Annex 1

REVISION V2 - 16 JULY 2020
The current revision includes additional information in Q4 and Q5

BAUA[1] - PFAS Survey Questionnaire – Important Questions for Distributors and Customers (Downstream Users)

***Note**: These questions are copied directly from the questionnaire for the response to the Call for Evidence. Under the definitions used under the call for evidence, HCFCs, HFCs, HFOs and HCFOs are included as PFAS as they contain a CF_2 or CF_3 grouping. The proposed replies/comments take this into account (although this enlargement of the definition of PFAS is not a "formal" definition).*

The recommendations in blue provided below by EFCTC are our suggestions which we would ask you to take into account in making your individual replies to the questions. If you require assistance, please contact us via e-mail [redacted]@cefic.be

Please note that is not mandatory to answer all questions or to follow EFCTC recommendations provided below.

The survey can only be completed online here. It is listed as PFAS under current consultations. The full blank questionnaire is provided in *Annex III* for your consideration. Please note that it is not mandatory to reply to all questions or follow EFCTC recommended answers.

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[1] https://www.baua.de/DE/Home/Home_node.html

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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.
*

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

Note: Please tick one or more of the applicable options listed above.

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

Information on substance identity and quantities *

- [x] 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

Free Text Q3– Recommendation:

- Chemical names, trade names, CAS and EC numbers;
- EFCTC has provided a complete list of chemical names, CAS and EC numbers (*please see Annex I: EFCTC substances CAS and EINECs numbers*);
- quantities you produce/import/use per year for each individual PFAS;
- **optionally** refer to EEA Report No 20/2019 Fluorinated Greenhouse Gases 2019 https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2019 for the EU data for HFCs and HFOs, or provide specific information;
- number of manufacturing/use sites- number of workers involved in handling at company/customer sites;

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- provide an estimate of numbers and sites.

- More importantly, although workers handle the substances, they do not come into direct contact with the substances which are in closed containers, as they are liquified gases or low boiling point liquids. Any transfers are undertaken in closed systems with careful engineering controls to complete vapor or liquid transfer to either minimize or completely eliminate emissions. When the substances are recovered from systems, recovery equipment ensures that emissions are minimized or eliminated. Recovered substances may be returned to the distributor for either reclaim or destruction. Following chemical analysis for purity, the returned substance may be reclaimed to a required industry specification for reuse. If the substance is not suitable for reuse, then it is sent for destruction. This cycle of use and recovery aligns with the circular economy and modern handling equipment. Therefore, use and handling systems are designed to minimize or eliminate emissions.

NOTE: Specific input from your experience on contributing to and managing this circular economy, and procedures and processes that you have in place to manage these materials, would be of particular value to the review process.

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

Information on hazards *

- [x] 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
- [x] 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.

Comment Q5: In view of the physico-chemical properties of HFCs and HFOs (relatively low boiling points, (very) short atmospheric life-times and absence of functional groups they are not classified as very persistent and/or very bioaccumulative substances. This seems to be recognized by IOMC which confirms that HFCs and HFOs have not been commonly regarded as PFASs.

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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

Comment Q6: EFCTC will provide information in Q6.

Free Text Q5 and Q6 - Please submit any relevant evidence you may have, alternatively these boxes can be left empty.

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

Information on uses *

- [x] 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	☐
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

Optionally refer to *EEA Report No 20/2019 Fluorinated Greenhouse Gases 2019* for the EU data for HFCs and HFOs, or provide specific information.
LINK: https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2019

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

Free Text Q9 – Please submit any relevant evidence you may have, alternatively this box can be left empty

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PLEASE NOTE THAT PART V. CONSISTS OF SECTIONS OF INDIVIDUAL IDENTIFIED USE CATEGORIES. BY TICKING "F-gases (PFC, HFE, HFC/HFO, HCFC/HCFO) and refrigerants" IN Q7, YOU WILL BE GUIDED TO THIS SECTION:

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)?

Note:
We take the view that HFC/HFOs identified in Q3 are not covered by the generally accepted definition of PFAS (*please see Annex I: EFCTC substances CAS and EINECs numbers*).

