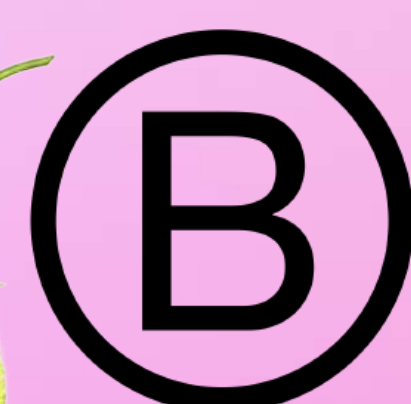


# ZERO WASTE BEAUTY REPORT 2025



Certified



Corporation

Published in collaboration with  Covalo x in-cosmetics™

# The beauty industry has a major waste problem.

**95%**

of cosmetic packaging is thrown away<sup>[1]</sup>

**70%**

Packaging makes up 70% of the beauty industry's waste<sup>[1]</sup>



**\$4.8bn**

worth of beauty products are destroyed annually<sup>[1]</sup>

**14%**

14% of cosmetic packaging makes it to recycling plants and only 9% is recycled<sup>[2]</sup>

**10%**

More than 10% of beauty products go to waste in brands' supply chains.<sup>[1]</sup> Overproduction accounts for 6.2% and 4% comes from expired or damaged product waste<sup>[3]</sup>

# Each wasted material represents a loss of valuable resources.

## Wasting products is a waste of resources.

This includes materials and energy for production, transportation, and end-of-life disposal, which all contribute to carbon dioxide (CO2) emissions. Our excessive use of finite resources and disposable culture also fuels global biodiversity loss.

**But it's not all bad news.** The zero waste movement is empowering companies from all corners of the globe to take action, including forward-thinking beauty and personal care brands. Instead of sticking with the linear take-make-waste model, they're embracing a **circular economy**, where resources are kept in circulation and **waste is eliminated or minimised at every stage.**

As the Ellen MacArthur Foundation points out, **in a circular economy, we stop waste from being produced in the first place.**

This report lifts the lid on the **latest innovations in zero waste beauty** and beyond. It covers the need-to-know trends and topics in product formulation, packaging, and operations, **inspiring you to drive positive change across the supply chain.**



**ARE YOU READY TO TAKE ACTION? >>>**

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# **SECTION 1: INGREDIENTS & FORMULATIONS**

# Upcycled ingredients market to reach \$403m by 2030

Zero waste brands are championing a circular economy in the beauty industry, closing the loop on waste at every stage of the supply chain.

This movement has accelerated the adoption of **upcycled ingredients** – a market projected to grow at a CAGR of 5.9% from 2022 to 2030. Data from Covalo, the world's largest ingredients platform for the consumer goods industry, highlights this trend. **In 2024, 10% of all new Covalo launches were upcycled ingredients.** Plus, The Upcycled Beauty Company's Upcycled Directory now features more than 340 ingredients across 11 applications.\*

Interestingly, Covalo's "**upcycled**" filter remains **one of the top sustainability search criteria** for beauty and personal care brands, particularly in EMEA. Barcelona's GSKIN<sup>®</sup> and ENOUGH. from South Africa are two recent market entrants that focus on rescuing resources too good to waste.

More **Upcycled Certified™** products are hitting the shelves too. The Upcycled Certified™ program, launched in 2021 by the Upcycled Food Association (UFA), now boasts **567 active certified products and ingredients from 104 companies.**\*

Since the program's launch, **2 million tonnes of food waste have been diverted.** According to Project Drawdown, "reducing food loss and waste is one of the largest climate solutions across all sectors."

Another game-changing development is the much-anticipated **expansion of the upcycled functionals market.** This fills a critical gap for formulators and brand owners aiming to achieve truly zero waste products.

This topic is so noteworthy that we've dedicated an entire section to it. **More on that next...**



"[Circularity] offers a more sustainable and responsible approach compared to the linear economy of using only new ingredients for product formulations" - ENOUGH.

\*Data captured October 2024



# UPCYCLED FUNCTIONALS

Although the upcycled ingredient market has grown significantly in recent years, sourcing high-performing upcycled functionals has been a real challenge – until now.

From waste-fighting film formers to multi-functional texturisers, developing fully upcycled formulations just got a whole lot more achievable.

## UPCYCLED EMULSIFIERS & SURFACTANTS

Meet the new generation of upcycled emulsifiers and surfactants. Finally, cosmetic formulators no longer need to skimp on performance or sensory benefits to achieve sustainability goals.

**CP Kelco** exemplifies this with **KELCOSENS™ Citrus Fiber**. Derived from leftover citrus peels from the juicing industry, this Upcycled Certified™ ingredient helps stabilise emulsifier-free formulations while delivering textural appeal and a refreshing skin feel. It's a great alternative to synthetic and natural emulsifiers, offers "good pick-up and playtime," zero soaping or tackiness, and is cold processable. CP Kelco follows a circular approach, upcycling the locally sourced waste peels for extraction and then reinjecting any leftovers back into the community, providing fertiliser for local orchards and animal feed.

Meanwhile, **Roelmi's Olifeel® E-NAT W/O** (pictured) enables formulators to develop stable W/O emulsions. Made from olive oil by-products, this upcycled emulsifier is said to offer a unique sensory profile and a rich, non-greasy skin feel.

Launched at in-cosmetics Global 2024, **Kaffe Bueno's KLEANSTANT®** is a new bio-based anionic surfactant made from upcycled coffee lipids. Thanks to a unique fatty acid composition, it delivers high foam performance and stability and boasts cleansing, emulsifying, foaming and moisturising benefits. KLEANSTANT® is free from sulphates, palm and petroleum, resulting in a sustainable, zero waste alternative to conventional surfactants.

For more upcycled options, there's **FOAMIN'TEA** by **Naturel Basics** – a plant powder for foaming, cleansing and antimicrobial action. Based on a by-product of tea seed oil production, Naturel Basics extracts the saponins from leftover seed cake.

## UPCYCLED TEXTURISERS

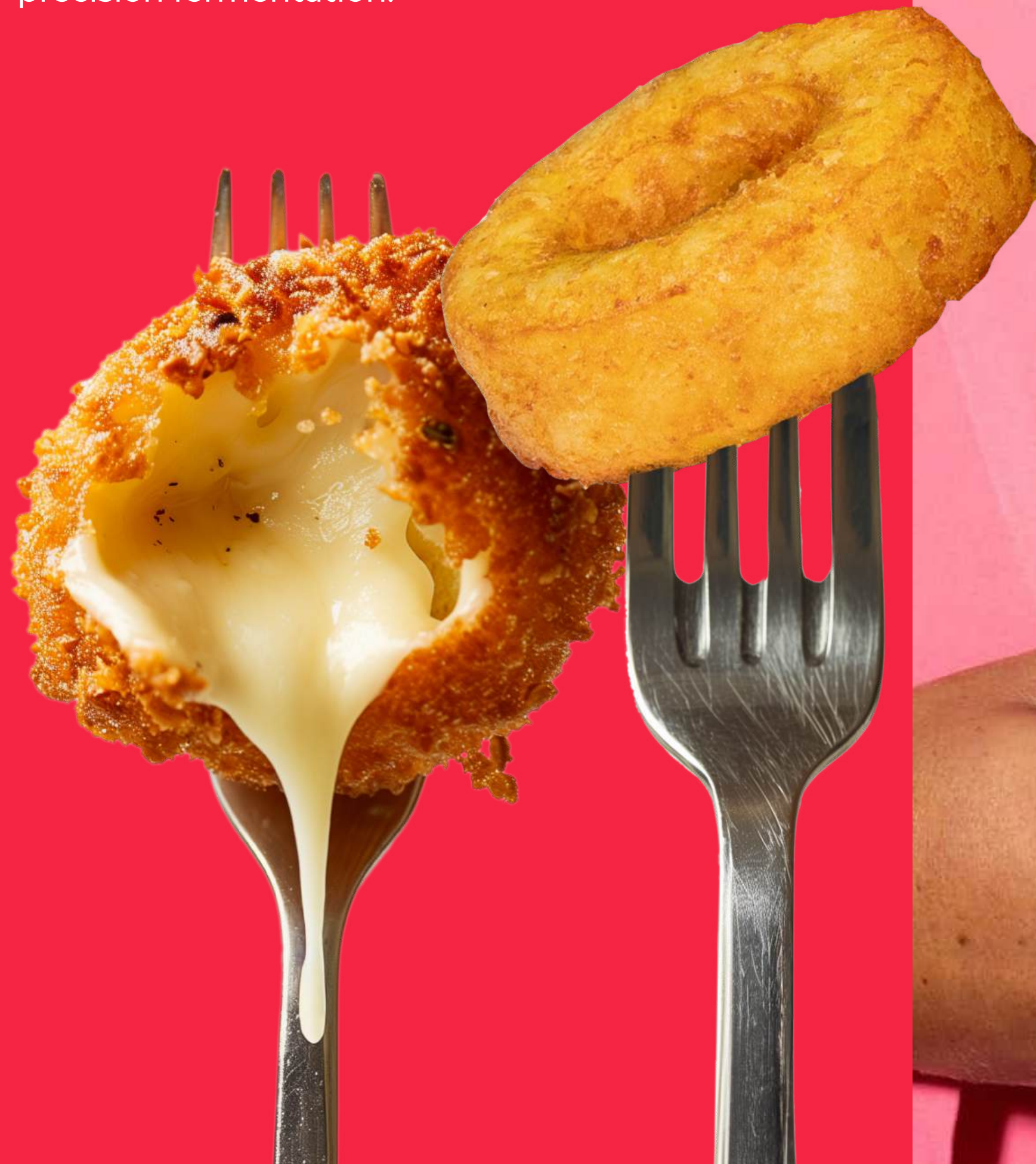
Manufacturers are also turning “trash” into top-notch texturising ingredients. Made from non-edible olive by-products, **Roelmi's Olifeel® Pearls** is a versatile rheology modifier, emollient and oil-phase gelling agent in pearl form. According to Roelmi, Olifeel® Pearls can “thicken any anhydrous oily system at different percentages, showing different characteristics versus classic triglycerides.”

**VARI® CC-O** by **VARIATI** is a natural mineral powder derived from marble extraction that delivers filler and texturising properties. The coating, also made from olive oil derivatives, gives the powder a soft and creamy texture in addition to skin-conditioning properties.

