

Call for evidence supporting analysis of restriction options for the PFAS group of substances (fluorinated substance(s))

I. Reasons

The national authorities of several member states, namely the Netherlands, Germany, Denmark, Sweden and Norway are currently planning to prepare an analysis of restriction options for the group of fluorinated substances subject to the description below (as defined under II. Substances) since all these substances are considered to be persistent constituting an unacceptable risk to the environment and humans.

The consequences of this persistence include that they are non-retrievable, and potential contamination of ground- and drinking water pose a risk. Many members of this group already occur ubiquitously in the environment and contaminate the ground- and untreated water due to their high mobility (e.g. PFBS, ...). In addition, some of these substances accumulate in biota and/or are suspected to be toxic. All uses of fluorinated substances (consumer uses of mixtures and articles, professional and industrial uses) result in emissions into the environment and contribute to the overall concentrations of PFAS in the environment .

In view of these properties, the competent authorities for REACH of Germany, the Netherlands, Denmark, Sweden and Norway are considering proposing EU-wide measures covering all PFASs (as defined under II. Substances) to reduce the risks for the environment and humans from the group of fluorinated substances. For members of this substance group e.g. PFHxA, PFOA, C9-C14 PFCAs, PFBS, PFHxS, PFOS restrictions are already in place or were initiated as risk management measures.

This questionnaire is intended to generate further information for the evaluation of the most appropriate restriction measures, as well as the scope and conditions for restriction option(s) to be taken forward in the development of an Annex XV Dossier.

II. Fluorinated substances

Addressed are all substances (including polymers) that fit the following description:

„fluorinated substances that contain 1 or more C atoms on which all the H substituents ... have been replaced by F atoms, in such a manner that they contain at least one aliphatic perfluorocarbon moiety such as $-C_nF_{2n}-$ „

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 information document accompanying this questionnaire and consultation.

The information document can be accessed and downloaded under following link:

III. Information on institute/organisation/person

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

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: @baua.bund.de

You can contact our [Data Protection Officer](#) under the postal address above or by e-mail to @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

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 fluorinated substances, mixtures and/or articles containing fluorinated substances? *

- ☐ Yes
☐ No

Note: Information is to be gathered with regard to fluorinated substances, mixtures and articles containing fluorinated substances BUT also concerning non-fluorinated substances as well as non-chemical and functional solutions being able to replace uses of fluorinated substances and their function.

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

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

This questionnaire contains questions that are aimed at different target groups and stakeholders respectively. Dependent on your role and answer to the next question you will be directed to the sections containing questions relevant for you.

Questions are addressed to

manufacturers and importers,
distributors including retailers and
downstream users

which are understood as following:

Manufacturer: means any natural or legal person established within the Community who manufactures a substance within the Community;

Importer: means any natural or legal person established within the Community who is responsible for import which is the physical introduction into the customs territory of the Community

Distributor: means any natural or legal person established within the Community, including a retailer,
who only stores and places on the market a substance, on its own or in a preparation, for third parties

Downstream user: means any natural or legal person established within the Community, other than the manufacturer or the importer, who uses a substance, either on its own or in a preparation, in the course of his industrial or professional activities.
A distributor or a consumer is not a downstream user.

2. Please define your role with regard to fluorinated substances, mixtures and articles containing fluorinated substances (see above for definitions of different roles). Multiple choices are possible. *

- ☐ Manufacturer, importer of fluorinated substances or mixtures containing fluorinated substances
- ☐ Manufacturer, importer of articles incorporating/ containing fluorinated substances

- ☐ Retailer, Distributor of fluorinated substances or mixtures containing fluorinated substances
- ☐ Retailers, distributors of articles containing fluorinated substances
- ☐ Downstream Users (e.g. formulators of PFAS containing mixtures)

IV. Questions - Section A - manufacturers, importers and distributors incl. retailers of fluorinated substances and mixtures containing fluorinated substances.

