# Beauty & Personal Care Case Studies 2020

## Recylability by Design

October 2020

## About RECOUP

RECycling of Used Plastics Limited (RECOUP) is a charity and leading authority providing expertise and guidance across the plastics recycling value chain. Built on a network of valued members, collaboration is central to its activities. RECOUP is committed to securing sustainable, circular, and practical solutions for plastic resources both in the UK and world-wide.

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RECOUP works to maximise plastic recycling through stimulating the development of sustainable plastics waste management, including the improvement of plastics collection and sorting activities across the UK, undertaking research and analysis to identify good practices and remove barriers to the adoption of efficient recycling systems.

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# The Value of Beauty and Achieving Recycling of Packaging

The aim of this case study is to highlight selected packaging within the beauty and personal care sector, looking at how items are packaged, what materials are used and how they can be improved. RECOUP has taken sample plastic packaging from this sector to assess if and how they would perform through the process of mechanical recycling.

This case study will focus on good and bad packaging designs, the reasons, and how improvements can be made to ensure maximum recovery whilst minimising the impact on the environment. It is estimated that the beauty industry is worth £30 billion to the UK economy compared to £18 billion a decade ago[1]. This growth has exploded due to social media, and of course online shopping.

Thinking about these products you use: How are they disposed of in the home? Are they placed in a separate bin that does not get sorted for recycling? Do you read the packaging and guidelines for disposal? Is there clear instruction or advice on disposal?

In 2019, with increased focus on food packaging, has seen the UK getting to grips with recycling from the kitchen. However, it is a different story when it comes to the bathroom and beauty products. More attention and consumer awareness are needed in this sector when it comes to the recyclability of packaging. Many of us are falling short as we are unsure of what to do with these items once finished with them.

A survey conducted last year by a cosmetic brand revealed that around 57% of Brits do not recycle any bathroom products.[2]It is calculated that the average Brit uses over 52,000 bathroom products in their lifetime, weighing a total of 512 kilograms, women's health and beauty products account for a significant proportion of this waste, with the average woman producing 527 items of cosmetic and hygiene waste each year.[3]

Data taken from the RECOUP Household Plastics Collection Survey 2019 reports that there are 1.5 million tonnes of packaging placed on the market consumed by households. Of this approximately 188kt are HDPE plastic bottles, with 131kt being natural HDPE and 57kt being coloured HDPE. This 20% that makes up coloured HDPE will include bathroom and beauty products.[4]

It is noticed that these products are seen much less around recycling plants across the UK than that of food packaging. This could be due to the lack of clear guidance and consumer awareness but also that packaging from this sector has a lower turnaround and we do recognise that food packaging is used and replaced more frequently than that of beauty and personal products.

Cosmetics differ from other retail goods in so far as the 'consumption situation' must influence consumers' 'impulse buying behaviour' through 'experiential marketing', meaning the more attractive and quirky the packaging the more likely the consumer will buy on impulse. Although many beauty and personal care products are essential and part of our weekly shop, a large amount of this sector would be luxury purchases and impulse buys pushed through advertising and eye-catching packaging designs.

## General Principles when Considering Recyclability of Beauty and Personal Care Packaging

There are several key considerations relevant to beauty and personal care packaging. These include:

- Items under 50mm diameter do not get through the sorting process and are generally not recycled unless collected through a system separate to kerbside.
- Labels should not cover more than 40% of the surface area of the pack.
- Instructions to consumers both directly on packs and through kerbside instructions via local authorities need to be improved and consistent.
- Clear PET, clear and coloured PP, and natural and coloured HDPE all have good current sorting and reprocessing capacity in the UK.
- Household film and pouch collections and recycling are currently less well developed than for rigid bottles, pots tubs and trays.
- Multilayers of plastic and other materials, or different types of plastic are not generally recycled.

[1] Figures and information taken from Oxford Economics and the British Beauty Council
[2] Figure taken from Garnier survey
[3] Figures from Resource
[4] Data from RECOUP/Veolia Plastic Bottle Recycling Report

## Categories of Beauty and Personal Care

- Dental care – toothpaste/dental floss/mouthwash
- Personal care/hygiene – deodorant/soap/shower gels and creams
- Hair – shampoo/styling products/hairspray
- Skin care – creams and face products/lips/feet and hands
- Sun care – creams/lotions/after sun
- Hair removal – shaving/waxing
- Nail care – nail varnish/remover
- Cosmetics – makeup/makeup removers

## Case Study 1: Dental Care


**Toothpaste has been packed in tubes since the reign of Queen Victoria and makes up the largest segment of the UK oral care market. Consumers can choose from a range of packaging options from pump dispensers, aerosols, and tubes. The outer packaging contains foil, metallic inks, and embossed printing.**

The tubes are made from sheets of plastic laminates – usually a combination of different plastics sandwiched around a thin layer of aluminium.