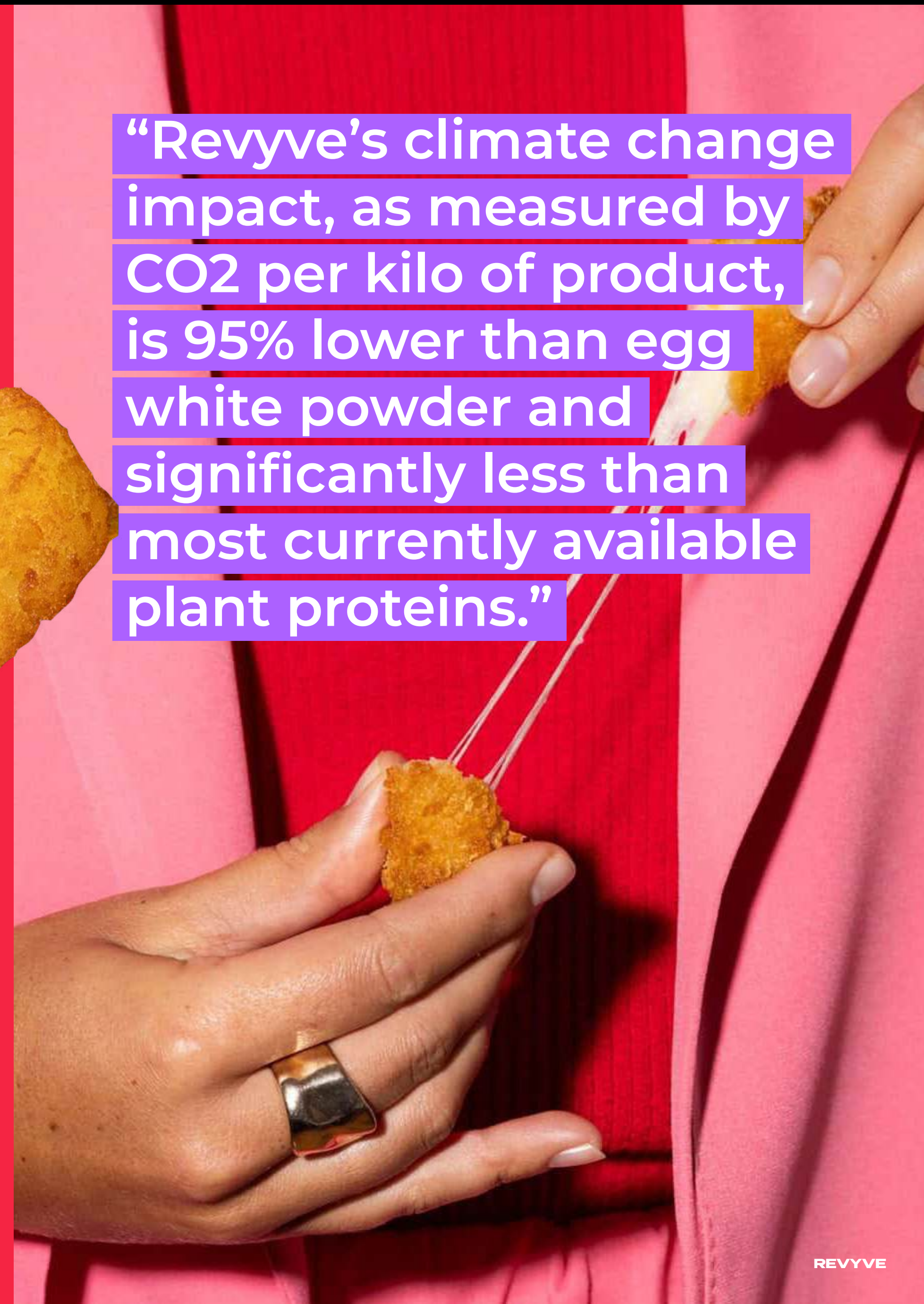
Looking beyond cosmetics, **Revyve** is setting a new standard in food textures. The Netherlands-based company uses proteins and fibres from upcycled brewers' yeast, resulting in high-performance ingredients with unique functional properties such as gelation and emulsification. In an industry where taste, texture and mouthfeel are everything, Revyve covers all bases, offering a range of natural ingredients for firm, meaty, creamy, crispy, stretchy and fluffy foodstuffs.

“We're constantly pushing the boundaries of what's possible, and we're excited to announce that we're expanding our ingredient portfolio in the near future,” [Revyve's website states](#).

“This includes exploring the use of bacteria, microalgae, and even spent biomass from precision fermentation.”



“Revyve's climate change impact, as measured by CO2 per kilo of product, is 95% lower than egg white powder and significantly less than most currently available plant proteins.”





# WHIPPED COFFEE CREAM CLEANSER

**WITH UPCYCLED FUNCTIONALS**

Fancy formulating with upcycled functionals? Meet **Whipped Coffee Cream Cleanser** – the new concept formulation by The Upcycled Beauty Company.

Made with **94% upcycled ingredients** and infused with a natural coffee fragrance, this aromatic cleanser smells good enough to sip!

Request a copy of the formulation.

## STARRING...

**KLEANSTANT® by Kaffe Bueno**  
(upcycled surfactant)

**SeaBalance® 2000 by Carbonwave**  
(upcycled emulsifier)

**POLYSOL® PGA by SOCRI**  
(upcycled solubiliser)

**reVENA-50™ by The Supplant Company**  
(upcycled hydrolysed oats)

**REQUEST  
A COPY**



# BEER BY-PRODUCTS

The brewing industry generates a lot of waste, mainly composed of brewers' spent grain (BSG) and yeast. It's estimated that for every 100 litres of beer brewed, 20kg of leftover BSG is generated, equating to nearly 40 million tonnes per year globally.

BSG is usually derived from barley, wheat, oats or other grains and is rich in protein and fibre. But despite its nutritional value, 90% is either used as animal feed or landfilled – a huge waste of precious resources.

Thankfully, ingredient manufacturers are recognising this untapped potential. In 2022, **The Upcycled Beauty Company** (TUBC) partnered with a brewery 50km from its manufacturing site to upcycle leftover spent grain into a high-performance skincare ingredient, **Barley TONIQ™**. Packed with proteins, peptides, polypeptides, amino acids and carbohydrates, this zero waste active has been proven to calm and soothe sensitive skin, even at low use levels. In 2024, it was ranked among the top 10 most popular upcycled ingredients on Covalo.

TUBC also collaborated with **Malté**, a Canadian brand that manufactures Barley TONIQ™ to the same specification using locally sourced spent grain from breweries in Quebec. In addition to salvaging waste and removing the need to farm new ingredients, these local partnerships eliminate long-distance shipping of feedstocks, ultimately reducing the collective CO2 impact.

**dsm-firmenich** also leverages the benefits of spent grain for skincare. The company's **STIMU-TEX® AS** ingredient combines high-quality upcycled spent grain wax, argan oil, and shea butter to relieve skin irritation. The wax is obtained from BSG using a cutting-edge supercritical CO2 extraction process resulting in pure spent grain wax free from organic solvents and preservatives. It features large amounts of unsaturated fatty acids, "essential for the regeneration of the epidermal barrier."

**RAHN** takes a unique approach with **ILLUMISCIN®-GLOW** by harnessing hordatines from upcycled brewers' barley sprouts. According to RAHN, hordatines were identified by AI as inhibitors of tyrosinase, helping to reduce skin tanning and the intensity of sun spots and melasma.





DOUGH



SALT & STRAW



TREBODUR

## FROM BREW TO BITE

The food industry has been reaping the benefits of beer by-products for some time. **Upcycled Foods, Inc.’s** flagship ingredient **ReGrained Supergrain+®** is a sustainable grain powder derived from BSG, rich in plant protein, prebiotics and dietary fibre. It’s featured in various food products including a first-to-market upcycled pasta from **Ferrazzani’s**, and **Doughp’s** Brownie Beast Cookie Dough which boasts twice as much protein and six times more fibre than others you’ll find on the market.

In 2023, ice cream brand **Salt & Straw** broke new ground with its Upcycled Food Series menu, partnering with five brands dedicated to reducing food waste in the US. The Upcycled Certified™ menu included a malted chocolate barley milk ice cream featuring **EverGrain’s EverPro®** ingredient, a unique barley protein made from upcycling raw BSG.

**BrewBix’s** dog treats contain upcycled BSG and brewers’ yeast, which is said to have “a smell that dogs love” while delivering nutritional benefits. Win, win!



## GRAINS TO GO

BSG is also driving innovation in food service. On a mission to tackle single-use plastics, Singapore-based **Alterpacks** transforms agricultural waste and food by-products including spent grain into plastic-free home-compostable containers and cutlery.

Another great example is **TREBODUR** – a natural and biodegradable packaging solution made solely from BSG. As a proof of concept, the brand developed a plastic-free beer can holder, closing the loop on brewery waste and demonstrating the potential of BSG for sustainable packaging.

## SPOTLIGHT ON ARDA

Looking beyond food, **Arda Biomaterials** is revolutionising the leather market with **New Grain™**. Based on BSG, this animal-free and plastic-free leather alternative can be customised with various colours, finishes and patterns similar to animal leather. In August 2024, Arda partnered with London’s **Beavertown** to transform its spent grain into branded cardholders.

# BEER FOAM CLEANSER

## WITH BEER BY-PRODUCTS

### Looking for formulation inspo?

The new beer-inspired foaming cleanser formulation by **Cherishd**\* combines upcycled functionals and boozy by-products.

Developed for stressed-out complexions, it features a cocktail of soothing and hydrating actives that instantly relieve irritation and quench thirsty skin. Bubbly indulgence, minus the hangover!

### **BARLEY TONIQ™**

Made from a by-product of beer production, Barley TONIQ™ calms redness and instantly soothes irritation.

### **METAUPON® EZ AMIBIO**

This gentle sulfate-free surfactant delivers a delightfully light and creamy foam.

### **TRUE CRAFTY CO**

A natural fragrance inspired by citrus beer. It's fresh, zingy and mouth-wateringly good!

**REQUEST  
A COPY**



\*Cherishd is a brand of The Upcycled Beauty Company, dedicated to developing inspiring zero waste formulations

# WATERLESS 2.0

The average beauty product contains 60% to 85% water. In 2020, the industry consumed 10.4 million tonnes of it. As covered in our 2024 report, the waterless beauty trend shows no signs of slowing down. Benefits include reduced water consumption, lower carbon emissions, less packaging waste, extended shelf life (thanks to reduced water activity), and peak potency.

Now, the category has expanded beyond its traditional roots in solid bars. Brands are innovating to offer a range of next-gen waterless products, including more variety and convenient packaging solutions uniting sustainability and style.

From showering to shampooing, there's a solution for every step in consumers' routines.



## 1. SHOWER / WASH

In September 2023, B Corp™ Certified fashion brand **ECOALF** debuted its waterless wellness range including the Body & Hand Soap. Made with upcycled ingredients, the soap powder formula is added to a stylish, refillable aluminium container. The powder then transforms into a light foam when activated with water.



## 2. SHAMPOO & CONDITION

On a mission to clean up the “outdated” shower routine – comprising diluted formulations and too much plastic – **Small Wonder's** Insta-worthy hair powder concentrates deliver salon results while minimising waste.



## 3. CLEANSER

**Seadrop Skincare** has facial cleansing covered. Recognising that most liquid cleansers are 90% water, Seadrop has developed the Waterless Hydrating Seafoam Cleanser Beads which transform into a rich lather with just a splash of water. The cleanser is packaged in a refillable Eternal Jar and all refill tubes are biodegradable.



#### 4. EXFOLIATE

For fans of exfoliation, there's the Soft Facial Peeling tablet by **MONO** – a French skincare brand on a mission to redefine premium skincare with an “eco-conscious twist.” MONO’s range of water-free skincare tablets – a patented innovation – encapsulates concentrated natural ingredients, “guaranteeing exceptional performance.”



#### 5. TREAT

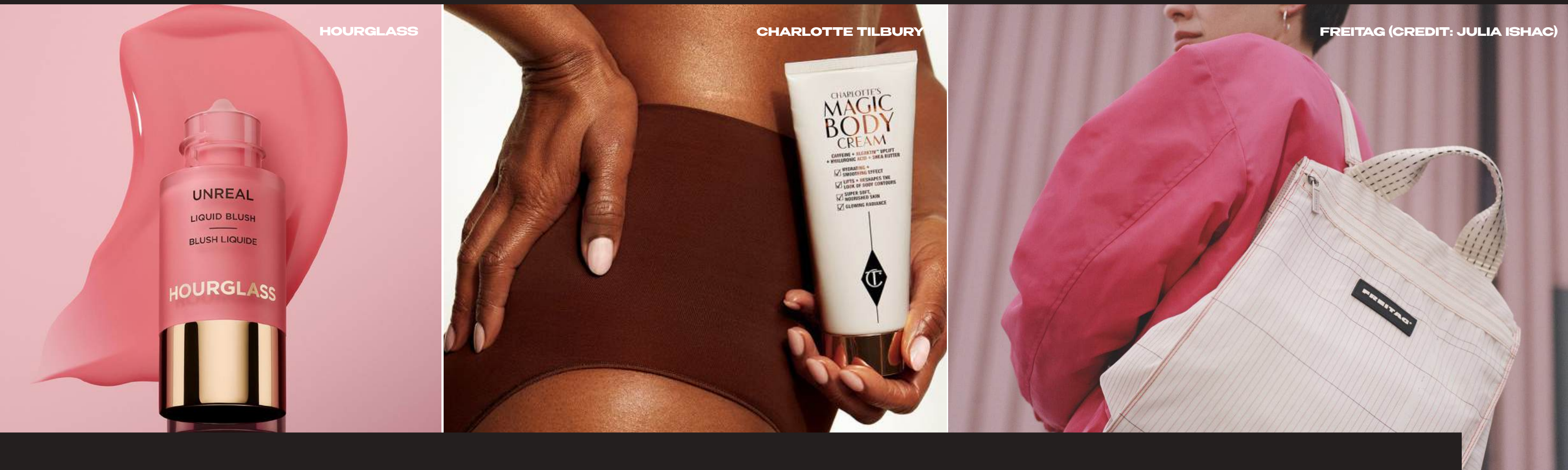
**Onology’s** Megadose™ serums deliver “peak potency, minus the waste.” These freeze-dried tablets can be activated with a few drops of water and can be stored for up to 10 years!

