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New regulation for recycled plastic FCM in the EU

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 all types of food contact materials and articles (FCMs and FCAs). Our work enables science-based decision making in the interest of protecting public health and the environment. We welcome the opportunity to provide input on the EU's draft regulation for recycled plastic FCMs that would repeal EU 282/2008.

1. The Context

The End-of-life for plastic food packaging needs to fundamentally change

Plastic waste is frequently littered and has therefore become a major environmental health issue: plastics accumulate in the environment due to their environmental persistence. Several steps have already been taken by the EU to reduce this environmental pollution, like banning certain types of single-use plastics (including certain FCAs). In addition, the EU aims to reduce landfilling of waste which contributes to environmental pollution. But an alternative waste management approach for plastic packaging, namely the incineration of plastics, is also not a good option: plastics are almost always made from fossil carbon. The incineration of plastic waste leads to increasing CO_2 emissions, and this in turn conflicts with the EU's climate goals.

And enabling the Circular Economy requires recycling of plastic food packaging

Therefore, in addition to reducing single-use plastics overall, the EU has focused on increasing the recycling of plastic packaging, including for food packaging. Several voluntary commitments have been made by the food industry and by retailers to increase the recycled content of single-use food packaging by 2025 (see more: https://www.foodpackagingforum.org/brand-retailer-initiatives). Numerous new recycling technologies are being developed, such as various chemical recycling technologies (ECHA 2021). These developments are not compatible with the existing EU regulation for recycled plastic FCM

(EU 282/2008), therefore the EU Commission is now proposing new regulation for recycled plastic FCMs.

But recycled plastics contain more hazardous chemicals

However, there is a direct conflict between the goals of the Circular Economy (namely, to reduce the environmental impact of consumption) and the specific requirements for FCMs (namely, to not harm human heath due to chemical migration) (Muncke et al. 2020), because recycled materials almost always contain higher levels of hazardous chemicals (Geueke et al. 2018), and this is true especially for recycled plastic due to its material properties (Gerassimidou et al. submitted; Miralles et al. 2021). Therefore, the use of recycled plastics for food contact applications must be carried out with utmost caution so as not to increase human exposure to both known hazardous chemicals and to unknown, untested chemicals that may be present in recycled materials as "incidental contamination". Using recycled plastics as FCMs requires an in depth understanding of material properties and specific contamination sources in order to ensure that recycled plastics used for food contact applications does not become a source of more hazardous chemicals migrating into food. The EU draft regulation for recycled plastic FCM does not sufficiently address this issue, as is detailed further below.

Also virgin plastics contain known hazardous chemicals and untested chemicals which may be hazardous

Another major challenge is that the current EU regulation for plastic FCMs (EU 10/2011), as well as the overarching FCM framework regulation (EU 1935/2004) are not sufficiently protective for human health (EU Parliament 2016):

- Several **known hazardous chemicals** which are intended for phase-out under the EU's chemical regulation REACH (EU 1907/2006) are authorized by the EU for use in plastic FCMs (Geueke et al. 2014), and EU citizens are indeed exposed to these chemicals when they migrate from FCMs into food (Geueke and Muncke 2018; Geueke 2021).
- Plastic FCMs **always contain unknown chemicals** due to the manufacturing process of plastics, and these so called **non-intentionally added substances (NIAS) cannot be assessed for their risk** using the traditional chemical risk assessment (RA) approach because unknown chemicals cannot be quantified, and their hazards cannot be determined. Still, the RA of NIAS is legally mandated (EU 10/2011, Art. 19) but there is no guidance on how this shall be achieved, and also no enforcement of this legal requirement (McCombie 2018). We conclude that **most plastic FCMs on the market today contain chemicals that are unknown** (to suppliers and fillers), and these unknown chemicals may or may not be hazardous to human health.
- Mixtures of chemicals migrating from plastic food packaging (known as overall migration) may be hazardous, even if the individual chemicals in the mixture are present below their specific migration limits (SMLs). Current regulation does not address this issue at all, and there is also no provision in the draft regulation for recycled plastic FCMs.

2. **Specific comments on the draft regulation**

New regulation on recycled plastics FCMs is not aligned with the Farm to Fork Strategy and the Chemicals Strategy for Sustainability

It is well established that humans are exposed to many known hazardous and many untested chemicals that migrate from plastic food contact materials into food. To tackle this issue and reduce human exposure to hazardous chemicals from FCMs, the EU Commission has devised two distinct but closely related strategic approaches:

1. The EU Farm to Fork Strategy, published in May 2020, expresses clearly the Commission's intention to **change the existing EU FCM regulation**. Therein it is stated that „The Commission will revise the food contact materials legislation to improve food safety and public health (in particular in reducing the use of hazardous chemicals) [...]."
2. The EU Chemicals Strategy for Sustainability, published in October 2020, lays out which **types of chemical hzards** will be addressed with priority and phased out from intentional use unless a use is deemed essential. This includes carcinogenic, mutagenic and reproductive (CMRs) substances, as well as endocrine disrupting chemicals (EDCs) and compounds with persistence properties.

