Meeting with stakeholders on PFAS restriction dossier

Short report to be shared with PFAS restriction group (DE/NL/SE/DK/NO) and the relevant stakeholder.

Date: 21 April 2022

Place: Online (1 h)

Reporting Member State:

- NO

Participants (names and organization):

- Honeywell: Julien Soulet, Lee Hermitage, Mark Boelens, and Mary B. Walsh. Advokatselskapet Schjødt: Thomas Nordby.
- Authorities: Denmark: Toke Winther and Mikkel Aaman Sørensen. Norway: Alice Gaustad, Camilla Sandvik Grande, Anne Line Filtvedt and Audun Heggelund.

Role of stakeholder/company:

- Honeywell International Inc. ("Honeywell") is a global manufacturer and importer into the EU of various fluorinated products solutions, including HFC and HFO refrigerants and their mixtures. The company offers these products in the EU and worldwide principally under the trademark Solstice. Honeywell is represented in Norway by the law firm Schjødt.

Specific PFAS substances (if applicable):

- F-gases and alternatives.

Specific subject (if applicable):

- F-gases, including their degradation and environmental fate, as well as hazard and risk related to degradation products.

Stakeholder invited to provide information in the upcoming public consultation?

- Yes. Honeywell has also contributed to the previous consultation with information on F-gases.

Report

- The participants as listed above were introduced from both sides.

- Honeywell presented an introduction to the company and the relevant products and applications. One focus area of the company is innovation supporting sustainability, while the company is active within e.g. energy storage, plastics recycling and carbon storage. The company is a leader within refrigerants, while their products are also used as blowing agents and as propellants in aerosols. The company's F-gas products are marketed under the trade name "Solstice".

- Honeywell declared their interest in cooperating with the authorities and contribute with relevant information in the development of the PFAS restriction proposal according to the authorities' needs. NO thanked Honeywell for this kind offer.

- Honeywell explained that F-gases represent a low climate impact solution within HVACR applications and is key in the Green Deal actions to help meet net zero goals due to their high energy efficiency. Honeywell noted that F-gases and their fluorine-free alternatives in these applications should be compared from a lifecycle perspective. Some F-gases degrade to TFA in the atmosphere in varying degree according to their chemical structures. TFA salts have low acute toxicity. According to the company TFA is not present at concentrations likely to have adverse toxicological consequences and there is no evidence to date of adverse effects on health. 95% of TFA in nature is of natural origin. Reference was made to Prof. Nielsen in Copenhagen as a useful resource on F-gas knowledge, as well as to the 2021-report by the UNEP Ozone Secretariat Environmental Effects Assessment Panel (EEAP) report assessing TFA[1]. Honeywell supports the approach with including degradation products in the assessment of substances, if the substance's chemical safety assessment indicates such a need.

- Honeywell pointed out that TFA in the environment also have other anthropogenic sources beside refrigerants, like plant protection products and pharmaceuticals.

- Fluorine-free alternatives were discussed, and Honeywell explained that these are associated with various hazards and safety concerns, including toxicity, flammability, need for high-pressure equipment, as well as ozone-forming properties. There would be no single solution among the alternatives that could fit for every application of F-gases. On the automotive side it was explained that the transition to electric vehicles could be compromised if F-gas refrigerants are prohibited.

[1] https://ozone.unep.org/science/assessment/eeap

- NO explained that a lot of information has been received in the previous stakeholder consultations, including information from NGOs and industry stakeholders. The industry stakeholders represent both manufacturers/users of F-gases as well as manufacturers/users of fluorine-free alternatives. The sector appears to be a bit polarized with stakeholders either fully in favour of F-gases or fully in favour of fluorine-free alternatives. Finding balanced and justified information for which specific applications fluorine-free alternatives are available and for which applications they are not, therefore tends to be challenging. However, this is currently being looked into in the information provided from both perspectives in the assessment.

- DK asked about indirect emissions, which were explained by Honeywell, as well as pointed out that in some cases the energy efficiency is more beneficial for the fluorine-free alternatives. It was also explained that both for F-gases and for fluorine-free alternatives, there will be certain emissions, and these will usually be released slowly through leakages over time.

- Honeywell offered to put the authorities in contact with a customer who has compared the energy efficiency between F-gases and ammonia in their equipment, provide background information on generation of ground level ozone, and share the presentations used in the meeting. For Honeywell to really assess what is the energy spent by equipment using different refrigerants it is important to compare like with like and make sure that it is done by an independent third party.

- In response to a question on the energy saving when comparing fluorinated gases in refrigeration equipment compared to CO2 or ammonia, Honeywell said ammonia is the most energy efficient refrigerant if you look solely at its thermodynamic properties. However, when you need to use/implement it on industrial scale, because of its toxicity profile, it requires a lot for engineering, safeguarding and then the reality is that energy efficiency is lost and over time, it degrades.