



ZERO
WASTE
BEAUTY
REPORT

Created in collaboration with
Covalo x in-cosmetics

 Covalo x in-cosmetics™

2024

Makeup Re-Wined

Transforming jelly
oil cleanser

KRAVEBEAUTY

3.4 FL.OZ. e 100ML



Welcome

We invite you to explore the Zero Waste Beauty Report 2024, our annual forecast of the latest trends.

In light of Earth's dwindling resources and the overwhelming waste crisis, the world has turned its attention to the zero waste revolution. It's a global movement that's not just trending, it's reshaping the future. Picture a world where waste is not a burden but a resource reborn, where the throwaway culture gives way to a circular economy. This future-proof transformation is fueled by seven mighty principles: redesign, reduce, reuse, repair, renovate, recycle, and recover.

As companies, big and small, rally to clean up their supply chains and minimise environmental impact, one industry radiates with promise - the beauty sector. From getting creative with raw materials to packaging innovations, this report lifts the lid on forward-thinking examples of beauty's zero waste marvels. We'll unveil the world's first upcycled 'extrait de parfum,' introduce

you to self-emulsifying cosmetic bases, and reveal biomaterials that are stronger than petroleum-based plastics (just to name a few!).

Beyond cosmetics, this is a deep dive into every nook and cranny of the entire supply chain including ways to greener manufacturing. Did you know the global economy is just 7.2% circular, while a whopping 72% of the population yearns for a circular world?! With these shocking numbers in mind, we bring you pioneers who are reimagining the landscape, where manufacturing meets responsibility.

ARE YOU READY TO TAKE ACTION?

Join us as we embrace circular practices, radically rethink business models and close the loop in the supply chain.

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Section 1

INGREDIENTS & FORMULATIONS

*The data was taken from
a rich sample of 400
ingredients listed on Covalo.

We've teamed up with [Covalo](#), the data platform for the consumer goods industry, in a collective effort to make the industry more sustainable, transparent, and innovative.

According to Covalo, the term "upcycled" entered the top 20 most searched keywords by formulators. And with these statistics* in mind, I think we know why!

PERFORMANCE

Upcycled ingredients have 2x more claims substantiation than the average listed ingredients. And it goes far beyond the expected sustainability claims as these eco-champs have the performance to back it up with anti-aging, moisturising, antioxidants, and UV.

PRICE

1 in 10 upcycled ingredients proudly carries the "[economical](#)" tag, while 0.01% of regular ingredients can claim the same. This isn't necessarily indicative of a lower average price, but a clear response to the myth that upcycled ingredients are more expensive.

100 APPLICATIONS

The existing upcycled portfolio can be the solution for 100 applications across the Personal Care industry (talk about versatility!), where Body Care and Skin Care are the most covered applications.

56 FUNCTIONS

From a sample of 400 upcycled ingredients, it turns out these heroes can do it all – covering a whopping 70% of ingredient functions, from actives to emulsifiers, and antioxidants to emotive ingredients!

CERTIFIED

Upcycled ingredients have 150% more certifications than the average ingredients. What's more, almost 80% of the upcycled ingredients are [ISO 16128](#) or [COSMOS](#) certified/approved.

INDIE-FRIENDLY

Roughly 15% of the ingredients available are marked as indie brand friendly. This means that upcycled ingredients can better accommodate small brands low MOQs (Minimum Order Quantities) and negotiate to meet their unique needs.

Reduce & reuse

From fruity fibres to magical mushrooms, here are 3 ways to reduce and reuse waste in the beauty industry...

01 FIBRES OF THE FUTURE

More and more brands are using sustainable natural fibres to cultivate their next big product. While mycelium is a natural upcycled bio waste that is as safe to put on the skin as it is to eat, citrus fibres are a by-product derived from agro waste that have heaps of benefits across a wide range of active skin and hair care formulations. Let's dive into this further...

The waste derived from processing citrus fruit comes from a variety of industries such as juicing. This agro waste, whether it's citrus seeds, peel, pulp, or pomace, represents "practically half of the fresh fruit mass," says [Applied Food Research](#). So, why waste it? It's a rich source of bioactive phytochemicals,

antioxidants, vitamins C and E, and polyphenolics that can be used in a number of active skin and hair care formulations from shampoos and conditioners right through to face creams, serums, and lotions. What's more, citrus fruit fibres not only make products smell amazing but can have anti-collagenase and anti-elastase potential.

Finix®

Since 2021, [PeelPioneers](#) have been converting over 50,000 kilos of peel per day into essential oils and citrus fibre at their Peel factory in Den Bosch, Netherlands. The result? Finix® citrus fibre that uses upcycled orange peels to create natural, texturized formulations that are as good for the skin as it is for the planet. Neutral in odour and colour, it can be used to create rich light creams and a homogenous powder which, when combined with water, creates a feel good foam.

