Packaging recyclability guide

Enhancing packaging recyclability through informed label choices.

UPM

Recyclability the new standard

Thinking of packaging as a one-time resource is history.

Today's packaging focuses on circularity. Soon, all packaging in European markets will face legislative requirements for both recyclability and recycled content, adding to the existing pressure from consumers and other stakeholders to operate more sustainably. Many companies have already made voluntary commitments to targets such as using 100% recyclable, reusable, or compostable packaging. However, no harmonized definition of recyclable packaging currently exists for the industry globally.

This guide aims to support stakeholders in the fast-moving consumer goods (FMCG) packaging value chain with information that can help them navigate the complex web of guidelines, definitions, and criteria that affect their decision-making, highlighting practical information related to packaging design and recyclability.

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Labels

are a vital part of packaging design, providing must-have information about products, from ingredients and instructions to guidelines for safe usage and recycling. The optimal labels not only carry out these functions effectively, they also serve as primary vehicles for brand marketing, delivering powerful messages about the company behind the product.

It's important to note that a product's characteristics and end-use conditions significantly influence the requirements for both the packaging and the label material. This consideration spans the entire lifecycle of the product, starting from the filling lines to its placement on store shelves and eventually to the homes of consumers. Labels are designed to stay firmly attached and maintain their functionality throughout the product's lifecycle. For instance, in the case of a shampoo container, the label material must adhere effectively even in moist and warm conditions, ensuring that the label remains intact and legible for the user.

In today's market, a brand's commitment to sustainability directly correlates with its potential for lasting success, as legislation and consumer demand both continue to drive a shift toward more sustainable options. At the same time, challenges related to our environment and natural resource use require increasingly innovative solutions. These factors make the recyclability of packages and their labels a crucial consideration.

Disclaimer: Published in September 2024, this guide reflects our understanding of recyclability at that time. In the rapidly evolving regulatory landscape, it may not account for subsequent regulatory changes, and should not be considered as a legally binding document or a comprehensive compliance tool.

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1. Why recycle?

Our conventional linear economy, which largely relies on a “take-make-waste” model of production and consumption, has put a heavy strain on our planet, threatening the health of communities and ecosystems and using resources faster than they can be replenished.

Countless organizations and experts agree that we must transition to a more circular economy in which resources are preserved and waste is minimized – and in which reuse and recycling play a key role.

Enabling a circular economy
is fundamental for the future of our planet

Packaging waste has increased by more than 20% over the last 10 years in the EU, continuing to further increase by 19% by 2030 without proactive measures. For plastic packaging waste, the expected increase is 46%.

Packaging causes CO_2 emissions equal to the total CO_2 emissions of a small-medium EU country.

Packaging pollutes soil and land, and is about half of marine littering.

Source: European Commission, Circular economy: New rules on Packaging and Packaging Waste, 2022

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When packages are designed to be reused, recycled, or contain fewer material inputs, numerous benefits emerge:

- Fewer natural resources are needed for raw materials, also reducing the amount of energy and emissions associated with extracting them
- Reducing natural resource use helps to minimize biodiversity impact
- End-of-life emissions associated with landfills and incineration can be avoided
- Consumers are empowered to make choices that have reduced environmental impact

Compared to using virgin raw materials:[1]

37%

Recycling plastics can lead to a 37% reduction in CO_2e emissions

37%

Recycling paper & cardboard can lead to a 37% reduction in CO_2e emissions

41%

Recycling glass can lead to a 41% reduction in CO_2e emissions

96%

Recycling aluminium can lead to a 96% reduction in CO_2e emissions

[1] Source

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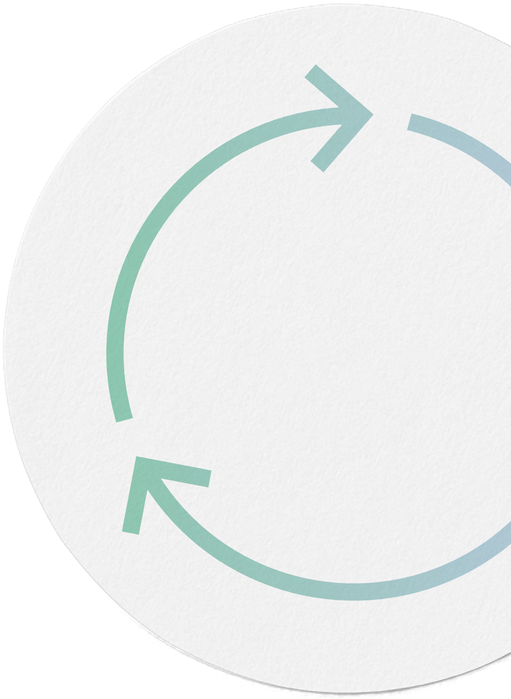
2. Extended Producer Responsibility (EPR) schemes

Across many industries and packaging types, a strong business case also exists for packaging recyclability. This is especially true where extended producer responsibility (EPR) schemes are in use. All EU countries must have EPR systems in place for packaging by the end of 2024 and the UN Plastic Treaty will potentially drive global EPR adoption.

Using EPR to incentivize investment in more circular packaging solutions is a key aspect of the EU Packaging and Packaging Waste Regulation (PPWR), which establishes EU-wide requirements for recyclability and reduced packaging waste. PPWR will make recyclability a market access condition and in addition it will require Member States to implement ecomodulation in EPR fees based on recyclability grade of the packaging.