“64 tablets of Megadose™ uses 80% less raw materials, 63% less water consumption, 0% single-use plastic and 75% less packaging material compared to a traditional 30ml serum,” the site says. And, due to their compact size, there are 80% fewer carbon emissions during shipping.



#### 6. MOISTURISE (AND SCULPT!)

Toronto-based **Ember Wellness** develops zero waste solid skincare “designed to be the brightest part of your daily ritual.” The SCULPT & GLOW™ Highlighting Moisture Bar is a unique 3-in-1 waterless bar that “sculpts like a gua sha, hydrates and protects your skin’s barrier, and imparts a subtle glow thanks to sustainably sourced mica.”



# LEFTOVER LUXURY

Luxury beauty brands are embracing upcycled and zero waste ingredients, but there's a bigger shift happening. These upcycled ingredients are now the star of the show – a gateway for key product claims, challenging the traditional notion that sustainability compromises quality.

The Hourglass Unreal Liquid Blush is a prime example, featuring an “unreal lifting complex” courtesy of upcycled white lupin seed extract. Charlotte Tilbury's Magic Body Cream gets its key product claims from ALGAKTIV® UpLift, an anti-ageing active made from upcycled freshwater microalgae polysaccharides. Priced at \$150, BYROE's Firming Tomato Serum leverages three different types of upcycled tomatoes for firmer and radiant skin, while Wildsmith's 4D Protection Serum uses upcycled red bell peppers for blue light defence claims.

Zero waste ingredients are also making their mark in mainstream makeup. bareMinerals' BAREPRO® foundation has been formulated with upcycled pomegranate peel extract to help brighten and even skin tone. Revlon promotes upcycled cranberry extract as a hero ingredient in the ColorStay liquid lipstick to “protect lips.”

## ECO CHIC

High-end fashion is turning heads by upcycling would-be waste. Revibe is home to the largest community of designers dedicated to transforming pre-owned fabrics and leftovers into unique clothing, bags and accessories. In 2023, Revibe developed an upcycled collection with Von Dutch, entirely crafted from the brand's deadstock.

Launched in December 2023, luxury fashion brand COMME des GARÇONS partnered with FREITAG to develop a limited-edition collection of upcycled bags crafted from an unlikely source: used truck tarpaulins. The bags retailed between \$225 and \$451.

Committed to circular product design, FREITAG debuted two unique shopper bags in 2024 made from discarded airbags and tension belts.

“Thinking and acting in cycles is integral to FREITAG'S DNA.”

# OUR POV: THE FUTURE OF FORMULATION

## 1. "100% UPCYCLED"

Thanks to a growing category of upcycled functionals, we can expect more beauty and personal care products **touting a higher percentage of upcycled ingredients**. While indie brands will likely lead the charge, more mainstream brands will place upcycling on the agenda. **Early adopters will have a significant advantage** in establishing themselves as leaders in the zero waste space.

## 2. LOCAL GRUB

Mintel envisages that over the next three years, **"brands will increasingly partner with food and beverage companies to develop zero waste products**, using sustainably sourced ingredients that align with the circular economy." **Establishing local partnerships will, in our view, be essential.** This will help reduce product footprint and close the loop on local food waste.

## 3. ON-PACK COMMS

Since upcycled beauty is still relatively new, **educating consumers on the benefits of these products will be critical** over the coming years. Richard Cope, Senior Trends Consultant at Mintel, says the industry "needs to catch up on the interest in **on-pack sustainability ratings**." This is particularly crucial since 31% of global beauty & personal care consumers believe a simple rating scale showing a product's environmental impact would influence their purchasing decisions.

On-pack certifications like the **UFA's Upcycled Certified™ scheme** will become more commonplace, ultimately aiding purchase decisions and driving awareness of the zero waste movement.

## 4. DRIVING DELIGHT

Upcycling ingredients from **unlikely origins** will help **drive consumer interest in future**. In a recent study, analysts found that consumers value creativity. **"Upcycled products are more appealing when they're made from products originally designed to serve entirely different functions," the analysts explain.** "For example, a bag made from parts of an old truck tarp was evaluated as more creative and appealing than one made from parts of an old backpack."

"When consumers realise that the intended functionality of a component is not fixed but versatile – that a side table, say, is made not from another table but a whiskey barrel – they experience an "Aha!" moment." [Continued...]

"...It's this sense of delight and surprise, rooted in an appreciation of creativity, that enhances the appeal of upcycled products"

Sara Caprioli, Christoph Fuchs & Bram Van den Bergh



# SECTION 2: PACKAGING & MATERIALS

# Nearly all (95%) of cosmetic packaging is thrown away.

Single-use plastic packaging, in particular, remains an ever-growing issue:

- It accounts for 40% of global plastic waste
- If plastic were a country, it would be the fifth largest emitter of greenhouse gases in the world
- The plastics industry is projected to take 19% of the world's carbon budget by 2040
- The amount of plastics in our ocean could triple by 2040

Despite the industry's best efforts, recycling can't solve the problem:

- Only 14% of cosmetic packaging actually makes it to a recycling plant, and only 9% is recycled
- 18% of consumers admitted they've thrown away beauty product packages that they knew were recyclable because they were too difficult to clean

So, what's the solution?

The [Ellen MacArthur Foundation](#) shares the vision of a new plastics economy where plastic never becomes waste or pollution. Three actions are required to achieve this vision:

- **Eliminate** all problematic and unnecessary plastic items
- **Innovate** to ensure that the plastics we do need are reusable, recyclable, or compostable (although, as we've seen, recycling presents other challenges)
- **Circulate** all the plastic items we use to keep them in the economy and out of the environment

**This section of the report spotlights creative reuse, circular initiatives, and the latest advancements in plastic-free packaging.**

**We've also included a list of [Platforms For Progress](#), where you can stay up to speed with the newest material innovations and monitor industry progress.**



# SUSTAINABLY SEALED

From upcycled wool liners for shipping to dissolvable bottles destined for the drain, packaging manufacturers are shaking up the world of product protection. These efforts aim to combat single-use plastics and the overreliance on other materials such as paper.

## SAVING STEMS & SKINS

**PurePack's PaperWise** turns plant-based waste, such as rice, corn and maize leaves and stems, into sustainable cardboard and paper packaging. Powered by 100% green energy, PaperWise reduces reliance on traditional paper sources and has less environmental impact than recycled paper.

**PaperFoam®** is a bio-based, biodegradable and customisable packaging solution that doesn't compromise quality or aesthetics. Made from industrial potato starch and moulded cellulose, the material is broken down by nature within weeks. **HALF MAGIC** was the first beauty brand to use PaperFoam® – it houses the brand's eyeshadow singles (pictured) and other complexion makeup, aiding their mission to make sustainable packaging fun, functional and thoughtful.



Another brand putting potato by-products to good use is **Ben & Anna**. The PolyPotato Deodorant Cream is sealed in “world-first” packaging that combines potato starch with paper and natural fibres, offering a compostable and plastic-free alternative to conventional deodorants.

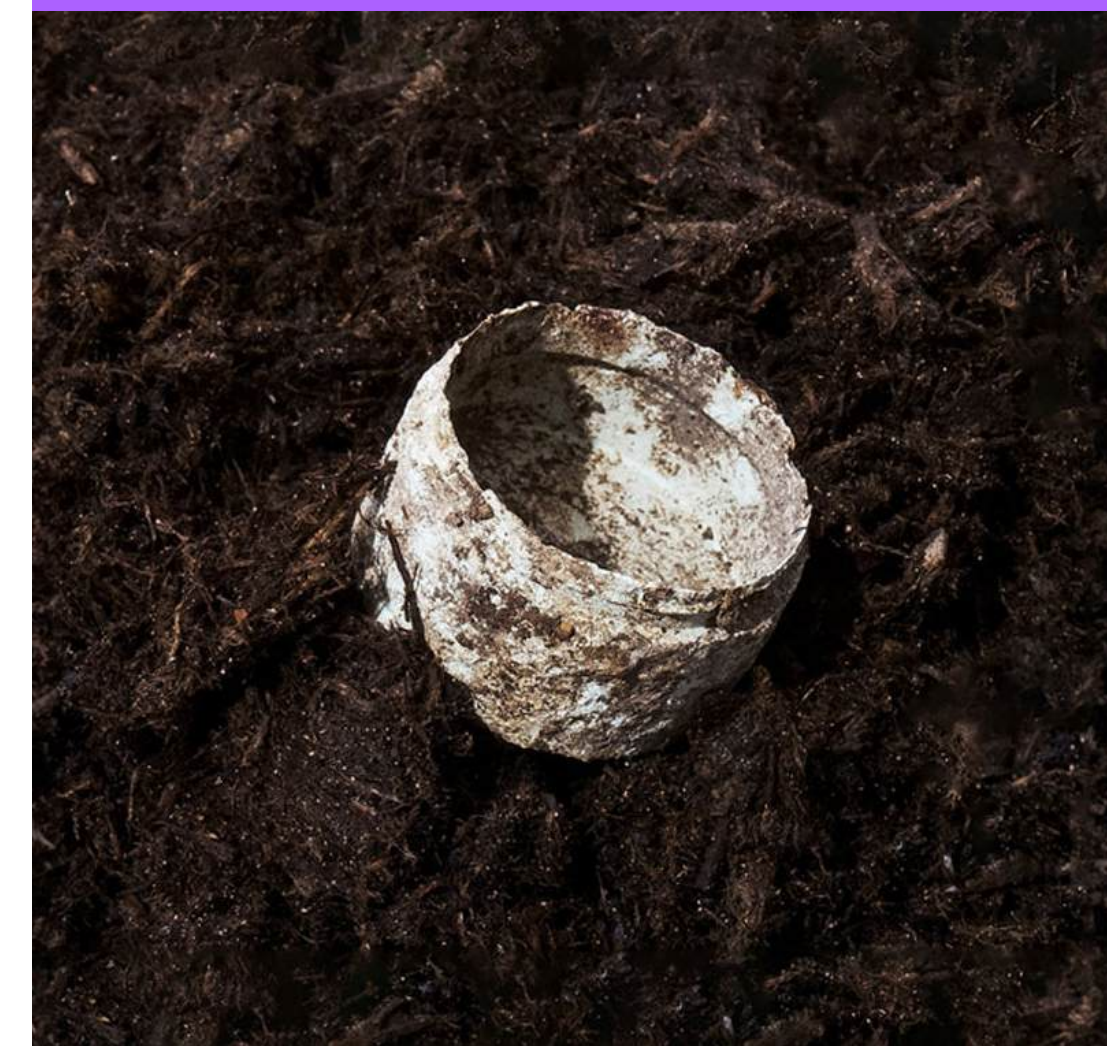
Towards the end of 2023, speciality chemicals manufacturer **Lamberti** announced its partnership with **TomaPaint®** – an Italian start-up specialising in the extraction of bio-resin (cutin) from waste tomato peels – to create a plastic-free natural coating for barrier paper. Ideal for the food service industry and solid beauty products, **Esacote® Bio BC 100** is a water-based coating that blocks water, oil and grease.

“Cutin is one of the most abundant biomaterials.”

## SPOTLIGHT ON SHELLWORKS

London-based **Shellworks** creates innovative packaging solutions that never become waste.

Shellworks' **Vivomer** is a bio-based, home-compostable, plastic-like material made by microbes. But here's the real magic: once you're done with the packaging, you can add it to your compost. The same microbes that made Vivomer will consume and break it down, leaving nothing behind.