**FRUIT WASTE IS
'PRACTICALLY HALF
OF THE FRESH
FRUIT MASS'**





Let's not forget the fibre making headlines this year: mycelium. This magical mushroom is the latest buzzword in the packaging industry, but there are new developments in all things formulations. While the cosmetics industry is no stranger to mushrooms as an ingredient (hello reishi, tremella, and shitake), mycelium is starting to make its way into skincare for its anti-inflammatory properties and ability to naturally brighten the skin.

If you haven't already heard, mycelium is the vegetative tissue of mushrooms that is emerging as a highly tunable, self-growing, biodegradable, and low-cost biomaterial that taps into several trends in the zero waste movement. It's food-safe, fully-biodegradable, and uses minimal energy in the production process.

Shroom Skincare

New York-based [Shroom Skincare](#) is a new line fueled by the power of mushrooms. Their first product, Mycelium Glow Brightening Serum, combines the power of mushrooms and vitamin C to enhance skin radiance, balance skin tone, and provide a vibrant and healthy complexion.

QMILK

One company that has opened up exciting new opportunities for beauty and personal care formulators is [QMILK](#). Did you know 2 million tons of milk are disposed of in Germany every single year?! As pioneers in sustainable products and manufacturing, QMILK is spinning sour milk into silky fibres... and they are claimed as having the smallest CO₂ footprint of all fibres around the world!

The German-based company upcycles non-food milk protein and renewable raw materials. Their patented process opens up possibilities for new material combination properties, including soft as silk, antibacterial, regulating climate, skin protecting, hydrophilic - just to name a few! Taking their environmental pledge one step further, the circular company has also recently launched a line of cosmetics including intensive cream, intensive serum, natural skin care, and skin oil.

QMILK IS SPINNING

SOUR MILK INTO

SILKY FIBRES

02 THE DIVERSIFICATION OF WATER

Freshwater is a precious natural resource that we need to conserve. In fact, the UN has listed the sustainable management of water as one of its main priorities for the [2030 agenda](#). But as an inexpensive filler, water has always been a top ingredient for beauty brands. In fact, the average skincare product contains [between 60% and 85% water](#).

But seeing as two-thirds of the world's population is expected to face water shortages by 2025, it's obvious that traditional skincare products need to be reimagined to deliver a water secure future. Here are some of the ways that beauty brands are tapping into the concerns about water shortage...

Say no to H₂O

More and more consumers are saying no to H₂O. Waterless – or anhydrous – beauty is yet another K-beauty trend that's making its way to mainstream. Driven by a combination of ethical concerns and new developments in

packaging, brands are starting to experiment with water-activated powders, bars, and balms. These waterless products not only significantly reduce water waste but cut down on product weight, allowing brands to reduce their overall carbon footprint. Win-win!

JEESPERSE®

JEESPERSE®, for example, is a patented range of self-emulsifying bases for hair care applications that completely reinvents the emulsification process.

Developed by [Vantage](#), NoLo N1 and C2 are new additions to the range that open up new possibilities for sustainable, cold, and low-energy processes for manufacturers.

Our new, low energy Jeesperse NoLo emulsification system helps beauty brands easily develop customisable, water-free formulations, which are sought after as the personal care industry focuses on sustainability.

- Sebastien Massard, Global Director, Strategic Marketing.

**2/3 OF THE
WORLD'S POPULATION**
IS EXPECTED TO FACE WATER
SHORTAGES BY 2025

YET...

THE AVERAGE SKINCARE
PRODUCT CONTAINS
**BETWEEN
60% - 80% WATER**

**GIN TONIQ® USES WATER
RECLAIMED FROM THE
GIN MAKING PROCESS**



Alternative sources

Another great way to tackle water shortages is by looking at alternatives to freshwater sources. We, The [Upcycled Beauty Company](#), as a cosmetic raw materials manufacturer, have a circular solution to the water crisis. We create natural, upcycled, and zero waste ingredients for beauty and personal care formulations. We offer a range of sustainable water-soluble active ingredients that are cultivated from by-products of food and drink production, and manufactured using no additional water or water processing.

Gin TONIQ®

Gin TONIQ®, for example, is a hydration-rich active that is derived from a gin distillery less than 30 miles from our manufacturing site. For every bottle of gin produced, we divert four litres of waste. The active also contains water reclaimed from the gin-making process present in the upcycled grain ferment and no additional water is used in the production. No new materials are created and no existing resources are wasted. This postbiotic ingredient quenches thirsty skin by offering long-lasting hydration & delivers 3 x more moisture than glycerine alone.