In EPR systems producers and importers are responsible for the management of the end of life of their packaging. Producer Responsibility Organisation (PRO) operate the system, including managing the EPR fees, contracting waste management operators and engaging obligated companies. EPR schemes introduce fees for companies based on the environmental impact of their products and packaging, often assessing higher fees for packaging that is more challenging or costly to recycle. EPR fees should be used to fund packaging waste management related activities. Currently, in some countries EPR fees are based on the packaging material type, whereas in some countries EPR fees are already based on more detailed design for recycling requirements.

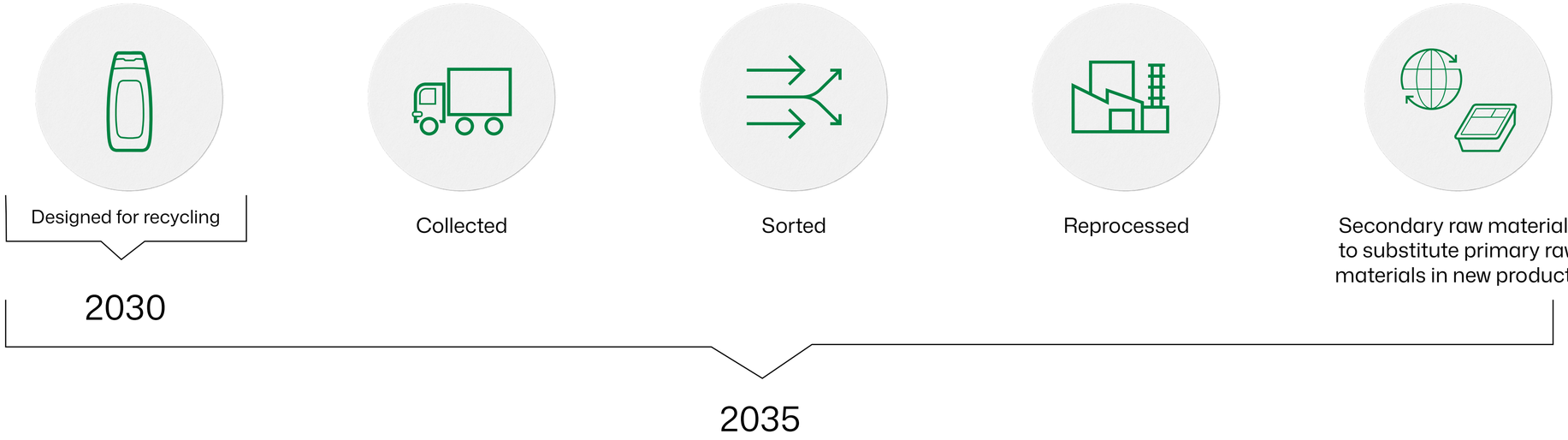
By designing for recyclability, businesses can potentially avoid or reduce EPR fees.



3. What does it mean to be recyclable?

There are multiple definitions for packaging recyclability, but in the EU area this will be harmonized with PPWR coming into force. Generally, recyclability includes packaging design for recycling and existing infrastructure for the packaging material waste stream from collection, sorting, reprocessing to utilization of the recycled material in new products.

Packaging can be considered recyclable if it is



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Currently several different Design for Recycling (DfR) guidelines exist in the EU region, e.g. RecyClass, CEFLEX, 4Evergreen, CHI etc. that can be used to guide and prove packaging compatibility with recycling. In addition, there are national requirements, e.g. local EPR schemes, which may have their own requirements or they can also refer to these non-national guidelines. Challenge with current guidelines is that they are not harmonized and may even have conflicting requirements for labels.

Harmonization will come with PPWR. Recyclability according to PPWR definition is “the compatibility of packaging with the management and processing of waste by design, based on separate collection, sorting in separate streams, recycling at scale, and use of recycled materials to replace primary raw materials”. What does this mean in practice? There are 2 step requirements packaging must meet to show compliance with recyclability requirement:

1. Packaging is designed for recycling and the resulting secondary raw materials are of sufficient quality to substitute primary raw materials, e.g in packaging. Energy recovery, reprocessing into fuels and biological treatment (e.g composting) are excluded. The European Commission will establish Design for Recycling criteria that must be met to show compliance with this step by 2030 or 2 years after the secondary legislation defining DfR entry into force, whichever is later. This will be the one Design for Recycling criteria for the whole EU area in future, covering a wide range of packaging materials.

2. Packaging waste should be separately collected, sorted into specific waste streams without affecting the recyclability of other waste streams and recycled at scale. The European commission will set out a methodology to assess the recyclability at scale of different packaging material categories and in addition to set thresholds related to annual recycled packaging materials. Assessment will be based at least on the quantities of packaging placed on the market and quantities of packaging recycled. To show compliance with the recycled at scale requirement, packaging materials must meet the set threshold by 2035 or 5 years after the secondary legislation defining methodology entry in the force.

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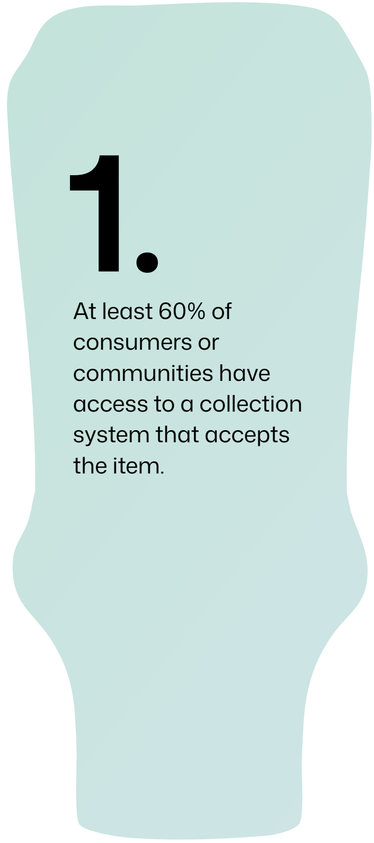
While packaging creators should design for recycling based on applicable requirements and guidelines, they should know that recyclability also depends on external factors such as available infrastructure.

