Now & Next

Circularity

We have helped our customers remove, avoid or reduce over one billion pieces of plastic, and continue to optimise fibre for our customers' individual supply chains.

We will continue to manufacture 100 per cent recyclable or reusable packaging and will test reuse pilots.

In the future, we aim for all our packaging to be recycled or reused and zero waste sent to landfill.

In this section

Designing out waste and pollution

90%

of new packaging specifications optimised for individual supply chains*

We are reducing the volume of materials that go to landfill and ensuring no more fibre than necessary is used by helping our customers design out plastics, designing waste out of our operations and seeking to optimise our packaging for individual supply chains.

The majority of a product's environmental impacts are determined at the design stage. Therefore, making conscious choices seek to limit environmental impact is essential.

Our designers and innovators work with our customers to avoid the generation of unnecessary waste and pollution at the outset through better design.

Designing out waste and pollution contributes to promoting sustainable consumption and production patterns.

2023/24 highlights

Over

1.2 billion

pieces of plastic replaced, avoided or reduced with alternative corrugated solutions

Over

60,000

packaging design decisions influenced by our Circular Design Metrics

* This figure represents c. 74 of our conventional packaging sites for which BSIR (Board Strength Index Rating) data is available. It does not capture all packaging designs and specifications, excludes board purchased externally and sheet board sales. See page 17 for more information.

Design out waste and pollution

By 2025, help our customers to replace one billion pieces of plastic with alternative fibre-based solutions

In 2023/24, we achieved our target, replacing, avoiding or reducing a cumulative total of over 1.2 billion since we set this target in 2020/21. Any plastic, whether from the customer's primary or secondary packaging, that has now been reduced in volume or completely removed from the customer's existing packaging as a direct result of our 'plastic replacement' packaging solution, is considered within scope of this target[1].

We were able to achieve and exceed this target by the continued dedication and collaboration between our Sales, Marketing and Innovation (SMI), Group Innovation, and Group Research & Development (R&D) functions to deliver fibre-based solutions as an alternative to our customers' plastic packaging.

Each year we have seen continued demand for plastic alternatives, which demonstrates a strong appetite for fibre-based packaging as an alternative to plastic.

Over half of respondents in our survey[2] said that they would purchase products containing less plastic to help improve recycling rates across Europe.

Additionally, campaigns were launched, targeting common sources of plastic for our FMCG (fast moving consumer goods) customers, such as produce trays, bottle holders and takeaway food boxes.

There are now more than 6,000 recyclable fibre-based packaging solutions added to the portfolio of products sold by our customers, including e-commerce and retail.

We have continued to develop our data capture and reporting capabilities and are reacting more quickly to opportunities to convert plastic-based solutions to our fibre-based alternatives. Our teams have focused on piloting new innovations and scaling these solutions in our target markets and across multiple countries.

Although most solutions result in a complete switch to a 100 per cent fibre-based solution, for some applications a fibre-composite solution is required, which often includes plastic. We are addressing this challenge through our ongoing R&D, exploring non-fibre material alternatives that are also recyclable.

Our printed barrier technology is an example of an innovation being used to replace some of our solutions that previously used PE/PET laminates to prevent moisture transfer, anti-grease and/or anti-slip, and we are printing a varnish barrier instead. Although this does not completely eliminate the plastic element, it significantly reduces it and makes the packaging even easier to recycle in standard waste-streams.

In 2024/25, we will continue to collaborate with our customers to design and deliver fibre-based solutions as an alternative to their plastic packaging.

Total pieces of plastic replaced or reduced with alternative recyclable fibre-based solutions

2023/24	Over 1.2 billion cumulative total since 2020/21

Coca-Cola and 'DS Smith LiftUp' cardboard based packaging innovation replaces plastic shrink wraps

In 2023/24, we collaborated with Coca Cola HBC Austria, and other parties in the packaging industry, to replace plastic shrink wraps for 1.5 litre PET soft drink multipacks with cardboard based outer packaging. This new solution was delivered to supermarkets in Austria from September 2023. The innovative packaging solution is a recyclable corrugated handle which improves carry functionality for consumers and is designed to contribute together with other partners to the kraft paper and cardboard based solution that reduces around 200 tonnes of plastic each year for Coca-Cola HBC Austria.