ODYCEA

Another manufacturer that's increasing the natural and organic rates of cosmetic formulas, while protecting scarce resources is [ODYCEA](#).

They are a French company who specialises in the research and production of rare bioactive substances from marine, plant, and mineral origin. BSB award-winning Floralg Water®, for example, is a biological algal water coming from the hydro-diffusion process taking place during the slow drying of the red seaweed: *Palmaria Palmata*. This cutting-edge ingredient is 100% upcycled and can be used in formulations to replace purified water.



After receiving a BSB Award in Germany for its positive impact on the environment, Floralg Water has now obtained organic certification! This organic algae water can be incorporated into formulations, helping boost the overall percentage of organic ingredients.

- ODYCEA



03

FINDING VALUE IN FOREST WASTE

More and more beauty brands are offering a sustainable alternative to palm, fossil, and food origin ingredients by finding value in forest waste, and formulating products based on nature's biocapacity.

Innomost

[Innomost](#) is a great example of how side streams can be upcycled into cutting edge ingredients for cosmetic products. They have joined forces with [Metsä Group](#), a Finnish forest industry company and a birch wood processor in Europe, to produce bioactive compounds from upcycled birch bark. Their portfolio of nature-based multifunctional ingredients includes birch charcoal powder, birch bark powder, betulin, suberin and azelaic acid, and can be used in a wide range of products including skin, hair, body, and oral formulations. "We are on top of the new beauty trend for upcycling, zero waste and full-cycle natural cosmetics", says Innomost CEO Sami Selkälä.

Santalwood™

An ingredient that's working hand-in-hand with innovative technologies is Santalwood™ biofunctional. Obtained from upcycled wood chips, Santalwood™ is the first biofunctional to be developed by [Ashland](#) with Artificial Intelligence (AI). It works to defy skin ageing by transforming its appearance from dull and lifeless to vibrant and glowing.

Charcoal CRUSH™

Charcoal CRUSH™ is another hardworking active that works to divert forest waste. Known for their oil-absorbent and cleansing properties as well as its intense black pigment, these powders have been sourced from only the most sustainable upcycled British charcoal. Made from small pieces of leftover charcoal that is derived from oak fencing offcuts, the collection consists of three unique grades including skincare scrubs and an active powder that are 100% natural, vegan and cruelty-free.

CHARCOAL CRUSH™

DIVERTS FOREST

WASTE



La Bouche Rouge

Another company championing zero waste is the French clean beauty brand, [La Bouche Rouge](#). They have created the world's first upcycled "extrait de parfum" with the launch of five natural and refillable fragrances: Rouge, Nude, Monet, Ambre and Rose. Utilising raw material waste from the perfume, design, and food processing industries, the new collection blends luxury with an eco-conscious mentality. While the cedarwood essence is made from sawdust left behind at a woodcutting factory, other scents are crafted from flowers collected after celebratory ceremonies.

The background of the entire page is a close-up, high-resolution photograph of several orange slices. The slices are arranged in a slightly overlapping pattern, showing the vibrant orange color of the pulp and the white pith. The lighting is bright, highlighting the texture of the fruit segments.

UPCYCLED BEAUTY POV

The future of formulation

2024 brings a new chapter for the Beauty and Personal Care industry - one shaped by climate change, the scarcity of natural resources, and sustainable development as well as the wants, needs, and values of today's consumer. Beauty citizens are on the lookout for hardworking products that do more for both the user and planet.

Now, more than ever, there's pressure on brands to be more transparent. To empower consumers for the green transition, the European Council and Parliament have reached provisional agreement on the Green Claims Directive. This new directive bans vague environmental claims, like 'eco' or 'natural,' unless rigorously proven.

Co-create future with consumers

While today's consumer has given rise to new expectations, it has also opened up opportunities for beauty brands to seize. [According to alliedmarketresearch](#), the estimated market size of upcycled cosmetic ingredients was valued at \$231.5 million in 2021 and expected to reach \$433.5 million by 2031. With circular beauty driving cosmetics for the years ahead, formulators have a unique opportunity to co-create their futures in tandem with the environmentally conscious consumer. Nicola Bowyer, Business Development Manager for personal care at Alfa Chemicals says it's less about reformulating and more about "looking at the sourcing itself."

"Take it up another level by finding the same sort of ingredients with better traceability or from a better source, in terms of a by-product," she said.

The age of the expert

Consumers are testing the limits of beauty innovation like never before. From brands being honest about their 'clean' beauty claims, to sustainable and scalable ingredients processing, beauty

consumers are becoming more discerning about the processes involved in what they buy.