Understanding what is truly recyclable is the first step in optimizing packaging for sustainability while avoiding greenwashing claims and regulatory missteps. External verifications based on recyclability testing are valuable proof points when looking for recycling compatible packaging components and also for final packaging.

An item is recyclable per The Association of Plastic Recyclers (APR) definition when the following three conditions are met:



1.

At least 60% of consumers or communities have access to a collection system that accepts the item.

2.

The item is most likely sorted correctly into a market-ready bale of a particular plastic meeting industry standard specifications, through commonly used material recovery systems, including single-stream and dual stream MRFs, PRF's, systems that handle deposit system containers, grocery store rigid plastic and film collection systems.

3.

The item can be further processed through a typical recycling process cost effectively into a postconsumer plastic feedstock suitable for use in identifiable new products.

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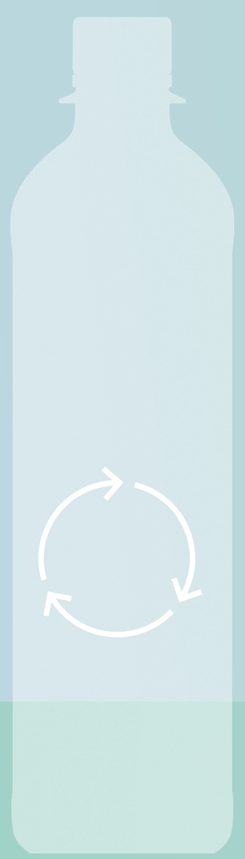
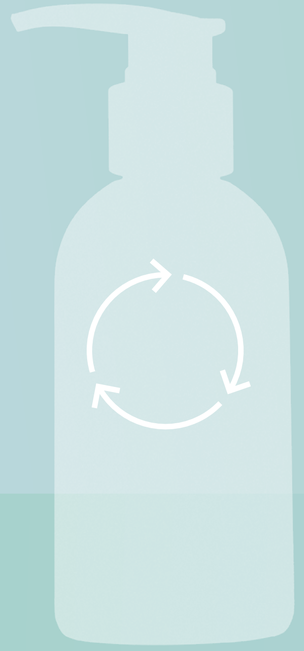
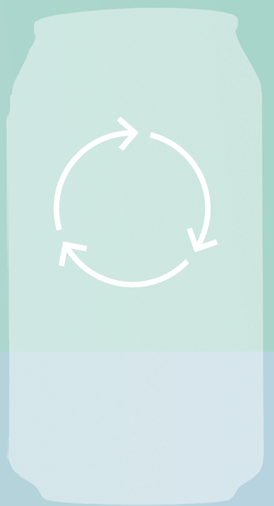
4.
This is how

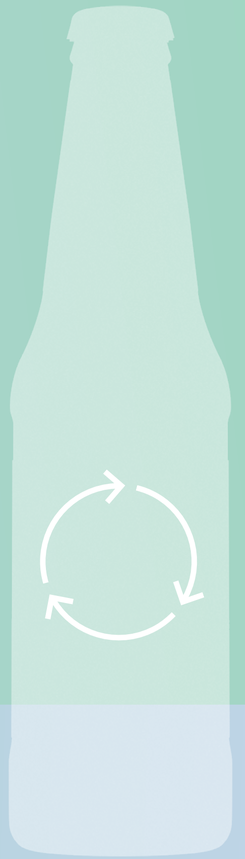




Enhance recyclability with informed labeling choices tied to packaging materials

Many types of packaging materials exist to account for a wide range of factors. These factors include the physical properties of the product (e.g., liquid vs solid or hot vs cold), processing requirements (e.g., pasteurization, packing efficiency), storage and logistics conditions, durability, number of uses, and many more. In the following sections, we introduce the most common packaging materials used in the fast-moving consumer goods (FMCG) and highlight important considerations regarding their recyclability.





Material: PET (Polyethylene terephthalate)

The high demand for PET in packaging owes to its lightweight nature, material properties, and convenience. PET containers can be recyclable and reusable, aligning with the circular economy principles to reduce waste and resource consumption. However, the widespread use of PET, particularly in single-use applications, contributes substantially to plastic pollution and its adverse effects on the environment. In addition to concern over environmental impact, evolving regulations around single-use plastics as well as the increasing demand for recycled PET (rPET) contribute to a need for brand owners and packaging designers to maximize the recyclability of PET-based packages.

Recycling Considerations:
There are three types of PET bottles, with the majority being transparent clear and blue, around one fifth being transparent colored, and a small percentage being opaque. Transparent clear bottles, primarily used for beverages, can be recycled in a closed-loop system, which only allows a small percentage of input materials to be non-food contact material. However, most recycled bottles are downcycled into non-bottle items like straps, fibers, and trays (this includes all transparent colored bottles and a portion of transparent clear bottles). Opaque bottles, with limited collection schemes, often contaminate clear PET recycling and are usually directed to landfills or incineration. PET trays and cups are often mixed with other plastics and are undesirable for bottle recycling due to quality issues, leading mostly to landfill or incineration. Recycling infrastructure for trays and cups is still developing, with low recycling rates attributed to inadequate collection and sorting facilities and the challenge of multi-material products. PET recycling involves a hot-wash process to separate labels, which are usually discarded. Emerging recycling processes for PET trays and clamshells use a similar method.