Designed using our Circular Design Metrics, DS Smith LiftUp is manufactured in partnership with Krones, a leading packaging machine manufacturer and other parties in the packaging industry.

We believe collaboration is necessary to deliver sustainability targets and the circular economy.

"Compared to the previous production process, the plastic shrink films that wrap our multipacks are being replaced by cardboard and kraft paper. With the introduction of this solution, we will be able to reduce material use by a further 200 tonnes of plastic per year in the future."

Felix Sprenger
Supply Chain Director at Coca-Cola HBC Austria

Global Versuni collaboration

Our collaboration with Versuni, through our Circular Design Metrics, has resulted in producing a packaging solution which is made with 100 per cent recyclable paper with durability for transportation.

This packaging solution will initially be applied to Versuni's top performing Philips products and then expanded to Versuni's Philips home appliance global product portfolio.

This has enabled us to protect products, ensure that supply cycles are more efficient, and deliver improved customer satisfaction.

This is a step forward in fulfilling Versuni's commitment to deliver 100 per cent plastic-free packaging within the next four years.

Additional sustainable measures that are being introduced include:

- Replacing single-use protection buffers (EDF) plastics inside the packaging with fibre-based alternatives
- Reducing the outer printed area of the packaging box, resulting in a 65 per cent reduction in ink usage
- Replacing traditional paper-based instruction guides within the box with scannable QR codes printed on the product packaging
- Reducing dimensions of packaging by focusing on space optimisation and minimising empty areas in each product box

1. Plastics include, but are not limited to: HDPE, LDPE, LLDPE, PA (nylon), PE-maleic anhydride, PET, PP, PP orientated, PS, PU, PVC, Foams (e.g. EPE, EPS, EPU), and Laminates.
2. A specially-commissioned survey of 3,395 respondents across DS Smith's key markets of Belgium, Germany, Poland and the UK that took place in July 2019 which sought to understand consumers' attitudes and habits on packaging, recycling and waste management.

Design out waste and pollution continued

By 2025, optimise fibre for individual supply chains in 100 per cent of new packaging solutions*

By the end of 2023/24, we had optimised the design of 90 per cent of new packaging specifications for individual supply chains (2022/23: 64 per cent) at 74 of our packaging plants where we measure the board performance during the manufacturing process to ensure it meets the required BSIR (Board Strength Index Rating) established at the design stage. For the purpose of this target, we do not include sheet as a packaging specification. This is because we do not have control of the final packaging solution manufactured using sheet that we sell externally.

In addition, in some cases, the data we use excludes board purchased externally, for example, where we do not have access to the relevant data from those third-party sheet manufacturers. As such, the disclosed optimisation figure is limited in terms of completeness as it does not cover all packaging designed for those 74 sites during the period.

The figure does not capture all of our efforts to optimise fibre. However, from the rich data we are capturing, we can see changes in behaviour over time, which support the initiatives we are driving at a fundamental design level.

We continue to face the challenge of obtaining supply chain data for some packaging solutions. For example, it is difficult to capture data when the packaging solution is used in multiple supply chain situations or sold via distributors or merchant resellers.

In an attempt to overcome this challenge, we continue to engage with such customers to extract what supply chain data we can and utilise our own knowledge and experience to provide the best design solution given the information we have.

We continue to apply our Circular Design Principles, which we developed in collaboration with the Ellen MacArthur Foundation. These principles guide our designers in their development of our circular packaging solutions.

This means our packaging solutions are designed for the customers' supply chain, ensuring their products remain safe and protected whilst on the move, utilising both our customers' supply chain data plus our extensive knowledge and experience of our customers' markets.

