Environment and Climate Change Canada

Food Packaging Forum Foundation

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Comments on the Pollution prevention planning notice for primary food plastic packaging

Dear Madam or Sir,

We welcome the opportunity to provide input on ECCC's Pollution prevention planning notice for primary food plastic packaging (hereafter: plastics plan). The Food Packaging Forum (FPF) is a charitable, science-based organization at the science policy interface. FPF is dedicated to raising awareness for hazardous chemicals in, and environmental impacts caused by all types of food contact materials (FCMs) and articles, including food packaging - a significant source of plastic pollution. Our work enables science-based decision-making in the interest of protecting public health and the environment. As our expertise is mainly on chemicals in food packaging, we focus our remarks on this aspect, with additional comments on supporting reuse and creating standards.

1. **Chemical migration**

Food packaging is important for preserving foodstuffs and central for ensuring food safety, as well as for logistics and marketing. But food packaging is also a source of chemicals that migrate into foodstuffs – a fact that has been well established by a large body of scientific research over the last 50 years. Therefore, we strongly urge the ECCC to focus in its Pollution prevention plan on this issue of chemical migration, and to develop its plans with this very important matter in mind, to avoid any unintended adverse impacts on human health.

Indeed, our work at the FPF through the open-access FCCmigex Database has shown that more than 1,200 chemicals migrate from plastic FCMs, and at least 388 of the chemicals used internationally to manufacture FCMs are highly hazardous, e.g., carcinogenic or mutagenic (Zimmermann et al. 2022). The United Nations Environment Program recently reported 13,000 chemicals known to be used in plastics of which at least 3,200 are chemicals of concern.

In order to avoid harm to humans and the environment through the entire plastic life cycle, the presence of hazardous chemicals in plastics should be prevented. Importantly, hazardous chemicals used in the manufacture of all types of food packaging (and other materials) will be

perpetuated in the reuse and recycling of products. As such, **the presence of hazardous chemicals in food packaging (plastics as well as its alternatives) is a threat to human health and the environment, and a barrier to enabling the circular economy. Hazardous chemicals in food packaging will hinder the successful implementation of the plastics plan if not sufficiently addressed.**

2. Supporting safe reuse

There are already many programs across Canada trialing reuse/refill/return programs within supermarkets or for items like to-go cups and takeaway food packaging (e.g., Living Landscape of Reuse, Reuse Refill Canada). The ECCC should continue assisting these programs by providing guidance to provinces and municipalities attempting to incorporate these programs/practices into daily life. However, we urge the ECCC to take care when supporting plastic as a reusable material and we would instead encourage adopting reuse and refill programs based on inert materials (see section 3).

FPF research has demonstrated 509 chemicals that can migrate or are extractable from repeat-use FCMs made of plastic, and 853 from recycled PET FCMs (Geueke et al. 2023). Some of these chemicals and chemical families are known to create long-term effects that add up to potentially billions of dollars in public health costs. Scientists from Health Canada are already investigating the relationship between chemicals used in food contact and obesity (Heindel, et al. 2023; Health Canada). While we are not aware of estimates of the economic impacts to Canada, in the US phthalates are estimated to cost $39.9–47.1 billion in lost economic productivity per year (Trasande, et al. 2021). While the annual disease burden and associated economic costs of exposure to long-chain PFAS in the US are estimated to be at least $5.52 billion and up to $62.6 billion (Obsekov, et al. 2022). **Restricting the use of problematic chemicals and chemical families in plastic packaging or certain reuse or recycling scenarios** could therefore be both a significant benefit to public health and the resulting economic costs across the production, use, and waste stages of the value chain.

What is more, during both use and washing, hazardous chemicals can accumulate in non-inert plastic containers which can then migrate during the next use cycle. This was demonstrated in reusable plastic drink bottles (Tisler and Christensen 2022), where detergents and other compounds were found to migrate - with potentially deleterious impacts on human health. Further, hazardous chemicals may be washed out of the plastic and into wastewater during cleaning; subsequently entering the environment.

Concerning compostables, we agree that they are only beneficial for niche applications (e.g., tea bags since the tea (organic waste) and its bag are difficult to separate, or other applications where it is not feasible to separate food waste from packaging). To avoid consumer confusion on the correct disposal of compostable packaging, clear labeling is key, and mandating that selected products be compostable (e.g., fruit stickers, tea bags, coffee capsules) may also help. However, there is a need for further development regarding standards for compostables and we elaborate on this point further below.