The mix of materials makes it impossible to recycle through conventional methods. Whilst sometimes the outer packaging of the tube and cap are deemed recyclable, the aluminium lining inside prevents the packaging from being further processed into new products. The size of some tubes can also prevent the packaging from being recycled, being less than 50mm in width, there is a possibility that these can be lost during the process at a material sorting facility.

Colgate launched the first recyclable toothpaste tube in 2019.

The tube is made of HDPE and does not contain the aluminium layer like regular toothpaste tubes, whilst the different thicknesses of HDPE allows the tube to remain squeezable. HDPE, being a stream that is widely recycled, allows the tube to meet bottle recycling standards, and be placed into kerbside recycling and is given the opportunity to be transformed into new products.

RecyClass certifies that the tube will not have a negative impact on the current European HDPE containers recycling provided that this type of tubes is designed under specific conditions.


These include, among others, the requirement that closures, liners, seals, and valves as well as any other components are made of PE. The findings of the RecyClass testing contribute to the constructive developments within the design for recycling for toothpaste packaging and overall adds to the developments in increasing the recycling rates in this stream.


Another good example in this sector is Listerine mouthwash.

The bottle is made from clear PET with a PP cap. The label is adhering to guidelines by covering no more than 40% of the bottle surface, allowing maximum sorting and recovery if placed in recycling. It is recommended that caps, tops, and lids on PET bottles should be either PP or PE, this allows easy separation and does not interfere with the recyclability of the bottle material

## Case Study 2. Shower Products

**Shower and bath creams come in all types of packaging and colours and give the consumer a much greater choice in fragrance, cost and dispenser than that of the traditional bar of soap that became popular in the 1600s and was marketed as a luxury product. By the 1800's liquid soap was becoming popular thanks to Palmolive. Fast forward to today and there are over 200 million bottles of shower gel and creams sold in the UK each year.**

The Sanex shower cream is bottled in a mono HDPE bottle with an adhesive label front and back, covering no more than 60% of the surface. Although this bottle meets the design guidance, there are no instructions on the packaging to inform of the recyclability of this product.


RECOUP member, Method use a HDPE bottle for their body wash.

The bottles are printed with silk screen and labelled on the back.

These labels are a permanent water borne acrylic adhesive.

They are designed for high opacity and moisture resistance, as the bottles are likely to be kept in the shower every day, a humid-warm environment, hence the need to ensure they do not come off by themselves.


RECOUP conducted various tests at sorting facilities in the UK of these light-coloured bottles and each test proved successful with the bottles being correctly sorted and detected for further processing.

Working with the team at Method, including sharing RECOUP guidelines and key principles for recyclability, is one of several partnerships RECOUP have formed within the industry.

## Case Study 3. The Refillable Pouch

**Refillable pouches promote a greener solution to rigid plastics, claiming less packaging and recyclability. Pouches are made from flexible materials which often cannot be recycled mechanically and therefore should usually not be placed in recycling bins at home.**

Flexible materials such as films, pouches and carrier bags can sometimes be collected at larger stores if clean and dry. However, the pouches pictured by L'Occitane also contain a rigid spout meaning these pouches could not be placed in front of store collections with films and flexibles. Where sorting facilities cannot accommodate flexible materials, film recyclers cannot accommodate rigid materials and therefore the consumer would need to remove the spout before placing in any collection scheme which is highly unlikely given there are no instructions to do so.

These spout pouches are marketed as a growing alternative to plastic bottles and other rigid packaging, claiming they use less packaging, take up less space and are more environmentally friendly. The current system for kerbside collections does not include these pouches, unlike bottles, pots, tubs, and trays which are recycled mechanically and turned into new products.