## SAFE TRIP

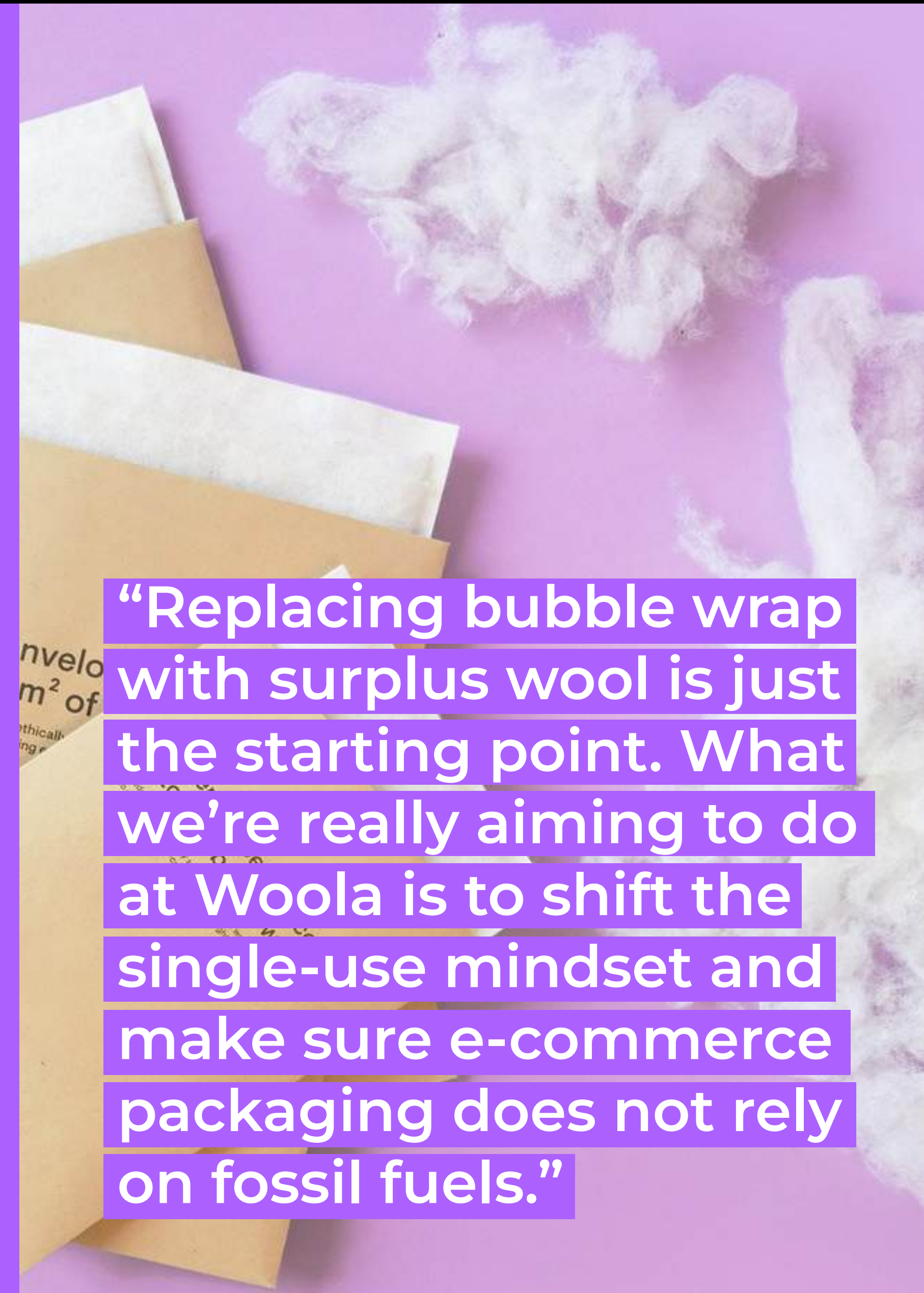
Need to ship a product safely without the usual plastic waste? **RECOU** is a unique cushion packaging solution for products on the move. Developed by German start-up **PROSERVATION**, the cushion material is derived from upcycled spelt husks – an abundant resource in Germany, with 125,000 tonnes produced yearly.

Using a specially developed ecological binder, RECOU can be shaped as desired and is an excellent substitute for petrochemical packaging solutions such as Styrofoam. It's biodegradable and can be disposed of in the organic waste bin or compost.



Estonian brand **Woola** produces protective sleeves made from locally sourced surplus sheep wool. Designed to replace plastic bubble wrap, the material is naturally water-repellent, is resistant to extreme temperatures, and can be reused multiple times. According to the brand, up to 90% of sheep wool is burned or buried in countries across Europe (around 200,000 tonnes annually). Woola also upcycles any wool leftovers from production, keeping them for future product development.

**Flexi-Hex®** is another great alternative to bubble wrap and air-filled plastic. **Flexi-Hex® Air** is a lightweight honeycomb packaging sleeve made from tissue paper that helps protect fragile beauty products in transit. Made from 100% recycled content, it's recyclable, biodegradable and compostable and is super-lightweight for economical shipping.



**“Replacing bubble wrap with surplus wool is just the starting point. What we’re really aiming to do at Woola is to shift the single-use mindset and make sure e-commerce packaging does not rely on fossil fuels.”**



**this is no ordinary bag.**  
it will dissolve in fresh or salt water and leave no microplastics behind. it's also biodegradable, non-toxic and carbon negative.

the item bag 2.0 by [wastebased.co](http://wastebased.co)  
re-use this bag as many times as you can, then remove all labels, place it in boiling water, stir and it will dissolve in a matter of seconds. please exercise caution when handling boiling water.

**WARNING**  
to avoid danger of suffocation, keep this bag away from babies and children. do not use this bag in cribs, beds, carriages or playpens. this bag is not a toy.



**Formulated with:**  
Rosemary Oil to help stimulate hair growth

**Proudly:**  
Vegan and Cruelty free  
Sulphate and Paraban free

**Lathers:**  
Add water to the Shampoo Sheet and lather in hands. Wash from scalp to ends as normal

**Waste Free:**  
Run the sachet under water and watch it dissolve

**The Dissolving Bottle** eliminates packaging altogether. Reimagining traditional shampoo packaging as a solid shampoo bar, the bottle transforms into a lather once activated with water. An award-winning initiative, the bottle was originally developed by **BBD0 Guerrero** and is now sold under **LUORO's plain b** brand.



## DOWN THE DRAIN

Some packaging materials are designed to disappear down the drain. **Wastebased** has developed **item bag 2.0** – a biodegradable, non-toxic poly bag that dissolves in boiling water in seconds. Instead of conventional polyethylene, the item bag 2.0 utilises **Hydropol**, a modified polymer comparable to polyvinyl alcohol (used to coat laundry and dishwasher tablets).

**REHAB.**, a female-founded London-based haircare brand, has created patent-pending dissolvable shampoo and conditioner sheets to combat unnecessary packaging waste.

The single-use sheets, infused with rosemary and olive oil, transform into a lather when added to water. The outer packaging also leaves zero trace – just drop the empty sachet into the shower and let it dissolve!



# RETHINKING REFILLS

**The reuse revolution is a cornerstone of the circular economy, helping to eliminate waste and keep materials in use. Beauty and personal care brands have used refill and reuse schemes for years, but barriers to adoption still exist.**

According to a 2023 study by bareLUXE, despite nearly 80% of consumers saying sustainability is important when making purchase decisions, **only 23.4% currently use refillable skincare products.**

When asked about barriers to using skincare refills, the reasons included **difficulty finding options (50.66%), concerns about mess or too much work (44.08%), and price (21.71%).**

The key to success is continuous learning and improvement. **Zero Co** exemplifies this well. In 2021, the Australian brand launched a refill system to combat single-use plastics, described as a “world-first” for the body care industry. The initiative enabled customers to buy refillable bottles and refill pouches before returning empties to Zero Co for reuse. But here’s the catch: only 42% of the pouches were returned, meaning 58% were discarded as single-use plastic.

Fast-forward four years, Zero Co has altered its course with **ForeverFill™** – a paper-based refill system. Shaped by two years of customer feedback, research and analysis, the new initiative no longer relies on returning empty pouches. Instead, customers purchase a “forever” bottle, which can be replenished with recyclable refills made from 91% paper fibre, 60% of which is PCR content. In addition to cutting plastic waste by 97%, ForeverFill™ reduces freight emissions by up to 75%. And, for every product sold, Zero Co removes 10 water bottles’ worth of waste from oceans, rivers and beaches.

## SCALING UP

Swedish start-up **Meadow** is “making circularity at scale a reality” for brands. The technology company aims to set a new standard for refillable products starting with the beauty and personal care industry, and it’s achieving this with aluminium cans. Scooping up multiple awards, Meadow’s patented packaging technology repurposes the cans into refill cartridges, which are then added to an easy-to-use, twist-to-open reusable dispenser.

“Brands can license the **Daisy Top™** opening system, designing a dispenser aligned to their brand identity and using their preferred supply chains for manufacture,” the site says. “We’re giving businesses and brands a simple, scalable solution and consumers an easy and familiar way to reduce their household waste.”



## ECO DEO

The deodorant category is a hotbed of innovative refillable solutions. UK brands **Wild** and **Fussy** offer flexible subscription services, delivering scented deodorant refills and a reusable deodorant case straight to your door. Fussy opts for an outer keep case made from durable ABS plastic, paired with compostable refills made from waste sugarcane and bamboo. Meanwhile, Wild offers aluminium cases and compostable bamboo pulp refills. Monthly refills are shipped in threes to save on packaging and CO2 emissions.



**Rollr** is a soon-to-launch refillable roll-on deodorant brand “designed for pleasure and planet.” The deodorant device, which features two patent-pending designs, includes an elegant glass bottle and a cooling gemstone (3 options available) or steel rollerball. Rollr’s paper-recyclable refills contain concentrated powders, requiring 90% less packaging than other deodorants.

Also reimagining roll-ons, industrial designer **Elanur Aslan** developed **Refresh** – an innovative deodorant concept that embraces forward-thinking through creative reuse and cutting plastic demand. The recycled packaging gives a second life to plastic waste, while the stylish and ergonomic design promises “effortless application.” The inner chamber is designed to be refillable, ensuring the packaging can be continually reused.





## INNOVATING INDUSTRIES

Looking beyond beauty, **CABINET's** mission is to remove single-use plastic from medicine. Recognising that billions of plastic medicine bottles end up in our oceans and landfills each year, CABINET has been working to develop the world's first and only sustainable and refillable system.

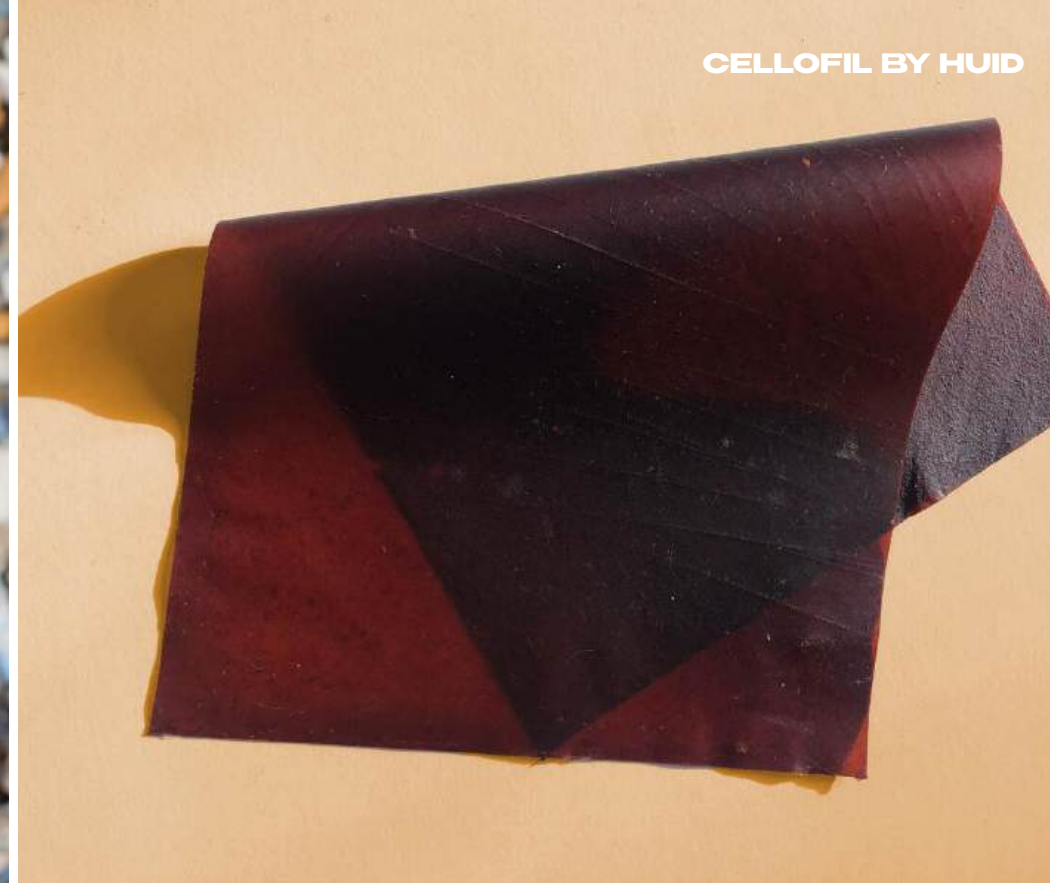
Launched in October 2023, Cabinet Health Rx is a D2C mail-order prescription service that enables US customers to order their prescriptions in a personalised, refillable "forever" bottle, which can be replenished with compostable refill pouches.

