
THE IMPLICATIONS OF A MANDATORY rPET CONTENT IN THE SOFT DRINKS PLASTIC BOTTLES FROM AN INDUSTRY - RETAIL - CONSUMER RELATIONS PERSPECTIVE

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Abstract

The ongoing discussions about the uptake of recycled content in plastics packaging, sparked through the EU Plastics Strategy and the related European Commission's voluntary pledging campaign, as well as the ongoing legislative negotiations on the proposal for a Single-Use Plastics Directive (SUP), have to ensure at all times that the EU's Internal Market is safeguarded and that a level playing field is maintained for all packaging materials. Hence the need of performing an unbiased, high level assessment on the implications of the above mentioned initiatives over the beverages packaging supply chain, that is called to respond to an ever higher competitive and fluctuating market.

Keywords

recycled content, soft drinks, plastic bottles, single use plastic, extended producers responsibility, plastic strategy, beverages packaging

JEL Classification

Q32, Q56

Introduction

Recycled materials have been increasingly used in the packaging industry for a long time, mostly paper, cardboard, glass and steel-based products. The packaging industry has seldom used recycled plastics, mainly for safety reasons, especially for packaging in contact with food. However, technology has advanced over the last two decades and it is now possible to use some recycled plastics for food packaging. Under certain conditions, a few plastic polymers (mainly PET) can meet the necessary quality and food safety requirements as laid down in the EU Regulation 1935/2004 on Food Contact Materials, but these plastics are not applicable for all food and drink packaging's needs, [1].

There is a risk of toxic substances contaminating food with recycled plastics, which may contain a number of contaminants coming from cross-contamination during waste management that may not be known. The European Food Safety Authority (EFSA) has issued 140 positive scientific opinions on the safety of processes to recycle plastic for use in food contact materials, [2]. To date, the European Commission has not officially authorized any processes.

EFSA’s risk assessment focuses on the start of the recycling process, not on the finished product that comes out at the end of it. Hence, the cumulative exposure is not taken into account by EFSA.

Current global economic conditions, depending on the fluctuating price of raw oil and the related price of new (virgin) PET, do not favor the recycling of plastics, even though the process has, overall, a lower carbon footprint. For example, the recycled PET (rPET) produced in Austria – country with a strong legacy of environment related enactments after having chaired the rotating Presidency of the Council of the EU - has a carbon footprint of 0.45 kg CO² - equivalent per kilogram. That results in approximately 80% less greenhouse gas emissions compared to virgin PET (2.15 kg CO²-eq./kg), [3].

1. Packaging supply chain’s voluntary commitments

In January 2018, as part of its EU Plastics Strategy, the European Commission launched a Pledging Campaign, calling on stakeholders to come forward with voluntary pledges to boost the uptake of recycled plastics. The objective is to ensure that by 2025, ten million tonnes of recycled plastics find their way into new products on the EU market, [4].

Stakeholders had until end September 2018 to submit their pledges. By end of 2018, the European Commission assessed them against the above-mentioned quantitative objective.

The major bottling industry actors have individually responded to the call, submitting ambitious commitments, on recycled content for plastics packaging, where possible (Table 1). Corporate voluntary commitments will allow each of the supply chain partners to commit and focus on those areas where they can make a difference, so they could continuously increase their sustainability efforts, including the uptake of recycled content for packaging.

Table no. 1 Voluntary pledges for boosting the uptake of recycled plastics in soft drinks bottling industry

