

Cosmetic packaging with a reduced environmental impact.





# INDEX

The Zero In•Pack Catalogue	2
Understanding environmental impact categories	4
Our recycled materials	6
Decoration techniques	10
Refill	12
Glass	18
Plastic	28



# THE ZERO IN-PACK CATALOGUE

This catalogue puts together a selection of Eurovetrocap's best packaging solutions to help customers reduce the environmental impact of their cosmetic products. It focuses on standard, stock products that are either recycled, designed-for-recycling or refillable and provides accurate insights about environmental impact, transparent information about recycled materials and tips for improving packaging design.

It is an appendix to our regular catalogue, many articles of which may also be produced in a lower impact version on demand: recycled material, alternative decoration, simpler closure, etc.

# **INTRODUCING EUROVETROCAP**

For over three decades, Eurovetrocap has been a leading company of the cosmetic, pharmaceutical and make up packaging industry. Our wide range of standard articles coupled with Italian design, production flexibility and state-of-the-art decoration techniques, enable us to provide your brand with customized and distinctive packaging solutions, tailored for every formula from skincare to hair care, body care, make-up, fragrance, and aromatherapy. Quality, competitive prices, short lead times and low minimum order quantities are the key benefits of our offer. We aim at providing the best possible packaging solution, to achieve success together.

# ADRESSING ECO-DESIGN

R&D and design have always been important to us, but in the past three years we have put a greater emphasis on these activities to come up with a more complete, up-to-date and technically innovative packaging lines. We now aim at supplying packaging solutions to the cosmetic industry with the lowest possible impact with no compromise on functionality, formula protection and aesthetical features. This commitment is the key to expanding our range of lower impact standard products, therefore bringing further **circularity** into your projects. Many strategies pave the way to eco-design.





• Weight reduction: Same capacity, same material, same production process, but a lighter weight. Impact values decrease in proportion to weight reduction, insofar as the production of a container requires smaller energetical and material inputs. In order to

achieve a lighter packaging set, it is also possible to strip the set down to the essential: no secondary packaging, no disposable film, no extra elements. A new definition of "less is more"!



• **Recycled materials:** The Licata jar was the first cosmetic jar to include a minimum 60% of post-consumer recycled material (glass). It opened the door to an ever-increasing series of recycled glass and plastic articles, available from stock. We channel

our efforts into securing the supplies of qualitative recycled materials. Whenever possible, adopting recycled material proves the easiest means of reducing impact with little concession to aesthetics and functionality. It is an alternative approach to **reduction**, intended as the reduction of virgin materials.



• **Reusability:** Refillable solutions prove to be an excellent means of reducing impact, as far as food or cosmetic packaging is concerned. Cleaning and/or filling the same container continuously, either from bulk fountains in shop or by means of replaceable cartridges, is the best way to avoid the repeated

production of a packaging set, or at least part of it. In cartridgebased systems, some material is still discarded, but they integrate more easily with current retailing infrastructures: a good compromise towards waste reduction.



• **Design-for-recycling:** This feature is equally important as the integration of recycled material. It consists in developing the packaging set, right from the beginning, in such a way that once disposed of, the latter will weave into post-consumer waste

channels and be actually recycled. In other words, opting for materials that are well known for their recyclability such as glass, PP, PET, HDPE, or aluminum. If not made from a single material, the set must consist of elements that can be easily separated, either after use or during the recycling phase. Many other factors that must be taken into consideration are color, size, type of decoration, etc.

# **COMPARATIVE LCA: THE ZERO IN-PACK LAB**

Zero In-Pack, also known as **ZIP**, is Eurovetrocap's newest laboratory. Born in 2020, it focuses on research and innovation for lower impact packaging and production solutions. It consists in a specialized team, who has been nurturing specific skills related to climate change, environmental issues, recycled materials, and circular economy. They assist and train the company's Sales team in **projects** that promote environmental impact reduction, but also interact with **customers** that seek advice about eco-design and desire to avoid faux pas.

The Lab has specialized in **simplified comparative Life Cycle Analyses (LCA)**. Thanks to a tailored comparative tool, developed with the support of the Bocconi University's GREEN department in Milan, Zero In-Pack produces quantitative and qualitative case studies that help to understand the various types of environmental impact of a packaging set. Unlike plain marketing statements, that sometimes come across as dubious, these reports are based on **figures** and demonstrate **factually**, how and how much a packaging solution helps reducing impact compared to another one from an environmental perspective, and under which conditions. Sometimes eventual unfavorable impact transfer is revealed. This analysis is intended to support small scale decisions. The tool relies on the Ecoinvent 3.5 database, which is commonly used in environmental impact studies.

# UNDERSTANDING COMPARATIVE LCA

Our approach consists in comparing up to three versions of a packaging set or stand-alone article, changing one or several parameters in each version. Version 1 stands as the packaging set to be replaced or thought to be the worst combination, environmentally wise. Version 2 and Version 3 stand for the alternatives to be considered: production from recycled materials, different closure, bigger capacity, alternative decoration process, etc.

Our LCA features a cradle-to-grave approach for the **complete and finished packaging set**. In other words, it shows all the steps from raw material extraction to end-of-life treatment. The study does not include the production of the formula, the filling process, nor the distribution of the finished product across sales points – such steps should be covered in a broader scope LCA. Transportation from our warehouse in Trezzano sul Naviglio (Milan, Italy) to the customer's filling plant is optional, hence the standard case studies displayed in this catalogue do not include this stage.

Each comparative analysis assesses 11 environmental impact categories (see page 4). Numerical values are expressed per **ml of content equivalent** (functional unit) in each category and for each version. To ease understanding, these results are displayed under the form of a radar chart including 2 or 3 curves and providing a

quick visual comparison of the environmental performance of each packaging alternative, with values from Version 1 serving as a base (100%). A short companion comment always highlights the most relevant aspects of the study.



# CASE STUDY: FROSTING VS LACQUERING



This case study is an example of how the comparative analysis is made. It addresses the impact of finishing on a packaging set. In this model, our Laura 30 glass bottle receives two different finishing treatments, but all **other parameters** remain **unchanged**: technical features, production process and place, material, weight, end-of-life treatment, etc.

