

Opinion 23-2020 of the Scientific Committee established at the FASFC on chemical risks for food chain around sites of a scrap processing plant

Background and Terms of reference

Following worrying analysis results of air and dust in the vicinity of a scrap processing plant in Courcelles, the Walloon Air and Climate Agency (AwAC) contacted the Federal Agency for the Safety of the Food Chain (FASFC) to investigate a possible contamination of the food chain. Subsequently, the FASFC asked its Scientific Committee (SciCom) to issue a rapid opinion (Rapid opinion SciCom 02-2020) on the sampling and analysis plan for food and feed around the site of the scrap processing plant.

The SciCom was also asked to issue a subsequent formal opinion on questions relating to the safety of food and feed produced in the vicinity of scrap processing plants throughout Belgium and to answer the following questions :

- a. What are the most relevant chemical hazards in the vicinity of a scrap processing plant that may contaminate the food and feed chain and pose a risk to food safety?
- b. Which are the most appropriate samples to be taken in the vicinity of a scrap processing plant in order to verify the safety of locally produced food and feed?
- c. Within what radius around a scrap processing plant should samples be taken in order to verify the safety of locally produced food and feed? And how should this radius be determined?
- d. What measures can be taken around a scrap processing plant in order to be able to guarantee the safety of the food chain (from food to locally produced feed)?

Method

This opinion is based on expert opinion and on scientific literature.

Conclusions

The experts compared the profiles of PCDDs-, PCDFs- and PCBs-congeners (that are persistent organic pollutants, POPs) in food matrices (eggs, hay and haylage) produced nearby the Courcelles' scrap processing plant with those from industrial samples from the Courcelles site, observed results from the CONTEGG-study (financed by the Federal Public Service for Public Health, Food Safety and Environment) and those available in the EU-RL POPs database. Correlations were observed between the profiles from (1) the most contaminated egg, haylage and hay, (2) the most contaminated egg and horse meat, chicken meat and eggs from a German industrial region (Baden-Württemberg), (3) haylage, hay and smoke emitted by an open fire incineration exercise of a mixture of municipal-industrial type waste (in Mexico City), (4) hay and dust present at the Courcelles' scrap processing plant, (5) hay and atmospheric deposition produced by the Courcelles' scrap processing plant, and (6) eggs from Courcelles with the eggs analysed in the CONTEGG-study. However, in order to demonstrate the causal link between the contamination of food matrices and the activity of a scrap processing plant, more targeted research is necessary (e.g. a study of the profiles extended to other compounds (PBDEs, PAHs, etc.), the examination of a gradient of concentrations in food or plant matrices or in the soil, depending on the distance from the scrap processing plant, etc.). The research must be able to estimate the effect of the scrap processing plant in relation to the existing historical environmental pollution (background pollution) containing similar components on various soils. In order to be able to demonstrate a causal link, such a study must meet the Bradford Hill's criteria.

On the basis of literature and discussions between different experts, answers were provided to the FASFC. The analysis of PCDDs, PCDFs, PCBs and PBDEs, which accumulate in animal fats (on the one hand) and are absorbed by certain plants (on the other hand), is relevant for matrices of animal origin, as well as for animal feed, root vegetables, dried fruits

and cucurbits produced in the vicinity of a scrap processing plant. The analysis of amphiphilic perfluorinated compounds is relevant for offal from locally reared animals, and eggs, fish and feed locally produced. In general, the analysis of heavy metals is relevant for all the above cited matrices, as well as in rainwater used for livestock, cereals for human consumption, fruit, oil plants, potatoes, carrots, stem and leafy vegetables. The radius of the area within which the samples are to be taken can be determined on the basis of 30 times the height of the chimney of a scrap processing plant, but should be at least 1 km (safety margin). A list of possible preventive and corrective measures has been drawn up. Collaboration between various public authorities is recommended for a global approach to this multifactorial problem. The Scientific Committee is of the opinion that the safety of the food chain in the vicinity of scrap processing plants cannot be ensured without reducing polluting emissions into the environment.

Recommendations

The SciCom recommends checking the effectiveness of cleaning operations for vegetable matrices (vegetables, fruits and cereals intended for human consumption) grown near a scrap processing plant. In addition, the SciCom recommends recording the geographical coordinates of the samples taken by the FASFC be recorded in order to be able to locate the sampling site as precisely as possible in relation to scrap processing plants.

For the attention of the industry, it is recommended to develop a representative sampling plan to determine the impact of the active scrap processing plant on the pollution of the environment and to monitor the environmental and health risks for local residents. In addition, it is recommended to reduce environmental emissions. The SciCom notes that it is important that, where relevant, measures are taken in order to reduce the historical pollution (background) of the soil.

The full text is available on this website in dutch and in french.