Structure - Substance ID and quantities

3. Under the following link an Excel file can be downloaded in which several information are to be filled in in relation to the fluorinated substances themselves and/or present in mixtures you manufacture, import and use?

Please fill in the Excel file which can also be expanded according to your needs. - So we could replace Questions 4 till 7 with the Excel file to be filled in?-

Following details are of interest:

- names, trade names, CAS and EC numbers
- quantities you produce per year
- production process of your substance (electrochemically or other methods)
- if relevant describe your fluorinated non-intentionally added substance(s) (NIAS) (e.g. oligomers, impurities) which might be present in your substance
- if relevant fluorinated substances produced during the production process including e.g. volatile substances that could be released to the environment

4. Which quantities of fluorinated substance(s) and/or mixtures containing fluorinated substances do you produce/import/use per year? If possible, please assign quantities to the individual fluorinated substance(s) and or mixtures containing fluorinated substances you manufacture/import/use.

5. If you are a manufacturer/user, please indicate the number of sites your fluorinated substance(s) and/or mixtures containing fluorinated substances are manufactures/used at? How many workers are handling the substances in question in your company/ at your customer's sites?

6. How is/are your fluorinated substance(s) or mixture containing fluorinated substances produced (electrochemically or by other methods)? Describe any fluorinated non-intentionally added substance (NIAS) (e.g. oligomers or impurities) which may be present in your substance(s) and/or mixture.

7. Are there any relevant fluorinated substances produced during the production process of fluorinated substance(s) or mixtures containing fluorinated substances including e.g. volatile substances that could be released to the environment?

Please note that authorities consider all fluorinated substances as defined under II.
Substances to be persistent and therefore harmful to the environment and human health..

For description/explanation of "persistence" please refer to background/information note
accompanying this questionnaire which can be accessed under following link:

8. Do you consider your fluorinated substance(s) and/or fluorinated substance(s) present in your mixtures to be persistent including any impurity, known contaminants or breakdown products? *

☐ Yes

☐ No

9. You do not consider your fluorinated substance(s) and/or fluorinated substance(s) present in your mixtures to be persistent. Please give arguments and ideally provide data why those are not persistent. Additional data can be uploaded at the end of the questionnaire.

10. Is a separate question with regard to persistence of fluoropolymers and fluorinated polymers needed? If yes, please add one.

11. Please list any hazards other than persistence relevant for human health and the environment known for each fluorinated substance(s) and/or fluorinated substance(s) contained in your mixtures that you manufacture, import and/or use? Please link with corresponding CAS-number.

- an Excel file could be added here to be filled in with regard to question 11 and 12

12. Please list your self-classification for each fluorinated substance(s) and/or fluorinated substance(s) contained in your mixtures that you manufacture, import and/or use? Please link with corresponding CAS-number.

Structure - Uses

13. Which are the areas of uses and applications of your fluorinated substance(s) and/or fluorinated substance(s) present in your mixtures. (according to the areas of uses identified by group so far)

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

	Please tick
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 carbocyclic and sulfonic acids	☐
Semiconductors	☐
Transportation (automotive, aviation etc.) other than listed above (e.g. greases)	☐
Photographic surface layers	☐
Petroleum activities (apart from firefighting foam)/ Oil and mining	☐
Other	☐

14. If possible, please assign quantities and concentrations of your fluorinated substance and/or fluorinated substance present in your mixture to the individual uses. This can be done via the Excel-Sheet which can be expanded as necessary.

15. You have ticked other(s), please specify the uses or areas of application respectively.

VI. Questions - Section A - Specific Uses: Fire fighting foams

Defense sector

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

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

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

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

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

20. What are/were the challenges when performing a transition to fluorine free foams that are in

store for fire of storage tanks above 500 m²?

21. 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.

22. If you already have changed: what are your experiences with the fluorine free foam? Did you gain experiences using this foams in case of fire of a storage tank of the mentioned size? Are you aware of test of the use of your foam in cases of fire of a storage tank of the mentioned size?