Material science company **Nohbo** has launched **Hydrofill**, a multi-dose water-soluble pod containing an anhydrous concentrated base that transforms into a standard-sized product when added to a bottle of water. **Soap2o** has collaborated with Nohbo to transform how we access soap in sectors like retail, hospitality, and transportation. Every **Soap2o Super Hydro Pod** transforms into 1 gallon of foaming hand soap, and the pods can also be used to encapsulate hair and body wash.

Soap2o also sells soap dispensers, bottles and counter mounts for washrooms and has helped many organisations and venues – including the UK's University of Leeds and The O2 Arena – to support their sustainability goals.







## ONE TO WATCH: HUID

This Scotland-based start-up has a compostable packaging material in the works – and it’s made from onion skins. In the UK, around 200-400kg of waste skins are produced per week, mostly ending up as cattle feed. Seeing value in this waste, **HUID** has developed **PYBER**, a card-like alternative to wood fibre paper, and **CELLOFIL**, a flexible film ideal for various packaging applications including food. Although the materials aren’t yet commercially available, it sounds like big things are on the horizon for HUID, having been accepted onto Cohort 7 of The Greenhouse accelerator by **Undaunted**.

# UNLIKELY ORIGINS



## Centred on circularity, material innovators are pushing boundaries as they upcycle unique materials from (very!) unlikely origins.

Recognising the potential of shellfish by-products, **CuanTec** converts this waste into chitosan for various applications including beauty and personal care. Meanwhile, Maine-based **Marin Skincare** leverages lobster glycoproteins, a natural by-product of lobster processing, as a hero ingredient in its skincare formulas. Other innovations originating from the ocean include **MarinaTex®** – a plastic-like packaging material derived from seafood waste such as offal, fish skins, scales, and crustacean and shellfish exoskeletons.

**Karün** is on a mission to “change the way we interact with our planet.” Recognising that 5.6 trillion cigarette butts are discarded each year, Karün is set to launch a new eyewear collection created with **Celion®** by **IMEKO** – an innovative material derived from waste cigarette butts.

Also helping to clean up our streets, **Gumdrop** recycles waste chewing gum and converts it into **GUM-TEC®**, replacing conventional rubber and plastic compounds. **Adidas** previously partnered with the brand to develop a Stan Smith shoe featuring a GUM-TEC® sole made with recycled chewing gum.

One day, your four walls might be made from food! **FRONT®**, a supplier of sustainable and aesthetic building materials, has developed **CornWall** – a climate-positive wall-finishing material made primarily from the cores of corn cobs.

Meanwhile, scientists at the **University of Tokyo** have successfully created concrete from food waste such as banana peels, coffee waste, Chinese cabbage, and orange skins. Initial experiments have shown that the material outperforms traditional concrete.



# PLATFORMS FOR PROGRESS

Achieving ambitious sustainability goals requires a collaborative effort. Discover the pioneering platforms committed to sharing the latest circular initiatives, packaging innovations and next-gen materials, helping you optimise your sustainability strategy and drive progress.

## PLASTICFREE

“The world’s first materials & system change solution platform built by creatives for creatives.” Discover new materials daily, connect with makers, and gain expert insights.

## PACKFORWARD

PackForward helps stakeholders in the packaging chain move forward with sustainable packaging, helping to navigate packaging laws, regulations and more.

## MATERIOM

On a mission to accelerate the R&D of materials with a net-positive impact, Materiom supports scientists, producers, and brands in developing next-gen materials faster.

## TOCCO

Tocco is building “the most extensive regenerative, renewable, and recycled materials hub,” redefining the way developers, designers, brands and suppliers create.

## RE-SOURCES

A platform offering expert content for sustainable product development in the beauty industry. Content includes packaging innovations, event roundups and more.

## WASTEBASE

Wastebase revolutionises the way materials are sourced, utilised and repurposed in the design industry. Order samples from Dutch manufacturers’ side streams.

## ELLEN MACARTHUR FOUNDATION

A global thought leader that puts the circular economy on the agenda for key decision makers. Discover helpful case studies & content online.

## B CORP BEAUTY

The B Corp™ Beauty Coalition is a global initiative that aims to raise the sustainability standards of cosmetic products across the wider beauty industry.

# OUR POV: THE FUTURE OF PACKAGING

EVER AMID

## 1. SEAWEED WILL SURGE

Amidst the growing demand for plastic packaging alternatives, seaweed-based solutions will become a **viable option** for beauty brands, especially for **samples and refills**. The market for these materials is anticipated to expand rapidly, reaching \$952.76 million by 2032 with a CAGR of 6.9%. Pioneers like Notpla are paving the way, successfully replacing 4.4 million units of single-use plastic in 2023. Check out our bonus Seaweed Spotlight for more!

## 2. WORST-CASE PLAN

With only 9% of cosmetic packaging recycled, end-of-life planning must be prioritised. Forward-thinking brands will **increasingly prepare for worst-case scenarios**, such as their packaging ending up in landfill. Swedish skincare start-up **Oquist** has specifically chosen terracotta clay which **biodegrades back into the earth over time**.

## 3. MORE UPCYCLING

While onion skin packaging may seem unconventional, **waste-based packaging** will continue to gain traction. Mycelium is a prime example of this shift, which has made a lot of headway in the beauty and personal care space. Brands will also **upcycle their own waste** to solve unique packaging dilemmas (more on this on page 30).

## 4. MORE DIGITAL TOOLS

**AI-driven technologies** and **collaborative online platforms** (such as those mentioned on page 26) are likely to play a major role in developing future packaging solutions. Features like on-pack QR codes will help drive transparency by delivering sustainability data to consumers, transforming packaging into **communications tools**. For example, Pack Tech's **Ocean Waste Plastic** (OWP) solutions include a QR code that tracks the amount of plastic waste collected.

## 5. ART FOR LONGEVITY

More brands will **combine functionality with art**, turning packaging into a selfie-worthy refillable keepsake to last a lifetime. **Oquist, ReMI** and **Ever Amid** exemplify this with their luxurious ceramic vessels. "You will not find a single throw-away element in our packaging," says Ever Amid. "**Formula. Porcelain. Mycelium. That's it.**"



# SECTION 3: SUSTAINABLE OPERATIONS

# “There is no Plan B because we don’t have a Planet B.”

- UN Secretary-General Ban Ki-Moon

To prevent global warming from exceeding 1.5°C (as outlined in the [Paris Agreement](#)), greenhouse gas emissions need to reach **Net Zero by 2050**. To achieve this goal, every operational aspect must be evaluated and optimised, from manufacturing and distribution to product use.

The [Greenhouse Gloss report](#), developed by Carbon Trust’s Net Zero Intelligence Unit, reveals that **consumer use of products accounts for 59% of the beauty sector’s emissions**.

“The hot water required for many rinse-off beauty products, such as shampoo and shaving foam, is often generated through energy derived from fossil fuels,” the report reveals. “Although these emissions are ‘indirect’, they are significant.”

Period products brand **DAME** tackles this by giving customers clear washing instructions for their reusable pads and pants. DAME says that by following these guidelines, the pads will have “a 5x smaller carbon footprint than disposables.”

**Sourcing raw materials to make products and packaging also accounts for 30-50% of the beauty industry’s emissions.**

“This includes fossil-fuel based synthetic ingredients, extracted minerals such as mica and sourced raw materials that can lead to deforestation, such as palm oil and wood pulp,” the report states. As a result, **this should be a priority area for action.**

**In addition to local sourcing and creative collaborations, this section spotlights the path to Net Zero, evolving industry standards, and how to analyse and optimise your operations with cutting-edge tech like AI.**





# BACKYARD BEAUTY

Instead of forging new supply chains, beauty brands are closing the loop by repurposing waste from their own operations and nearby communities.

Based in south England, **Kelsey Farms** specialises in commercially growing and packing soft fruit. Any raspberries not deemed good enough for retail are upcycled into high-performance skincare, including the leaves and seeds. Similarly, **Elemis** has joined forces with **Xampla** to transform its own plant waste into plastic-free biodegradable sachets for skincare, helping to

tackle one of Elemis' key packaging dilemmas. In August 2024, **Haeckels** launched a limited-edition Beetroot Candle made with upcycled beetroot extract from its Beetroot Probiotic production.

**RAER Scents**, a natural perfume house, turned surplus perfume ingredients and packaging into €44,500 in revenue. Through **Arkive's** platform, RAER connected with Rodja, an influencer and salon owner. Together, they transformed the leftover inventory into a new product offering, eliminating waste and creating revenue for both brands.



Ever been to a restaurant without a bin? **Silo London** is the world's first zero waste restaurant that creates dishes from ingredients in their whole form. Any leftovers are fermented, pickled, preserved or composted, helping to maximise their potential. The restaurant's furniture and fittings are derived from upcycled and recycled materials too!

## LOCAL COLLABS

Even if there's no in-house waste to be repurposed, there might be an opportunity right around the corner. Renowned for its commitment to upcycling, **UpCircle** collects coffee grounds from local cafés, transforming them into sustainable skincare products. The brand continues to evolve its product range, drawing on the benefits of ingredients too good to waste. **Haeckels** has also developed personal care products from coffee waste through collaborations with **Ozone Coffee Roastery** and **WatchHouse**. **Haeckels x Ozone Exfoliating Coffee Block** is housed in waste coffee cup paper.



BACKYARD BEAUTY: BRAND SPOTLIGHT

# UPCYCLE LABS



Want to reinvent waste back into your business? Upcycle Labs does just that.

Based in the UK, the company transforms unwanted inventory and waste into high-quality décor, store fittings and more, providing an innovative upcycling solution for fashion and beauty brands.

## HOW IT WORKS

First, Upcycle Labs receives your unsorted waste. This could be pre- or post-consumer waste, such as apparel, footwear, accessories, deadstock material, cosmetics & fragrances.

The waste is shredded into a granulate and mixed with a patent-pending solution. A customised mould is developed based on the type of product you'd like to create.

If you no longer have use for the new product, Upcycle Labs can recycle it into something else, providing a fully circular solution.



## SOLUTIONS

In addition to brick, stone and wood-effect materials, Upcycle Labs' solutions include **Metal.Tex**, derived from waste metal, and **Core.Tex** – a unique material for home décor, tiles, shelves and other shop fitting supplies.

Upcycle Labs has an ongoing partnership with a luxury fashion and beauty brand to transform its beauty and fragrance waste into various products including **Brick.Tex** brick slips. These realistic slips are made from 75% waste and are “more sustainable to manufacture” than traditional bricks.

**Footasylum** also partnered with Upcycle Labs to transform unwanted plastic hangers into shop fittings for its stores.

# THE PATH TO NET ZERO

To limit global warming to 1.5°C, as called for in the **Paris Agreement**, global net emissions of carbon dioxide (CO<sub>2</sub>) need to decline by 43% by 2030 and reach **Net Zero by 2050**. **Net Zero** refers to a state where the total amount of greenhouse gases emitted into the atmosphere is balanced by the total amount removed.