→ See page 21 for more information on our Circular Design Principles

By 2030, optimise every fibre for every supply chain

Our aspiration remains to optimise every fibre in every supply chain we design packaging for and the progress delivered in this year for the 'Now' (2025 target) contributes towards the 'Next' (2030 target). For 2030, this will mean expanding beyond new packaging solutions and encompassing every fibre-based item we supply. In 2024/25, we will continue to scale our practices and identify further opportunities to design out waste and pollution and keep materials in use for longer, bringing more value to our packaging solutions and customers.

"Supply chain optimisation plays an important part when designing packaging that delivers the quality and performance expected by our customers, without wasting unnecessary resources. The focus and commitment of our Designers and Sales teams enabled us to exceed expectations for our supply chain optimisation target this year. We are very proud of the results from 2023/24, though our work continues."

Rickard Styverts
Divisional Head of Material Optimisation, Packaging

Read our industry report, 'Fulfilling Packaging's Potential: A holistic approach to supply chain optimisation' online at www.dssmith.com for more information on how innovative packaging can reduce complexity in logistics.

Supply chain optimisation ratings

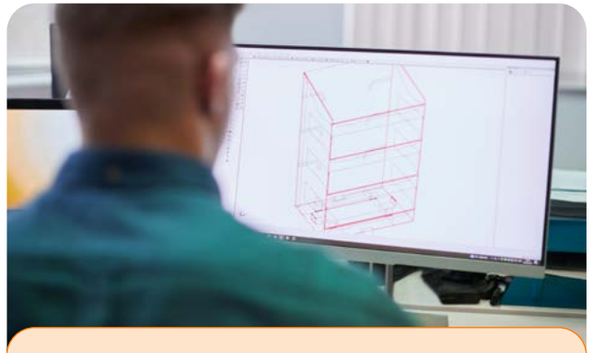
Board Strength Index Requirement (BSIR) is a rating used to qualify supply chain information at the point of solution development. We use it in assessment of the quality and known accuracy of supply chain conditions.

BSIR 1: Specification is fully DS Smith validated
Our PackRight process has generated a comprehensive supply chain study from which DS Smith has created a design solution. Material defined in the solution has been optimised to meet the requirements of the article and its entire supply chain.

BSIR 2: Solution specifications calculated using customer data
Our PackRight process has been utilised to gather comprehensive customer supply chain data from which DS Smith has generated a design solution. Material defined in the solution has been optimised to meet the requirement of the article, its anticipated supply chain and customer-defined criteria.

BSIR 3: BSIR calculated using standard parameters
Our PackRight process has been utilised to gather essential customer supply chain data. Customers have supplied specific criteria that has to be met as part of the design solution, e.g. material specifications are defined using supply chain model assumptions and experience-led reasoning.

BSIR 4: Specification identified as an opportunity for supply chain optimisation review
BSIR Level 4 is raised based on customer specific information only with no design interaction. Our aim is to seek more information regarding actual supply chain conditions so we may optimise the individual solution specification. Where we are successful, this will result in an uplift in BSIR classification to level 1, 2 or 3 (supply chain optimised). Owed to data coverage and quality, the ratings are not available for all packaging solutions at all sites.



Why does design matter over the entire packaging value chain?

Our customers aim to tackle plastic pollution, improve recycling rates and develop circular business models.

We are capitalising on the benefits of the circular economy by incorporating circularity into our product development to reduce the environmental impact of our products.

Circular design criteria are integral to developing new specifications, enabling our customers to engage with the circular economy and consider the impact of their packaging choices from the design stage.

Designing circular packaging involves considering manufacturing processes and impact.

In our circular business, wastepaper and corrugated materials are recycled into new paper for new circular packaging solutions, focusing intensely on resource efficiency throughout the life cycle.

We understand that small improvements can have a significant cumulative impact. Keeping materials in use longer is a key aspect of our Circular Design Principles.

Corrugated materials have a long history of being recycled at scale in many markets, ensuring material is continually returned to circulation through a recognised recovery and recycling system.

* This figure represents c. 74 of our conventional packaging sites for which BSIR (Board Strength Index Rating) data is available. It does not capture all packaging designs and specifications and excludes board purchased externally and sheet board sales.