23. If you have not changed yet: Is the foam you are currently using/having in store for such a case of fire containing an fluorosurfactant based on a perfluorohexane or a perfluorooctane chain? Did you gain experiences 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 fire of a storage tank in the mentioned size?

VI. Questions - Section A - Specific Uses: Household products/Consumer mixtures

16. Are you a manufacturer/importer/formulator of consumer products? *

☐ Yes

☐ No

VI. Questions - Section A - Specific Uses: Household products/Consumer mixtures

17. To whom do you supply the consumer products (containing fluorinated substances) you manufacture/import/formulate?

18. Please describe your relevant use(s) of the fluorinated substance(s) in household products/consumer mixtures. If possible, specify for each product the amount of the product per use and the estimated frequency of use by consumers.

19. Please indicate the concentration (or concentration range) of the fluorinated substance(s) in your consumer products and uses. Please also indicate the technical function of the fluorinated substances in the products.

20. Please also specify potential fluorinated impurities, residues or intended additives and indicate the possible concentrations or concentration ranges of these substances?

21. Can you exclude the possibility that further fluorinated substances are present in your products (e.g. as residues or impurities)? If yes, please explain why.

22. Does the handling of the aforementioned consumer products by the intended user possibly lead to an aerosol formation or processes by which the included fluorinated substance(s) becomes air-borne (e.g. final product in form of sprays and powders)?

23. How are the end products intended to be used by the consumer (e.g. as spray, diluted before application etc.)?

24. If available could you provide the safety data sheet and/or other technical data sheets for your consumer products containing fluorinated substance(s)? Is it a data sheet created by you or is it provided to you within your supply chain?

25. Is your application of fluorinated substance(s) an application/use that can lead to emissions to the environment? If not, please explain why, e.g. by what measures are possible emissions controlled?

26. Would it be possible for the application referred to in question 25. to switch to an application without environmental emissions?

27. Is your application of fluorinated substance(s) an application/use that can lead to exposure of workers? Is so, please describe the way of application, e.g. spraying, dipping, rolling and time of exposure. What are the risk management measures in place?

28. Please describe alternative substances or alternative technologies for your uses of fluorinated substance(s).

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

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

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

32. General: Are there uses for which the technical functions provided by the fluorinated

substances cannot be replaced by other substances?

VI. Questions - Section A - Specific Uses: **Chrome plating**

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

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

18. Is a closed loop process technology for your application possible?

VI. Questions - Section A - Specific Uses: **Semiconductors**

16. Do you, regardless of the planned restriction of fluorinated substance(s), plan to change your process of semiconductor production, because the current fabrication processes are nearing technological limits?

17. 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? In not, please explain why.

18. Is a closed loop process technology for your application possible?

Structure - Functionality and end product

33. Please describe the technical function of the fluorinated substance(s), also with regard to the presence of fluorinated substance(s) in mixtures.

34. Please specify the end products (industrial, professional and consumer relevance) resulting from your uses for your fluorinated substance(s). Please indicate whether your substance(s) is/are a component of mixtures and/or products. List the nature of these products/mixtures as precisely as possible.

35. To whom do you supply the substance(s) and mixtures containing fluorinated substance(s) you manufacture/import?

36. If possible, indicate the concentration (or concentration range) of fluorinated substance(s) or application levels (i.e. in mg per m²) for your fluorinated substances and/or fluorinated substances in your products/mixtures, including polymers, and uses. Are they impurities, residues or intended additives?

37. Which minimum concentration of fluorinated substance(s) alone or in your mixtures including polymers is feasible using the best available technique?

38. Is the concentration mentioned in question 36. necessary for the performance of your substance, mixture, polymer? What is the minimum concentration of fluorinated substance(s), mixtures including polymers that is necessary to maintain its function.

