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Outcome document on the Recyclability of Packaging for Decorative Cosmetics

Published by the member companies of the Forum Rezyklat and additional stakeholders from the decorative cosmetics sector

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1 Introduction

In the context of implementing the new EU Packaging and Packaging Waste Regulation (PPWR), which will require all packaging to be designed for recycling from 2030 onwards, it is particularly relevant to highlight the specific challenges faced by the decorative cosmetics sector.

The decorative cosmetics industry includes, in addition to internationally operating corporations, a particularly large number of medium-sized enterprises that produce both cosmetic products and the necessary packaging. Due to the specific requirements of their products, these companies face considerable hurdles in implementing the new regulations.

Our objective is to provide full transparency regarding the unique initial situation of the sector and to present constructive proposals that align regulatory compliance with consumer safety, resource conservation and the overarching objectives of the circular economy.

2 Small Sized Packaging

2.1 Initial situation on small and cylindrical packaging in decorative cosmetics

Packaging for decorative cosmetics is often cylindrical and has small dimensions in two directions, ranging from 8 millimetres to 20 millimetres. Common examples include:

- Lipsticks, stylo and stick formats
- Cosmetic pencils in various versions
- Lipgloss, mascara or eyeliner

These small packaging dimensions do not result from marketing considerations, but from product-specific necessities:

- **Application requirements**: Products such as eyeliner or mascara demand the maximum accuracy and a very precise application. This requires delicate applicators that define the necessary packaging.
- **Shelf life**: Cosmetics that are applied directly to the skin – especially the face – are at high risk of microbial contamination. Smaller packaging sizes ensure that products are used up completely within their shelf life. Artificially increasing the size of packaging would lead to products being used beyond their recommended expiry date, which would jeopardise consumer safety.
- **Conservation of resources**: The oftentimes high-quality formulations have limited stability. Smaller units prevent spoilage and reduce waste of valuable raw materials.

The cylindrical shape also has functional reasons. It is based on the round shape of the contents (e.g. pencil leads) and ensures ergonomic handling. In addition, the cylindrical shape requires less material than prismatic or cuboid alternatives. Switching to other geometries would regularly involve higher material consumption and additional environmental impact.

2.2 Results of sorting trials

For evaluating the recyclability of decorative cosmetics packaging, a sorting test was carried out in a German sorting facility that reflects the current state of practice for lightweight packaging. It is known that some individual sorting facilities already apply state of the art technology, which can include shredding of objects at the beginning of the sorting process. As a result, parameters such as size and shape play only a minor role for the overall recycling process [1]. However, this approach does not represent the current and widespread practical sorting landscape in Europe. Therefore, this outcome document is aligned with the established state of practice. The results, which are shown in table 1 in the appendix, demonstrate the limitations of the technology available in the sorting test. These limitations are mainly caused by size and geometry:

- **Minimum size**: More than 37% of the tested packaging items were rejected in the first sorting step because of their dimensions and were assigned to the residual fraction. This is caused by packaging that measures less than 30 millimetres in two dimensions, which was therefore discharged for technical reasons in the current facility.
- **Geometry**: Cylindrical packaging tends to behave unstable on the conveyor belts, which can limit or prevent targeted sorting into material fractions. As a result, additional packaging items, even when identified, could not be assigned to any material stream.

As a result, the overall sorting efficiency for the cosmetic packaging examined in this test is only about 6 %. In many cases, exclusion from material recycling does not occur because of the material itself, but because of the specific shape and size characteristics of these packaging types.

2.3 Target conflicts with circular economy principles

A forced increase in size or redesign of the packaging with the aim of facilitating recycling processes would be in direct contradiction to the objectives of the PPWR:

- **Material reduction**: Larger packaging requires more material and therefore conflicts with the goal of waste prevention.
- **Resource efficiency**: Alternative materials such as glass or aluminium cause significantly higher energy consumption and CO_2 emissions during production and recycling than plastic packaging.[2]
- **Climate targets**: The measures listed above may, in certain aspects, conflict with the requirements of the European Green Deal and the European Union's goal of achieving climate neutrality by 2050.

How does the Commission intend to address this conflict of objectives between recyclable packaging and the fundamental principles of the PPWR, in particular, material reduction, resource efficiency and climate neutrality, in the future?