Design out waste and pollution continued

By 2030, send zero waste to landfill

In 2023/24, 165,840 tonnes of waste was sent to landfill (2022/23: 204,637 tonnes), a 19 per cent decrease compared to last year and a 51 per cent decrease overall since 2019/20.

In an ideal world, we would only collect used paper and cardboard to recycle into paper. But in reality, through poor-quality waste streams, other materials contaminate used paper and cardboard we receive for recycling, reflecting that c. 90 per cent of the waste that we send to landfill is a result of our Paper operations.

Given this, significant projects at Rouen and Viana came online during the year, with alternative waste destinations deployed for waste that would otherwise be sent to landfill. Our packaging plants also continued to develop their waste management practices, such as stronger controls put in place at Cambridge.

Improved ways of working for identifying initiatives

These examples of projects have been supported by our Waste Working Group, part of our new Carbon, Water, Waste Steering Committee, bringing a stronger focus to the portfolio of projects and initiatives to deliver our ambitious targets. In 2023/24, this included reviewing waste definitions and classification systems, beginning a waste mapping exercise and over the next year it is anticipated that this will progress to waste reduction roadmaps for the most significant sources of landfill waste, enabling relevant and functional projects that will contribute reductions.

An example of an initiative under investigation is the installation of perforated skips to separate wastewater and materials to split metallic parts away from fibre through crushing increasing metal and fibre recycling. This process has the potential to enable recyclable materials to be recycled through stronger segregation.

Scope 3 greenhouse gas (GHG) emissions from waste

We are proactively working with our recycling customers, policy makers and trade associations to improve segregation and collection methods, whilst advocating for segregated recycling.

We continue to find innovative alternatives to sending waste to landfill to keep materials in circulation for longer. For example, at our Greena packaging plant in Denmark, we are piloting the use of paper leftovers as wrapping materials for some of our customers.

Sending less waste to landfill has the added benefit of reducing the emissions generated by landfill waste as it decomposes, which represents c. 2 per cent of our Scope 3 GHG emissions.

As we make progress on our zero waste to landfill target, our Scope 3 emissions will reduce as alternative waste destinations, such as recycling, release fewer greenhouse gas emissions into the atmosphere compared to waste sent to decompose in landfill.

Improved waste-to-energy at Rouen

Rouen paper mill in France achieved a 42 per cent reduction in waste sent to landfill during 2023/24 compared to the previous year, through improved waste management and partnerships with waste management providers.

Almost all waste is disposed via waste-to-energy, composting and recycling, and we are actively working to find alternative destinations for waste so that it does not get sent to landfill.

Stronger controls for more recycling at Cambridge

Cambridge packaging plant achieved a 46 per cent reduction in waste to landfill in 2023/24, driven by pursuing an alternative to landfill for wax.

The site implemented inspections of open top dumpsters and began to control what was discarded in them. Through this, the site began to recycle more pallets.

Additionally, opportunities to keep machinery in good working condition were identified, with more regular check-ups, repairs and training, leading to less waste.

Improved processes, energy and waste at Viana

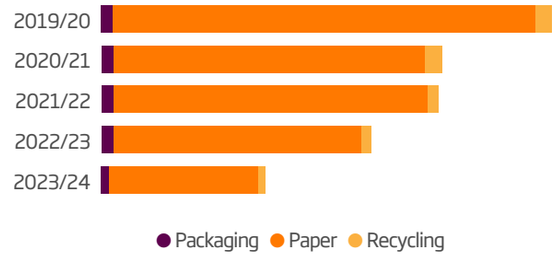
Viana paper mill in Portugal significantly reduced the amount of waste sent to landfill in 2023/24, achieving an impressive 74 per cent reduction compared to last year.

Our paper mills are complex, and often changes made in parts of the process can have a far impact.

