EMPEREST Training Material

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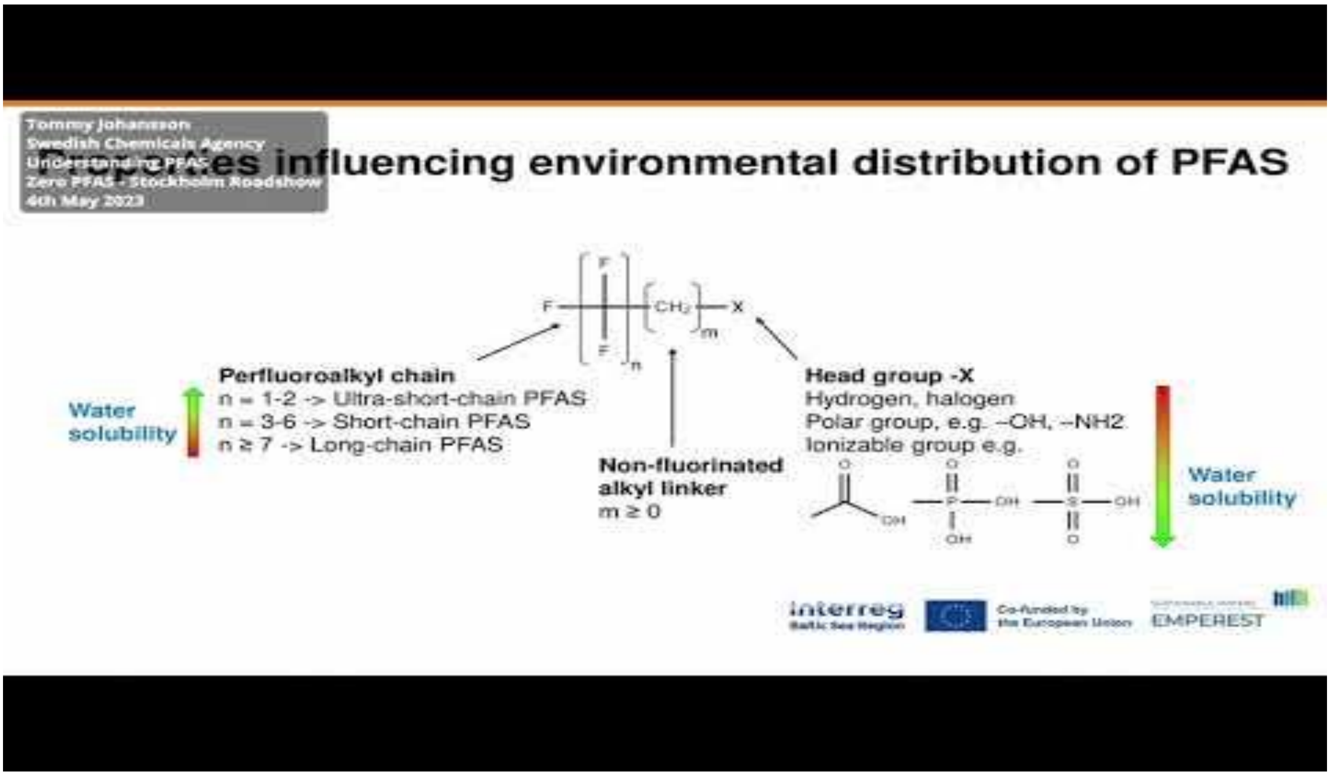
1. Intro to PFAS

1.1 PFAS Properties

PFAS are synthetic substances with many industrial applications and uses in daily products due to their properties. The name stands for Per- and Polyfluoroalkyl Substances, which already tells us something about the chemical molecules. “Alkyl Substance” means that the main structure is made of carbon atoms, linked to one another like a chain. “Per- and Polyfluoro-” indicates that fluorine atoms are present, either at every free position of the carbon chain (Per-) or at some of them (Poly-).
Why is it important to be aware of these substances?
Hannela Artus, from the Ministry of Climate in Estonia, Patrick van Hees from Food & Feed Testing Sweden AB, Ulrike Braun from the German Environment Agency (UBA) and Tommy Johansson from the Swedish Chemical Agency will talk about the properties of PFAS in order to explain their value for the industry, but also the problem they cause.

Link to the video (05:03 min.): https://youtu.be/YaiF7uv5210



1.2 Production and use of PFAS

PFAS have been produced since the mid-50´s and are used extensively in numerous industrial processes around the world. They can be found in a wide range of everyday products, and you might have heard of some PFAS substances and products containing PFAS. However, you may still be surprised where PFAS can be found! Every one of us is constantly in contact with PFAS without even knowing it.
In the following video, you can learn about the history and huge variety of PFAS, explained by Angela Ivask from the University of Tartu and Ulrike Braun from the German Environment Agency. In addition, Kamila Gruškeviča from Riga Technical University and Prof. Barjenbruch from Berlin University of Technology will give examples of products and materials that contain PFAS, and the volumes produced.

