissions of PFAS into the environment. Please quantify the degree of efficiency of the emission reduction measures.

38. Please describe the measures you are taking to reduce worker exposure of PFAS. Are these measures described in your safety data sheet and would you be willing to provide it to the authorities in the scope of this consultation?

39. Which emission reduction measures do you specify in your safety data sheets in order to reduce the entry into the environment under the intended conditions of use (please do not specify any measures for behaviour in "accident situations" here)?

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on alternatives (by PFAS sector) *

- ◯ I have information
- ◯ I have no information

40. Would it be possible for the use referred to in question 7 (differnt use areas) to substitute it with a different technical solution without environmental emissions?

41. Please describe alternative substances or alternative technologies for your uses of PFAS and mixtures containing PFAS.

42. In your view, using the alternative substance(s)/technology would it be possible i) to manufacture comparable products and ii) what alternative ingredient could be used to maintain comparable product properties as compared to the same product containing PFAS.

43. Do you use the alternative substance(s)/technology yourself or are you planning to use alternative substances and/or technologies?

44. What would be the technical and economic implications for you and your customers if you used the alternative substance/technology? Please consider a level playing field where no PFAS are used. In general, is a deterioration of consumer product performance or durability expected?

45. What time frame would the adaptation to alternative substance(s)/technology require? In which time frame could the substitution be completed? Please specify individual time frames for all necessary steps in your substitution plan.

46. What would be the cost of the adaptation to an alternative substance(s)/technologies?

47. Are there use(s) where it is not possible to adapt to alternative substance(s) or technologies? What would be needed to make this adaption possible? What measures are you taking to achieve this feasibility? How long will it take for those measures to be in place?
Please differentiate between economical and technical reasons.

48. What are the different areas your product is used in? Do you think that the use of PFASs in this area is necessary for health or safety or other highly important purposes? If yes, please describe why and what will be the consequences if this use is no longer available.

V. Questions - Section B - ALTERNATIVES to PFAS

2. Are you a manufacturer, importer and/or downstream user of an alternative that can replace the use of any substance of the PFAS group (see Section II for definition)?

- [ ] Manufacturer
- [ ] Importer
- [ ] Downstream user

3. Is/Are your alternative(s) a chemical or non-chemical/technical or functional replacement to PFAS? In case of more than one alternative please indicate the alternative(s) behind each category below.

- [ ] Chemical replacement
- [ ] Non-chemical/technical replacement
- [ ] functional replacement

4. Please name the PFAS-substance(s) intended to be replaced with CAS- and EC-numbers. Please link this information to your alternative(s).

5. Besides persistence, is there any other relevant hazard for human health and the environment known to you for the PFAS named under question 4 to be replaced by your alternative(s)? The text field below can be used for further descriptions.

- [ ] Cancerogenic, Mutagenic, Toxic to Reproduction (CMR)

- [ ] Neurotoxic
- [ ] Skin/respiratory sensitizing
- [ ] Other toxic effects

6. Please list your chemical alternative(s) i.e. the substance(s), with trade names, CAS- and EC- numbers, which you manufacture, import and/or use?

This can be done using an Excel file, which can be downloaded and expanded according to your needs via the following link: Chemical Alternatives.xlsx

Here, the Excel file "Chemical Alternatives.xlsx" can be attached to the questionnaire:

7. Please list your non-chemical alternative(s) e.g. technical solution(s) etc. and provide further description, if possible.

8. Which quantities of each alternative do you produce/import/use per year?

9. Please describe the state of implementation of your alternative(s) e.g. technical readiness level (TRL 1-9)? Is/Are the alternative(s) already available on the market?

10. Please list your self-classification and any hazards relevant for human health and the environment known for each alternative (substance) that you manufacture, import and/or use. Please link with corresponding CAS-number. What risk measurement measures are in place, if necessary?

This can be done using the above mentioned (Question 6) an Excel file which can be downloaded and expanded according to your needs via the following link: Chemical Alternatives.xlsx

Here, the Excel file "Chemical Alternatives.xlsx" can be attached to the questionnaire:

11. With respect to which function(s) can your alternative(s) be used as a replacement for PFAS or PFAS in mixtures and/or articles?

- [ ] Water repellence
- [ ] Grease repellence

- [ ] Film forming
- [ ] Thermal stability
- [ ] Electric stability
- [ ] Other(s)

12. Which are the use(s) and area(s) of applications of your alternative(s)? In which use(s) can your alternative(s) replace PFAS(s)?

	Please tick - Use of alternatives	Please tick - Replacement of PFAS in that use
Firefighting foams	☐	☐
Textiles, leather and apparel, and textile related products	☐	☐
Cosmetic products	☐	☐
Food contact materials and non-stick kitchenware	☐	☐
Paper and packaging	☐	☐
Household articles/Consumer mixtures (e.g. non-sticking coating, impregnation agents, polishes etc.)	☐	☐
Construction products (e.g. surface treatments (paints, coatings)	☐	☐
Lubricants and greases	☐	☐
Chrome plating (including mist suppressing agents)	☐	☐
Ski waxes	☐	☐
Medical devices and applications	☐	☐
F-gases e.g. (PFC, HFC, HCFC, HFE, HFO) in air-conditioning, heat-pump equipment, aerosol cans, foams etc.	☐	☐
Uses of C1 perfluorinated carboxylic and sulfonic acids (trifluoroacetic acid (TFA) or trifluoromethanesulfonic acid (triflic acid, TfOH))	☐	☐
Semiconductors	☐	☐

	Please tick - Use of alternatives	Please tick - Replacement of PFAS in that use
Transportation (automotive, aviation etc.) other than listed above (e.g. greases)	☐	☐
Photographic surface layers	☐	☐
Applications within oil, gas, mining industry (apart from firefighting foam)	☐	☐
Other	☐	☐

13. You have ticked other(s), please specify this/these use(s) and/or area(s) of application of your alternative(s).

14. Do you have data on the performance of your alternative in an application for which normally PFAS are used? Please indicate here and submit further data at the end of this questionnaire.

15. Do users need to consider obstacles when planning to substitute with your alternative (e.g. availability, testing, costs etc.)?

16. Are releases to the environment expected from your alternative(s)? What are the environmental properties of the alternative(s) to be expected?

17. Is relevant worker and/or consumer exposure expected from your alternative(s)?

VI. Additional Information

Please attach additional information below. Data labelled as confidential will be treated as confidential business information. All data will be transmitted encrypted and saved on an external server. In case you prefer not to transmit data electronically, you may send them to the Federal Office for Chemicals at the BAuA per postal mail (see below).

Attachment

You can attach one or more files from your computer to your response. To attach a document, click the button below and browse for the file. Select the file and click "Open". To delete a file, click on the recycle bin icon. The attachment must be type of doc, docx, pdf, xls, xlsx.

Further information and attachments

Postal Address

In case you intend to submit confidential information by postal mail please use the following address:

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA)

Bundesstelle für Chemikalien
Friedrich-Henkel-Weg 1-25
44149 Dortmund

Thank you very much for your contribution.

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Thank you very much for your contribution.