Instead, the draft regulation increases human exposure to hazardous chemicals

So overall, the EU has clearly stated that the presence of hazardous chemicals in FCMs must be reduced. But the present draft regulation on recycled plastic FCMs **does not address this issue sufficiently**. Instead of reducing human exposure to known hazardous chemicals and to untested chemicals that migrate from (plastic) packaging into food, the draft regulation for recycled plastics would indeed lead to **increased levels of hazardous chemicals in plastic packaging** for three main reasons.

1. Various **hazardous chemicals are legally used in plastic packaging today**, but due to anticipated changes in the FCM Framework Regulation (as mandated by the Farm To Fork Strategy and the Chemicals Strategy for Sustainability) **their use will likely no longer be permitted in the near future**. One example is the chemical bisphenol A (BPA; CAS 80-05-7): the European Food Safety Authority (EFSA) recently published a new draft Scientific Opinion on BPA and proposed a new Tolerable Daily Intake (TDI) limit that is 100'000 times below the current TDI. This *de facto* means that BPA can no longer be used, and that levels of BPA commonly found to migrate today from recycled PET as „incidental contamination" in the ppb range would no longer be considered safe. New regulation on recycled plastic FCM should therefore **anticipate such developments** and clarify what is to be done with recycled plastics containing legacy hazardous chemicals (i.e. hazardous chemicals which no longer are permitted for use in FCMs). The current

draft does not address this issue, meaning that a new recycled plastic FCM regulation would need amending and updating in the very near future.

2. Levels of hazardous chemicals are **known to increase in recycled plastics**, especially in polyolefins but also in polyethylene terephthalate plastics (PET). These can be chemicals that currently are legally used in plastic FCM (with hazard properties of concern, such as BPA, diethylhexyl phthalate (DEHP) and antimony trioxide), or NIAS. Indeed, a recent systematic review of chemicals migrating from PET and recycled PET found 48 NIAS (Gerassimidou et al. submitted), and there are **likely many more NIAS that migrate from (recycled) PET and from other (recycled) FCM plastics**. The draft regulation exempts any „incidental contamination" from the need to carry out risk assessment. It does **not clarify how „incidental contamination" shall be distinguished from NIAS that are present in the plastic, thereby creating a loop-hole** for FCM plastics in general where any non-listed compound could be claimed as „incidental contaminant", even if its occurrence is not due to a plastic recycling process.

3. Novel technologies for plastic recycling would be **allowed to operate at scale and market recycled plastics for FCM use in the EU prior to any assessment** of their efficiency for removing hazardous chemicals. Risk assessment of such novel technologies would only be perfomed *ex ante*, when the recycled plastic FCM is already taken up by the market. While this approach may seem pragmatic for fostering innovation **it is unethical to knowingly expose the human population, including vulnerable population groups, to untested, uncontrolled food packaging materials**. Creating such a provision in a new regulation on recycled plastic FCM would be a **huge step backwards for public health**, and not aligned with the aims of the Chemicals Strategy for Sustainability. It is also in conflict with the EU General Food Law which requires risk management provisions, also for FCMs.

The draft regulation promotes the use of single-use plastics

Single-use plastic food packaging currently enables many highly profitable food and retail business models. It is understandable that these enterprises are challenged by measures on reducing plastic packaging. Their response so far has been to address the plastic waste challenge by pledging to increase recycled content of plastic packaging. But this is in contradiction to the EU's waste hierarchy where reduction and reuse are the favored options. Therefore, a more systemic and more sustainable approach for these businesses would be to develop new delivery models for (novel) food products – which is arguably more difficult to achieve. A new EU plastic recycling regulation which makes the uptake of recycled plastic in food packaging more readily feasible will hinder real, systemic change towards the overall use of less single-use food packaging. It will also not significantly reduce the overall consumption of virgin plastics because recycled plastics are typically blended with virgin plastics to achieve required

material properties (Brouwer et al. 2020). In addition, plastics are non-permanent materials which cannot be recycled endlessly. This means that all recycled plastic will eventually need to be treated (incineration, „chemical recycling“). Indeed, a recent report by the European Chemical Agency (ECHA) on chemical recycling of plastics highlights that this technological solution is associated with diverse and to-date poorly understood challenges (ECHA 2021).

New regulation for recycled plastics FCMs should be aligned with the revision of the FCM Framework Regulation

The EU Commission is presently in the process of revising its FCM Framework Regulation (EU 1935/2004), as mandated by the Farm To Fork Strategy. At the same time, revisions to other chemical regulations, notably REACH are ongoing. All these changes likely will affect the use of recycled plastics for FCM. So, the timing for a new regulation on recycled plastic FCM is unfortunate while these other important regulatory revisions have not yet been completed.

Thank you for considering our comments in this important issue. We trust that any changes to the EU FCM regulation will be made with the best interest for improving the protection of public health. The present draft regulation for recycled plastic FCM does not fulfil this goal, and therefore should not be left unchanged.

Best regards,

Jane Muncke

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