The bottle of reference has a frosted finish, obtained by **acidetching** (100%). It is compared with a frosted effect **lacquering**, which is hard to tell apart but allows for drastic cuts in impact in all categories: nearly 20% in greenhouse gases emission, over 60% in water consumption and, quite astonishingly, up to 90% in resource depletion (mineral and metal).

This example emphasizes the validity of an LCA and the fact that small changes can make a big difference.

# UNDERSTANDING ENVIRONMENTAL IMPACT CATEGORIES

The definitions below aim at improving knowledge about impact categories commonly measured in life cycle impact studies.



# Climate change

This is the most familiar indicator to the public. The sum of three subcategories' values, it is expressed in  $CO_2$  kg equivalent and measures Green House Gases (GHG) emissions, in other words, gases that are

likely to have a lasting effect on air temperature on a global scale, therefore impacting climate.

**Fossil:** GHG emissions originating from oxidation and/or reduction of fossil fuels by means of their transformation or degradation (combustion, landfilling, etc.). They also include emissions from peat and calcination.

**Biogenic:** Carbon emissions ( $CO_2$ , CO and  $CH_4$ ) originating from the oxidation and/or reduction of the aboveground biomass by means of its transformation or degradation (combustion, digestion, composting, landfilling, etc.)

**Land use & transformation:** Carbon emissions and uptakes ( $CO_2$ , CO and  $CH_4$ ) originating from carbon stock changes depending on land use and transformation. This category includes biogenic carbon exchanges from deforestation, road construction and other soil activities.



# Ozone depletion

Loss of stratospheric ozone due to the emission of ozone degrading substances, in particular bromine or chlorine-based gases. It is expressed in kg CFC-11 equivalent, where CFC-11 stands for

trichlorofluoromethane, a gas that was widely used as a coolant fluid prior to its prohibition in the early 1990s. CFC-11 is a reference measurement in ozone studies.



# Acidification (freshwater & terrestrial)

Acidification is a natural phenomenon triggered for instance by volcanoes or bacterial degradation of organic matter. Human activities such as transportation, heating, or industrial combustion speed up the process: gas mineralization (NO<sub>x</sub>, NH<sub>3</sub> and SO<sub>x</sub>) release hydrogen ions (H<sup>+</sup>) onto ground level, contributing to water and soil acidification and therefore to deterioration of forests and lakes. Acidification is expressed in mol H<sup>+</sup> equivalent, where 1 mol of hydrogen protons equals an acidification factor of 1.

# Eutrophication An excessive su

An excessive supply of nutrients, mostly nitrogen (N) and phosphorus (P), eutrophication leads to the overgrowth of algae and aquatic plants. On one hand, the bloom may filter sunlight and prevent

photosynthesis from depth plants. On the other hand, after such organisms die, bacterial degradation of their biomass consumes oxygen, leading to the hypoxia of the ecosystem and ultimately altering the ecosystem balance. Human-induced eutrophication derives from sewage outfalls and fertilizers. It is measured in **freshwater**, **marine**, and **terrestrial** ecosystems, depending on the type of nutrient and ecosystem access, and is expressed respectively in kg of phosphorus equivalent, kg of nitrogen equivalent and mol of phosphorus equivalent.



# **Ecotoxicity freshwater**

This indicator addresses the toxic impacts on a freshwater ecosystem, which damage individual species and change the structure and function of the ecosystem. Ecotoxicity is a result of a variety of different

toxicological mechanisms caused by the release of substances with a direct effect on the health of the ecosystem. It is expressed in terms of comparative toxic units (CTU) per kg of emission and convey an estimate of the potentially affected fraction of species (PAF), based on the following relation:  $CTUe = PAF \times m^3 \times time scale$ .



# Land use

As opposed to emission-impact measures, land use refers to the interference between land area and human activities such as mining, housing, or agriculture. It is the intersection of land occupation

(effects on land quality multiplied by area and duration) and land transformation (effects on land quality multiplied by area). It is expressed in points based on the Soil Quality Index (SQI), that accounts for the soil's ability to perform the functions of maintaining biodiversity and productivity, filtering water, cycling nutrients, and supporting plants.



The difference between freshwater demand and availability, this category evaluates the impact of activities on fresh water supply. Water scarcity comes from a naturally unequal distribution on a global scale

but has undergone a sharp increase in the few past decades due to climate change, pollution and needs of the industry. It is expressed in m<sup>3</sup> representing numerically water scarcity further increase.



# Resource use – Mineral and metal

This indicator assesses the impoverishment of nonrenewable, inorganic, natural resources from mining. The mining of mineral and metal keeps increasing to sustain industrial production, economic growth, and

urbanization. Metals like aluminum, copper and iron and minerals like sand, clay and phosphate are amongst the most sought-after materials. This indicator is expressed in kg equivalent of antimony (Sb), one of the rarest elements.



# **Resource use - Fossil**

As opposed to Mineral and metal, this indicator assesses the impoverishment of non-renewable, organic (carbon based), natural resources, also known as energy carriers. Expressed in megajoules (MJ), this

parameter stands for the necessary and total use of fossil resources such as oil, gas and coil involved in the production of a product or service, mainly as a power supply, but also as a raw material (e.g. plastic). Results in this category will vary depending on the typology of energy-mix at country and manufacturing plant levels.



# **OUR RECYCLED MATERIALS**

# DEFINING RECYCLED MATERIALS



Post-Consumer Recycled (PCR). The bestknown type of recycled materials. After collection. differentiated household waste is delivered to sorting centers, where it is separated by category and material. In a second phase, once in the recycling plant, every batch of material is crushed, cleaned,

decontaminated, and reprocessed into a secondary material, ready to be used for new productions. The ultimate fast-track to circularity!



Post-Industrial Recycled (PIR). These materials are often looked down upon, for they do not sound as exciting as PCR materials. Still, industries - plastic converters in particular - unavoidably discard large volumes of materials, whether they be sprues, cuttings, or non-compliant

articles. When sorted properly, according to material type, such scraps can be collected by recyclers, then processed and recycled into new secondary raw materials, undergoing a process similar to that of PCR waste. PIR materials present excellent mechanical and aesthetical properties and divert plenty of waste from landfills.