According to Covalo, on the industry side, the "upcycled" filter went from being the number 10 most used "sustainability claim" filter in 2021, to being number 3 in 2022, and the second most sought after sustainability claim in 2023, only surpassed by "natural".

As consumers become more selective and legislation is changing to prevent greenwashing, brands can build trust by making claims that are backed by data, efficiency results and certifications. "We are speeding into the age of the expert. For beauty and wellness this equates to research, testing, proof points and facts that will foster understanding, trust, and positive sentiment among audiences," says Martin Raymond, co-founder of The Future Laboratory.

It's more important than ever for brands to get on board with certifications. The Upcycled Certification Standard, for example, aims to provide a consistent message regarding the value of upcycled materials to create a common identity for the upcycling movement.

Section 2

PACKAGING & MATERIALS

Brands are offering more and more biodegradable, compostable, and recyclable packaging options. But what exactly do these terms mean?

While biodegradable packaging breaks down into compounds and is consumed by living microorganisms, compostable packaging disintegrates into non-toxic, natural elements through the combination of microorganisms, humidity, and heat. Recyclable packaging, on the other hand, is recovered or diverted from waste and reused instead of using new materials. It's important to note that some recycling claims can be deemed 'greenwashing' because a lot of mixed plastic and dyed plastic is not readily recyclable.

According to the [European Commission](#), a whopping 53% of green claims can result from unfolded information and could be deemed

'wishcycling'. To combat misleading information, the European Council and Parliament have reached provisional agreement on the Green Claims Directive. This new directive bans vague environmental claims unless rigorously proven.



Some environmental claims are not reliable, and consumer trust in them is extremely low. Consumers can be misled, and companies can give a false impression of their environmental impacts or benefits - a practise known as greenwashing. With a proposed new law on green claims, the EU is taking action to address greenwashing, and protect consumers and the environment.

- European Commission





BIOGRADEABLE

BREAKS DOWN INTO COMPOUNDS
AND IS CONSUMED BY LIVING
MICROORGANISMS

COMPOSTABLE

DISINTEGRATES INTO NON-TOXIC, NATURAL
ELEMENTS THROUGH THE COMBINATION OF
MICROORGANISMS, HUMIDITY, AND HEAT

RECYCLABLE

IS RECOVERED OR DIVERTED FROM
WASTE AND REUSED INSTEAD OF
USING NEW MATERIALS



**THE FUTURE-PROOF
PACKAGING HARNESSING
THE POWER OF UPCYCLED
BAMBOO**

Innovation meets sustainability

Welcome to the ever-evolving world of beauty packaging and materials. It's a place where innovation meets sustainability, and together, manufacturers and brands alike are redefining the beauty industry.

01 PLANT-POWERED PLASTIC

Did you know [40% of plastic production is used for packaging, only used once, and then discarded](#)? What's more, plastic takes anywhere between 20 to 500 years to break down! Seeing as 120 billion units of personal care packages are produced and thrown away every year, it's more important than ever to look for materials that are landfill biodegradable, home compostable, or easily recyclable.

Upcycling agricultural waste is the next-gen way to replace plastic that 'makes no compromises along the supply chain'. And, it's in demand! According to McKinsey & Company,

compostable and bio-based sustainable packaging rank high in global consumer preference. With this in mind, here are 6 companies bang-on-trend...

Clement

Sourced in China, [Clement](#) offers plant-based, sustainable packaging with a future-proof disposal system. They upcycle bamboo from the construction industry and use bioresins made by fermenting plant stocks such as sugars, grasses, and vegetable oils. This curbside compostable blend means users will be able to rinse and toss empty packaging straight into their green or brown compost bin.

traceless®

Using plant leftovers from the agricultural industry, [traceless®](#) is a German-founded novel biomaterial that truly leaves no trace. Regenerative by design and sustainable in all aspects, traceless® materials are a natural, bio-circular plastic alternative that is plant-based, plastic-free and home compostable.

PlantSwitch

Creating plant-based food service products, such as straw, cutlery, and takeout, Texas-based [PlantSwitch](#) is not only more sustainable but also stronger than petroleum-based plastics. By turning plants into plastic, this revolutionary company creates compostable, high-performance, and affordable packaging. This next-gen company has made it their mission to replace all petroleum-based single-use plastic with plants!

REGEN™

[REGEN™](#) is a compostable, non-toxic, and certified biobased bioplastic that is made from renewable raw material, instead of fossil-based raw materials. It's produced by fermentation technology, using non-edible feedstock.

Based in Canada, REGEN™ is compatible with the standard plastic value chain and is known for its lightweight, impact resistance, and tensile strength. In fact, it has excellent physical and mechanical properties comparable to those of traditional oil-based resins.