39. Does your manufacturing process lead to releases to the environment? If yes, please provide some information on potential pathways (including released quantities). If not, please include reasoning why you assume no release and describe the risk management measures.

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

41. Is your application of fluorinated substance(s) an application/use that can lead to exposure of workers? If so, please describe the way of application, e.g. spraying, dipping, rolling and time of exposure. What are the risk management measures in place?

42. Please describe the measures you are taking to reduce emissions of fluorinated substance(s) into the environment. Please quantify the degree of efficiency of the emission reduction measures.

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

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

Structure - Alternatives from the view of participants of PFAS sector

45. Would it be possible for the use referred to in question xx. to switch it or to substitute it with a different technical solution without environmental emissions?

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46. Please describe alternative substances or alternative technologies for your uses of fluorinated substance(s) and mixtures containing fluorinated substance(s).

47. 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.

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

49. 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 fluorinated substances are used in general deterioration of consumer product performance or durability expected?

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

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

52. 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 are in place? Please differentiate between economically and technical reasons.

IV. Questions - Section B - manufacturers, importers and distributors incl. retailers of articles containing fluorinated substances.

IV. Questions - Section C - downstream users of fluorinated substances and/or mixtures and articles containing fluorinated substances

V. Questions - Section D - manufactures, importers and downstream users of ALTERNATIVES

53. Are you a manufacturer, importer and/or downstream user of an alternative that can replace the use of any member of the fluorinated substance(s) group?

- ☐ Manufacturer
- ☐ Importer
- ☐ Downstream user

54. Is your alternative a chemical or non-chemical or functional replacement to fluorinated substance(s)?

- ☐ chemical
- ☐ non-chemical replacement

☐ functional replacement

55. Please list your chemical alternatives i.e. the substance(s), with trade names, CAS and EC numbers, which you manufacture, import and/or use? - An Excel sheet could be used in addition but it will probably not substitute the following questions, as there are also non-chemical and functional replacements to be listed. -

56. Please list your non-chemical alternatives e.g. technical solutions etc?

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

58. Please list any hazards relevant for human health and the environment known for each of your alternative (substance) that you manufacture, import and/or use? Please link with corresponding CAS-number. - An Excel file could be linked here that can be used instead? -

59. Please list your self-classification for each fluorinated substance(s) and/or fluorinated substance(s) contained in your mixtures that you manufacture, import and/or use? Please link with corresponding CAS-number.

60. To which function(s) your alternative can be used as replacement for fluorinated substance(s) or fluorinated substance(s) in mixtures.

- ☐ Water repellency
- ☐ Grease repellency
- ☐ Film forming
- ☐ Thermal stability
- ☐ Electric stability
- ☐ Other(s)

61. Which are the areas of uses and applications of your fluorinated substance(s) and/or fluorinated substance(s) present in your mixtures. (according to the areas of uses identified by group so far)

	Please tick
Firefighting foams	☐
Textiles, leather and apparel and textile related products	☐
Food contact materials and non-stick kitchenware	☐
Paper and packaging	☐
Consumer mixtures (e.g. non-sticking coating, impregnation agents, polishes etc.)	☐
Construction products (e.g. surface treatments (paints, coatings) including lubricants and greases	☐

	Please tick
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 carbocyclic and sulfonic acids	☐
Semiconductors	☐
Transportation (automotive, aviation etc.) other than listed above (e.g. greases)	☐
Photographic surface layers	☐
Petroleum activities (apart from firefighting foam)/ Oil and mining	☐
Other	☐

62. You have ticked other(s) please specify the use(s) and/or areas of application.

63. Do you have data on the performance of your alternative in an application for which normally fluorinated substance(s) are used? Please indicate here and submit further data at the end of this questionnaire.

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

65. Are releases to the environment expected from your alternative(s)? What ecological implications would result?

66. Is relevant worker 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

Bitte löschen

Thank you very much for your contribution. The information provided facilitate informed decisions in the evaluation of risk management options for fluorinated substances.