Closed-loop waste reuse. Glass factories and plastic converters have always reprocessed part of their own scrap materials into new productions. Such scraps do not acquire the status of waste, meaning the process does not consist in actual recycling. This closed-loop system is

nonetheless an excellent means of reducing and preventing industrial waste and should be encouraged.

# FOREWORD

The adoption of recycled material packaging is a virtuous choice that will benefit a brand's image if communicated upon properly. It calls for compromises we would like to draw your attention to. During the packaging selection process, it is important to acknowledge the fact that recycled articles, especially if made from plastic, do not have the same aesthetical features as their counterparts made from virgin materials. The colour tone may vary from one reorder to the

other and cannot be monitored through a colour range board. This distinctive feature must be accepted in an effort towards circular economy. This section provides an overview of the aesthetical and technical features of our recycled materials.

# TRANSPARENT PCR GLASS AFSTHETICAL FEATURES



Although perfectly transparent, transparent recycled glass tends to gray almost imperceptibly. Only the trained and careful eye will notice the difference. Apart from the color difference, acceptable quality levels apply as the ones for standard virgin glass. The proportion of PCR cullets (crushed waste glass) varies according to the article and is often topped by an addition of closed loop (internal) cullets for instance 60% PCR + 30% Closed Loop.



# AVAILABILITY OF WASTE GLASS

The availability of cullets is good. However, the manufacturing of recycled glass bottles and jars requires specific production campaigns in the glassworks, that are currently held once or twice a year. Should we unfortunately run out of stock on recycled glass items, provision lead time would be dictated by the glassworks' pace.

# EXTRA COST: YES



# ABOUT FROSTING

There is no contraindication to frosting recycled glass. However, traditional acid-etching the technique proves to be impactful, especially in water consumption and acidification. Frosted effect lacquering is recommended as an alternative finishing technique, to keep decoration impact to a minimum (see case study, page 4).



Our UVAG glass has a typical bottle-green color. It is recycled from oil and wine glass bottles, that are collected in mainly Italy through voluntary drop-off points. The thickness and the shape of the item, either bottle or jar, may generate variations in the aspect and intensity of the green tone. While lighter items will show a



greater transparency in color, smaller or compact ones will appear in a dark green. Recycled green glass provides an excellent screening feature against UV rays and includes 70% PCR cullets. Few articles are currently produced in UVAG glass.

# AVAILABILITY OF WASTE GLASS

The availability of cullets is good. UVAG bottles and jars are produced

on food packaging lines, which is why it is currently not possible to manufacture containers with a weight below 125 grams. Like transparent recycled glass items, UVAG items are currently produced once or twice a year. Should they unfortunately run out of stock, provision lead time would be dictated by the glassworks' pace.

EXTRA COST: YES

### **PRIME PCR HDPE**

### ABOUT

Eurovetrocap works thoroughly to select better materials that will help to reduce the current gap between virgin and recycled plastic items and convince brands to follow a more virtuous path. In accordance with this strategy, our R&D team approved a new

premium material, that replaces our original PCR HDPE (Tech) in all bottle productions. It comes from the critical sorting of neutral, colourless, post-consumer HDPE containers and boasts great aesthetical properties.

# AESTHETICAL FEATURES

The raw material pellet has a neutral colour (shown on the picture to the right), which



/IRGIN HDPE (LEFT) AND PCR HDPE (RIGHT)

yellowish hue is more or less pronounced depending on the material batch. The addition of a white masterbatch in production provides a white colour to the bottle, leaving a light greyish undertone. Our PCR stock references are white.



All bottles may present surface defects such as dark micro-inclusions (A1), orange peel texture (A2), and streaks (A3). Unlike before, the material has no cleanser smell, although finished products may present a subtle "plastic" smell.



### MASTERBATCH COLORING

Neutral PCR bottles (no masterbatch) show a greater opacity than neutral virgin bottles. This new material is also compatible with regular semitransparent and plain colour masterbatches, although it may slightly alter their tone. Therefore, we strongly recommend that our customers require a pre-production sample of the coloured bottle

to check whether the result meets with expectations. Light colour variations from a production batch to the other must be expected, although they cannot be monitored through a colour range board.

## AVAILABILITY OF PCR HDPE

The material is readily available. It is nonetheless advised to check the situation with the sales in the project development phase, especially when large volumes are involved.

# EXTRA COST: YES

# 🗱 BY EUROVETROCAP - 2022



Since 2021, most capacities from the Sirio Alto range (see page 34) are available in stock in transparent PCR PET. Most other PET bottles can be produced in recycled PET on demand.

# AESTHETICAL FEATURES

The raw material pellet has a milky color, with a gray, green, or yellowish tone, unlike the virgin one which is neutral. The dominant color may vary depending on the secondary raw material batch.



The finished bottle presents a transparent color with a slight gray, green or yellow tone. It may also present black and/or gray micro-inclusions (A1 - page 7), the color and number of which may vary depending on the material's batch bag. The surface of the bottle is not as uniform as that of a virgin-based bottle, sometimes presenting an orange peel texture (A2 - page 7).

MASTERBATCH COLORING

When color is given through a standard masterbatch, formulated for virgin materials, the resulting item may show a darker or fainter tone than that of the reference color chip. We therefore strongly recommend that our customers require a pre-production sample of the colored bottle to check whether the final result meets with expectations. Due to color variation in the secondary raw material itself, from batch to batch, such sample will provide a correct idea of what to expect from production but might not perfectly represent it.

# AVAILABILITY OF PCR PET

The material is widely available but is subject to important price fluctuation.

# EXTRA COST: YES



Most standard PET bottles from our catalogue can be produced on demand from a PIR material. MOQs usually reach 50.000 pieces per reference. As for *Aspect, Coloring, Availability* and *Extra cost*, the considerations for the above-mentioned PCR PET apply.