Recommendation:
The scope set in the Call for Evidence (CfE) deviates from the traditional definition set by the OECD. The OECD's definition of PFAS is 'PFASs are chemicals that contain one or more perfluoroalkyl moieties, – CnF_{2n+1}'.

HFCs/HFOs as defined in Annex I and II of the F-gas Regulation (EU) No 517/2014[2], do not have the properties associated with some of the traditional PFASs (such as PFOS and PFOA) in terms of persistence and bioaccumulation (and/or toxicity).

HFCs and HFOs have not been commonly regarded as PFAS and such deviation is not favourable to international cooperation in management of chemicals. The purpose of PFAS designation and proposed restriction is to manage risk due to contamination of groundwater, surface water and soil. HFCs and HFOs partition almost exclusively to air and not to ground / surface water or soil. The risk to human health, including potential for bioaccumulation associated with these substances is also well understood.

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

Free Text Q11 – Recommendation:
The substances are required by customers as they provide the necessary technical and safety properties as required as refrigerants, working fluids for organic Rankine cycle systems, insulation foam blowing agents, or propellants and solvents to meet applicable standards and customer requirements. The majority of substances or their mixtures are designed to be non-flammable or lower flammable (EN378 Safety Class 2L) and have a low order of toxicity. The substances are

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.150.01.0195.01.ENG

selected based on their technical properties, safety characteristics and performance properties that cannot in many cases be provided by other alternatives. The substances are used in equipment and systems throughout the cold chain to reduce food loss and food waste. Similarly, these substances are used in the refrigerated production and distribution of pharmaceuticals. Their use in heat pumps contribute to the increased use of renewable energy. These substances support the drive to reduce energy consumption in buildings while maintaining a comfortable indoor environment. Furthermore, energy efficiency is enhanced through waste heat recovery systems that rely on these substances.

NOTE: Any further detailed input from your perspective on the importance or uniqueness of the specific function of the products that you sell would be additive here as well.

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

Free Text Q12 – Recommendation:
All sectors of the cold chain for refrigeration, air-conditioning, heat pumps, industrial process cooling, organic Rankine cycle systems, insulation foams, consumer and technical aerosols, solvents.
The technical and economic lifetime of the equipment containing HFCs/HFOs is often decades and conversion to other fluids will be technically very difficult, also from a regulatory (safety) point of view. Therefore, access to these substances will be required for a long period as is recognised under the EU F-Gas Regulation.

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

Free Text Q13 - Recommendation:
All products must meet exacting quality standards, with very low levels of impurities and tight composition controls for mixtures, with quality control systems operated by the suppliers or manufacturers and additionally by the distributor to ensure the quality standards are maintained.

Optionally refer to EEA Report No 20/2019 Fluorinated Greenhouse Gases 2019 for the EU data for HFCs and HFOs, or provide specific information and a list of refrigerants subject to the F-Gas Regulation.
LINK: https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2019

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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?

Comment: EFCTC will provide information regarding degradation products in Q16.

Free Text Q14 to Q16 – Please submit any relevant evidence you may have, alternatively these boxes can be left empty.

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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?

Free Text Q17 – Recommendation:
The availability of HFOs and HCFOs and lower GWP HFCs are being increasingly used to enable the phase-down of HFCs under the EU F-Gas Regulation (517/2014), while maintaining the required technical performance and appropriate safety characteristics necessary for a range of applications.

Optionally refer to EEA Report No 20/2019 Fluorinated Greenhouse Gases 2019 for the EU data for HFCs and HFOs, or provide specific information and a list of refrigerants subject to the F-Gas Regulation.
LINK: https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2019

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?

Free Text Q18 – Recommendation: Please submit any relevant evidence you may have, alternatively this box can be left empty.

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Useful links:

ECHA website – Five European states call for evidence on broad PFAS restriction

EFCTC position paper "Per- and Polyfluoroalkyl Substances: HFCs and HFOs a distinct subset

PFAS Online survey

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