



A circular and renewable future for food and beverage packaging

More sustainable solutions are available with no compromise in safety and quality

NESTE



Making food and beverage packaging more sustainable

Plastics have revolutionised how we produce, store and consume food and drink. Without plastics, it would be difficult to meet ever higher standards of hygiene and public health, or to expand the shelf life of products.

The benefits are great. But mismanagement of plastics waste and increasing awareness of its carbon impacts, are turning the positives into negatives.

Responding to consumer trends

Research shows that more and more consumers want to find more sustainable options where possible.



Consumers are reducing their use of plastics.

GWI's global Zeitgeist Study in 2022 showed that 56% of consumers are trying to cut their use of plastic packaging¹.



Many are willing to pay more for sustainable options.

According to Deloitte's Global State of the Consumer Tracker, nearly half of consumers across 23 countries bought at least one sustainable good or service in April 2023. Around four in 10 said they paid more for their last sustainable purchase, estimating they paid 27% more on average².



People are more likely to support businesses that show environmental responsibility.

2023 research by McKinsey shows products making environmental, social, and governance (ESG) - related claims had greater cumulative growth over the past five-years compared to products that did not³. These claims need to be credible and verifiable to remove any suspicion of greenwashing. In a recent KPMG retail survey, 63% of consumers agreed that brands need to do more to inform consumers of their sustainability credentials⁴.

1. GWI Connecting the Dots, 2022' biggest consumer trends

2. Deloitte Insights 2023 Green products come of age

3. McKinsey and Nielsen IQ study 2023

4. KPMG Nest Gen Retail The end of greenwashing?



Reducing supply chain emissions

Pressure is growing for companies to report and take responsibility for their carbon impacts, including scope 3 emissions that come from upstream in their supply chains.

For fast moving consumer goods (FMCG) companies, scope 3 upstream emissions are often about 10 times higher than scope 1 and 2 combined, according to a study by CDP and Boston Consulting Group in 2019⁵. Moving to plastics made from renewable and recycled materials could be a major factor in reducing these scope 3 upstream emissions and defossilising the plastics value chain.

Developing traceable solutions

It is in everyone's interests to move to plastics that are made without fossil resources and keep carbon in the loop where possible. But to build trust in alternative solutions that have the same properties as existing products, it is important that raw materials and feedstocks can be traced right back to source to make sure they are really more sustainable.

This kind of traceability is difficult to achieve today. Plastic value chains are often complex with multiple tiers of suppliers located around the world, which makes it hard for brands to map and trace the resources involved.

Neste understands the importance of digital solutions to overcome these problems.

Together with Circularise, we are testing a blockchain-based supply chain traceability software. This will enable plastic manufacturers and brand owners to verify where materials have come from and how and where they were processed, as well as their carbon footprint.

We're also working with independent bodies such as International Sustainability and Carbon Certification (ISCC) to certify the sustainability and traceability of products.

5. Net-Zero Challenge: The supply chain opportunity

Neste RE™: a more sustainable solution

Neste RE is a feedstock for plastics that can meet the need for more sustainable alternatives to fossil materials. Made from 100% bio-based and recycled materials, it performs exactly the same as plastic produced from fossil resources, without sacrificing safety, quality and durability.

It has the potential to drastically reduce the carbon footprint of plastic packaging and the recycled component contributes to combating plastic pollution. It's suitable for food contact packaging and recyclable at the end of its life, contributing to a circular plastics economy.

About Neste: change runs on renewables

Our purpose is to create a healthier planet for our children. We provide our customers and partners with low-emission solutions to the world's most pressing sustainability challenges. We build partnerships across the value chain so together we can create a future where all plastics and chemicals are made of renewable and recycled materials. Together with our partners we are aiming at a carbon neutral and nature positive value chain by 2040.

Neste in numbers

1st

world's leading provider of renewable diesel and sustainable aviation fuels as well as a frontrunner in renewable and circular feedstocks for polymers and chemicals

3.3 mt

production capacity for renewable products, set to grow to 6.8 Mt by end of 2026

5,200+

dedicated professionals committed to our purpose

11.1 mt

reduction in greenhouse gas emissions for our customers through our renewable products (in 2022)

Neste RE: renewable and recycled

Neste RE™ is a ready-made solution that can be used as a straight swap replacement for current feedstock for plastics, on its own or in a blend.

Renewable raw materials reduce fossil-dependency

The raw materials used to produce renewable Neste RE technology include a wide variety of feedstock such as waste and residue oils and fats like used cooking oil. Our unique NEXBTL process removes all impurities before refining, then removes oxygen in a catalytic process known as hydrodeoxygenation to create pure hydrocarbons with high energy density.