This material is used to produce jars, caps, lids and components for pumps and droppers. Most of our recycled PP stock items are PIR based.

# AESTHETICAL FEATURES

The raw material pellet has a semi-transparent milky/yellowish tone, unlike the virgin one which is neutral (comparative picture below). The dominant tone may vary from batch to batch of secondary raw material. The use of a white masterbatch provides a white color to the finished piece, with a slight gray tone. The item may also present black and/or gray micro-inclusions (picture below), the color and number of which may vary depending on the batch bag used in production. Smooth surfaces may as well show flow lines.



# MASTERBATCH COLORING

It is possible to use this material alone, with no addition of a white masterbatch (on request only). However, the resulting piece shows a pronounced beige or yellowish tone and a greater opacity than neutral virgin PP articles. This new material is also compatible with regular semi-transparent and plain color masterbatches, although it may alter their tone. Therefore, we strongly recommend that our customers require a pre-production sample of the colored item to check whether the result meets with expectations. Light color variations from a production batch to the other must be expected, although they cannot be monitored through a color range board.

## AVAILABILITY OF PIR PP

The material is readily available. Due to the current situation on raw materials, it is nonetheless advised to check the situation with the sales during project development and ordering phase.

EXTRA COST: NO

# PCR PP

# ABOUT

Unlike PIR PP, this material is mostly used for custom projects. It is present in jars, caps, lids and components for pumps and droppers.





# MASTERBATCH COLORING

### AESTHETICAL FEATURES

The raw material pellet used has a pronounced gray/ivory color, unlike the virgin one which is neutral (comparative picture on the left). The use of a white masterbatch provides a white color to the finished piece, with a grav undertone (as shown in the jar image). The item may also present black and/or grav microinclusions (small dots). the color and number of which may vary depending on the batch bag used in production. Smooth surfaces may as well show grayish flow lines. The material we use is not food grade but REACH compliant.

When color is given through a standard masterbatch, the resulting item may show a darker or fainter tone than that of the reference color chip. It is not possible to obtain semi-transparent colors. We therefore strongly recommend that our customers require a preproduction sample of the colored article to avoid discrepancies between expectations and reality. Due to hue variations in the secondary raw material itself, from batch to batch and even bag to bag, such sample will provide a correct idea of what to expect from production but might not perfectly represent it.

# AVAILABILITY OF PCR PP

The material is readily available. Due to the current situation on raw materials, it is nonetheless advised to check the situation with the sales during project development and ordering phase.

EXTRA COST: YES

# NIR BLACK MASTERBATCH

This new masterbatch is not based on recycled material but is a major advance towards recyclability. In fact, it is formulated without carbon black, a pigment that usually prevents black items from recycling.\* This masterbatch is used on demand, and it is compatible with most of our PP and HDPE items, either produced from virgin or recycled materials.

# ASPECT

Items colored with the NIR black masterbatch show a dark brown/ warm black tone. It stands as the right compromise between classic aesthetics and circularity, but it must be kept in consideration that a full black will not be achieved. We strongly recommend that our customers require a pre-production sample of the colored item to guarantee its adequation with the project's specifications.

# EXTRA COST: YES



\*In the recycling industry, infrared rays play a key role in the sorting of the different plastic materials present in post-consumer waste. This first step is fundamental in preparation for recycling. Homogenous streams come to life during this process, one for each material (PET, PP, HDPE, etc.), thanks to sensors that identify the material each piece of plastic is made of. When an item includes carbon black, sensors become unable to identify it, resulting in its ejection fromthe sorting stream. Such pieces are usually sent for landfilling or incineration.

# **DECORATION TECHNIQUES**



# **NO DECORATION**

Bottles and jars in transparent glass, transparent PET, natural or white PP or HDPE stand for simplicity and natural elegance. A label at the colors of the brand often finishes the look of these stock items, to be applied during the filling phase. Undecorated containers are particularly recycling friendly.

### FROSTING

Unlike clear glass, frosted glass presents a pitted, matte surface, blurring light without filtering it. This translucent finish is obtained by means of acid-etching, an efficient yet impactful process. Bottles and jars are bathed in tanks filled with acid that eats into the glass surface, before going through a thorough wash.

# LACQUERING

An easy way to coat a glass bottle or jar into the brand's colors, lacquering consists in applying a layer of colored lacquer onto the surface of the piece, from base to lower neck. Thanks to tailored formulae, many finishes can now be achieved: full coverage or semi-transparent in a shiny, matte, or even metallic finish!

# **INNER LACQUERING**

This is Eurovetrocap's newest decoration technique, dedicated to cartridge-based **refillable glass solutions** (no contact with the formula). Inner lacquering consists in applying a layer of full coverage lacquer onto the inner wall of the glass container, bringing a 3D effect to the refillable element and exhaling the brand's colors!



### **SCREEN-PRINTING**

It consists in applying one passage for each color through a partially locked canvas onto the surface to be decorated. Organic inks, that require low drying temperatures, offer a broad range of colors and good resistance on glass. On the other hand, most of our plastic bottles and jars are now decorated with UV inks.

### **HOT STAMPING**

Hot stamping is a prominent decoration for luxury products. It consists in pressing multilayered, often metallic foils onto the surface of the article. Although the stamping process varies according to the surface (glass or plastic), the resulting decoration brings a light relief to the artwork and is often turned to as a complement to screenprinting.

# MASTERBATCH COLORING

Giving color to a plastic element – either jar, bottle or closure – requires the addition of a color masterbatch right into the raw material during production. Eurovetrocap offers a broad range of standard color masterbatches for PP, HDPE, PET and SAN, suiting most needs. It is also possible to develop custom colors.

# NIR BLACK COLORING

This recently introduced masterbatch is formulated without carbon black, a pigment that usually prevents black items from recycling. An alternative to standard black, it is compatible with most PP and HDPE items. Items colored with the NIR black masterbatch show a dark brown/ warm black tone, a signature for recyclability and circularity.