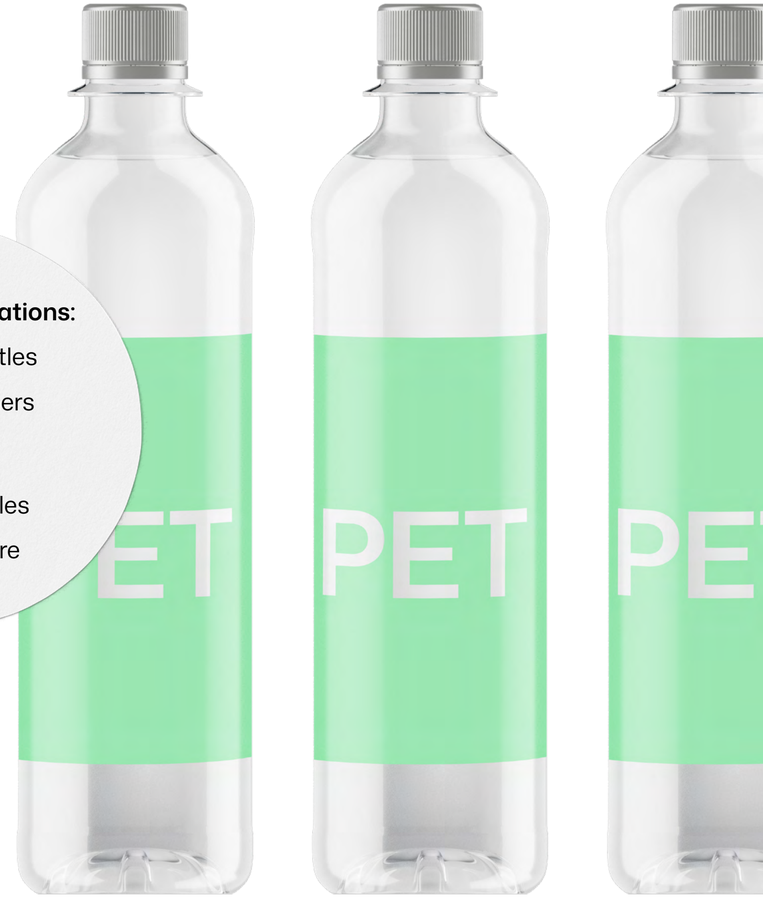
Common applications:

Beverage bottles

Food containers and trays

Cleaning solution bottles

Personal care bottles



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Material: PET

General requirements for self-adhesive labels:

PET bottles:
To enhance recyclability, labels should have a density less than 1g/cm^3, usually made of PP or PE, with some guidelines accepting wet-strength and standard papers. The adhesive should be alkali wash-off, effective at temperatures above 80°C, sometimes lower at 60°C. It's crucial that no adhesive residues remain on the flakes. Some guidelines demand non-reactivating adhesives, posing challenges for self-adhesive labels. Without proper wash-off adhesives or processes, labels can negatively impact the quantity and quality of recycling, often due to printing inks.

PET trays and cups:
To enhance recyclability, labels should have a density below 1g/cm^3, typically made of PP or PE materials, but not PET. Some guidelines accept wet-strength and standard papers, with a preference for BPA-free paper. The labels must use alkali wash-off adhesive that operates effectively between 60-85°C. It's essential that these adhesives leave no residues on the flakes after the recycling process.

Suggested solutions from UPM Raflatac portfolio:

SmartCircle™ wash-off label materials:

- PP & PE labels with RW85C (cyclos-HTP and APR) and RW65C adhesives (cyclos-HTP)
- Carbon Action PP UCO with RW307 & RW704 adhesives (cyclos-HTP)
- PureCycle paper labels with RWP5 adhesive (cyclos-HTP)

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Material: HDPE and PP (High-Density Polyethylene and Polypropylene)

HDPE and PP are widely recognized for their versatility and durability in rigid packaging solutions. HDPE is known for its strength, impact resistance, and ability to withstand low temperatures, making it ideal for a variety of packaging needs, while PP is celebrated for its durability, high-temperature resistance, and excellent surface finish. PP's optical clarity and low moisture transmission also make it suitable for food packaging and personal care products. The market trends for HDPE and PP in packaging reveal significant growth and demand. The global HDPE packaging market size was valued at USD 17.10 billion in 2022 and is projected to be worth USD 17.96 billion in 2023 and reach USD 26.25 billion by 2030, exhibiting a CAGR of 5.57% during the forecast period.[2]

Recycling Considerations:
Most rigid HDPE and PP plastic packaging is downcycled into lower-grade materials like tubes, fences, and bins, where color and odor are less critical. Some closed-loop systems produce higher-quality recyclates, including color sorting. HDPE bottles can be recycled back into bottles, and meeting contact sensitive packaging standards for cosmetic and even food-grade, like UK milk bottles. White and natural flakes often meet the highest quality requirements.

Common applications:

Detergent bottles

Milk bottles

Shampoo and soap bottles

Ice cream packs

[2] Source

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Material: HDPE and PP

General requirements for self-adhesive labels:
To optimize recyclability in bottle-to-bottle recycling processes for HDPE and PP rigid packaging, it's essential to address label removability during recycling. New studies show that labels can be removed already in the grinding phase, where bottles are made into smaller flakes. The typical process continues with cold-wash, but incorporating hot-wash, sink-float, and air elutriation stages can further enhance label separation, improving recyclate quality.

Design for recycling guidelines consider both adhesive and face material. Adhesive compatibility is crucial; adhesives must either be compatible with PE/PP recyclate or easily removed during grinding or washing in cold water (~40°C). For PP and PE labels, guidelines typically recommend adhesives that are separated during the recycling process or approved non-releasable adhesives. PET labels and paper labels generally require adhesives that can be separated. Paper labels can be either wet strength or standard paper, depending on the specific guideline requirements.