Chemically-recycled raw materials increase circularity

Neste RE can also be made using chemical recycling – an exciting technology that turns waste plastics into hydrocarbons that can be reused to make virgin quality plastic time and time again with no loss of quality. While still in development and being ramped up to industrial scale, this technology shows great promise in moving towards a more circular plastics economy.

Identical in quality to virgin Fossil-based plastics

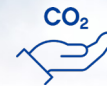
Products made with Neste RE are identical in quality to those made from conventional materials.



Exactly the same properties and durability as fossil-based plastics.



Suitable for use in sensitive applications including food-contact packaging.



A much reduced carbon impact compared to regular plastics.



Using waste and residue as renewable raw materials contributes to re-use and a circular economy.



A material that makes a real difference

Neste RE is an ideal alternative to fossil feedstock for food and beverage packaging.

Measurable sustainability with impact

Neste RE can reduce climate emissions from plastics and increases the share of recycled content in materials, helping brand owners to achieve their sustainability ambitions.

Consistent quality: sustainability without compromise

Neste RE can be used for sensitive, food-contact packaging and high-performance applications without compromising on quality and safety.

Just as recyclable as conventional plastics

Materials produced with Neste RE are suitable for reuse and recycling similarly to traditional plastic.

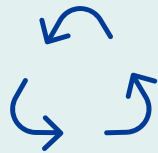
Renewable and recycled raw materials



Combating climate change



100% recyclable



A wide range of uses and applications

Plastics derived from Neste RE can be used to replace fossil-based plastic in a wide variety of food-contact applications, from yoghurt cups, food containers and beverage bottles to flexible packaging. At the end of life, Neste RE-based materials can be reused and recycled in the same way as conventional plastic.



Reduce your scope 3 emissions with Neste RE

There is growing pressure from customers, regulators, investors and stakeholders to measure, report and reduce scope 3 emissions from food and beverage supply chains.

Neste RE can help brand owners achieve all of these objectives by replacing carbon intensive fossil-based feedstock with bio-based or recycled feedstock. In doing this, they will also reduce virgin fossil resource dependency in the value chain.

What are scope 1, 2 and 3 emissions?

This is how emissions are categorised by the global Greenhouse Gas (GHG) Protocol. Scope 1 emissions are from your in-house operations; scope 2 are from the energy and utilities you buy in; scope 3 refers to the carbon from your suppliers and partners working on your behalf.

LCA renewables study indicates big emissions savings

A cradle-to-gate life cycle assessment (LCA) study tested the greenhouse gas emissions of Neste RE from 100% renewable feedstock through all stages including the raw materials used, the refining process, all transportation steps and end-of-life emissions. It showed an emission reduction of more than 85% over the life cycle when Neste RE was used to replace conventional fossil feedstock in the chemical and polymers industry.

The findings were independently verified and reviewed by an external panel of experts from VTT Technical Research Centre of Finland Ltd, Quantis GmbH and Aequilibria Srl-SB⁶.

>85%

Life cycle assessment shows that Neste Re 100% renewable feedstock reduces greenhouse gas (GHG) emissions by more than 85% over fossil feedstocks.





Chemical recycling increases circularity and cuts emissions

Chemical recycling makes plastics more recyclable, thus reducing the need for fossil-based resources to make new plastic. A study of Neste RE made using chemical recycling assessed its carbon footprint across the whole life cycle. It found Neste RE reduces emissions by some 40% over a conventional fossil-based feedstock with incineration of waste plastic⁷.

ca. 40%

A life cycle study of Neste RE made from chemically recycled feedstock showed almost 40% fewer emissions over fossil-based feedstock.

Helping you achieve your sustainability ambitions

Neste is trusted by manufacturers across industries as a partner and advisor on their journey towards a more sustainable future. As well as reducing your emissions, we can help you to stand out from the crowd and demonstrate your sustainability claims.

Accelerating transformation today and tomorrow

Neste RE is fully compatible with existing production and recycling infrastructure and is available at scale worldwide and ready for industrial-scale production. It's a straight swap for existing raw materials that allows processing and conversion without the need for brand owners or plastics manufacturers to invest in new facilities or infrastructures.

Assuring credibility and transparency

We put ourselves to the test through a range of independent third party certification schemes. With clear chain-of-custody traceability, we link specific volumes to you and partners in the value chain.

Supporting your sustainability claims

We support our value chain partners through sustainability training as well as claims and brand messaging advisory for offerings derived from Neste RE.

Differentiating your brand as industry frontrunners

As the demand for more sustainable products grows, we can help you create products with a lower environmental impact so you can offer consumers a more responsible purchase.