Nohbo

Innovating on ways to solve the plastic waste problem, Florida-based [Nohbo](#) is a material science company that encapsulates personal care products in drops that melt away.

Sulapac®

[Sulapac®](#) can help beauty brands to replace conventional plastic with materials that are not only sustainable but beautiful and functional (like nature). They make sure no microplastic or toxic loads are left behind, and meet the quality standards by the world's most luxury brands!

Unlike traditional plastics, the bio-based and biodegradable Sulapac® materials are as safe for people as they are for the planet.



Recycled content has always been part of our recipe, as all the wood material we use is a byproduct of the forest industry.

- Sulapac®







**WOOD CONSUMES 10%
OF THE WORLD'S ANNUAL
GREENHOUSE GAS EMISSIONS**



TREE FREE PAPER

How good is wood? While it's one of the most recyclable materials in nature, harvesting wood has a surprisingly high carbon footprint. The environmental non-profit, [World Resources Institute \(WRI\)](#), estimates that wood consumption accounts for around 10% of the world's annual greenhouse gas emissions. That's more than all the world's passenger cars combined. And, with the planet on track to harvest 50% more wood by 2050, it's clear that brands need to reimagine their paper and cardboard consumption.

According to [Reuseabox](#), it takes around 5 trees to make 1 tonne of cardboard, producing approximately 1,950 average sized packing boxes. This means 1 tree is needed to make just 390 boxes. What's more, cardboard can't be recycled infinitely. The more it's recycled, the more the fibres are stretched, affecting the quality of the cardboard. To address this issue, manufacturers add in a proportion of new pulp to reinforce the box. So, even when consumers recycle cardboard, it's likely that more trees will be cut down.

James Cropper

One company that has reimaged their cardboard packaging for the future is [James Cropper](#) with the launch of Wainwright Colours from Nature. Available in the shades Limestone and Herdwick Brown, the packaging is made with 100% recycled fibre including inedible rosemary extract and dyed with natural ingredients.

“Our Wainwright Colours from Nature is a fantastic demonstration of both our in-house colour capability and our FibreBlend upcycling technology. We started investment in our unique recycling infrastructure back in 2013 with our CupCycling facility – the world's first recycling process dedicated to upcycling take-away coffee cups. We have continued to advance the circular value chain with the launch of Rydal Apparel, repurposing waste denim into papers for beautiful packaging. Being selected to feature in the Luxe Pack Green area for our latest papers for packaging is a huge testament to the commitment of our business in striving for ways to innovate in paper recycling,” says Stefan Pryor, Senior Product Manager for Packaging at James Cropper.

PACKAGING & MATERIALS

moquin Press

[moquin Press](#) are the total package (quite literally!). They are a California-based company, located just outside San Francisco, who specialises in fully recyclable, compostable, and biodegradable packaging. As leaders in the beauty packaging industry, they made an impact at the 20th edition of Cosmopack North America this year. They met brand and consumer demands for sustainable packaging with their forward-thinking Tree Free Upcycled Packaging.

Tree Free Upcycled Packaging is cultivated from 100% bagasse, a by-product of sugarcane production. The fibrous material remains after the sugarcane has been crushed to release its juice. moquin Press turns this sugar production waste into paper pulp, giving a second life to materials that would otherwise be burned, protecting the planet from unnecessary greenhouse gas emissions, and transforming waste into packaging solutions, otherwise known

as Tree Free Upcycled Packaging. Juliana Lopez, Marketing Director at moquin Press, said, "It can be used like any other paper."

While Tree Free Upcycled Packaging is being used for folding cartons, the company is also developing labels. They can print in any colour, as well as use coated and uncoated finishes.

To complement its earth-conscious packaging, moquin Press offers UV-cured or vegetable-based inks that trap and reduce the release of VOCs (volatile organic compounds), into the environment. This initiative has helped moquin Press further its mission to help its customers reduce the environmental impact of their products and eliminate the need to grow and plant crops solely for the purpose of making paper. Since 2021, moquin Press customers have already saved 15,400 trees, 69,000 million BTUs of energy, 3.5 million gallons of wastewater, 68,000 lbs of solid waste - and counting!



moquin

PRINT • PACKAGING • LABELS

3.5M
GALLONS OF
WASTEWATER SAVED

15,400
TREES SAVED

69,000M
BTUS OF
ENERGY SAVED

NOTPLA

**PACKAGING THAT
DISSAPEARS**



03

FAST FORWARD SOLUTIONS

These visionary brands are reshaping the industry, each with a unique approach to addressing the environmental challenges of packaging. From water-soluble bags and seaweed-based materials to revolutionary bubble wrap alternatives and ingenious refill schemes, these pioneers are at the forefront of eco-friendly, waste-reducing, and planet-loving packaging options.