Suggested solutions from UPM Raflatac portfolio:

SmartCircle™ label materials:

- New Wave paper labels with RWP40 adhesive (RecyClass)
- Carbon Action PP UCO with RP307 & RP704 adhesives (RecyClass)
- SmartCircle™ PE and PP label selection (RecyClass)
- PureCycle paper labels with RWP5 adhesive (cyclos-HTP)

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Material: PE films (Polyethylene)

Ethylene can also be polymerized into low-density polyethylene which is a main raw material for PE films. Like HDPE it is recyclable but offers different attributes for packaging due to it having a highly branched molecular structure. LDPE is known for providing toughness and flexibility while also being lightweight, making it ideal for flexible packaging applications. In addition to the versatile mechanical properties, it is also heat-sealable.

Recycling Considerations:
PE films are sorted into a different recycling stream than rigid HDPE packages as it is not intended to mix the differently structured polymers in large quantities. It can be recycled into new films and bags, but downcycling into other plastic applications such as composite lumber and furniture is common.

General requirements for self-adhesive labels:
As LDPE based packages are mainly thin films, they are very close to labels in mass. This means that mass-based sorting methods such as air elutriation can't separate labels from the PE films. Due to this recycling compatibility or wash-off adhesives are crucial to secure high recyclate quality. Like HDPE, washing temperature for LDPE is below 40°C. Monomaterial approach is recommended with either compatible or wash-off adhesives. Some design for recycling guidelines also acknowledge that removable labels made of paper or polypropylene can be separated from the PE films and thus won't hinder final recyclate quality.

Common applications:

Flexible packaging

Grocery bags

Mailer bags

Packaging wrap

Suggested solutions from UPM Raflatac portfolio:

SmartCircle™ label materials:
SmartCircle™ PE label selection (RecyClass)

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Material: Fiber-based

Fiber-based packaging market is witnessing a boom and is forecasted to grow by around 5% for the next five years, largely driven by environmental concerns related to single-use plastic packaging, brand owner sustainability goals, and the changing regulatory landscape. Molded fiber packaging is one of the fastest-growing segments. Fiber based packaging is made primarily from renewable materials and has high recycling rates. Current recycling levels are around 80% and are expected to reach over 90% in some countries soon.[3] Certification systems for the fiber origin of sustainable packaging are crucial in verifying the responsible sourcing of fibers.

Recycling Considerations:
Fiber-based packaging, like cardboard boxes, has a high recycling rate and is collected through either paper and board or lightweight packaging streams. The varied types of fiber-based packaging require distinct recycling methods for effective material recovery:

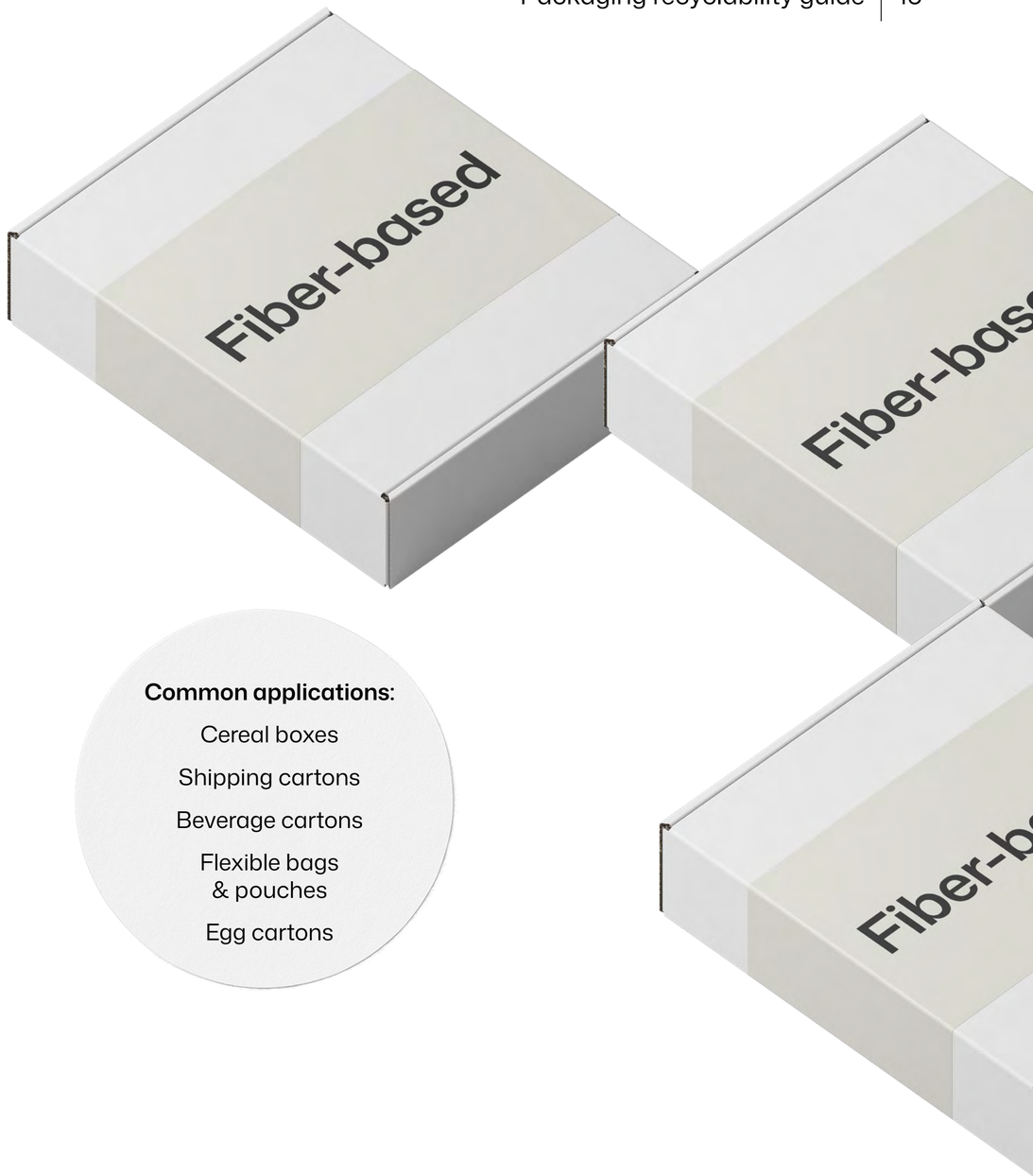
1. Standard mills handle old corrugated containers and mixed paper, resulting in brownish pulp.