# LICATA 50 REFILLABLE VERSION

9 🗏 T 🔔





Refillable solutions caught on in the past couple of years, as part of the 3R strategy. In cartridge-based systems, the heaviest part of the packaging set is kept along for several reuses, while the replaceable elements are disposed of after use. Although they still generate waste, they may prove beneficial when properly designed, as far as environmental impact is concerned. Our comparative analysis supports this claim.

50

Ø63x63 58/400sp virgin GL

**How-to:** The Licata Refill set includes a glass jar and a gasketed PP lid. In its refillable version, the Licata jar receives a PP cup, easy to push in and pull out. The Licata refill set comprises of the cup and a matching snap-on, self-sealing PP lid (release 2023). At the moment the cup can be sealed with a regular LDPE or aluminium film (not sold by us). **Reusable elements:** glass jar + PP lid

**Disposable elements:** snap-on refill lid (from 2023) or sealing film + refill PP cup

# **COMPARATIVE LCA FOR LICATA (5 USES)**





To begin, we measured the impact of **5 complete**, **non-refillable Licata sets** (see page 21), produced from virgin materials, as in a repeated purchase scheme.

Afterwards, we compared these baseline values to the purchase of a **single refillable Licata set** (glass jar, cup and cover) and **4 monomaterial lightweight refill sets** (cup + snap on refill lid, 13g), as in a refilling scheme. The results are indisputable: all values show an average 70% drop! In fact, in the first simulation, the glass element single-handedly accounts for most impacts (129g against 21.8g for the cover), amongst which fossil depletion (high temperatures required to melt raw materials), mineral depletion (sand and soda) or GHG emissions (production process).

The third and last simulation appears as a bonus: the refilling scheme remains unchanged, but all four elements of the set are produced from **recycled materials**, furthering impact reduction.

# REFILL 50



	E
REFILL LID (SELF SEALING)	D44 SHIVE
📩 mat	📩 mat
Ø66X22 PIR PP	Ø47x3 LDPE
REFILL JAR	REFILL CARTRIDGE
ml 🛕 🖪 mat	📩 mat
50 Ø66x60 58/400sp GL	Ø62X52 PIR PP

# UNDERSTANDING THE SYSTEM

A reusable packaging solution, the Refill 50 ml jar consists of a main glass component and a refill set, in either virgin or recycled material. The latter includes a cup and an innovative gasket-free, self-sealing lid, which guarantees perfect seal and eases the end-of-life treatment of the set.

The jar has a heavy glass bottom which gives a large size impression. This jar is the perfect combination between luxury and sustainability. The premium image of the glass is combined with the lightness of the internal PP container and the lid, which are both available in virgin and post industrial recycled PP and also be made from postconsumer recycled PP on request. Both the replaceable elements can be purchased separately for practical and eco-friendly refilling countless times. The glass jar allows for any type of decoration which can be preserved over time.

# Why should I use the shive?

The Refill lid features a self sealing system allowing for tightness without the use of any special elements such as the shive or a gasket. Then why choosing to add a shive to this set? In this case we offer it as an extra security element to lock the formula into the inner container, even through the distribution phase.

# Many colorful possibilities

There are many ways to turn the Refill set into a colorful customized solution. Each element can be personalized with different colors, or everything can be produced in the same tonality. The vast variety of masterbatches that we have allow the customization of the PP elements, namely the lid and the cartridge. As mentioned in the Recycled materials section (see page 8) we offer both PIR and PCR PP as an enhancement to further reduce the impact when personalizing these elements.

Instead for the jar diverse types of lacquering can be applied (see page 10). The image below displays examples of the different looks that can be achieved when resorting to inner or outer lacquering. With the outer lacquering several effects can be made such as matte or translucent coloring. Complimentary techniques, like screen printing, will give a finishing touch to the set.



# **REFILL AIRLESS SET** 5 **REFILL AIRLESS 15 BOTTLE REFILL AIRLESS 30 BOTTLE** Å. Å. mat P Fa ml mat ml 15 Ø39X66 snap on GL 30 Ø39X104 snap on GL REFILL AIRLESS 15 CARTRIDGE **REFILL AIRLESS 30 CARTRIDGE** Å. mat Å. mat Ø38X69 PP + HDPE Ø38X107 PP + HDPE **REFILL PETG OVERCAP REFILL PP OVERCAP** Å. mat Å. mat Ø38X38 PETG Ø31x29 PP

REFILL P	UMP	
Å.	Ú	mat
Ø32X35	400	PP + HDPE + sil

# UNDERSTANDING THE SYSTEM

The complete Airless refill set is composed of a PETG cap, an inner bottle, an airless pump, and a glass bottle. The PETG cap and the glass bottle are meant to be kept after the product is finished. The refill set, sold separately, consists in the inner bottle and pump and made be topped by a light PP safety cap.

Our Airless Refill is a piston system. While the piston (not visible in the picture) is made in HDPE, the body is produced in PP and has an in-mold screw-on collar. The pump is snapped onto the body forming the refill set. The refill set is easily screwed onto and off the bottle for effortless replaceament.

The outer bottle is made of a thick wall glass which gives an elevated look to the product while giving durability to the packaging. It can be personalized with our different decoration techniques further boosting the brand image. As all our refillable solutions it can be lacquered on the inside, being a decoration exclusive of this type of systems.

# **Piston vs Pouch**

As mentioned before, this set works with a piston which pushes with an upward motion the formula. Piston systems are particularly recommended for pasty or denser formulae. They present a greater restitution rate than pouch systems, making sure most of the formula is used.

# Why airless?

Airless systems are closed from production which avoids the contact of air with the formula. It will therefore keep the formula protected and exempt from contamination, ensuring hygiene. The solution is recommended for natural, preservative free formulae, guaranteeing their protection over time.

# **COMPARATIVE LCA FOR LAURENCE 50**



In this study, our best-selling Laurence 50 set, made from **virgin materials**, is compared to its **recycled counterpart**. Apart from raw materials, all other parameters remain unchanged: production process, dimensions, weight, end-of-life treatment, etc. The switch results in an average 12% impact cut. As displayed in this graph, the outcome proves significant in three categories: greenhouse gas emissions (climate change) drop by 17%, water consumption by 27% and finally, fossil depletion by 33%.