## BEYOND OFFSETS

Carbon offsetting has been the subject of much debate. Brands should be careful not to rely on offsetting as a substitute for emissions reductions. Instead, offsetting should be used as a final measure. The **Greenhouse Gloss Report** – developed by **Carbon Trust's Net Zero Intelligence Unit** – puts key beauty brands in the hot seat, revealing that only half of these companies demonstrated awareness of the limited role offsets should play.

The report explains that offsetting “cannot be used to achieve Net Zero” and should only be “an additional step alongside urgent progress on real cuts to emissions.” It also urges that any offsets “meet high standards of additionality, permanence and social impact.”

**Lush** follows a no-carbon offsetting policy with a clear focus on prevention. In conversation with Scandinavian **MIND**, Lush's Creative Buyer, Franziska Götz, explains: “To do this, we need to look at the origin. What is our impact in terms of, for instance, carbon emissions and water usage? Where does the impact happen? Can we reduce it? Can we prevent it? Or, ideally — can the way we source, and the materials we use, count towards net positivity?”

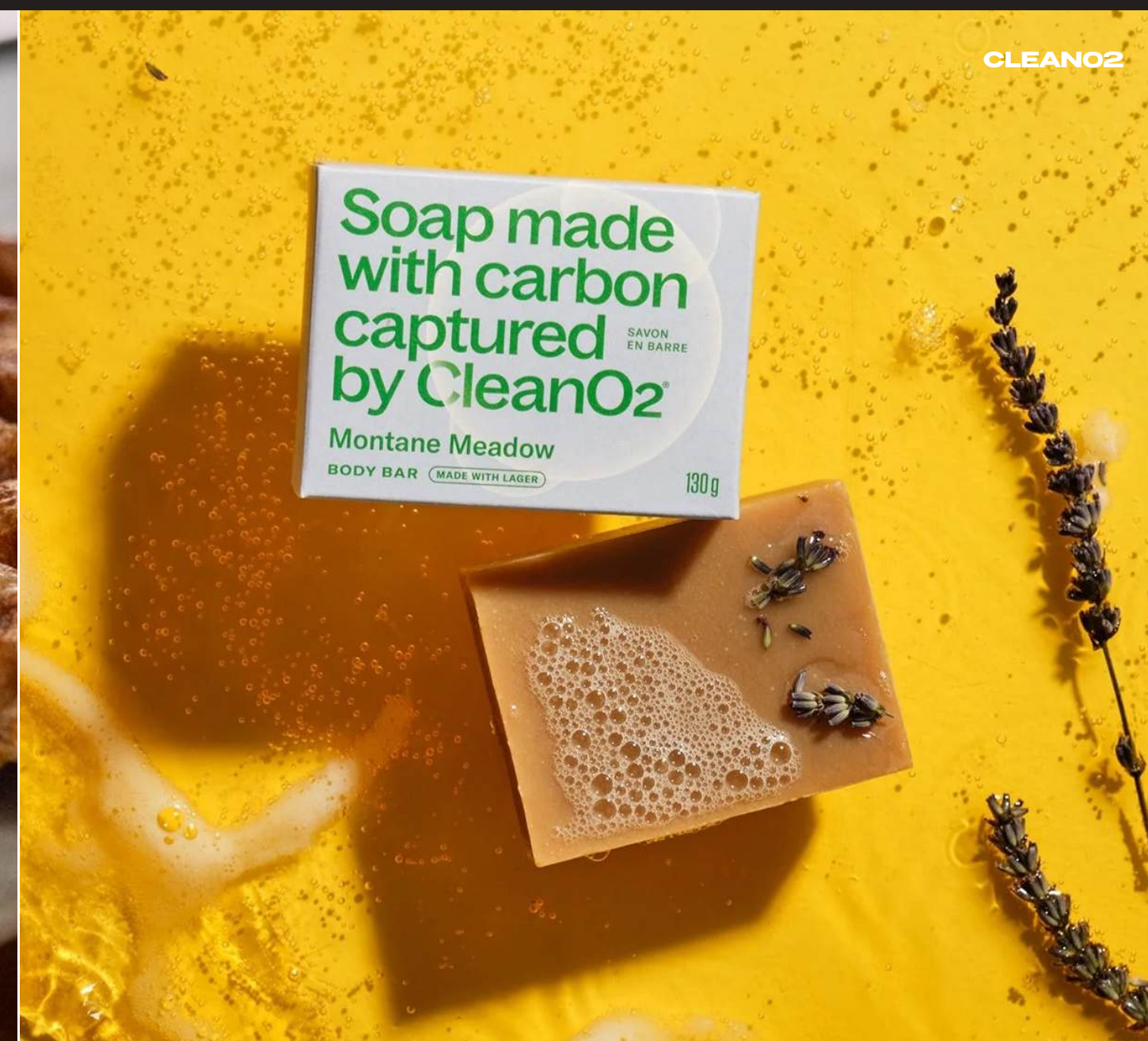
## CARBON CUTS

To accelerate progress towards Net Zero, beauty brands should focus on reducing their most significant source of emissions. The Greenhouse Gloss report reveals that **raw materials sourcing accounts for around 30-50% of the sector's emissions** and should be a priority area for action.

**Evolve Organic Beauty**, a B Corp™ Certified brand, focuses on organic ingredients – said to sequester an average of 3.5 tonnes of extra CO<sub>2</sub> per hectare compared to traditional farming methods – and upcycled ingredients, helping to minimise resource consumption and overall footprint. The brand also uses 100% renewable energy in its “eco studio” with energy-efficient lighting. “[This] makes our scope 1 and 2 emissions close to 0, saving an average of 1kg of CO<sub>2</sub> for every kWh,” the site says.

In May 2024, **the Clarins group** announced its purchase of two vast agricultural spaces in south France. There, it plans to grow one-third of its plants for Clarins products by 2030. The first ‘domain’ – a 50-hectare farmland – uses regenerative agriculture methods and will become a laboratory for studying and researching new plant species.





## CALCULATING CARBON

In June 2024, **CO2 AI** unveiled a first-of-its-kind solution for calculating carbon emissions for thousands of products, helping companies reach their Net Zero targets. Recognising that manual lifecycle assessments are “slow, inconsistent, and costly,” CO2 AI’s **Product Footprinting** tool calculates product carbon footprints using a vast library of emission factors and generative AI. German chemicals company **Symrise** uses the platform to measure product-level emissions for 10,000 raw materials and 90 production sites.

Also leveraging the power of AI, **Vaayu** enables retail brands to track and reduce their environmental impact in real time. **Redcare Pharmacy**, Europe’s leading online pharmacy, partnered with Vaayu to obtain greater product transparency and accurate carbon footprinting for 1,050 SKUs from 194 suppliers.

Anna Tönneßen, Director of Sustainable Development at Redcare Pharmacy, says Vaayu “empower[s] us to be faster while fully data-driven in executing our ambitious Net Zero 2040 strategy.” According to Vaayu, this is the first comprehensive calculation of product emissions for the health & beauty retail sector.

## CREATING WITH CARBON

**CleanO2** is the pioneer of carbon-capture soap. The brand’s founders – Jaeson Cardiff, Kathi Fischer and Scott Forgrave – initially invented a device (**CarbinX™**) for capturing CO2 emissions from building heating systems, transforming it into non-toxic pearl ash (potassium carbonate).

Eager to put the captured carbon to good use, the founders learned that pearl ash could be added to natural soap formulations to create a silky, foamy lather. Thus, carbon-capture soap was born. The brand has since expanded its product lineup to include CO2-sequestered haircare products.

**Savor**, a California start-up backed by Bill Gates, creates fats for the food industry made from carbon. “We start with a source of carbon, like carbon dioxide, and use a little bit of heat and hydrogen to form chains which are then blended with oxygen from air to make the fats & oils we know, love and drool over,” the site explains. “That’s how we get rich, delightful ingredients without animal suffering, palm plantations, or dangerous chemicals. All in the most efficient, most resilient, least polluting way known to science.”

In July 2024, Savor made headlines for its animal-free carbon butter prototype, which is said to “taste really good” and offer the functional properties of traditional dairy butter. The company is currently pre-commercial and working on regulatory approval for the butter. Moving forward, Savor is looking to develop other fat-focused foods including milk, ice cream, cheese, meat and tropical oils.



# AI OPS

Artificial intelligence is helping brands reach their sustainability goals faster – and smarter.

From ingredient sourcing & NPD to comms & reporting, we've rounded up real-world examples of how you can leverage AI to streamline your sustainability initiatives, accelerate decision-making, reduce waste, and optimise efficiency and transparency throughout your operations.

## AI-POWERED FARMING

**Netagrow** is an innovative agricultural technology platform that empowers farmers with AI-driven tools and insights for sustainable growth. With Netagrow, farmers can make informed decisions, optimise their operations, and increase their productivity and profitability.

**Odacité** is an early adopter of AI in manufacturing. Keen to work with the Edelweiss flower, the brand recognised that it would be hard to source and even more challenging to grow. That's where indoor AI-generated farming comes into play. Odacité conducts numerous experiments on the plant in controlled environments, analyses the results, and then supplies the data to AI to craft the "perfect growth recipe."

## PERSONALISATION

AI is proving particularly powerful for personalisation, ultimately helping to combat product waste.

**Haut.AI's Skin Analysis** tool is trained on over 3 million data points for accurate analysis and enables beauty brands to provide hyper-personalised product recommendations and interactive skin assessments. Meanwhile, **Perfect Corp** offers a comprehensive suite of AI and AR tools including the **Virtual Makeup Try-On**, helping online shoppers find their ideal shade match. B Corp™ Certified **Omy Laboratoires** delivers personalised skincare routines by combining customer surveys with an AI skin analyser tool. Developed with dermatologists, **SkinIA** helps customers identify the right ingredients for their specific skin needs.

## NPD & SUPPLY CHAIN

**Makersite**, an AI-powered product lifecycle intelligence platform, helps companies make more sustainable design choices throughout the supply chain. "With over 90% of a cosmetic product's environmental impact determined by design and the materials it's made from, the only way for personal care and cosmetics companies to address sustainability is to change how products are made," Neil D'Souza, CEO & Founder of Makersite, tells CosmeticsDesign.



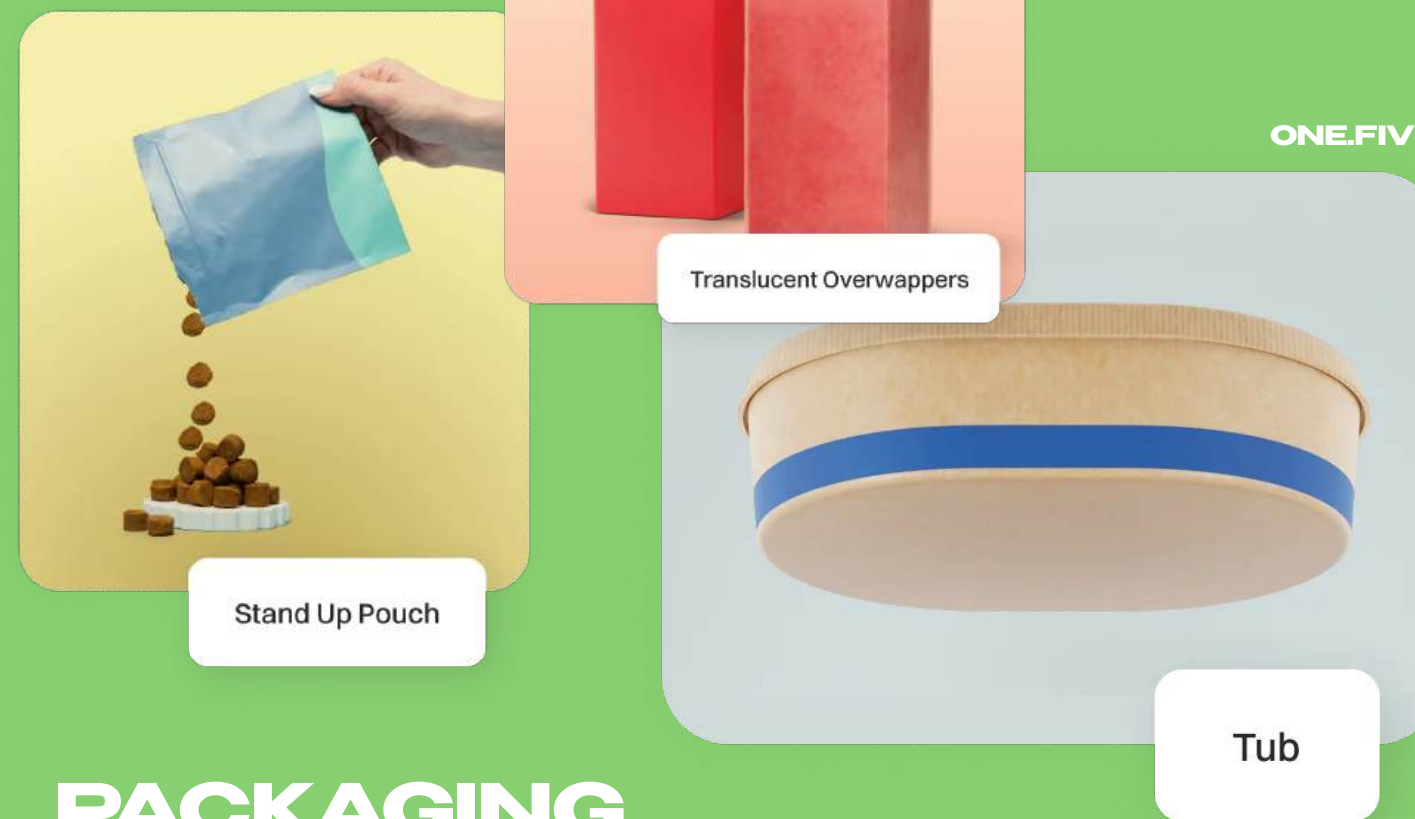
"[Makersite] enables product designers & engineers to find the most profitable trade-offs between recycled content, recyclability, and circularity in a matter of hours."