2. Deinking mills recycle paper and board from white substrates, producing white pulp. Capable of removing printing inks.

3. Specialized mills tackle more intricate fiber-based packaging, including liquid packaging board.

The designation of fiber packaging to various types of recycling mills is largely influenced by each country's national infrastructure for collecting and sorting paper waste.[4]

[3] Source. [4] Source



Common applications:

Cereal boxes

Shipping cartons

Beverage cartons

Flexible bags & pouches

Egg cartons

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Material: Fiber-based

General requirements for self-adhesive labels:
The recycling process is designed to handle contaminations, removing non-paper components through multiple screening and cleaning stages. However, criteria to design for recycling are under development. Process typically screens out plastic labels and adhesives. Standard paper labels on cardboard boxes can be recycled using current methods, and the fibers from these labels often increase the yield of the recycled material.

For paper-based packaging labels, using adhesives that are removable during fiber recycling improves the process, especially for paper products. Standard paper labels are preferred. However, plastic labels and wet-strength papers, when used in small quantities, can still be managed effectively in standard fiber recycling processes.

Suggested solutions from UPM Raflatac portfolio:

SmartChoice™ label materials:

- Paper labels with recycling compatible adhesives for fiber packaging (Papiertechnische Stiftung (PTS))
- A lower carbon RAFNXT+ paper labels
- The paper labels range with 100% recycled fibers
- Screenable paper labels compatible with the fine paper stream (Ingede)

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Material: Glass

The glass packaging market is experiencing significant growth, driven by various factors including an increasing demand for healthy, safe, and recyclable/reusable packaging for food and beverages. The global market for glass packaging is projected to reach a valuation of USD 80 billion by 2030, compared to only USD 52 billion in 2021.[5] Globally, around 33% of container glass (as opposed to flat glass) is recycled, but rates in Europe are much higher (up to 95%), due mainly to extensive recycling infrastructure and legislation.[6]

An increasing number of glass packages are also designed to be reused to support a more circular packaging economy.

Recycling Considerations:
Glass jars and bottles are infinitely recyclable based on well-established and efficient processes. In recycling glass packaging is crushed, and the resulting glass cullets are melted to be used as glass again. High share (91% in Europe) of collected glass packaging is recycled in closed loop to packaging. Other uses for recycled glass are open loop glass recycling e.g. in glass foam and glass wool or open loop recycling without melting e.g. for construction materials or filtration media. Introducing 1 tonne of cullet into a glass furnace replaces approximately 1,2 tons of virgin raw materials.[7]

Glass recycling does not normally include washing, which is a step reserved solely for reusable glass. Glass packaging can be reused up to 50 times without deterioration.[8]

Common applications:

Wine and spirits bottles

Food jars

Beverage bottles

Cosmetic containers

[5] Source, [6] Source, [7] Source, [8] Source

Material: Glass

General requirements for self-adhesive labels:
Glass recycling is removing labels efficiently, but the specific design for recycling criteria for glass packaging are still under development. During recycling, labels on glass may degrade due to humidity and are removed by abrasive effects of glass particles in the dry washing stage in a rotating drum. Melting process deals with a large portion of contaminants and labels ending there would be typically burnt off.

In reuse of glass packaging, the washing process is removing the labels before the next life cycle. Wash-off label solutions designed for glass reuse separate cleanly from the packaging and are necessary to ensure efficient reuse.

Suggested solutions from UPM Raflatac portfolio to support reuse:

SmartCircle™ wash-off label materials:

- PureCycle paper labels with RWP5 adhesive
- Plastic labels with RW760 wash-off adhesive
- Wet-strength paper labels with RP30W wash-off adhesive

Suggested solutions from UPM Raflatac portfolio to support recycling:

UPM Raflatac SmartChoice™ paper and plastic label materials with standard adhesives

Material: Aluminium

Common applications:

Carbonated beverage cans

Aerosol sprays

Food cans & tins

Aluminium packaging is lightweight, making it cost-effective for transport and storage. One of the most remarkable properties of aluminium is its ability to act as a complete barrier against light, gasses and moisture so aluminium packaging is often favored when strong barrier properties are needed. Furthermore, its versatility allows it to be used in various forms, from cans to foil closures. Its widespread use, especially in single-use applications, necessitates a focus on recyclability to mitigate environmental concerns.

Recycling Considerations:
Aluminium is known for being infinitely recyclable, with 75% of all aluminium ever produced still in use today. Recycling rate for metal packages varies widely by region, with Europe leading the way.[9] The overall recycling rate for aluminium beverage cans in the European Union, United Kingdom, Switzerland, Norway and Iceland went up by 3.2% to a new record level of 76% (76.1%) in 2021.[10]

The recycling process for aluminium is well-established and relies mostly on melting, during which most contaminants are removed. However, larger amounts of non-aluminium materials may hinder recycling efficiency.