Company	Corporate Commitments/Initiatives	Start	Deadline	Framework conditions required
Coca Cola	min. 50% of recycled content for PET bottles	2017	2025	100% of raw materials to come from sustainable sources by 2020
Danone	phase 1: min. 25% of recycled content for PET phase 2: 33% of recycled content for PET	2015	(1) - 2020 (2) - 2025	EU "End of Waste" criteria to stimulate secondary raw materials (SRM) markets; domestic markets to allow rPET
Evian	100% recycled content for PET bottles	n.a.	2025	pioneering partnerships to redesign its packaging, accelerate recycling initiatives and zero plastic bottle waste
Ferrero	10% increase of recycled plastic	2009	2020	a common and agreed approach to bioplastics along their life cycle
Nestle	25% recycled content for PET bottles in Europe	2018	2025	n.a.
Pepsico	increase use of recycled content in plastics	2016	2025	access to secondary raw materials required
Mars	utilise recycled content in plastic packaging	2015	n.a.	wherever possible and legal
Mondelez	seeks to use recycled materials	n.a.	n.a.	where practicable, subject to food safety constraints
Tetra Pak	100% of all packages to be made from responsibly sourced, renewable materials	2010	n.a.	incentivise renewables to stimulate investment and production of bio-based plastics in Europe
Unilever	min. 25% recycled plastic content in packaging	2015	2025	n.a.

The numerous pledges submitted by the packaging supply chain suggest its will to fulfil their responsibility to find sustainable ways to manufacture their products, including investments in sustainable innovation. But the industry claims, in order to identify and

advance the appropriate investments, a number of framework (pre)conditions needed to achieve the commitments.

2. Key framework conditions for voluntary pledges on recycled content for plastic packaging

The ability of companies to boost the uptake of recycled content in their products will be influenced and/or conditional upon several factors highlighted below. Many of these factors are outside the control of the food and drink supply chain (i.e., the regulatory and fiscal landscape for packaging as well as market dynamics). This implies the need for actions on the part of EU policy-makers, Member States, waste management, and all other actors in the plastic packaging value chain. With this in mind, we have identified *9 key framework conditions*, as follows:

1. *Continuity of the EU Internal Market*: The legal basis of the Packaging and Packaging Waste Directive (PPWD) is Article 114 of the Treaty on the Functioning of the EU (TFEU), which protects the functioning of the Internal Market, [5]. Nevertheless, numerous provisions in the revised PPWD and Waste Framework Directive (WFD), as well as proposed measures under the Single-Use Plastics (SUP) Directive provide opportunities for Member States' initiatives that can potentially impact or otherwise restrict the free movement of packaging and packaged goods at national level, [6]. Any erosion of the EU Internal Market that results in divergent/disparate packaging measures across the EU will likely divert resources (financial & human capital) from innovation to legal compliance and hence adversely impact the potential for investments in sustainable innovations (including in packaging design, packaging materials and recycling/sorting technologies).
2. *No 'Plastics Tax' (= waste based - own resource levy)*: The Multi-Annual Financial Framework (MFF) – i.e. EU budget proposal for 2021 to 2027 contains a proposal for a levy of €800 per tone on non-recycled plastic packaging to be collected at national level (capped at €1,000 per tone), [7]. There is also no guarantee that this revenue will be used for environmental and sustainability purposes, for example to invest in plastic recycling infrastructure or technologies. As such it represents a very significant diversion of industry resources away from the challenges of ensuring a Circular Economy in plastics. The Commission estimates the yield from the call at €7 billion per annum. This is more than twice the current total fees payable by industry in the EU for packaging Extended Producer Responsibility (EPR), which is approx. €3 billion per year. A diversion of this magnitude will seriously compromise the ability of industry as a whole to act on existing and/or future innovation programs.
3. *Full 'Net Cost' Principle Transposition and Application of the for Packaging EPR Schemes across all Member States*: Article 8a of the revised WFD outlines the Minimum Requirements for EPR schemes, [8]. These requirements include the 'net-cost' principle (i.e. taking into account revenues from recovered materials when ascribing costs to the obligated industry). This ensures that industry is responsible for the operational costs of collection (net of receipts from sales of secondary raw materials). Given the projected increase in costs of packaging EPR compliance in the future decade, the full application of the 'net-cost' principle will help ensure that industry has sufficient financial resources available to address obligations and voluntary commitments in respect of packaging.
4. *Consistency between the Essential Requirements & Eco-modulation*: There is an assumption that the soon to be revised Essential Requirements (Annex II of the PPWD,

[9], governing the composition and design of all packaging materials) and the pending guidance to Member States on eco-modulation will (i) provide a consistent, and harmonized, set of signals in respect of packaging design and (ii) preclude divergent/disparate member state provisions in relation to packaging design. This is why the Essential Requirements and the eco-modulation of fees need to be considered as two sides of the same coin and should be developed together.