The second part of the study sheds light on these results. In packaging sets that put together a glass container and a plastic closure, the former element is generally the heaviest and is expected to account for the set's total impact accordingly. In this case, the **lid** (23g) represents only **18%** of the set **total weight** (131g), but taking it out of the equation (virgin glass – no accessory) allows for an average 25% cut in all impact categories. Going into details also reveals that, in the virgin complete set, the gasketed PP lid is responsible for about 30% of greenhouse gas emissions (climate change), 40% of water depletion and nearly 50% of fossil resource depletion, mostly assignable to the production of raw PP from oil. These results corroborate, graphically and numerically, those observed in the recycled version of the set.





# LAURENCE

ml		ĥ		F	mat
30	38	35	Ø55	45/2P	20% PCR Glass
50	67	39	Ø64	53/2P	20% PCR Glass
100	128	43	Ø82	70/2P	20% PCR Glass
200	242	45	Ø101	89/2P	30% PCR Glass

à.	mat
Ø55X20	PIR PP + PE
Ø64x23	PIR PP + PE
Ø81x24	PIR PP + PE
Ø100x24	PIR PP + PE



	Å.	mat	
D32	Ø35x3	LDPE	
D40	Ø43x4	LDPE	
D52	Ø55x4	LDPE	
D78	Ø79x4	LDPE	



# **IMPACT REDUCTION:** A STEP BY STEP CASE STUDY











LAURENCE LUXE 50 + LAURENCE LUXE ALU. OVERSHELL LID IMPACT REDUCTION

Starting point

# LAURENCE 50 + LAURENCE ALU. OVERSHELL LID

IMPACT REDUCTION

Weight reduction (jar) Supply distance reduction (jar) LAURENCE 50 + LAURENCE PP LID

IMPACT REDUCTION

 Supply distance reduction (lid)

• Recyclability (lid)

LAURENCE 50 PCR + LAURENCE PIR PP LID

IMPACT REDUCTION

Introduction of recycled materials (jar & lid)

LAURENCE 50 PCR + TIM NEW PIR PP LID

IMPACT REDUCTION

- Extra weight reduction (lid)
- Maximum recyclability (monomaterial lid)



# TIM NEW LID

Thanks to its flat squared shape, the Tim New lid is a right match for our best-selling Laurence 50 jar (page 19), bringing a sleek, minimalistic and modern look to the set. The lid is available in shiny and matte (soft-touch like) finishes to suit most needs. The Tim New lid also includes a 100% PP gasket, that is to say the same material as the lid's main component, making it our most recycling friendly lid. It can also be produced in PCR or PIR PP on request.





# **COMPARATIVE LCA FOR MAKE UP 30**





The set includes the 30 ml Make Up glass bottle, Make Up (ID) dispensing pump and Nina PP overcap. This study assesses the effect of switching from virgin to recycled materials: PCR glass (60%) for the bottle and PIR PP for the pump's collar, actuator and overcap. This small change proves beneficial, with an average 10% impact reduction in all categories. In detail, greenhouse gas emissions (climate change) and mineral depletion (sand, essentially) are reduced by 11%, but the most significant values regard fossil fuel depletion (22%) and water shortage (30%). As explained in the comparative analysis of the Laurence jar (page 18), these benefits can be attributed to the recycled polymer involved in the production of the pump's components, despite their limited weight in the set (collar, actuator and overcap weight 9g, that is 10.1% of this 89.1g set). In its recycled variation, the Make Up 30 set manages to combine a premium image - a compulsory feature for many of our customers - with a more sustainable approach to packaging.



The XS Cap covers the upper part of the pump keeping the collar visible. The Ecork Cap instead covers the whole pump protecting all of its parts.





# Ecork

Ecork is an innovative and natural-looking material which is made of 80% EVA and 20% cork (in weight). Said cork is a subproduct of cork working for bottle stoppers. It is not to be considered a post-industrial recycled (PIR) material but is nonetheless waste material that would have been valorized otherwise.



To achieve functionality, the simplest of droppers scores at least **3 components** in **different materials**: collar, glass tube and bulb, which makes these accessories **impossible to recycle**, as sorting and recycling plants would require the fitting equipment and ability to dismantle them. The Parigi dropper was born to solve the impossible equation of **functionality**, great **aesthetics**, **user-friendliness**, and **recyclability**. It was a complex engineering process to turn the first hand-drawn sketch into a functional, finished piece, under demanding technical specifications. It consists in 3 components that clicked together guarantee tightness and correct vacuum. Both the tube and collar are produced in PP, while the flexible top part, recalling the button of a pushdown dropper, is made from an innovative PP copolymer. The finished piece is over 95% PP-based, making it perfectly compatible with current post-consumer recycling channels. It is flush with Make Up 15 and 30 ml bottles and brings novelty to the dropper category.









LAURENCE MONO 24/410 CAP





Å.

(ju) mat PP + engine Ø32x45 400



NINA CAP SHINY Å. mat Ø31X27 PP

ml	$\square$	ĥ	<b>d</b> ▼	FA	g	mat
100	112	106	Ø48	24/410	120	20% PCR Glass
200	220	143	Ø55	24/410	185	20% PCR Glass



# LAURA

ml	$\square$	ĥ	d_⊨ ▼	F	g	mat
15	18	59	Ø33	18/415	50	60% PCR Glass
30	36	94	Ø33	18/415	78	60% PCR Glass
50	56	129	Ø33	18/415	98	60% PCR Glass
100	112	166	Ø40	18/415	184	60% PCR Glass

### SUGGESTED ACCESSORIES



# LAURA DISPENSER 18

Å.	(m)	mat
Ø32x33	250	PP + engine

One of Eurovetrocap's bestselling pumps thanks to its versatile design. We suggest using it for creams, serums and makeup formulae. It is available as a standard in recycled material.



### NINA CAP SHINY





LAURA PETG CAP

Å.	mat
Ø32X46	PETG

A classic shape that will always enhance the look of the pump and your product. It boasts a clean, square shape and fits all our Nina, MakeUp and Laura series. It is available in standard in virgin shiny semitransparent PP and in shinv or matte white PIR PP.