General requirements for self-adhesive labels:
Despite printed cans being the preferred solution from a recyclability perspective, the minimum practical order quantity is often too high, especially for craft beverage producers. Self-adhesive labels serve as a practical alternative. In the context of aluminium recycling in Europe, there are no specific label requirements. However, it is recommended to use thin labels with less material to result in less label material in the recycling process. It's crucial to verify local preferences as some regions, like Quebec province in Canada, mandate the use of paper labels for cans, prohibiting plastic labels.

Suggested solutions from UPM Raflatac portfolio:

SmartChoice™ label materials:

- Vanish PCR
- RAFNXT+ paper labels

[9] Source, [10] Source

5. Packaging material table and checklist

	PET	HDPE & PP rigid	PE FILMS
Common applications	• Beverage bottles • Food containers and trays • Cleaning solution bottles • Personal care bottles	• Detergent bottles • Milk bottles • Shampoo and soap bottles • Ice cream packs	• Flexible packaging • Grocery bags • Mailer bags • Packaging wrap
General requirements for self-adhesive labels	PET BOTTLES: To enhance recyclability, labels should have a density less than 1g/cm^3, usually made of PP or PE, with some guidelines accepting wet-strength and standard papers. The adhesive should be alkali wash-off, effective at temperatures above 80°C, sometimes lower at 60°C. It's crucial that no adhesive residues remain on the flakes. Some guidelines demand non-reactivating adhesives, posing challenges for self-adhesive labels. Without proper wash-off adhesives or processes, labels can negatively impact the quantity and quality of recycling, often due to printing inks. PET TRAYS AND CUPS: To enhance recyclability, labels should have a density below 1g/cm^3, typically made of PP or PE materials, but not PET. Some guidelines accept wet-strength and standard papers, with a preference for BPA-free paper. The labels must use alkali wash-off adhesive that operates effectively between 60-85°C. It's essential that these adhesives leave no residues on the flakes after the recycling process.	To optimize recyclability in bottle-to-bottle recycling processes for HDPE and PP rigid packaging, it's essential to address label removability during recycling. New studies show that labels can be removed already in the grinding phase, where bottles are made into smaller flakes. The typical process continues with cold-wash, but incorporating hot-wash, sink-float, and air elutriation stages can further enhance label separation, improving recyclate quality. Design for recycling guidelines consider both adhesive and face material. Adhesive compatibility is crucial; adhesives must either be compatible with PE/PP recyclate or easily removed during grinding or washing in cold water (~40°C). For PP and PE labels, guidelines typically recommend adhesives that are separated during the recycling process or approved non-releasable adhesives. PET labels and paper labels generally require adhesives that can be separated. Paper labels can be either wet strength or standard paper, depending on the specific guideline requirements.	As LDPE-based packages are mainly thin films, they are very close to labels in mass. This means that mass-based sorting methods such as air elutriation can't separate labels from the PE films. Due to this recycling compatibility or wash-off adhesives are crucial to secure high recyclate quality. Like HDPE, the washing temperature for LDPE is below 40°C. A monomaterial approach is recommended with either compatible or wash-off adhesives. Some design for recycling guidelines also acknowledge that removable labels made of paper or polypropylene can be separated from the PE films and thus won't hinder final recyclate quality.
Suggested solutions from UPM Raflatac portfolio	SmartCircle™ wash-off label materials: • PP & PE labels with RW85C (cyclos-HTP and APR) and RW65C adhesives (cyclos-HTP) • Carbon Action PP UCO with RW307 & RW704 adhesives (cyclos-HTP) • PureCycle paper labels with RWP5 adhesive (cyclos-HTP)	SmartCircle™ label materials: • New Wave paper labels with RWP40 adhesive (RecyClass) • Carbon Action PP UCO with RP307 & RP704 adhesives (RecyClass) • SmartCircle™ PE and PP label selection (RecyClass) • PureCycle paper labels with RWP5 adhesive (cyclos-HTP)	SmartCircle™ label materials: • SmartCircle™ PE label selection (RecyClass)

	FIBER-BASED	GLASS	ALUMINIUM
Common applications	• Cereal boxes • Shipping cartons • Beverage cartons • Flexible bags & pouches • Egg cartons	• Wine and spirits bottles • Food jars • Beverage bottles • Cosmetic containers	• Carbonated beverage cans • Aerosol sprays • Food cans & tins
General requirements For self-adhesive labels	The recycling process is designed to handle contaminations, removing non-paper components through multiple screening and cleaning stages. However, criteria to design for recycling are under development. The process typically screens out plastic labels and adhesives. Standard paper labels on cardboard boxes can be recycled using current methods, and the fibers from these labels often increase the yield of the recycled material. For paper-based packaging labels, using adhesives that are removable during fiber recycling improves the process, especially for paper products. Standard paper labels are preferred. However, plastic labels and wet-strength papers, when used in small quantities, can still be managed effectively in standard fiber recycling processes.	Glass recycling is removing labels efficiently, but the specific design for recycling criteria for glass packaging are still under development. During recycling, labels on glass may degrade due to humidity and are removed by abrasive effects of glass particles in the dry washing stage in a rotating drum. Melting process deals with a large portion of contaminants and labels ending there would be typically burnt off. In reuse of glass packaging, the washing process is removing the labels before the next life cycle. Wash-off label solutions designed for glass reuse separate cleanly from the packaging and are necessary to ensure efficient reuse.	Despite printed cans being the preferred solution from a recyclability perspective, the minimum practical order quantity is often too high, especially for craft beverage producers. Self-adhesive labels serve as a practical alternative. In the context of aluminium recycling in Europe, there are no specific label requirements. However, it is recommended to use thin labels with less material to result in less label material in the recycling process. It's crucial to verify local preferences as some regions, like Quebec province in Canada, mandate the use of paper labels for cans, prohibiting plastic labels.
Suggested solutions from UPM Raflatac portfolio	SmartChoice™ label materials: • Paper labels with recycling compatible adhesives for fiber packaging (Papiertechnische Stiftung (PTS)) • A lower carbon RAFNXT+ paper labels • The paper labels range with 100% recycled fibers • Screenable paper labels compatible with the fine paper stream (Ingede)	RECYCLING: UPM Raflatac SmartChoice™ paper and plastic label materials with standard adhesives REUSE: SmartCircle™ wash-off label materials: • PureCycle paper labels with RWP5 adhesive • Plastic labels with RW760 wash-off adhesive • Wet-strength paper labels with RP30W wash-off adhesive	SmartChoice™ label materials: • Vanish PCR • RAFNXT+ paper labels