## SUPPLY CHAIN (CONT.)

**Novi** connects brands, manufacturers, and suppliers, making it quicker and easier to develop products that meet your values and sustainability goals. Powered by AI, the platform enables brands to vet existing products against 125+ regulatory and retailer requirements, discover alternative ingredients for non-compliant formulas, and more. Hair care brand **Odele** uses Novi to help verify its product claims and ensure they meet specific standards for ingredients and packaging.

**Odele** is also one of the 100+ personal care brands that use **Bluebird** – a platform that helps assess, improve, and communicate the environmental performance of products, ingredients and packaging. **Experiment Beauty** leverages Bluebird to analyse its supply chain, sales projections and product usage to provide real-time progress updates on carbon emissions and waste, verify sustainability claims, and inform on packaging options.

Touted as a “Chief Sustainability Officer at your Fingertips,” **CarbonGPT** streamlines sustainability by harnessing “cutting-edge” AI. This cloud-based carbon footprint management platform helps brands simplify compliance, reduce costs, and achieve environmental goals. Features include sustainability data aggregation, reporting, real-time guidance, and smart insights.



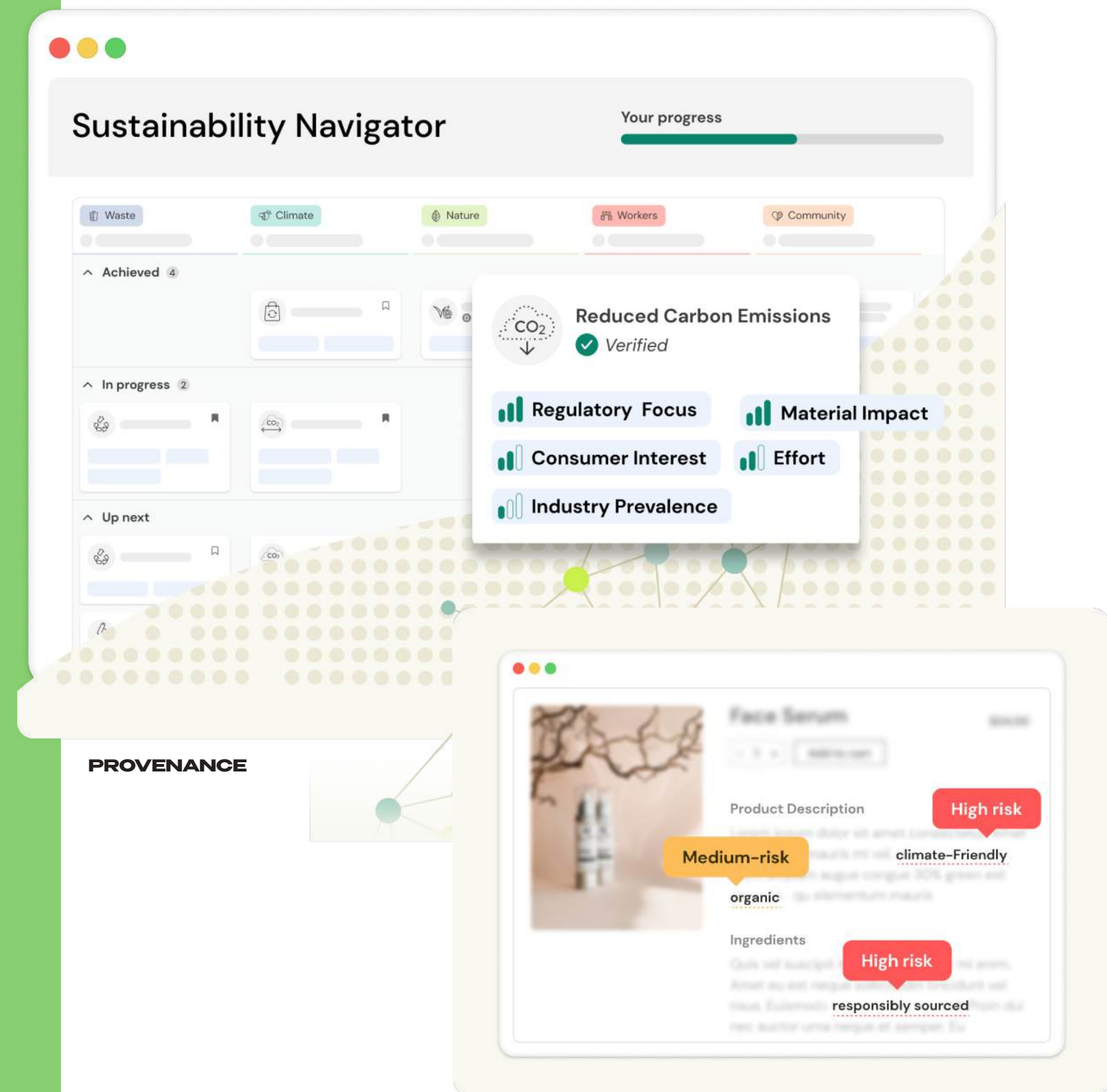
## PACKAGING

German start-up **one.five** is ushering in an AI-powered modern packaging era, redefining the packaging landscape as we know it to deliver “ultimate packaging performance, affordability, and sustainability.”

Claire Gusko, co-founder of one.five, explains why: “There are so many variables, so many data points: material properties, material combinations, processing parameters, unit economics, emissions, end of life processes... It’s impossible for the human brain to consider all of them at once. That’s why we’re working with machine learning and generative AI models. The models will tell us, given this data, what the best solution for this challenge is. Using data rather than subjective human opinion. Generative AI could also look at the performance of known materials combinations, learn to identify similarities in adjacent technologies, and bring materials we’d never thought about together to offer new solutions.”

## SUSTAINABLE COMMS

Towards the end of 2023, sustainability comms platform **Provenance** launched **Sustainability Navigator**. This “first-of-its-kind” AI-driven tool enables brands to obtain custom sustainability advice to evaluate and enhance their sustainability strategies and messaging, pinpoint competitive advantages, and minimise greenwashing risks.





# STANDARDS & REGS

“If we don’t speak the same language, we will never have indicators to share.”

Catch up on the latest ISO and ESPR standards, helping to enhance circularity.

## NEW ISO STANDARDS

In May 2024, the International Organization for Standardization (ISO) introduced three new voluntary standards to foster a shift toward a circular economy. These guidelines will help businesses develop, enhance and measure their circular strategies and standardise terminology.

According to Personal Care Insights, the **AFNOR** (Association Française de Normalisation) says the standards “emphasise the importance of value sharing” and that the transition to a circular economy “is complex and requires a common understanding.”

Roger Ebengou, the Michelin group’s Environment and Circular Economy Director for Europe, who helped draft ISO 59004, echoes this sentiment: “If we don’t speak the same language, we will never have indicators to share.”

### ISO 59004 – Terminology

The ISO 59004 guidelines define key terms and concepts, outline a vision for a circular economy, and provide practical guidance for implementing sustainable practices.

“Adherence to ISO 59004 enables organisations to create and share more value within society while ensuring the quality and resilience of ecosystems, ultimately supporting a sustainable future.”

### ISO 59010 – Strategy

ISO 59010 complements ISO 59004 by supplying more comprehensive guidance on “assessing current value creation models, mapping value chains and value networks, and developing strategies for circularity.”

Put simply, this standard is designed to help organisations more effectively transition from a linear to a circular framework.

### ISO 59020 – Measurement

ISO 59020 provides a clear and structured framework for measuring and assessing circularity performance.

ISO says it offers organisations a way to “quantify progress and demonstrate commitment to sustainable practices, enhancing transparency, accountability, and stakeholder trust.”



## NEW ESPR STANDARDS

In a landmark move towards a more sustainable future for the European Union (EU) and hopefully beyond, the **Ecodesign for Sustainable Products Regulation (ESPR)** officially came into force on July 18, 2024. This regulation is a cornerstone of the European Commission's strategy to promote environmentally sustainable and circular production, which has significant implications for beauty and personal care.

**The primary aim of the ESPR is to enhance the circularity, energy performance and overall environmental sustainability of products available in the EU market.**

Replacing the Ecodesign Directive 2009/125/EC, the ESPR establishes a framework for setting specific ecodesign requirements across nearly all categories of physical goods (with some exceptions, such as food and feed).

### These requirements aim to:

- Enhance product durability, reusability, upgradability and reparability
- Improve energy and resource efficiency
- Address substances that hinder circularity
- Increase recycled content in products
- Facilitate easier remanufacturing and recycling
- Set rules for carbon and environmental footprints
- Provide better information on product sustainability

The regulation also introduces several groundbreaking measures, including:

#### DIGITAL PRODUCT PASSPORT

A digital record containing detailed information about the product's sustainability.

#### DESTRUCTION OF UNSOLD PRODUCTS

Rules to prevent the destruction of unsold consumer products.

#### GREEN PUBLIC PROCUREMENT

Encouraging public sector procurement to prioritise environmentally sustainable products.

For the beauty and personal care industry, the ESPR presents **both challenges and opportunities**. Brands must innovate to meet the new ecodesign requirements, ensuring their products are more sustainable from production to disposal. This will involve reformulating products to increase the percentage of upcycled materials and remove potentially harmful substances. Packaging design will need to focus on eliminating, reducing and reusing or, at the very least, providing better recyclability.

**By embracing these changes, the personal care industry can play a pivotal role in driving the EU towards a more sustainable future.** The ESPR not only aims to protect the environment but also encourages businesses to adopt more sustainable circular practices, ultimately fostering a more regenerative and resilient economy in the long term.



## STRUGGLING TO KEEP UP WITH THE NEW EU REGULATIONS?

We hear you!

CircuLaw has published the most comprehensive, up-to-date and clickable overview of the EU Green Deal Legislation in a clear, logical and visual format.

**[ACCESS IT HERE](#)**



IMAGE CREDIT: ODACITÉ

# OUR POV: THE FUTURE OF OPERATIONS

## 1. AI TAKEOVER

As evidenced by the Greenhouse Gloss report, the beauty and personal care sector must take more action to **address emissions** from sourcing raw materials. **AI tools will help measure this impact** and solve sustainability challenges so stakeholders can make smarter decisions faster.