5. *Availability of Secondary Raw Materials (SRMs) at Competitive Prices*: Plastic recyclate prices fluctuate according to market conditions and currently enjoy a price premium over virgin resin. Greater demand for recyclate driven by the collective pledges of companies as encouraged through the Commission's Plastics Strategy or mandated recycled content may magnify this discrepancy if the market fails to properly respond to this increased demand. There may come a point where this discrepancy is so great as to become punitive in terms of costs & margins, [10]. Companies are therefore dependent upon the existence of functional markets for SRMs by 2025 (with appropriate infrastructure available for sorting and reprocessing where they are needed to ensure sufficient scale).
6. *Availability of SRMs of Appropriate Quality* (as established by 'end-of-waste' criteria): Effective 'end-of-waste' criteria are a prerequisite to functioning markets for SRM. They are essential to provide the necessary reassurance to manufacturers, regulators and consumers in respect of recyclate use. This applies to health & safety considerations, in particular in food packaging and also functionalities related to performance (i.e., strength etc.). The overall benefits and drawbacks of the uptake of recycled content in packaging, including plastic packaging, should always be evaluated holistically from a life-cycle perspective, based on a case-by-case approach. 'End-of-waste' criteria also need to accommodate different uses/applications and this implies multiple criteria that exist in a hierarchy rather than a single set of criteria for any given material.
7. *Definition of 'Recycling'*: Any definition of recycling needs to include mechanical, organic and chemical recycling (e.g. depolymerization). The availability and acceptability of chemical recycling will be particularly important for difficult to (mechanically) recycle materials such as laminates/films. The development of and installation of chemical recycling plants will also help increase the availability of recycled plastics, especially of polyolefins. It will further help overcome risks related to food safety.
8. *R&D Support* under Framework Programs: Financial incentives that support close to market technologies for both materials and treatment technologies (such as chemical recycling) will be a key framework condition.
9. *Functioning EU Approval Process* for Use of Recycled Plastic in Food Contact Materials: The European Food Safety Authority (EFSA) has issued 140 positive scientific opinions on the safety of processes to recycle plastic for use in food contact materials. To date, the European Commission has not officially authorized any processes. Authorization would ensure harmonization across the EU and remove any legal uncertainty in trading SRMs in food contact applications. Food safety for consumers is the first priority for food and drink producers. It would also allow a 'pull' approach in terms of demand from the food and drinks sector.

These framework conditions need to be met prior to considering voluntary or mandatory requirements on recycled content. In the absence of such framework conditions, the uptake of recycled content could lead to a number of negative implications.

3. Potential unintended consequences of a mandatory recycled content target

Packaging producers are willing to incorporate more recycled content, but for some materials the pre-conditions are insufficient in terms of quantity and quality. A potential mandatory requirement/minimum legal target of recycled content in (plastic) packaging will affect the balance between the demand and supply of recycled materials in the EU. *Unintended consequences* would also impact packaging functionalities (e.g. health and safety), environment and society:

- *Increased prices:* The increase of recycled content in certain packaging may lead to environmental benefits, if less virgin material is used (less extraction of virgin raw materials and less waste to be eliminated). However, mandatory eco-design requirements for packaging regarding their content of recycled materials may lead to negative impacts on the packaging and recycling industries.
 - The production capacity of recycled materials and their prices depend highly on the type of material, access to the waste streams and current recycling technologies. The demand for recycled materials would increase, which at stable supply, could be overly market intrusive and distortive and would further increase the prices of the relevant recycled materials in the short/mid-term. This situation will lead to a disproportionate and uncompetitive increase of the cost of the final products for consumers.
 - The pledging exercise has already proven to be sufficient to incentive the market to take up recycled content for plastics, where possible, affordable and safe. A mandatory requirement could be overly prescriptive and market intrusive, potentially leading to artificial premium price settings and other unintended consequences.
- *Possible threat to the Internal Market:* A minimum EU mandatory target for recycled content for plastics would not prevent Member States to go beyond. This risks leading to diverging minimum mandatory recycled content targets in Member States which would constitute a barrier to the Internal Market.
 - *For instance*, a packaged product could be forbidden in one Member State because it does not meet a certain level of recycled content, while being available in another Member State where levels would be lower.
- *Trade barrier for EU exports/imports:* In addition, mandating recycled content in Europe, including in food packaging, might create trade barriers for EU exports.
 - *For instance*, China does not allow recycled content in food contact materials. Imports could be affected too. This also links up with traceability issues for imported packaged goods.
- *May not be legal or desirable for some materials:* For some materials, the use of recycled materials to manufacture packaging could negatively affect some of the functions of the packaging, such as the protection of the product and safety for consumers, or pose problems for product compliance, due to legislation that limits the content on some chemical components.