For the selection of plastic alternatives, we recommend the use of the Understanding Packaging (UP) Scorecard. The UP Scorecard is a **free, web-based tool to assess human and environmental health impacts of foodware and food packaging products**. It compares the

products across six metrics: plastic pollution, chemicals of concern, climate, water use, sustainable sourcing, and recoverability. The tool offers companies a first-ever, free, and comprehensive resource for making more sustainable and lower risk for chemical migration packaging decisions.

The UP Scorecard is being developed by a coalition made up of leading food service companies, civil society organizations including FPF, and technical experts. Coalition members bring together their respective strengths to work towards reducing the environmental and human health burden of foodware and food packaging used in the food service industry. However, the tool could be further developed to meet the needs of the retail sector and our coalition is open for new collaborations in this direction.

3. Defining terms

Compostability

ECCC states that “plastic that undergoes degradation by biological processes during composting to yield CO2, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue” is considered compostable, and that ECCC aims to set “set minimum standards for products to be labelled compostable.”

It is essential that such a minimum standard includes (1) a specific time frame of biodegradation, (2) specifications on “toxic residue,” (3) standardized methods to demonstrate safety, and (4) standardized methods to assess the complete degradation into CO2, water, inorganic compounds and biomass.

Concerning (1), since industrial composting typically has a turnover rate of 4-12 weeks (e.g., US EPA: types of composting) but the complete degradation of compostables can take longer (e.g. ECCC 2013), the time frame laid out in minimum standards **needs to be aligned with locally established commercial practice**.

Concerning (2), all compostable packaging is by definition designed to enter the organic waste stream and become part of the open environment. All compostable packaging may be regarded as a material in contact with food. Therefore, to avoid exposure of humans and the environment to hazardous chemicals, all compostable plastics (regardless of whether they are in contact with foodstuffs) need to be inherently safe. The plastics plan should include a clear statement that **compostable packaging needs to be free of hazardous chemicals. Special focus should be given to chemicals that are persistent, such as PFAS and others.**

Regarding the two previous points, standardized methods (3) that allow assessing and demonstrating the safety of compostable packaging and (4) its complete decomposition under industrially controlled conditions should be defined. There are multiple studies demonstrating that packaging labeled as compostable or biodegradable does not do so under natural conditions (e.g., Royer et al. 2023, Lott et al. 2021). **Compostable packaging manufacturers should therefore be required to provide information on the safety and complete decomposition (i.e., complete mineralization) under realistic industrial composting conditions (e.g., certain temperature, humidity, soil pH, presence of relevant**

microorganisms, and other essential parameters) before the product is placed on the market. ECCC may also consider requiring labels that instruct users on the correct way to dispose of specific packaging items, as well as warnings for consumers that being compostable does not mean it will disappear if disposed of in the environment.

We welcome that ECCC envisions all compostables to end up in local composting facilities since biodegradation in home composting conditions or the environment are much slower and potentially impossible features to achieve when designing materials.

Inertness

The most effective way to restrict the number of chemicals that migrate out of FCMs (and other consumer products) at any point in their life cycle is to **support the use of inert materials**, meaning that they have a very low overall migration and as consequence, have no chemical interactions with the foodstuffs and environments they are brought into contact with. What is more, inert materials are most suitable for reuse as they will not become contaminated by prior life-stage residues (like food pigments and flavors, detergent chemicals, or other contaminants), because they are not prone to absorbing chemicals (i.e. there is no flavor scalping).

While Health Canada generally assesses food contact chemical safety through estimations of dietary exposure, new approaches may be needed for both defining and measuring FCM inertness that are sufficiently protective of human health and that do justice to the demands placed on reusable food containers for a future-proof retail industry. The ECCC could make an important contribution to this issue by working with Health Canada to **provide a definition of inertness for reusable food packaging, and by investing in research and development on this matter.**

Again, we are grateful for the opportunity to comment on the ECCC's plans and remain at your disposal should further questions arise within our areas of expertise. We are also available for any follow-ups and/or for collaborations towards improving the chemical safety of reusable and compostable food packaging.

Sincerely,



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