3 Requirements for implementing the Packaging and Packaging Waste Regulation

3.1 Lead times and investment security

The PPWR provides a buffer of two years between the publication of the delegated acts and the entry into force of the corresponding article and its required implementation. For the cosmetics sector, as well as other sectors in the packaging industry, this period may not be sufficient.

Reasons:

- **Investment cycles**: Injection moulding tools have a service life of several years, and their redesign or modification requires long development times and high investments.
- **Research and development**: New materials must undergo extensive testing, including stability tests, compatibility tests with formulations and storage tests, which often take several years.
- **Production modification**: Lead times for converting machines and production lines are significant.

A wide range of companies are already working on implementing recyclable packaging concepts and preparing for the upcoming requirements of the PPWR. Some of these changes can be integrated into existing processes, while new product developments can be launched directly with recyclable packaging configurations. To reflect these ongoing efforts, we explicitly request that the effectiveness of the relevant articles not be postponed to a later date.

Instead, we call for the delegated acts on recyclability, Article 6, to be published at least three years before they enter into force. This would give the industry realistic time for planning and implementation.

3.2 Availability and quality of recycled materials

In the cosmetics industry, it is established practice to use food-grade recycled materials, as the packaging comes into direct contact with sensitive formulations. The availability of high-quality recycled polyolefins (rPP, rPE) and rPET is already seriously limited today. Forecasts predict a recycled material deficit of between 788,000 and 3.5 million tonnes by 2030 [3]. The deficit describes the unavailable quantities of post-consumer recycled materials of a quality that would enable the production of safe, high-quality packaging applications. This gap is expected to expand further as recycling capacities in Europe decline. Many recycling companies are facing imminent bankruptcies, while others have already been forced to close due to challenging market conditions such as reduced demand and price competition from virgin materials. Industry associations in the recycling sector are warning of an impending collapse of the entire recycling industry.[4]

The shortage of high-quality recyclates is exacerbated by the fact that there is currently no harmonised regulatory framework for cosmetic packaging. According to current legislation, products must be safe for end consumers, which requires a safety report prepared by a competent person. As evidence of the long-term contact suitability of cosmetic packaging, which is also part of the end product, reference is made to the legislation for food contact materials, as the EU Cosmetics Regulation regulates cosmetic products but not their primary packaging. This significantly restricts the choice of materials and leads to disproportionate competition for limited raw materials.

We welcome initial industry initiatives such as Cospatox with their commitment to DIN SPEC 91521, which enables safety assessments for recycled materials in the cosmetics sector. In practice, there are already isolated solutions for producing recycled materials from post-consumer sources of polyolefins or polystyrene. However, these solutions are not currently universally implemented or recognised.

We would therefore welcome official recognition at European level in the form of a standard for cosmetic packaging.

4 Conclusion

The decorative cosmetics industry shares the European Commission's objective of reducing waste and strengthening the circular economy. However, we want to ensure that the implementation of the PPWR does not lead to the exclusion of entire product groups or to a degradation of the environmental balance.

The sector is prepared to invest in new technologies and materials, optimise packaging and make it suitable for recycling.

However, this requires planning security, realistic transition periods and a differentiated regulation that takes into account the special characteristics of decorative cosmetics.

Appendix

Table 1: Consolidation of the results from the conducted sorting trials [5]

Description	Total input	Determinant parameter: **Size**	Determinant parameters: **Shape + Size**		
		Residues (undersize)	**Residues after NIR-detection**	**Output residues (total)***	**Output residues + MP (total)****
Mascara	100	4	31	35	76
Eyeliner caps	100	79	15	94	98
Liquid liner pen	100	12	68	80	100
Dipliner 3	100	16	84	100	100
Refill pans eyeshadow	100	73	23	96	96
Total [in pieces]	500	184	221	405	470
Total [%]		37%	44%	81%	94%

* Output residues (total)= Residues (undersize) + Residues after NIR-detection
** Output residues + MP (total)= Output residues (total) + Mixed Plastics [MP] (not specifically shown in the matrix) → Addition to the consideration of MP: According to the current state of practice, mixed plastics are generally not subjected to high-quality recycling. Therefore, products in this category can likewise be considered as lost for material recovery.

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