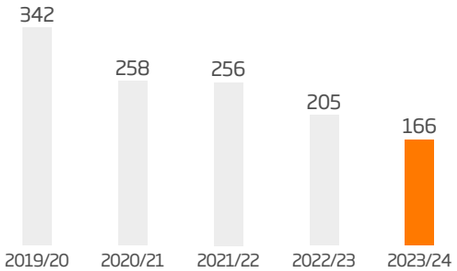
For example, a boiler was configured with a higher burning temperature, resulting in improved efficiency and reduced by-waste.

Furthermore, an opportunity to use biomass boiler waste for quarry sealing was found. These examples demonstrate the linkages between processes, energy and waste.

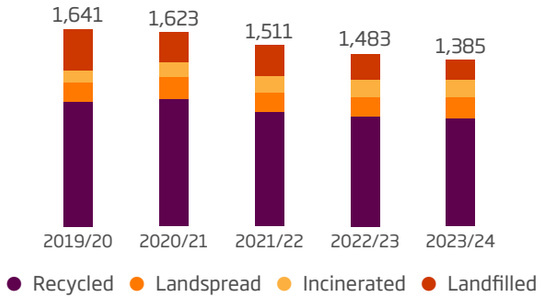
Split of waste to landfill by operation



Total waste sent to landfill (thousand tonnes)



Total waste by disposal destination (thousand tonnes)



Keep materials in circulation

100%

manufactured packaging solutions either reusable or recyclable*

The circular economy promotes the circulation of products and materials at their highest value. By designing recyclable or reusable materials and striving for all our packaging to be recycled, we are keeping materials in circulation for longer, reducing the need for virgin materials.

By maximising the use of renewable materials and recycled inputs, we are contributing to the conservation of natural resources.

We only source virgin fibre from managed forests, helping to reduce the impact of illegal deforestation and resulting loss of biodiversity.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Keeping materials in circulation contributes to substantially reducing waste generation through prevention, reduction, recycling and reuse.

2023/24 highlights

Launched our Circularity Steering Committee

enabling greater focus on maintaining 100 per cent recycled or reused packaging

* Packaging or a component of a packaging solution that has been conceived and designed to accomplish within its life cycle (a minimum of two trips or rotations) or recycled (recycled in practice and at scale, equal to or greater than ≥95% of the total pack weight is recyclable as this pack would be accepted by and processed in paper mills as per CPI recyclability guidelines) by the end consumer.

Keep materials in circulation

Continue to manufacture 100 per cent recyclable and reusable packaging

In 2023/24, over 99.6 per cent of our manufactured packaging solutions continued to be either reusable or recyclable, a target achieved in 2021/22 that we have continued to maintain.

The remaining 0.4 per cent are fibre-composite materials (meaning that they contain non-fibre materials), where fibre still accounts for upwards of 80 per cent of the construction, though a non-fibre material is required for reasons such as:

- Food hygiene regulations (e.g. barriers for fresh meat trays)
- Prolonged water exposure (e.g. wax coatings for fish)
- Supply chain impact absorption demands (e.g. foam inserts)

The slight increase compared to last year (2022/23: 0.3 per cent) is due to the increased customer demand in fibre-composite solutions, such as laminated solutions, rather than plastic.

Innovation through design

We continue to innovate with our designers and operational and R&D teams, working with our customers and our suppliers, to identify, trial and bring to market more recyclable solutions than those currently available and have had success in this area.

We actively apply our Circular Design Principles (see page 21) at the design stage, which ensures our designers are innovating with end-of-life in mind and promoting 100 per cent fibre solutions as a priority over fibre-composite solutions, where appropriate.

Our Circular Design Metrics (see page 9) enable our customers to make informed decisions regarding the sustainability of their chosen packaging solution, especially with 'recyclability' and 'reuse', two of the eight metrics.

Through better design for recyclability, more materials can be kept in circulation as a result of our extensive work to reduce the non-fibre materials in our packaging solutions, enabling our packaging to be recycled at scale.

Alternatives to hard-to-recycle materials

Our Greencoat® solution provides a suitable alternative to wax for some specifications. This water resistant packaging solution provides the same performance properties as wax-coated boxes but is 100 per cent recyclable.

