

Annex II to contract: Specifications on "Per- and polyfluoroalkyl ethers – identity, production and use"

Background

As a result of concerns about the impacts of global contamination of long chain PFAAs voluntary and regulatory actions have come in place the last 20 years. This has driven forward a transition to replace long-chain PFAAs and their precursors with other fluorinated and non-fluorinated chemicals.

As described by Wang *et al.* (2015) fluorinated alternatives to the long-chain PFAAs can mainly be categorized into two groups: 1) shorter-chain homologues of long-chain PFAAs and their precursors; 2) functionalized perfluoroalkylethers (PFAEs), in particular perfluoroether carboxylic and sulfonic acids (PFECAs and PFESAs). The PFECAs and PFESAs are structurally similar to PFCAs and PFSAAs, with an acidic functional group attached to a per- or polyfluoroether chain instead of a perfluoroalkyl chain. It is this group 2) we want to focus on in this project. The substances are structurally similar to their predecessors (long-chain PFAAs and their precursors) and are largely manufactured by the same companies (Wang *et al.*, 2013).

Even though these alternatives to long-chain PFAAs and their precursors probably have been used for a long time, there is still only limited information publicly available and, in some cases, even their chemical identity remains undisclosed.

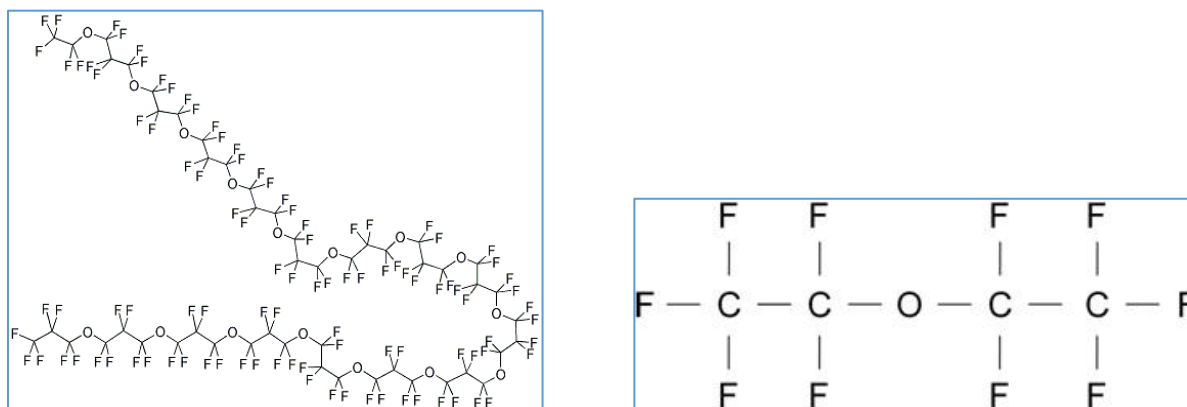


Figure 1. Examples of structures of PFAE.

Scope of the project

The aim of this project is to gather as much information as possible on the identity, use and production of per- and polyfluoroalkyl ethers on the EEA market, within the available budget, in order to get an understanding of the extent of the presence of these substances in articles and environment and also get an idea of the transition from other long-chain PFAS to these substances.

We are interested in getting as good an overview as possible, meaning that we do not want the consultant to delve too much into data on the best known PFAEs, such as GenX, but rather find information on a greater number of substances – also substances beyond PFECAs and PFESAs.

The outcome of the project shall be a report, in English, with information on the following, to the extent possible within the available budget:

- Identification of the PFAEs on the EEA market
- occurrence of PFAEs in mixtures in EEA
- downstream use of PFAEs
- occurrence of PFAEs in articles imported into EEA (types of articles, amounts)
- production, import and use (volume and application) of PFAEs in EEA
- global production (volume) of PFAEs, including time trends
- potential for spills and exposure to the environment and consumers

Emphasis shall be placed on the above bullet points in a prioritised order from top to bottom.

We expect the Supplier also to contact the relevant industries and industry organizations as part of the mission.

The offer should include a description of what methods the Supplier intends to use to obtain information.

The offers must contain a description of previous studies of a similar nature.

Chemical analysis is not a part of the project.

Requirement for competence and quality

- Knowledge of the relevant industry that produces and uses per- and polyfluorinated substances in their production and who sells and imports products that contain per- and polyfluorinated substances.
- Experience with work with these groups of substances
- Experience from similar projects that require contact with producers/importers and downstream users

Tentative progress plan

Contract start: mid-May 2019

Status reports: First report mid-August

Second report primo October

1. draft report: mid-October

2. draft report: primo December

Final report: 31.12.2019

Value of the contract

The project has received 300 000.- DKK from the Nordic Council of Ministers. This includes costs for publishing the report as a Nordic working paper (8600 DKK). The total sum for this project will therefore be 291 400.- DKK.

References:

Zhanyun Wang, Ian T. Cousins, Martin Scheringer, Konrad Hungerbuehler. 2015. Hazard assessment of fluorinated alternatives to long-chain perfluoroalkyl acids (PFAAs) and their precursors: Status quo, ongoing challenges and possible solutions. *Environment International* 75 (2015) 172–179.

Zhanyun Wang, Ian T. Cousins, Martin Scheringer, Konrad Hungerbühler. 2013. Fluorinated alternatives to long-chain perfluoroalkyl carboxylic acids (PFCAs), perfluoroalkane sulfonic acids (PFSA) and their potential precursors. *Environment International* 60 (2013) 242–248.