Reposit

This is a worldwide return and reward refill scheme. Hailed as the future of refillable solutions, [Reposit](#) has already partnered with retail giants like M&S and John Lewis, proving that this model can thrive in the mainstream market.

Invisible Company

The Hong Kong-based #INVISIBLEBAG was born out of a mission to reduce waste at the source. That's why the [Invisible Company](#) cultivated a bag that is not only water-soluble, compostable, and biodegradable, but also proven to be non-toxic and leave no harmful residue on earth. Made from a water-soluble and biodegradable combination of Polyvinyl Alcohol (known as PVOH), starch, glycerin and water,

this is a sustainable alternative for manufacturers and brands which can replace conventional plastic packaging.

Notpla

The brand [Notpla](#), an abbreviation of 'not plastic,' was created in London with a goal to make packaging disappear. The material is made from seaweed and plants that vanish naturally. Each product responds to a specific plastic problem that the brand has identified across various industries, from electronics, fashion, and cosmetics to food.

RAIKU

This Estonian-based plastic bubble wrap alternative uses springs to offer flexible and protective packaging. Thanks to its revolutionary structure, [RAIKU](#) wrap has been thoroughly tested to withhold damage to products, leaving behind no dust. After use, the 100% natural wood springs can be thrown into biowaste or even in nature, it's food for soil.

Onrepeat


This UK-based brand helps beauty brands deliver refills to their customers in compostable alternatives. [Onrepeat's](#) materials are food-safety certified, and tested for eco-toxicity and marine safety.



UPCYCLED BEAUTY POV

The future of packaging

When looking for sustainable packaging solutions, it is important to consider the entire lifecycle of a product. This includes the starting materials, the resources needed for manufacture, and what happens to the packaging when it enters the waste stream or environment. It should also be designed for reusability and should leave no trace once disposed of, whenever possible. By rethinking holistically about sustainable packaging solutions, companies can make eco-friendly decisions that help keep our planet healthy for generations to come.



ALWAYS CONSIDER
THE WHOLE LIFECYCLE
OF A PRODUCT



IN A SINGLE HUMAN LIFETIME, GLOBAL
ENERGY CONSUMPTION HAS

RISEN FIVEFOLD

IN FACT...

IN THE LAST 6 YEARS, THE ECONOMY
HAS BURNED THROUGH MORE
PRIMARY MATERIALS THAN THE

**ENTIRE 20TH
CENTURY**

Section 3

GREENER

MANUFACTURING

In a single human lifetime, [global energy consumption has risen fivefold](#). In fact, over the last six years, the economy has burned through more primary materials than the entire 20th century. To put it in perspective, that's over [100 billion tonnes of resources used and a colossal 90 billion tonnes discarded](#) as 'waste.'

Manufacturing is a major culprit that is responsible for [one-fifth of carbon emissions](#), consuming 54% of the world's energy. Currently, the global economy stands at only 7.2% circular, while as much as [72% of people](#) want to embrace circularity.

This linear take-make-waste model bears a heavy toll, contributing to two-thirds of emissions and up to [90% of biodiversity loss](#). To address these challenges, it is crucial for industries to embrace green manufacturing principles that prioritize sustainability and

environmental responsibility. Still, carbon emissions are just one part of the problem as there are broader social and environmental issues at stake.

THE SOLUTION?

A holistic approach that embraces green manufacturing principles, focusing on prevention, reduction, and reuse throughout the supply chain. By integrating greener manufacturing principles, companies can mitigate the impact of production processes while also improving overall efficiency.



Today's global economy consumes over 100bn tonnes of raw materials every year, while at the same time discarding roughly 90bn tonnes of materials as waste.

- The World Bank



01

CONCEPT & DEVELOPMENT

Manufacturers are stepping up to make products planet-friendly by embracing the circular economy, looking beyond the product itself. They're redefining how we view the lifecycle of products, considering their impact from development to use, transportation, and disposal.

Blue Beautylab

Leading the charge in this revolution is [Blue Beautylab](#), a visionary company bridging the gap between the agency world and manufacturing. They've created a dynamic space where brands can flourish and focus on bringing meaningful change to the planet.

Blue Beautylab offers full service solutions for indie beauty brands committed to sustainable beauty, from the ground up. They not only have an in-house R&D department that works with plant-based raw materials made from renewable resources and cutting-edge biotechnology, but also flexible and scalable equipment that harnesses the power of cold manufacturing processes to shape the brands of tomorrow.