**It is fair to say that you cannot alter the recyclability of a pack by passing the responsibility to the consumer.**

In terms of current systems this pack is not recyclable but there is much potential for refillables in terms of less packaging and developing recycling systems for dismantling or removing components. Providing the refillable pouches meet recyclers requirements by not containing a mix of flexible and rigid material these pouches could be placed into front of store collections in retailers such as M&S where they collect anything that cannot be recycled from the home.

# Case Study 4. Hair Care Products

**Similar to shower gels, shampoos and conditioners are available in all kinds of eye-catching packaging. Looking at this sector in the shops, they are predominately sold in bottles meaning in theory should all be recyclable from home.**

The shampoo example, shown here, is in a fully recyclable HDPE bottle. No instruction or labelling to inform the consumer that the bottle can be entered into the recycling stream. Coloured PE has extensive end markets which would help to ensure this bottle would be recycled into new products.


NOTE: Recommendation to provide clear instruction that the bottle can be placed in the recycling bin.



The Schwarzkopf sample, show left is a heat protection spray for blow drying hair. It is a black HDPE bottle with full shrink sleeve and plastic actuator. It is unlikely that this bottle would be detected or sorted for recycling due to the full black sleeve and carbon black pigment present in the bottle.

**NOTE: Recommend a bottle and sleeve which is not black**

## Case Study 5. Skin Care (Updated October 2020 please refer to Appendix 1)

**Giving the correct message is vital to the consumer. Instructions should be clear and concise on how to dispose of packaging ensuring that it is disposed of correctly. If the packaging is made from plastic that can be mechanically recycled i.e. PE/PP/PET this should be displayed using the correct message.**

The examples of the Bulldog cosmetic products above do not give a clear message. Many of their products contain plastics derived from sugarcane or bioplastics. Providing the plastic derived from sugarcane is non-biodegradable, this can be recycled in the conventional way. It is important not to get these materials confused as non-biodegradable products entering the compostable stream will contaminate the final product.

Bulldog display the resin identification code of number 7 on their packaging. These codes are not compulsory on packaging and should not be used as a guide to recycling. Numbers 1-6 of the resin identification codes represent that the package is made from a specific plastic type. Number 7 represents miscellaneous materials used, including other resins which are not widely recycled.

Bulldog state that the body and cap of their product is made from PE and PP, both plastics are recyclable and if this is the case, the product should be labelled as "widely recycled". However, if the product contains a mix of biobased plastics that contain PLAs along with polyolefin-based plastics then they cannot be labeled as recyclable.

Bulldogs' message is not clear, claiming they use sugarcane for their packaging, whilst on another part of their website they make the following statement.



*Our Packaging*

*Bulldog products all display a symbol known as the resin code identifier. That's the little triangle made of arrows which, usually, contains a number. This symbol explair the packaging material i.e. type of plastic. Our tubes are currently labelled as "7 other" because the "body" of the tube and the "cap" are made from slightly differer types of plastic (PE and PP). However, PP and PE can be recycled together as they are part of the same overall plastic family (the polyolefins).*

This example highlights further confusion for the consumer, where the packaging can be recycled but lacks guidance or information.

The body lotion pot including the lid is made from Polypropylene (PP). The packaging, once empty of contents, can be recycled from home. It would be sorted, recovered, and processed mechanically with various end markets.

There is no information or instruction on the packaging that informs the consumer how to dispose of it or that it can be recycled.

On further inspection and removal of the white sticky label on the bottom of the pot, it does reveal the resin identification code, however this would not help the consumer with correct disposal.


This is a good example of valuable material that is not being collected as much as it should be partly due to lack of instruction to the consumer, resulting in the pot likely being placed into general waste.

**NOTE: RECOUP would recommend visible instructions on the label to the consumer that the pot and lid can be recycled.**

Clinique skincare sample is a PET bottle with a plastic actuator that contains metal springs. The clear bottle would be detected in a sorting facility and processed for recycling. However, any metal springs which are missed by magnets etc. may cause issues during the recycling process

The metal springs would need to be removed prior to the PET being flaked and washed and direct printing contaminates PET in the system. All colour and printing should be confined to labels as per the "Recyclability by Design Guidelines".

The clear PET bottle allows the consumer to see the product and the amount that is left. However, the design of this bottle would result in valuable resources not being recovered


**NOTE: Replace metal springs with an all plastic actuator and add labels to the bottles that cover no more than 40% surface area**

## Case Study 6. Sun Care

Sun care is dispensed in various formats from traditional lotions to sprays and, more recently, roll-ons.