Link to video (04:16 min.): https://youtu.be/7bfgLIezGfE

1.3 PFAS release to the environment

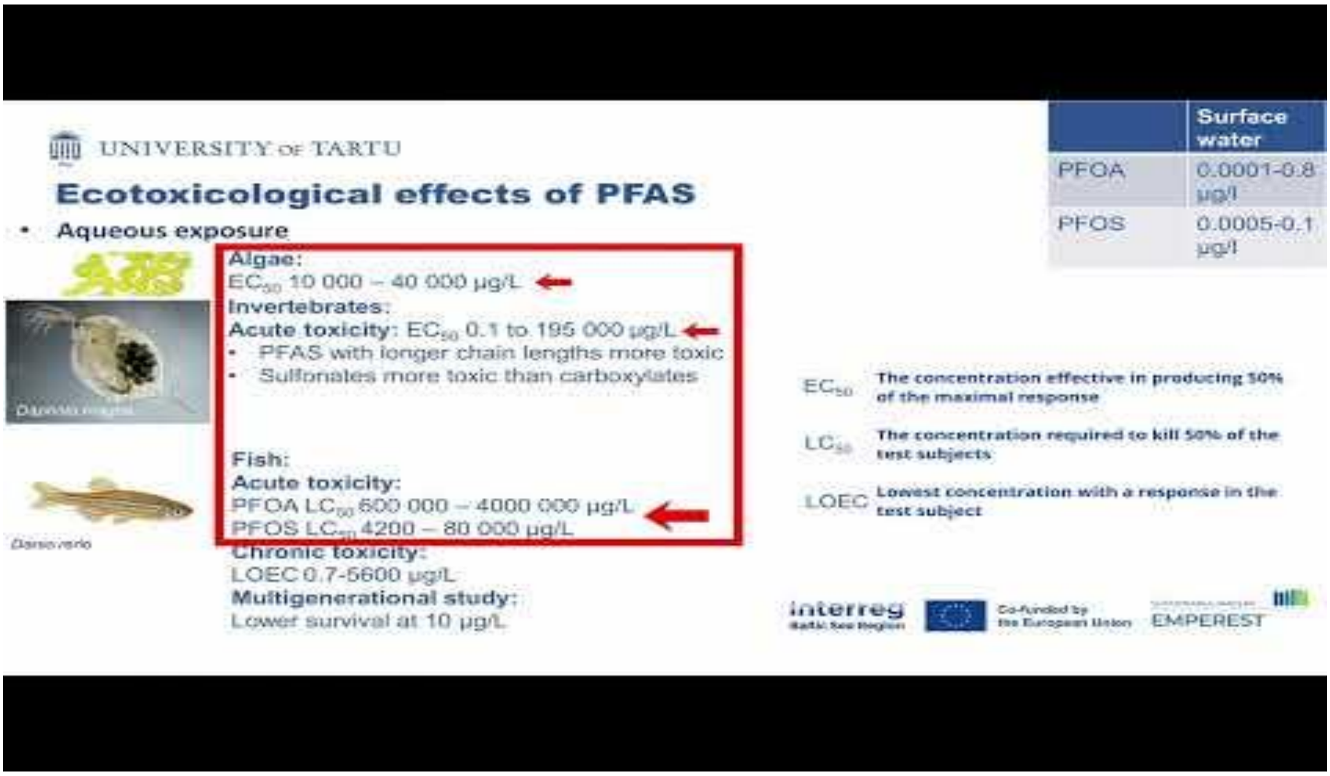
If only PFAS would stay in the products, for which they were made for…
The fact that PFAS can be found in surface and ground waters, in soil, in air, and practically everywhere on the planet proves the opposite. But how do they enter the environment?
Watch this video to find out about contamination pathways, explained by Ulrike Braun from German Environment Agency and Karl Lilja from the Swedish Environment Protection Agency. Furthermore, Kamila Gruškeviča from Riga Technical University speaks about the distribution in the environment and Jonas Hendrikson from Swedish Environmental Research Institute gives some examples for PFAS hotspots.

Link to video (04:26 min.): https://youtu.be/dwrFNo3zahE

1.4 Emerging health and environmental issues

How dangerous are PFAS for humans and the environment?
Due to the omnipresence and persistence of PFAS, this is a question of high concern and relevance. However, since PFAS are such a huge group of substances, a general answer is very difficult to give. Environmental agencies, universities, research institutions and health agencies all over the world are working hard to provide more information about potential adverse health effects of PFAS. In the next video, Angela Ivask from University of Tartu, Kamila Gruškeviča from Riga Technical University and Hannela Artus, from the Ministry of Climate in Estonia, present what is already known about health effects and environmental impact of PFAS today.

Link to video (04:22 min.): https://youtu.be/xDqSTrCPxjg



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