# GP DISPENSER NEW (ID)

<u>م</u>	Ŵ	mat
Ø27x38	250	PP + engine

This pump includes the new ID engine produced and assembled by Eurovetrocap. Upon request the collar can be produced in recycled material.

### This cap gives a luxury look to the set thanks to the PETG shininess. It covers the full body of the GP dispenser pump. To reduce environmental impact and improve recyclability the cap can also be produced in virgin or recycled PP.



### LAURENCE 18/415 CAP



The elegance of this single bodied screwcap capsule lies in its simple square shape and lightweight. It is recommended for liquid formulae such as oils, and may be paired with a reducer to dose the product.



MINERBIO 18 DROPPER MATTE

PIR PP + GL + NBR

mat

Ś.

Ø22x38

A classical and versatile shape for a dropper. The length of the glass tube is standard for our Laura bottles, but different lengths can be produced upon request. A shiny version is available too upon request.

# Most recycled accessories in this catalogue are made

**Recycled closures and accessories** 

from post-industrial recycled waste (see definition and description on pages 6 to 9). Our PIR PP boasts very good aesthetical properties, making it a material of choice to switch from virgin to recycled articles, with little to no concessions to aesthetics. Most jars, covers and other accessories displayed can nonetheless be produced from PCR PP on demand.

Due to the natural gray hue of PCR PP it is not possible to produce translucent accessories with this material.

BY EUROVETROCAP - 2022

# **COMPARATIVE LCA FOR PARIGI 50 JAR**





PIR PP jar + virgin LDPE shive + PIR PP lid

This comparative study assesses the benefits of turning to **recycled PP** instead of **virgin PP** to produce both the Parigi 50 lid and jar (inner and outer walls)\*. The shive is made from virgin LDPE in both cases. The material switch is the only changing parameter between these two sets. It comes as no surprise that greenhouse gas emissions drop by 40% and fossil resource depletion by over 80%, since the recycled material does not require further oil extraction. Water shortage proves to be limited as well. Unfortunately, as it is often the case with recycled polyolefins, ozone depletion, land use and depletion of mined resources tend to peak.

\*Once assembled, these elements cannot be separated. This is not a refillable solution.











VEN					
	$\square$	ĥ		FA	mat
	65	22	Ø75	70/2P	PIR PP
	165	24	Ø95	89/2P	PIR PP



CARVEN LID

Å. mat Ø75x17 PIR PP Ø95x17 PIR PP



SHIVE		
	<u>.</u>	mat
D64	Ø66x4	LDPE
D85	Ø86x4	PP

ZERO IN•PACK CATALOGUE 🎇



# **GLASS, PP, ALU, PET:** WHICH MATERIAL IS THE MOST ECO-FRIENDLY?

This is a question we often receive and we can never answer properly: each material has its pro and cons. **Glass**, for instance, is long-lasting, infinitely recyclable, and almost inert, but it is also heavy, and its production has a high energy toll. **Aluminum**, on the other hand, is very light, resistant, and recyclable, but its extraction is responsible for the release of toxic substances, with long lasting damages on soil and freshwater. **PP** and **PET** are amongst the most commonly used thermoplastics for packaging.



This study compares the life cycle of **four different 100 ml jar sets**. To avoid any bias, only **virgin versions** were considered. While the first two sets are displayed in their recycled version in this catalogue, the other two were included in the study for demonstration purposes but are only part of our regular catalogue. No clear "winner" emerges from this study. In a strict, number-based approach the Mono and

Soft jar sets have an average smaller impact. For instance, both allow for a nearly 60% cut in greenhouse gas emissions, mainly due to their limited weight. However, *Mono* is not adequate for multiple uses, nor infinitely recyclable\*, and might not be fitting for a precious formula. **Soft**, despite its very limited weight against all other solutions, has a tremendous impact on freshwater. The Laurence set, is by far the most impactful solution, mainly due to the heavy weight of the glass jar, but it has the advantage of looking luxurious and being fit for plenty of cleaning and refilling cycles. Glass is also the best recycled material today. Finally, the **Carven** jar emerges as an intermediate solution: guite a versatile jar, it will fit most formulae while offering a sense of preciousness thanks to its size effect.



MONO 100 PET SET

In conclusion, there is no such thing as an intrinsically eco-friendly material. Extraction, production and even recycling are not neutral. These processes always generate **environmental impact**, as reduced as it may be. This is the reason why we had rather talk about **"reduced"** than "positive" impact. Deciding upon a packaging solution must therefore derive from a careful decision, that takes many criteria into account, such as retailing network, formula type and brand positioning. Weight has an important part to play, so does the nature of the material as emphasized in this case study.

\*Thermoplastics tend to lose their chemical, mechanical and aesthetical properties every time they undergo a new recycling process. This is especially true with polyolefins like HDPE or PP, whereas PET takes advantage of a well-structured recycling channel, displaying a longer life span. Glass is mineral based: an inert material, it can be recycled infinitely with no such loss.



# COMPARATIVE LCA FOR CILINDRO ALTO SLIM 200



Secondary raw materials have proven to be an excellent means of reducing environmental impact in the cosmetic packaging field. In similar manufacturing conditions, and for a given item weight, the use of recycled rather than virgin plastics can help shrink impact values from 3 to 16 times depending on the polymer and impact category. In this simulation, the baseline is our Cilindro Alto Slim 200 in virgin HDPE, topped with the virgin PP Lip dispensing cap. Replacing these materials with their recycled counterparts is an easy step to take, but proves beneficial in several impact categories: a cut of 40% in greenhouse gas emissions (climate change), nearly 70% in depletion of fossil resources (raw oil) and over 30% in water shortage. Unfortunately, as it is often the case with recycled polyolefins, ozone depletion, land use and depletion of mined resources tend to peak. The last set shows a similar impact profile, but the bottle is paired with an HDPE Lip cap (see box in next page).

