Zero Waste Europe Factsheet

What's inside food-contact paper packaging? Plastic.

CONTEXT

After the well-deserved spotlight given to single-use plastics when it comes to their serious environmental impacts, single-use paper-based and cardboard packaging have covertly taken their space, supposedly as a more 'sustainable alternative'. The associated narrative has, however, created room for doubts (both from consumers and policy-makers) and for misleading solutions. Additionally, there has been a trend towards single-use packaging made from composite materials, coated paper, plastic, and aluminium, with little to no benefit for the environment. According to EU data, paper and cardboard were the main packaging waste materials in the EU between 2010 and 2021 (34.0 million tonnes in 2021).

But is switching from one single-use material to another (e.g. plastic to paper) really a solution for the ever-growing packaging waste crisis? While the paper and cardboard industry claims so, evidence has proven that these allegations are distorted and false.

The "Functionalisation of paper and cardboard" report *from M. & Mme. Recyclage* reveals that commercial claims of the paper and cardboard packaging industry - "100% natural", "plastic-free", or "compostable" - are misleading. In fact, the majority of paper and cardboard packaging used for direct food applications contain plastics and, therefore, remain single-use plastics.

These discussions are taking place in the context of the negotiations of the Packaging & Packaging Waste Regulation (PPWR), where producers of single-use paper and cardboard packaging have been trying to undermine the benefits of well-designed reuse systems and carve out unjustified exemptions for their disposable items.

In line with the waste hierarchy and given the EU waste prevention goals, measures should be taken to avoid the replacement of one single-use product by another one to the maximum extent; and give clear priority to prevent and reuse packaging.

The PPWR must address the boundaries of our natural resources and its use regarding all packaging materials, thus avoiding regrettable substitutions. The new EU packaging legislation should support genuine prevention initiatives and reuse packaging systems, which are actual means to achieve the much-needed reduction in packaging waste.

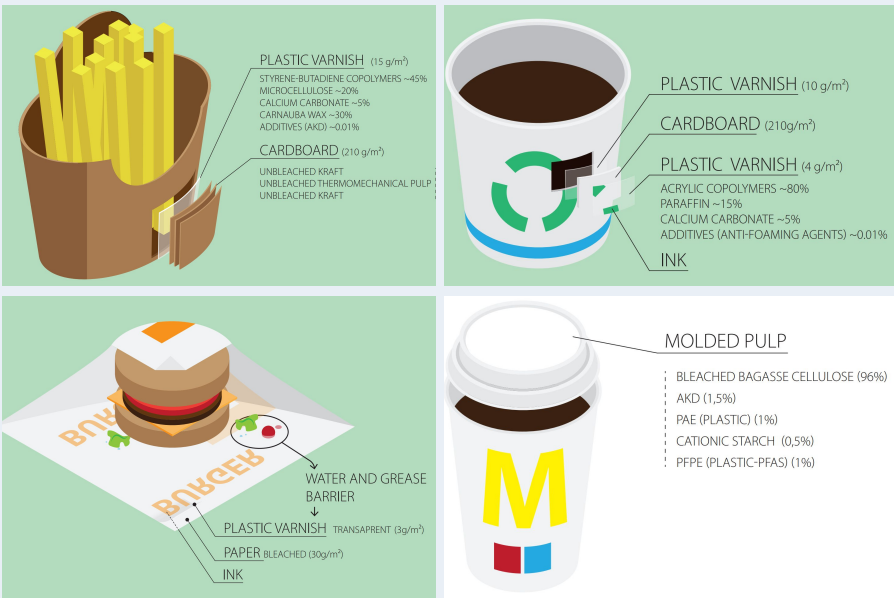
*This factsheet explores the **material aspects** of paper and cardboard packaging used for direct food contact applications. The missing piece of the puzzle, which are the enormous impacts of the production of these packaging materials - including brutal deforestation, biodiversity loss, and water scarcity - has been exposed **in this study**.*

DIVING IN

The "Functionalisation of paper and cardboard" report focuses on paper/cardboard packaging for direct food contact applications. Paper-based packaging remains the largest source of packaging waste in the European Union (41.1%).

Composition

- The **performance of paper and cardboard packaging to direct food contact applications always depends on additives and chemicals** (e.g. to create barrier functions to water, gases, grease, etc.). These barriers entail multi-barrier materials, such as polyethylene serving as a sealant; or aluminium which acts as a barrier to water vapour, oxygen, and UV rays.
- Paper and cardboard are used with additive materials and are **never 100% natural**.
- **Plastics are widely used** to create or enhance barrier properties of paper and cardboard packaging for direct food contact applications, which **represents a maximum of 20% of the packaging weight**.
- **Without a chemical or plastic coating, paper and cardboard cannot perform its function as packaging** in direct food contact applications.



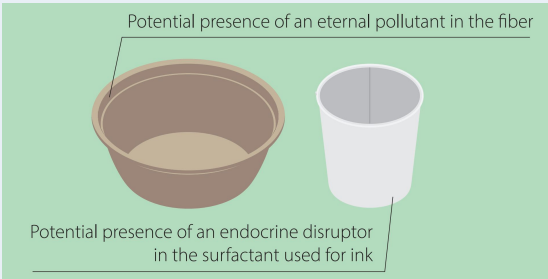
In this example, plastic represents ~10% of the weight of the packaging.
Source: M. + Mme Recyclage (2024) "Functionalisation of paper and cardboard"

Recycling

- The majority of the paper/cardboard packaging in direct contact with food is **not recycled because of the way composite materials are combined**.
- The main use/application of these packaging (on-the-go consumption) also results in having **most of them disposed of in municipal mixed waste bins, ending up in incineration plants** or landfilled, rather than in recycling plants.
- If/when these packaging succeed in getting their way into the recycling plants, it is **only the paper/cardboard layer of the packaging (a very small portion) that could be downcycled** to e.g. hygiene papers or plasterboards. The plastic and/or aluminium coatings are lost/sacrificed.
- In most cases, when recycling paper and cardboard packaging for direct food contact applications, **the recycled pulp is mixed with virgin pulp (e.g. 50/50)** to ensure the mechanical strength of the new pulp fibre.