“

You do have niche manufacturers focused on natural and organic, but we wanted to set ourselves apart by focusing on sustainability. When something is natural, it doesn't necessarily mean it's better for the environment.

- Claude Desmarais, one of the pioneers behind Blue Beautylab.

”

GREENER MANUFACTURING

THE SKINCARE
BRAND THAT'S BEEN
CROWNED PLATINUM BY
CRADLE-TO-CRADLE



02

SUSTAINABLE MANUFACTURING

Did you know? In a [recent survey](#) of European women aged 16-64 by Global Web Index, over half (56%) were willing to pay a premium for products made with natural or organic ingredients, while 43% were ready to shell out more for sustainable packaging. To meet these demands, companies are stepping up to create a circular symbiosis.

Kalundborg Symbiosis

Take the [Kalundborg Symbiosis](#), for example, a visionary partnership in Denmark born in 1972. They've crafted the world's first industrial symbiosis with a circular mindset. Their secret? Transforming waste from one company into a valuable resource for another. It's a true green champion that not only helps the planet but also boosts the economy. Local businesses in this symbiotic network share and reuse resources, leading to savings and minimal waste. This doesn't just create growth in the community, but supports the green transition!

Cradle-to-Cradle Certified®

Another trailblazer that's reimagining a world where manufacturing meets responsibility is [Cradle-to-Cradle Certified®](#). They've set a global standard for materials, products and systems that's transforming both the industry and the planet. Beauty brands of all shapes and sizes such as L'Oreal, Coty and Beauty Kitchen use this roadmap to develop or reformulate products, design circular packaging solutions, and create manufacturing systems and business models.

Beauty Kitchen

One brand that stands tall in green manufacturing is the [Beauty Kitchen](#), based in the UK. Their Abyssinian Oil Advanced Skincare is platinum certified, meaning it is among the leading products in environmental and social performance across five Cradle-to-Cradle categories including material health, material reuse, renewable energy and carbon management, water stewardship, and social fairness. They not only use natural and cruelty-free ingredients but partner with the Reposit returnable platform so packaging can be washed and reused in the next batch.

Energy Efficiency

Making products requires energy, that's why manufacturing has a huge impact on sustainability. To conserve energy, more and more brands are exploring ways to use ingredients without taking away the Earth's resources at a rate faster than it can be replenished.

Bull Dog Skin Care

UK-based [Bull Dog Skin Care](#) has set a new standard with its pioneering "Single-Vessel Quenching" method. This innovative technique involves heating only a portion of the water required for their product and mixing it all in one vessel. Unlike conventional manufacturing methods that heat two separate vessels, this approach conserves energy by eliminating unnecessary heating steps. But that's not all. The leftover water from the process isn't wasted; it's used to cool the combined mixture. By only heating part of the water, they can save a lot of energy. In fact, this method has conserved 60% energy for their best-selling Original Moisturiser compared to traditional methods!

Beiersdorf

[Beiersdorf AG](#) is a German manufacturer of personal care products that has recently invested in a state-of-the-art and sustainable production plant. Nestled at the heart of their operation is a virtually carbon-neutral powerhouse, fueled by renewable energy and biogas for heating. Valuable resources such as heat, wastewater and ethanol will be recovered and treated.

Beiersdorf is also teaming up with CCU to recapture and recycle CO₂ from flue gases, transforming it into valuable chemicals. Inspired by nature, they are using bio-fermentation to mimic artificial photosynthesis and converting the captured CO₂ into ethanol and salt water. The ethanol can then be used as a cosmetic ingredient for its cooling effect as well as quick drying solvent, preservative, and antimicrobial.

SINGLE-VESSEL

QUENCHING SAVED

60% ENERGY,

SAYS BULLDOG

GREENER MANUFACTURING

BULL DOG

NATURAL SKINCARE







Too Good To Waste

What about the invisible waste generated during product development, production scaling, and manufacturing processes (that can sometimes go wrong)?

KraveBeauty

One brand that is tackling this behind-the-scenes waste issue is [KraveBeauty](#). In 2022, this “slow-down skincare” Korean brand kick-started the “Waste-Me-Not” revolution, turning leftovers into limited-edition treasures.

Following production of a reformulated version of their bestselling Matcha Hemp Hydrating Cleanser, the brand was left with more than 4,500 litres of bulk that didn’t meet specification. Turning lemons into lemonade, Krave Beauty reworked the formula to create a body wash. And they have continued offering these limited edition products, the latest being the Makeup Rewined, an oil cleanser where the texture was not quite right.