	SUGGES	STED ACCE	ESSORIES
		1	5
	LIP FLIP	ТОР	
and the second sec	Å.	mat	
	Ø27x23	PCR PP	
	AV SPRA	Y SMOOTH 190 F	l mat 2P + engine
	LAUREN		
	F=1	(1)1v10	mat DD : DC
	24/410	Ø34X31	PP + PF

# CILINDRO ALTO

ml	$\square$	ĥ		FA	g	mat
150	162	146	Ø41	24/410	16	PCR HDPE
250	262	173	Ø48	24/410	24	PCR HDPE
CILIND	ro alto	SLIM				
50	55	93	Ø32	18/415	11	PCR HDPE
100	113	122	Ø38	24/410	13	PCR HDPE
200	214	172	Ø44	24/410	19	PCR HDPE
500	538	225	Ø60	24/410	40	PCR HDPE



### LIP HDPE DISPENSING CAP

From 2023, the Lip 24/410 dispensing cap will be available - on request - in virgin HDPE instead of virgin or recycled PP. It was especially designed for HDPE bottles to create a monomaterial packaging set, ready for recycling. In fact, it is easy to separate crushed PET containers from their PP caps during the recycling process, thanks to their contrasting densities. On the other hand, HDPE containers and their PP accessories often turn into a mixed, downcycled, secondary raw material. Problem solved!







### SIRIO ALTO **⊲**▲⊳ F g ml $\square$ ĥ mat 116 124 Ø38 24/410 PCR PET 100 17 150 166 147 Ø42 24/410 PCR PET 19 200 215 148 Ø47 24/410 22 PCR PET 200 slim 223 172 Ø44 24/410 22 PCR PET 250 266 178 Ø47 24/410 24 PCR PET





# FLO FLIP TOP

*Å*	mat
Ø27x23	PCR PP

# SUGGESTED ACCESSORIES



# LAURENCE MONO 24/410 CAP

	mat
Ø34X31	PP + PE



 Imat
 Imat

 Ø32x45
 400
 PP + engine







NINA CAP SHINY



# **PET** RECYCLING FRIENDLY

Plastic took over the world back in the 1960s as a groundbreaking innovation. It quickly became widespread in different industries such as houseware, clothing, automotive, construction, among others. It became a material of choice for food packaging. Specifically PVC turned into the number one option in the beverage sector. Further in time other types of plastic were developed and in the early 90s there was a boom of PET which supplanted PVC overnight. The formulation of this material makes it easy to recycle multiple times. Most of the bottles produced in PET are made through injection blow molding.

### PROS



Aesthetical Properties PET is an optimal solution for see-through packaging since it is shiny and transparent.

# $\overline{\checkmark}$

Chemical Properties The composition and rigidity of

this material make it compatible with a wide variety of formulae.

# Availability

Since it is used for many different applications, there is a vast supply of virgin and recycled material.

# Recyclability



As far as end of life is concerned, PET boasts the best developed recycling stream among all plastics.



₿ BY EUROVETROCAP - 2022

















	mat
Ø34X31	PP + PE





ALEX						
ml	$\square$	h	<b>▲</b> ▼	FA	g	mat
100	117	98	Ø45	24/410	16	PIR PET
200	217	126	Ø53	24/410	21	PIR PET
250	267	137	Ø56	24/410	23	PIR PET
500	540	176	Ø69	24/410	32	PIR PET

36

# **NINA AIRLESS BOTTLE**



# Nina White Cap

This PP overcap is available in virgin and recycled version, both in shiny and matte finish. It snaps onto the pump's collar, creating a flush set.

# **Nina Dispenser Shiny**

In this pump both the collar and actuator are produced from PIR PP. The engine is based on virgin materials but is metal and POM free. This pump is specifically designed for the Nina Airless and the collar can be made in a matte version on request. To assemble the set, this pump is simply screwed onto the bottle after filling.

# Body

This component is one of the three elements that make up the bottle. It is the main part that contains the product and to which the piston and base are attached. The standard recycled version is available in a shiny finish. It can be produced in a matte finish upon request.

# Piston

This component lies at the base of the body. It guarantees tightness to the system, and pushes the formula up allowing for a high evacuation rate. In piston airless systems, actuation of the formula creates a depression that generates an upward motion of the piston. Currently the piston is only available in virgin HDPE.

### Base

It is the final element that closes the bottom of the bottle. It is produced in PIR PP. The perforation in the middle of the base allows for the air to flow in under the piston, letting it go up.





mat

PIR PP+HDPE

PIR PP+HDPE

PIR PP+HDPE







# NINA CAP WHITE SHINY

Ø31X27 PIR PP



# NINA DISPENSER SHINY

	(ju)	mat
Ø32X45	500	PIR PP + engine

NINA					
ml	$\square$	ĥ		F	g
15 shiny	18	100	Ø32	24/410	17
30 shiny	35	126	Ø32	24/410	22
50 shiny	56	158	Ø32	24/410	28

# LEGEND



We reserve the right to modify, cancel or replace any item shown in this catalogue, without prior notice.

The colors of the items shown are just for a chromatic effect. Not all colors can be replicated precisely.

All dimensions and capacities in this catalogue are provided for information purposes. Only technical drawings prevail.



# **Eurovetrocap Spa**

Via Mario Pagano, 59 20090 Trezzano S/N MILANO - Italy

### eurovetrocap@eurovetrocap.com

/end	dite Nord Italia	
Гel.	02 48443201	
	02 48443205	
	02 48443211	
	02 48443222	
	02 48443236	
	02 48443242	
	02 48443247	

Export sales Tel. +39 02 48443209 +39 02 48443210 +39 02 48443212 +39 02 48443214 +39 02 48443224 +39 02 48443232 +39 02 48443253 +39 02 48443269

Eurovetrocap	Spa (Fipack)
Via C. Narwasi	

# Eurovetrocap France

Via G. Nerucci, 4 51031 Agliana (PT) - Italy

12 Rue du 4 Septembre 75002 Paris - France

fipack@eurovetrocap.cor

Vendite Centro Sud Italia Tel. 0574 67451 eleonora.cattaneo@eurovetrocap-france.com

Mob.+33 6 37 27 25 84

www.eurovetrocap.com







Rev. 2 - 12/2022