In an industry where greenwashing is prevalent, these technologies will also help brands **validate claims and deliver greater transparency.**

## 2. GOING CIRCULAR

More brands will adopt a **“design-in” waste model**, proactively incorporating waste into their operations to **create value** rather than viewing it as a burden. Where waste can’t be avoided, brands will consider reinjecting it back into their operations or donating it as a valuable resource to other industries. Platforms like **Arkive** and **Boop** enable this, providing **new economic opportunities for surplus inventory.** “It’s not waste when it’s wanted,” says Yasmine Amr, founder of Boop.

With new standards and regulations emerging, there’s **no excuse for brands to overlook circular design.** In the words of Nick Jeffries, the Ellen MacArthur Foundation’s Senior Network Expert, **“there is no zero or low-carbon future without the circular economy.”**

## 3. SUPPORTING LOCAL

The circular economy thrives on **collaboration.** We’ll witness a rise in partnerships between beauty brands and local or national businesses. **Covalo’s** 2024 analysis of top-performing upcycled ingredients revealed a trend towards **locally sourced materials** and a focus on **preserving regional biodiversity.**

**“Shortening the supply chain is one of the pressing topics for some of the biggest brands we’ve talked to this year,”** Covalo reveals.

“Finding suppliers closer to their production site, with a local, shorter, faster value chain, becomes a priority for multinationals.”

**BONUS  
CONTENT:  
MATERIAL  
SPOTLIGHT**

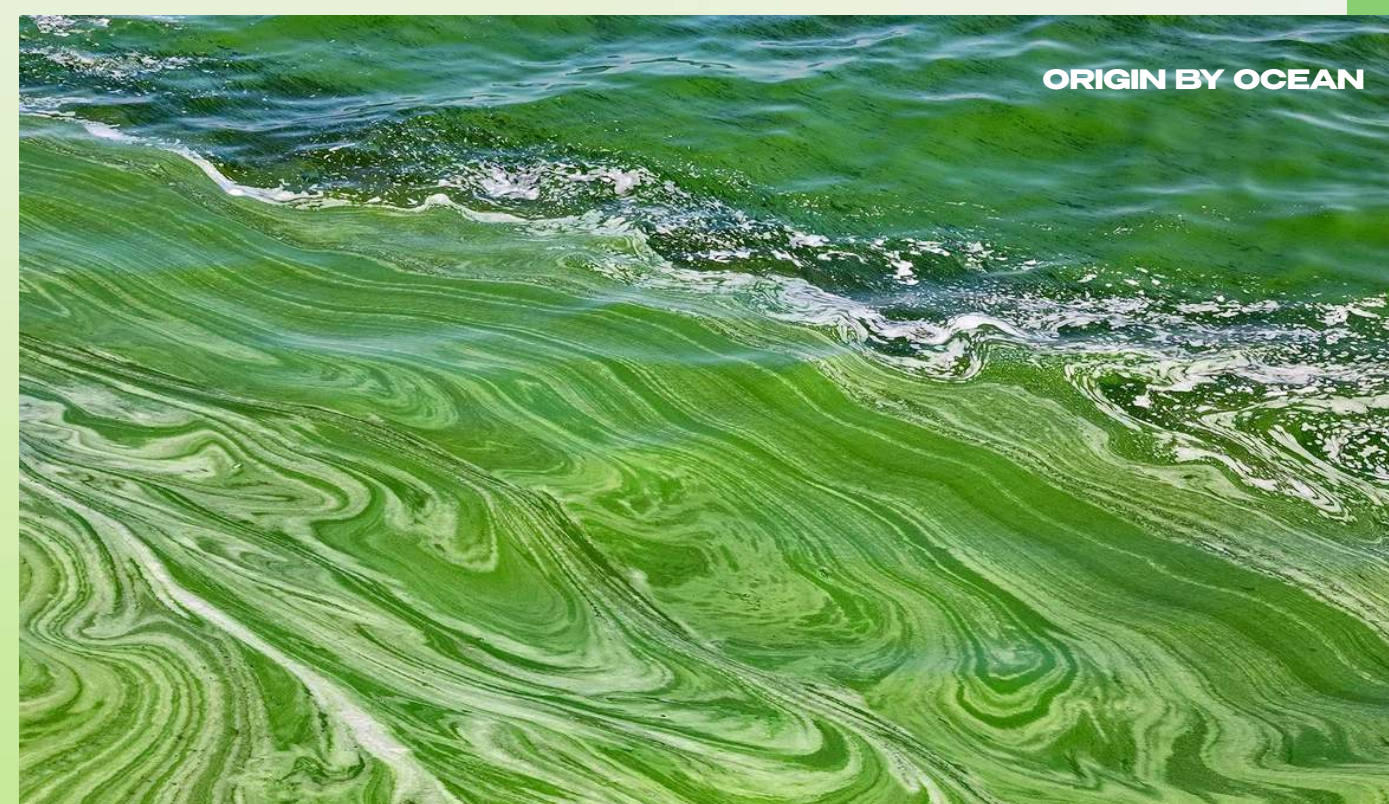
## MATERIAL SPOTLIGHT

# SEAWEED & ALGAE

Marine algae, including seaweed, is making waves in many industries and paving the way for more sustainable product development.

Seaweed is a renewable and versatile resource that sequesters carbon and requires no land use. According to the [World Bank](#), seaweed production and improved value chains provide both economic and environmental benefits and could contribute to meeting at least 9 of the 17 U.N. Sustainable Development Goals.

From ingredients to packaging, we've curated a selection of new and noteworthy algae innovations...



## INGREDIENTS

On a mission to “build a big kelp economy for a low carbon future,” US start-up [Macro Oceans](#) transforms kelp into high-performance marine bioactives and custom biomaterials for the beauty industry and beyond.

The brand's first product is **Big Kelp Hydration™** – a sustainable skincare ingredient derived from Alaska seaweed. In a [clinical trial](#), Big Kelp Hydration™ delivered 80% more hydration than a placebo, and supports sensitive, irritated skin. Any seaweed leftovers that lack bioactive properties aren't wasted – instead, they're used for products like seaweed-based paper and plastic.

Eutrophication, the excessive growth of algae in a body of water due to nutrient pollution (pictured left), can lead to a [cascade of negative consequences](#). Finnish company [Origin by Ocean](#) removes marine overgrowth from eutrophied shores, transforming it into functional ingredients for consumer products including food, cosmetics and packaging. The ingredient portfolio includes a film former, UV booster, seaweed proteins and antioxidants.



**“With its ability to sink carbon, sustain marine biodiversity, employ women, and unlock value chains, seaweed farming demonstrates how development, climate, and nature work together to generate value and uplift communities.”**

**The World Bank, Global Seaweed New and Emerging Markets**



HAECKELS

## INGREDIENTS (CONT.)

Scotland-based **OCEANIUM** develops functional seaweed ingredients for various industries sourced from regenerative farms, ensuring traceability, transparency and provenance.

The brand's skincare active, **OCEAN ACTIVES® C+**, calms, restores, and enhances the skin barrier and is clinically proven to reduce redness. OCEANIUM has also developed **OCEAN INK®** – “the world’s first sustainable and fully biodegradable water-based ink derived from sustainably sourced seaweed.”

Founded in 2015, biotech company **ALGAKTIV®** specialises in natural skincare actives derived from microalgae. The ingredient lineup comprises 15 high-performance actives including an innovative retinol alternative, **ALGAKTIV® RetinART**.

## ALGAE-INFUSED FORMULAS

UK wellness brand **Hæckels** is renowned for its sustainable seaweed-infused formulas. The company harvests seaweed along the coasts of Margate (UK) and Osaka (Japan), focusing on several varieties including kelp, wrack, purple laver and dulse. The latter, abundant on the English coast, produces mycosporine-like amino acids which have also been studied for their UV-protecting properties. It's featured in **Seaweed Solar Protect SPF 50+**.



OCEANIUM

Launched in August 2024, **MERIT's Great Skin™ Priming Moisturiser** breathes new life into algae waste. It's formulated with Great Skin Complex™ – a proprietary innovation containing a blend of peptides, spermidine and polysaccharides derived from a by-product of arctic microalgae grown in Icelandic reactors for the food industry.

**KMS Hair** also champions algae by-products with **CONCIOUSSTYLE Beach Style Crème**, formulated with upcycled Sargassum seaweed.

## VLYD'S KELPON

Meet the world's first tampon made from seaweed. Developed by German start-up **Vyld** (pronounced “Wild”), the Kelson is biodegradable on land and water and certified by **MyMicrobiome** as microbiome-friendly.



# SEAWEED & ALGAE

## PACKAGING & MATERIALS

Beyond its beauty benefits, seaweed is a goldmine for packaging. It's biodegradable and offers strength and flexibility for various packaging applications.

Unlike plastic, which can take hundreds of years to decompose, seaweed packaging can be composted at home and breaks down within 4-6 weeks. According to Notpla, a small fraction of the ocean's surface area – just 0.066% – could produce enough seaweed to replace all single-use plastic.

Winner of the 2022 Earthshot Prize, **Notpla** is a family of regenerative packaging materials made from seaweed and plants designed to disappear. But the team behind Notpla recognises they can't champion change alone. They've partnered with seven other material innovators, including **traceless®** (featured in our 2024 report), to form the **Natural Polymers Group**, with a mission to establish nature-based materials as the mainstream solution to plastic.

Here, we've spotlighted the other six coalition members who are turning the tide on plastic together...



### LOLIWARE

The world's first seaweed resin company. SEA Technology is a new category of resins made from regenerative, carbon-capturing, ocean-farmed seaweed.



### SWAY

A start-up specialising in seaweed-based compostable replacements for plastic, starting with flexible packaging. Sway's lineup includes seaweed polybags, films and resin.



### PLANTSEA

A Welsh firm focusing on seaweed-based films including PlantSea Pods, ideal for personal care. Any leftover seaweed is used to create PlantSea Paper and Punnets.



### ZEROCIRCLE

This biotech company specialises in ocean-safe materials from seaweed, including food-safe coatings, films and tree-free seaweed paper.



### XAMPLA

The makers of Morro – a range of plastic-free, plant-based materials that are strong, natural and fully biodegradable. Includes Morro Micro, an alternative to plastic microcapsules.



### MARINATEX®

Winner of the 2019 James Dyson Award, MarinaTex® is a new material made from seafood waste and algae. It offers a planet-conscious alternative to plastic films.



# DISCOVER MORE: JOIN THE UPCYCLED BEAUTY COMMUNITY!

Scan the QR code using your smartphone camera to join our upcycled beauty community on LinkedIn.

BE INFORMED. BE INSPIRED. TAKE ACTION.



Certified



Corporation

# ABOUT

## THE UPCYCLED BEAUTY COMPANY

The Upcycled Beauty Company is on a mission to help beauty and personal care brands reduce and reuse waste. Since 2017, we've been committed to demonstrating how the beauty industry can thrive by solely using upcycled materials, from ingredients to packaging.

**BE INFORMED:** We're proactively changing the perception of waste and bringing upcycling into the spotlight.

**BE INSPIRED:** Resources such as this Zero Waste Beauty Report are freely provided to help raise awareness of the upcycled beauty movement.

**TAKE ACTION:** Helpful tools like the [Upcycled Ingredient Directory](#) allow researchers and brands to access upcycled ingredients easily.

We want to ensure there are zero barriers to circularity and make upcycled ingredients accessible to all – that's why we also offer a range of fully [upcycled actives](#) from plant-based materials too good to waste. These ingredients empower forward-thinking brands to create innovative beauty products that make better use of our precious resources without compromising quality or efficacy.

## COVALO

Covalo is the world's largest ingredients platform for the consumer goods industry. With more than 80,000 ingredients listed, Covalo helps consumer goods companies bring products to market faster.

Covalo is also the ingredients platform with the largest focus on sustainability, reflected not only on the ingredients and suppliers listed, but also in the tools provided within the platform to make navigating the greenwashing complexity easier. A good example of that is RESA - Covalo has partnered with the Swiss Data Center to co-develop the industry's first Recommendation Engine for Sustainable Alternatives. This tool will assess over 67 sustainability indicators, ranging from the natural origin of ingredients to their biodegradability and the supplier's social responsibility.

Today, Covalo is already connecting 6,000+ brands to 1,000+ suppliers globally. You can find [more than 430 upcycled ingredients](#) on [covalo.com](#).