KRAVE BEAUTY

DIVERTED 4,500 L

OF OLD BULK

03

CONSCIOUS CONSUMERISM

There's no doubt that e-commerce, AI and personalisation technology has taken the beauty industry by storm. However, amidst the digital revolution, a counterbalancing trend is emerging—one that celebrates tangible, in-person experiences. Research shows that the pleasure we feel when we buy something is fleeting compared to when we invest in experiences.

The Art & Beauty Experience

To meet the drive for experiential purchases, beauty brands and boutiques can offer a unique customer experience that combines couture, art and sustainability.

Nina+Co

The UK-based interior design studio [Nina+Co](#) is a shining example of this. They have curated a beauty shop in London's Victoria Park, drawing inspiration from minerals and natural skincare ingredients like clay, seaweed, and mushroom extracts.

The construction materials include reclaimed gypsum, salvaged travertine, expanded cork blocks, mycelium, and seaweed bioplastics. The [Big Beauty](#) shop itself only sells sustainably made cosmetic products, with reduced virgin plastic packaging. What's more, many of these brands are locally manufactured in London, minimising the environmental footprint.

Oquist

[Oquist's](#) philosophy lies in the art and beauty of nature. This Swedish brand has created Waterless (I) and Multifunctional (II) products that don't harm nature or the skin. While their waterless products reduce carbon emissions by avoiding unnecessary shipping weight and using less packaging, their portfolio of four multifunctional products help consumers achieve great skin in less steps, time and units.

To take their sustainability pledge one step further, they store formulations in a Sustainable clay Sculpture (III), made to be upcycled at home.



**THE BIG BEAUTY SHOP
INSPIRED BY MINERALS
AND NATURAL SKINCARE
INGREDIENTS**

GREENER MANUFACTURING



Imperfect products

Unused products sitting at home, unsold or returned products, and items that expire in warehouses are all contributing to landfill. In fact, around 4% of stock goes to waste due to perishing, spoiling or damage.

Pacha Soap Co.

[Pacha Soap Co.](#) is a purpose-driven company who are empowering communities around the world with long term, sustainable solutions. Since every Pacha soap bar is crafted by hand, there are times when they produce bars with minor imperfections, but lather just the same. Instead of tossing perfectly good products away, they offer a unique soap at half price, allowing consumers to save on their favourite blends while doing their part to reduce product waste.

Arkive.

[Arkive.](#) is a Dutch Beautytech company dedicated to making the beauty industry more circular through the power of data. They empower beauty companies to establish more sustainable supply chains while reducing waste. Among Arkive.'s offerings is

a marketplace and solution designed for surplus beauty inventory. This focuses on transparent re-commerce geared towards fostering a purpose-driven beauty community, as well as the recycling and repurposing of beauty products.

Founded by Sinem Tuncer, Arkive. was born out of a mission to reduce the number of unconsumed beauty products ending up in landfill every year. Initially starting as a destination to shop for unconsumed beauty products, Arkive. has since evolved into a solution-driven movement dedicated to combating waste.

Arkive. is the first build data-driven platform for end-of-life management where beauty brands can resell, repurpose and donate surplus inventory. They offer 100% high-quality + original beauty products at a low price and want to ensure that beauty products get a second life.

- Mondid Agency

The future of manufacturing

When analysing the carbon footprint and environmental impact of beauty and personal care brands, it's often observed that the highest impact arises from final customer use. In fact, for rinse-off products more than 40% of the environmental impact typically originates from the final customer, largely due to the energy-intensive process of heating water for showers and baths. This raises a crucial question: Who bears the responsibility for addressing this substantial carbon footprint? Should it be the duty of beauty brands, the government, or a collaborative effort between both?

A comprehensive perspective

It's important to note that this doesn't absolve manufacturers and brands from their own part in reducing their carbon footprint and environmental

impact. At every stage of of a product's lifecycle, from its initial conception through to development, sourcing, production, testing, packaging, transportation, selling, consumption, and end of life disposal, there exists an opportunity for optimisation. The focus should be on resource conservation and the conversion of waste into a valuable resource.

A comprehensive perspective is required, one that encompasses every aspect of the beauty supply chain. This goes beyond the conventional linear take-make-dispose model to embrace a circular approach. By systematically identifying and mitigating waste throughout the entire chain, whether through internal audits or by employing innovative technologies like blockchain, the industry can significantly diminish its environmental impact and contribute to the preservation of Earth's precious resources.

It is a collective responsibility to reshape the beauty and personal care industry into a driving force for positive environmental change.



**FOR RINSE-OFF PRODUCTS,
40% OF THE ENVIRONMENTAL
IMPACT ORIGINATES FROM
THE FINAL CUSTOMER**

THE FULL CIRCLE RANGE
OF INGREDIENTS
IS PART OF



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