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6. Checklist for more sustainable packaging

1. Ensure that the packaging meets the requirements to deliver the product safely and maintain its freshness, thereby minimizing product losses. For instance, many food and beverage products necessitate oxygen, moisture, or temperature barriers.

2. Consideration of usage or storage environment requirements is crucial. For instance, personal care products like shampoo, which are often used or stored in wet conditions, must utilize moisture-resistant packaging.

3. Identify and implement pertinent Design for Recycling guidelines to improve the recyclability of packaging and the accessibility of recycled packaging materials. For example, adhere to national Extended Producer Responsibility (EPR) requirements. Alternatively, in the absence of such regulations, consider adopting European RecyClass or cyclos-HTP for plastic packaging or the 4evergreen guidelines for fiber-based packaging.

4. Ensure alignment with additional brand sustainability goals, such as the production of lower carbon footprint products and packaging.

5. If you don't know, ask! Contact a local UPM representative to learn more about increasing packaging sustainability with our SmartChoice and SmartCircle solutions.

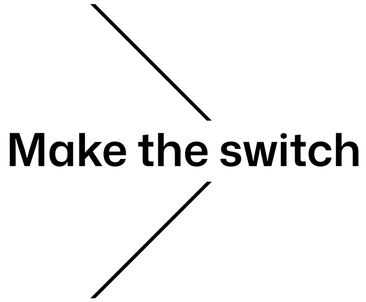
7. How to improve packaging sustainability: Make the Switch and Close the Loop

There are many great incentives for companies to make their product packaging more sustainable: the opportunity to drive long-term brand value, consumer demand, and regulatory pressure. But what role do labels play in making your packaging more sustainable?

Your label material choice can have a tangible impact on your packaging sustainability. Not only can you make a difference by choosing renewable raw materials and recycled materials, but also by enhancing your packaging recyclability. Labels, multiplied by millions of packages worldwide, have the potential to make a lasting difference.

We are passionate about enabling you to become a Changemaker through your labeling choices. In practice, there are two key approaches you can take to make your packaging more sustainable:

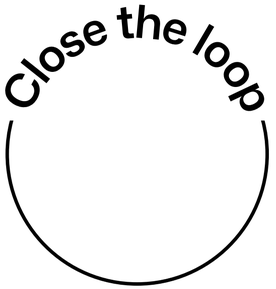
Step one



Make the switch to more sustainable label solutions.

Switch to reduce, switch to recycled and switch to renewable materials.

Step two



Close the packaging materials loop.

Choose label solutions that support packaging recyclability and reuse, and prevent your label materials from ending up at landfills or being incinerated.

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UPM Label Life

Look beyond the label with Label Life

Label Life helps you make informed and environmentally responsible decisions by providing essential Life Cycle Assessment (LCA) metrics on the sustainability of our products.

- Label Life is comprehensive, credible, and actionable.
- Cradle-to-grave models broken down into cradle-to-gate, transport to customer, printing, and end of life impacts.
- Focus on carbon, water, and energy, extended to include indicators as recommended by Product Environmental Footprint (PEF) guide.
- The LCA calculation principles were critically reviewed according to ISO 14040/44 and following ISO 14067, and the process of generating LCIA results was validated externally.

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UPM RafCycle®

Support circularity with RafCycle

UPM RafCycle™ is label release liner recycling at its easiest. Keep your release PET or paper liner waste in the circular economy by diverting it from incineration or landfill.

- Simply collect your label waste, and RafCycle takes care of the recycling process.
- With externally verified CO_2 calculation method, RafCycle partners have access to credible information on the potential benefits of the RafCycle service.
- RafCycle translates into real business impact. From helping you reach your climate goals to crafting impactful marketing stories that showcase your sustainability efforts, RafCycle delivers.

8. About us

We renew the everyday with label material performance.

Whether you're working with branded FMCG packaging labels, the informative demands of pharma and logistics labeling, or durable high-performance industrial solutions, your success is connected to reliable adhesive material performance.

It starts and scales with your label choices—consistently high-quality label materials that bring together performance and highest grade of sustainability.

It combines technical label expertise with responsive, flexible and personal service, and meets you in close collaboration to identify emerging opportunities in the market and find new innovative labeling solutions to match. And it's delivered to you in consistent quality and reliable deliveries, time and time again.

So, when you're looking for high-performance label products to cater to growing end-uses, we're here.

Dedicated to your success and ready to connect with your ambition.

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9. What next?

Curious to learn more?

Connect with local experts to delve deeper into this important topic! Share your questions and insights through our inquiry form here:

Send an inquiry

Already a customer?

Go to MyRaflatac to request samples or place orders.

www.myraflatac.com