Chemicals

- Due to the presence of inks, adhesives, or functional barriers - which may contain unsafe substances and non-biodegradable materials - **current paper/cardboard packaging should neither be composted nor digested for methane production**.
- Although some hazardous substances are banned in packaging in Europe, paper and cardboard packaging imports do not always comply with current legislation. In addition, **PFAS (which act as grease barriers in paper and cardboard packaging) are carcinogenic, mutagenic, and/or reprotoxic**, and accumulate in the environment.
    - *An analysis of paper-based take-away packaging and tableware in Europe showed that 32 out of 42 tested items had been deliberately treated with PFAS chemicals - including many labelled as biodegradable or compostable.*

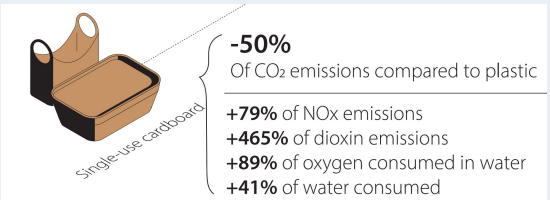


Source: M. + Mme Recyclage (2024) "Functionalisation of paper and cardboard"

👉 ***Click HERE for more information about chemicals on paper and cardboard packaging.***

Single-use plastics vs. single-use paper: a regrettable substitution

- Replacing single-use plastic with single-use paper/cardboard is presented as saving CO_2 emissions because **it does not take into account emissions caused by forestry operations, which comes with greater environmental impacts**.
    - *A recent study has uncovered the multiple impacts brought about by the increased use of paper-based packaging in the food and beverage sector, including the impact of the pulp and packaging industries on climate change, biodiversity loss, water stress, and deforestation. The same study also looked at the consequences on waste management and the extensive use of hazardous chemicals by the paper packaging industry.*



Source: M. + Mme Recyclage (2024) "Functionalisation of paper and cardboard"

- Providing **a simple answer is not permitted through life cycle assessments (LCAs)** due to limitations in their scope (e.g. these LCAs do not take into account littering and impacts at the forest source - a big part of single-use packaging).
    - *In addition, LCAs are very much a product of its sponsor (e.g. industry LCAs), as shown in this report.*
- A package's production phase accounts for the most environmental impacts. Therefore, **reusable packaging is proved to be a better alternative**, as long as the return rate and minimal number of reuses are guaranteed in usage, ensuring the overall environmental impact is divided throughout the number of cycles/uses.
    - *Evidence has shown that the production of just one single-use coffee-to-go cup requires 1.3 litres of water, whereas the cleaning process of one reusable cup only needs 100 to 200 millilitres.*

Regulatory context

- **Single-use paper/cardboard packaging, coated with plastics are**, according to the definition of the Single-use Plastics Directive, classified as single-use plastics at the European level.
    - *However, this has been largely ignored during the implementation of the SUP Directive in Member States, leading to a big increase and replacement of single-use plastics with single-use paper/cardboard after the adoption of the Directive.*

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Zero Waste Europe is the European network of communities, local leaders, experts, and change agents working towards the prevention and elimination of waste in our society. We advocate for sustainable systems; for the redesign of our relationship with resources; and for a global shift towards environmental justice, accelerating a just transition towards zero waste for the benefit of people and the planet. www.zerowasteeurope.eu

#BreakFreeFromPlastic is the global movement working to achieve a future free from plastic pollution. More than 12,000 organisations and individuals around the world have come together to demand reductions in single-use plastics and to advocate for lasting solutions to the plastic pollution crisis. BFFP members work together to bring about systemic change by tackling plastic pollution across the whole value chain - from extraction to disposal - focusing on prevention rather than cure. www.breakfreefromplastic.eu

Environmental Action Germany (DUH) has been committed to preserving the natural foundations of life for more than 40 years. In doing so, it brings together environmental and consumer protection like no other organisation in Germany. In the area of circular economy, DUH has been campaigning for waste prevention, responsible consumption, and sustainable business models. www.duh.de

The **Environmental Paper Network (EPN)** is a worldwide network of hundreds of Civil Society Organisations (CSOs) working together for environmental and social responsibility in the pulp, paper, and biomass industries, launched in 2014. Our goals to create change in the pulp, paper, and biomass industries in order to contribute to a just and sustainable future are expressed in The Global Paper Vision and Biomass Delusion. www.environmentalpaper.org

Recycling Netwerk Benelux (RNB) is an environmental NGO with the objective to reduce resource use in our society and prevent (plastic) waste, by pushing for ambitious legislation and corporate responsibility. To achieve this, RNB formulates policy recommendations, develops campaigns and projects to stimulate reuse, deposit return systems, and improve recycling. www.recyclingnetwerk.org

Rethink Plastic, part of the Break Free From Plastic movement, is an alliance of leading European NGOs working towards ambitious EU policies on plastics. It brings together the Center for International Environmental Law (CIEL), ClientEarth, Environmental Investigation Agency (EIA), European Environmental Bureau (EEB), European Environmental Citizen's Organisation for Standardisation (ECOS), Greenpeace, Seas At Risk, Surfrider Foundation Europe, and Zero Waste Europe. Together they represent thousands of active groups, supporters and citizens in every EU Member State working towards a future free from plastic pollution. www.rethinkplasticalliance.eu

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