Garnier Ambre Solaire clear products come in a single polymer HDPE bottle that has a window down the entire bottle on one side. This is merely an area that is free from the masterbatch colour used to colour the larger proportion of the bottle. It is a technique that is very commonly used in the motor industry for plastic oil cans!

Nivea have recently rebranded and they have made use of recycled materials for some of their products. However, they are still using the same full sleeve format as before, which has a window towards the bottom of the front of the bottle which shows clearly that the product inside is a clear, sun care formula and being towards the bottom of the bottle, allows the consumer to judge the remaining content.

Garnier have taken a different approach to solve the problem and allow the consumer to benefit from the visual references that Nivea have with their bottle whilst still allowing the white HDPE bottle to be easily recycled, with minimum label/printing coverage.

The Nivea example with full coloured shrink sleeve could impede recyclability of this bottle.


**NOTE: Follow recommended guidelines for sleeve coverage**

## Case Study 7. Hair Removal

The packaging for this product is a PE or PP flexible material (LDPE/MLDPE). Flexible material is not currently recycled mechanically like rigid plastics and therefore this item should not be placed for recycling. However, these types of products could be packaged in HDPE tubes similar to those used by Colgate for their new toothpaste tubes which allows the tubes to remain squeezable.


**NOTE: Recommendation would be to change the packaging shown above to a PP or PE rigid bottle and cap, this would enable the pack to be collected and sorted for further processing.**

The picture, left, shows an example of an HDPE rigid tube, which could be used as an alternative to that above.

## Case Study 8. Nail Polish Remover Bottles

Little description needed here. Bottles are widely collected and this nail polish remover in an HDPE bottle with minimum label coverage and recycling instructions on the back for the consumer, makes it clear and easy.

Good example of packaging following design guidance with clear concise messaging about how to discard of the bottle in the correct stream.


## Case Study 9. Cosmetics / Makeup

Billions of pieces of packaging are produced each year for cosmetics around the world. The materials used for this packaging is so varied and often consists of materials which are not collected kerbside or mechanically recycled in the UK.

The packaging for these items may also contain mirrors, magnets, brushes, and a variety of additions to make the packaging attractive to the consumer. Due to this, most makeup, and cosmetic items like those pictured should not be placed in household recycling bins.


There are some schemes in place where such items can be taken to collection points. Some brands are offering reward schemes for customers who return their used makeup packaging to stores, and retailers are offering takeback and refill schemes on beauty products. However, there is little information available on what these outlets are doing with the collected material from takeback schemes and there is a lack of evidence to suggest that they are being reused or recycled. More information is needed from retailers and the organisations that run these schemes on the process of what happens once the material is collected and would be welcomed by the plastics industry.

Some of examples of take back schemes for beauty products

| RETAILER | SCHEME |
|---|---|
| MAC | Back to MAC programme. This allows the customer to return 6 primary packaging containers in exchange for a free lipstick |
| Body Shop | Return Recycle Repeat scheme encourages customers to return any 5 empty bottles, tubs, tubes or pots to be recycled in exchange for £5. |
| John Lewis | Provided a new scheme that ran for 9 months. This allowed customers to return empty beauty products instead of putting them in the bin. |

Evidence is required to support claims on take back schemes; is the used packaging collected, where is it taken and how is it being reused or recycled, what is the end product?

## Summary and Next Steps

From the work on the case studies it has become apparent that many beauty and personal care products, even if packaged in materials that can be recycled from home, lack any form of consistent instruction to the consumer.

Valuable material is being lost due to the consumer being confused and under the impression that these items are not recyclable.

The aim of the case

study is to highlight to brands how they are missing the opportunity to promote their packaging as being sustainable and to help and advise those whose packaging could be redesigned to improve recyclability. Industry has the responsibility to help increase recycling rates across the UK and, in turn, continue to educate and inform the consumer with clear guidance and instruction.

As RECOUP are always keen to point out in recyclability guidelines; packaging must fulfil its primary function first and foremost. For example, in the food industry, packaging will help protect and keep the food fresh in addition to any aesthetic function. So, while the Health & Beauty sector will concentrate on appearance in a competitive market to help drive sales, consideration of sustainability and recyclability must be made at the design stage.