Collaborating to create a more circular and renewable future for plastics

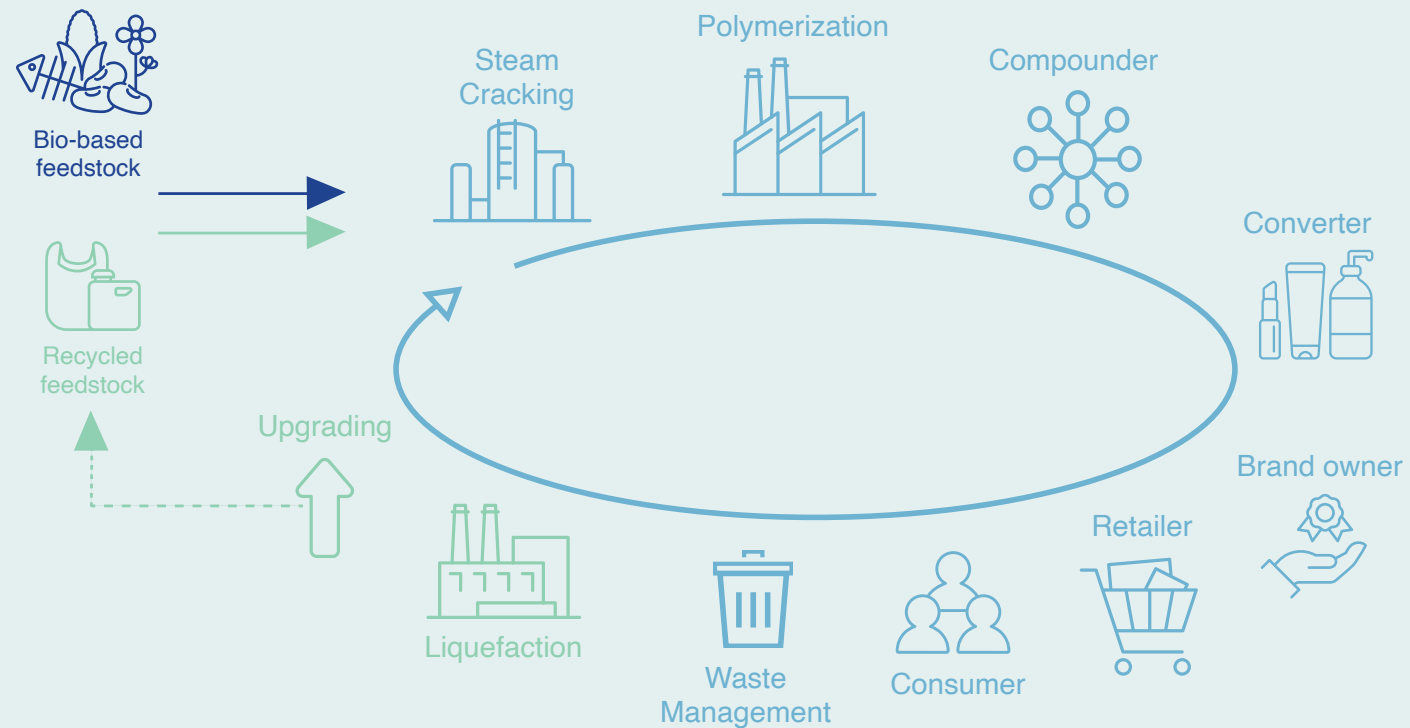
Neste works to reduce the environmental footprint of plastics in two ways: by reducing the carbon footprint of our products and by adding value to plastic waste. To achieve this, we collaborate with everyone involved in the plastic production loop from cracking and manufacture to brand owners and waste managers. Together with our partners and value chain networks, we accelerate the transition towards more sustainable solutions.

Renewable

Reduction of fossil oil dependency & climate emissions

Recycled

Rethinking the end-of-life, circularity






Neste in brief

Neste (NESTE, Nasdaq Helsinki) creates solutions for combating climate change and accelerating a shift to a circular economy. We refine waste, residues and innovative raw materials into renewable fuels and sustainable feedstock for plastics and other materials. We are the world's leading producer of sustainable aviation fuel and renewable diesel and developing chemical recycling to combat the plastic waste challenge. We aim at helping customers to reduce their greenhouse gas emissions with our renewable and circular solutions by at least 20 million tons annually by 2030. Our ambition is to make the Porvoo oil refinery in Finland the most sustainable refinery in Europe by 2030. We are introducing renewable and recycled raw materials such as liquefied waste plastic as refinery raw materials. We have committed to reaching carbon-neutral production by 2035, and we will reduce the carbon emission intensity of sold products by 50% by 2040. We also have set high standards for biodiversity, human rights and supply chain. We have consistently been included in the Dow Jones Sustainability Indices and the Global 100 list of the world's most sustainable companies. In 2022, Neste's revenue stood at EUR 25.7 billion.

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