We continue to test our innovations at our Kemsley Lab for re-pulpability at the end-of-life using the 4evergreen® Harmonised Test and Assessment method, which was adopted upon launch in 2023 to provide testing consistency across the industry.

We are committed to innovating and designing alternative solutions for challenging materials, such as wax, foams and minor volumes of miscellaneous plastics, manufactured by our suppliers, and in 2023/24, we converted specifications where foam can be switched for fibre fittings where feasible.

However, these remain a challenge, predominantly due to a lack of third-party alternatives on the market, customer resistance and supplier timelines in the provision of alternative materials.

In 2024/25, we will continue to explore new non-fibre innovations with the view to make more of our fibre-composite packaging solutions recyclable.

Recyclability Working Group

Our Recyclability Working Group, reporting to the Circularity Steering Committee, includes cross-divisional representatives focused on a consistent approach to recyclability, ensuring alignment with existing and forthcoming legislation.

In 2023/24, we continued to assess any new non-fibre materials introduced into business from the outset by our innovation stage gate process.

This ensures that new materials are compliant with our standard of being recycled at scale and in line with any legislative requirements. As a result, we expect to be in a stronger position to drive recyclable solutions and exploit new opportunities.

By 2025, test up to five reuse pilots

As part of refreshing our Now & Next Sustainability Strategy, we set a target to launch up to five reuse pilots by 2025.

Although recycling is an established, tested and scaled means of processing fibre waste materials, and a necessary component of the circular economy, reuse is an opportunity to keep the value of the product at a higher level. Where recycling is about the fibre, reuse is about the product.

We are developing and testing fibre-based packaging that can accomplish several trips or rotations in its original design without losing value. It remains our aspiration that all our packaging is recycled or reused by 2030.

Our pilots will help us understand how we can support our customers to utilise reusable fibre-based solutions more and reduce plastic and non-fibre materials packaging. They will give us important insights into how strong the market pull and uptake of reusable fibre-based packaging is and may become, and what products and services we should develop to build an effective and efficient reuse system at scale.

We are excited to test our reuse propositions with customers over the next 12 months. In parallel, we continue to develop the tools that will enable our customers to evaluate the economic and environmental impact of recyclable versus reusable fibre-based packaging and take relevant data-driven decisions for their specific products and supply chains.

DS Smith Easy Bowl: A plastic reduction solution

Easy Bowl is a fibre-based alternative to food trays made that are completely from plastic.

A fibre tray, recyclable in most markets*, provides structure to an easily separable protective inner skin. This reduces plastic usage by up to 85 per cent when compared to a completely plastic tray.

The product allows for impactful branding, protection and preservation of fresh meat, meat substitutes and other ready meals.

* Recycling in practice is dependent on market infrastructure. Easy Bowl includes a plastic film inner skin, with corrugated fibre-based surrounds.

Keep materials in circulation continued

By 2030, aim for all our packaging to be recycled or reused

Paper is currently the most recycled packaging material, with recycling rates higher than all other common packaging types, presently at c. 82.5 per cent of paper and cardboard packaging recycled across Europe, according to EuroStat[1].

Owing to this high recycling rate, we are able to use an exceptional amount of recycled content in our products, protecting finite natural resources and enabling the circular economy.

Although the 2030 target is still some years away, we have begun working towards our aim for all of our packaging to be recycled or reused, as part of our recyclability and reuse work streams.

In 2023/24, we launched our new Circularity Steering Committee with a subsequent working group focusing on the delivery of targets. The cross-divisional representatives of the working group focus on all our packaging being recycled or reused by 2030. Their work is concentrated on three main work streams: data, innovation and thought leadership.

Establishing a DS Smith recycling rate

By 2030, we aim for all our packaging to be recycled or reused, validated through downstream traceability of all our packaging. We continue to work with an agency of researchers, engineers and technologists to refine our recycling rate calculation tool for our packaging and to map data requirements for future expansion. This enables us to gain visibility over what happens to our packaging in practice, throughout its full life cycle, as well as identify opportunities for improvements and impacts of closed loop recycling.

