

POPMON - Identification of relevant persistent organic pollutants and potentially contaminated regions as the basis for risk-based food monitoring in Austria

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INTRODUCTION

Persistent organic pollutants (POPs) accumulate in the environment as a result of their longevity. Due to their lipophilicity they can be found in high-fat foods. In humans, these substances can cause various health effects on the immune and nervous system and on various organs, such as the liver and kidneys. In the POPMON project, industrial and waste treatment sites, as well as suspected and contaminated sites, have been identified as having a potential risk of environmental contamination with POPs and subsequently of contamination of food and drinking water.

METHODOLOGY

Site analysis and pollutant identification

RESULTS

Scenario 1 dealt with the investigation of brominated flame retardants at the industrial sites in Amstetten and Kematen an der Ybbs in Lower Austria, where shredder systems for recycling cars and electrical appliances are located. Dioxins, PCBs and brominated flame retardants were examined in samples of deposition, soil and food. In the soil and deposition samples, increased concentrations were measured near the emitters. The levels in food were compliant with the maximum levels for dioxins and PCBs. The concentrations of flame retardants in food were low; BDE 126 was found most frequently.

Scenario 2 dealt with the investigation of per- and polyfluorinated alkyl substances (PFAS) in Lebring and Leibnitz in Styria, where a fire school and plating, metal processing and packaging companies are located. Increased concentrations of PFAS were found in groundwater, surface water and drinking water for humans and farm animals. PFAS were also found in foods of animal origin. A risk to the population from the consumption of this drinking water could not be ruled out. As a measure, the provincial government closed the most heavily polluted drinking water wells.

All calculations were based on the assumptions.

DISCUSSION

The aim of the project was to use the information on occurrence, exposure and toxicology, on the one hand, and on industrial sites and disused hazardous sites in Austria, on the other hand, to derive well-founded proposals for priority actions in food, related to POPs. This should serve as an early warning of contaminated regions in order to enable the timely implementation of risk mitigation measures.

On the basis of previous crisis experience, we recommend taking appropriate precautions to allow a crisis coordination team to be set up more quickly in case of emergency or crisis. This crisis coordination team is also of great advantage for crisis communication, allowing the provision of coordinated, competent and uniform information and preventing a loss of public trust.

It is also recommended that environmental information relevant to food safety be collected in a structured manner and that the authorities be obliged to exchange this information. Food-related environmental monitoring should be continued or even expanded in order to enable the identification of contamination sources at an early stage. This is essential for the clarification, remediation and prevention of further pollution that would otherwise remain undetected and can pollute the environment, animals and people with harmful substances.