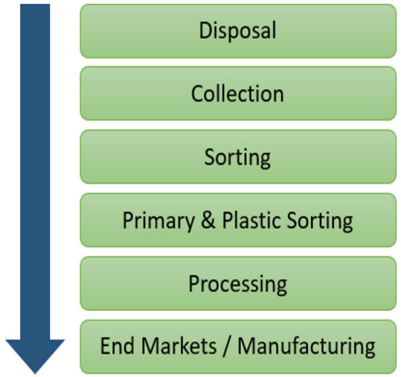
## Further research

RECOUP is continuing research in this area and has launched a 'Small Items' focus group.

RECOUP members expressed an interested in small plastic items, what happens to them, why they are not sorted and recycled and how can we over come this. This was a topic of interest for many of our members with small plastic items of 50mm or under in size coming from across sectors.

The group tackled current challenges facing producers when it comes to the design and recovery of small items in the waste stream, limitations in current infrastructure to handle such items, public behaviours and understanding and discussion around possible solutions to the challenge that manufacturers and brand owners face in relation to small items under 50mm in diametre. This work continues looking at recommendations for further work to overcome the barriers from collections to the sorting process and importantly pack designs.

## End Markets




Awareness of value and versatility of used plastics packaging needs to be developed further. Whether it be post-consumer or post-industrial, the opportunity to recycle valuable resources into new products and applications is expanding and should be recognized. For something to be recycled there needs to be an end product produced. This means that it needs to pass each stage of the recycling process. There are five stages in the process:

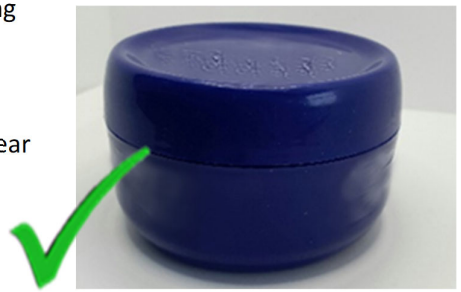
Many of the products found in this sector can be recycled with Polyethene and Polypropylene being the primary polymer of choice. These materials have a value and can go on to be recycled into new products. If designers can give thought to the guidelines and ensure they clearly inform the consumer on the packaging this would see an increase of bathroom and beauty products in sorting facilities across the UK.

There are a wide range of products now produced which contain recycled plastics, including: non-food applications such as in construction (e.g. pipes and building site screens); garden furniture; pens and kitchen utensils; paint pots; and, using polymer yarn and fibres to produce clothing such as t-shirts and fleeces.

# Appendix 1: Updated Skin Care case study

**One area of beauty and personal care that promotes an array of luxury, eye catching packaging is skin care. Believed to have been created by the Egyptians using milk and honey it has evolved into a multi-million pound industry with consumers eager to purchase the newest high end anti-wrinkle cream presented in packaging that would complement any powder room!**

Looking at some examples from this section we selected three well-known brands on the market to see how their packaging rates in terms of recyclability.



This pot is made from one polymer, HDPE, container, and lid. There is a protective foil opening that can be removed by the consumer or would be easily separated at the recycler. The label coverage is minimal allowing over 60% of the pot to be clear from sleeves, inks and adhesives.
Providing the pot does not contain any carbon black pigment in the plastic it should be correctly recognised at a sorting facility.

These dispensers/pumps are made up of mono materials and small parts making it difficult for them to be separated, much of this type of packaging is made from unrecognised polymers, so although they appear to be plastic they are not made from plastics that can be mechanically recycled.

Size also has an impact, and we find that lots of packaging in this sector is small and compact. Being less than 50mm in diameter also has an impact on recovery of such items in a sorting facility.

This skincare sample is a PET bottle with a plastic actuator that contains metal springs. The clear bottle would be detected in a sorting facility and processed for recycling. However, any metal springs which are missed by magnets etc. may cause issues during the recycling process
The metal springs would need to be removed prior to the PET being flaked and washed and direct printing contaminates PET in the system. All colour and printing should be confined to labels as per the "Recyclability by Design Guidelines".

Additional note with reference to the Clinique Bottle examined previously.

The clear PET bottle allows the consumer to see the product and the amount that is left. However, the design of this bottle would result in valuable resources not being recovered.

**NOTE: Replace metal springs with an all plastic actuator and add labels to the bottles that cover no more than 40% surface area**

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