In 2024/25, we will continue to refine and develop our recycling rate calculations, focusing on data granularity dependencies, which will enable us to improve our data quality and calculations further.

Working towards a 100 per cent recycling rate target by 2030 aims to keep components in circulation, whilst reducing emissions from the end-of-life treatment of fibre-based materials that, although recyclable, are not always recycled at scale in some countries.

Wasted Paper: A Path to Better Recycling

In 2023/24, we commissioned the report 'Wasted Paper: A Path to Better Recycling' in collaboration with White Space Strategy.

The report advocates for high-quality recycling of paper and cardboard, highlighting the challenges and key recommendations for reaching a 90 per cent recycling rate for paper and cardboard packaging by 2030. By achieving a 90 per cent recycling rate from 2030, we could see an extra 5 million tonnes of material recycled annually, worth up to €1 billion, according to EuroStat[1].

The report highlights the challenges of stagnating recycling rates, inconsistent recycling systems, increasing waste generation and consumer confusion around recycling. To overcome these challenges, we make four key recommendations, set out below.

We will continue to engage with policy makers across the UK and Europe, guiding them on actions which can be taken to improve the quantity and quality of paper and cardboard to be recycled.

Four recommendations for improving paper and cardboard packaging recycling rates

Source Segregation

Separation of paper and cardboard from other materials at the point of disposal

Consistent Collections

The same collection system across each country, with consistent labelling & advice

Greater Clarity

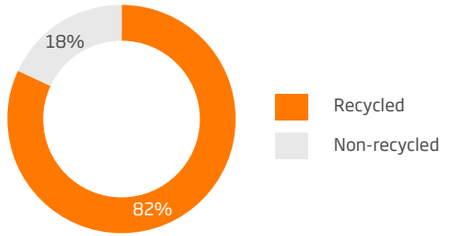
Clarity on why, how and what to recycle, building greater trust in the system

Legislation

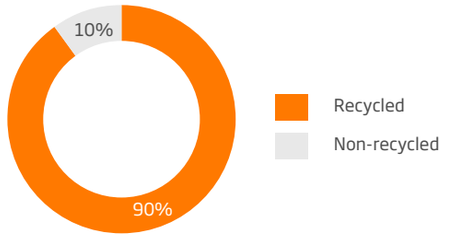
Introduction and enforcement of long-lasting, consistent recycling legislation

Paper and cardboard packaging recycling rate in the European Union

Current rates[1]



Anticipated future rate if 'Wasted Paper' recommendations adopted[2]



1. EuroStat, 2023, Packaging Waste by Waste Management Operations.
2. According to our study, 'Wasted Paper: A Path to Better Recycling'. Our methodology and resource references for the study can be found on page 46 of the Wasted Paper report.

The EuroStat recycling rate of 82.5 per cent is a European average, whilst there are a range of rates in different European countries where data is available.

Read our full report, 'Wasted Paper: A Path to Better Recycling' online at https://www.dssmith.com/media/wasted-paper

Circular Design Principles

As over 80 per cent of a product's environmental impact is determined at the design stage, enabling circularity through design is essential.

Our Circular Design Principles, launched in 2020 in collaboration with the Ellen MacArthur Foundation, provide a framework to stimulate circular design innovation, ensuring that packaging is designed to meet its purpose with minimal excessive environmental impact.

We protect brands and products

Designers must always ensure that packaging successfully protects its product. Damaged products from poor packaging have a negative economic and environmental impact

We use no more materials than necessary

Optimising materials and structures based on the actual performance requirements throughout the supply chain helps us design out waste and pollution

We design for supply cycle efficiency

Our designers drive efficiency by changing the layout of products within boxes for stacking in delivery vehicles

We keep packaging materials in use

We eliminate waste by keeping packaging products in use for as long as possible, recycling material again and again

We find a better way

We empower our designers to challenge the status quo and support customers in the drive for a circular economy