- Packaging materials that are in contact with food and drinks have to meet very strict requirements as laid down in the EU Regulation 1935/2004 and completed by EU Regulation 10/20112, [11]. Food safety for consumers is the first priority for the food and drink supply chain.
- In some cases, the use of recycled material for packaging that is in contact with food or drink may lead to an increased food safety risk. *For example*, mineral oil hydrocarbons derived from printing ink used in newsprint, which is commonly used to make recycled cardboard for food packaging, could lead to inflammation of internal organs, including the liver, spleen and lymph nodes. To limit this risk, a multilayer barrier film for dry food products has to be added to prevent the migration of potentially harmful mineral oils from the outer packaging into the food, which increases the weight of the package and decreases its recyclability.
- For some materials, using recycled packaging single-layer materials may decrease the strength of the packaging, as occurs, *for example*, in paper and cardboard products: the length of the pulp fibers decreases and therefore the structural resistance is lower. This can be solved by an increase of material used and would therefore entail a higher packaging weight for a similar function.
- The few existing recycled content laws, such as in California, contain many exemptions and flexibility for compliance to account for the aforementioned challenges. *For instance*, containers used to hold materials regulated by the U.S. Food and Drug Administration (i.e. food, drugs, cosmetics, baby formula, and medical devices) are exempted.
- *Traceability of components* is a challenge: The restrictions on the use of chemical substances are a major driver in the selection of materials for packaging because the packaging supply chain will not compromise on safety and compliance.
 - The number of chemicals restricted or prohibited in products in the EU is growing, and the compliance with this legislation may be more difficult for recycled products, since the traceability of all their components is not easy.
 - The origin of the waste collected and recycled is not straightforward, and neither is their content. In any case, if hazardous or restricted chemicals are detected, it can be difficult or costly to separate and eliminate them during the recycling processes. The products and materials imported are especially difficult to trace, which would be a barrier for the increase of the supply of recycled materials for the EU industry.
- *Inability to distinguish primary from secondary materials* for some materials: A requirement on recycled content will be difficult to implement and enforce for some materials because of the inability to distinguish primary from secondary material, implying traceability issues.

Conclusion

The actors of the soft drinks supply chain are best placed to evaluate what they can achieve in a certain framework, and how to best achieve their own targets. EU and national legislation can help encourage more voluntary commitments by ensuring the framework

conditions are in place that are necessary to achieve the commitments. Hence, companies will be encouraged to continue to increase their sustainability efforts, including the uptake of recycled content for packaging.

In order to align agenda and to match wills with reality, a constant, transparent and unbiased communication process has to be put in place amid all stakeholders.

The key framework conditions that need to be in place before voluntary or mandatory rules on recycled content for plastic packaging can be considered are as follows:

- *Secondary raw materials* need to be available in *sufficient quantity and quality at competitive prices* relative to primary materials in order to stimulate the uptake of recycled content.
- An *appropriate quality framework* also needs to be in place.
- The EU should strive for a *genuine internal market for secondary raw materials* with relevant infrastructure *for sorting and reprocessing* available where they are needed.
- In addition, the development of *end-of waste criteria* is a pre-requisite for such a market.
- *Packaging functionality* is particularly important to bear in mind, in this context especially for packaging in contact with food and beverages, because introducing recycled content in food contact materials is not legal or desirable in some cases, currently because it can pose a contamination and food safety risk for consumers.

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