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BEAUTY TOOLS
BEAUTY
TOOLS





The development of more responsible beauty tools, expected by customers, is a major challenge for the cosmetic accessories industry. Alternatives to petrochemicals in makeup tools must be taken into consideration while preserving application performance and user experience.

While consumers have long been concerned about the composition of their beauty products, more and more of them are now scrutinising the materials used to produce the applicators they buy. This can quickly become problematic for makeup sponges and puffs, which have been produced from petroleum-derived ingredients for decades, as well as makeup brush fibre and plastic handles.

SYNTHETIC MAKEUP SPONGES

The first cosmetic sponges in history were natural. Derived from sea sponges or made from natural latex, they were quickly replaced by synthetic materials that are allergen-free, resistant and reusable, less prone to the development of bacteria. Today, most beauty sponges are made of NBR (Nitrile Butadiene Rubber) or PU (polyurethane). These materials are very efficient for the application, but come from fossil resources.

How then to improve the composition of sponges to move towards eco-designed applicators, without compromising on efficacy and safety? Beauty tool manufacturers have dedicated significant efforts over the years to find different alternatives to traditional materials.

LOWER MATERIAL WEIGHT IN NBR SPONGES

NBR is the most standard material used for universal makeup sponges, suitable for all types of formulas. By improving production process, it is now possible to control the integration of fine air bubbles, allowing the quantity of petrochemical ingredients to be reduced by more than a quarter compared to the same standard NBR sponge. This specific method even improves the properties of the sponge with a softer touch and a more uniform application.

BIO-BASED PREMIUM PU SPONGES

The 2nd material commonly used in the beauty sponge industry is polyurethane. Luxurious and ultra-soft touch with superior application performance, it is used for premium makeup sponges as well as cushion puffs because this material can be welded. To improve its environmental

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footprint, manufacturers recently succeeded integrating bio-based ingredients in PU material. These ingredients come from renewable resources such as corn and castor oil plant. Mixed with standard synthetic polymer, they help reduce the part derived from petrochemicals, up to 70%. The premium biobased makeup sponges produced in this material retain their properties in terms of make-up result, durability, and great softness.

MORE SUSTAINABLE PU BLENDER SPONGES

3D makeup sponges are made of hydrophilic PU, which allows them to swell when wet. To offer more natural applicators, 2 options are now available:

- Incorporating up to 30% plant powder replacing part of the PU. These powders can come from flowers like rose, green tea, lotus and lavender, bringing a natural smell and a unique colouring depending on the season. Bamboo powder is also used, known for its ecological culture (low water consumption and depolluting the soil) and non-food resource. It is even possible to upcycle brand production waste by incorporating their own plant powders.
- Using biobased pre-polymer during the foaming process, allowing to decrease by 60% petroleum-based materials in the final sponge. These plant-based pre-polymers are often produced from sugarcane waste or corn, both renewable resources.

LIMITS TO ECODSIGN FOR SPONGES

Among biobased makeup sponges, some of them are claimed as biodegradable. Experience has shown that the life of these plant-based biodegradable sponges is rarely satisfactory. After a few uses, the applicator that has been in contact with the skin microbiome develops mold and must be thrown away, leading to overconsumption of the product. Total life cycle of makeup sponges should be considered, and choose washable and reusable can also be a path to follow.

SYNTHETIC BIO-BASED MAKEUP BRUSH FIBRE

Originally, up until the 2010s, brush tufts were typically made of natural animal hair, such as goat, pony, or marten. With the “cruelty-free” awareness and the rise of veganism, most brands turned to 100% synthetic fibres, but also 100% petroleum-based (Polybutylenterephthalat (PBT) or Polyamide, i.e. nylon). Then, how to reduce the share of petrochemical materials and move towards a more natural approach without going back to animal hair?

Industrial prowess was to develop new synthetic vegan fibres, made of > 50% bio-based material, reducing the PBT proportion. They used renewable resources such as



inedible part of corn, thus avoiding the use of food resources. Special tapering is performed to ensure same smoothness and even application than PBT bristles.

UP-CYCLED PLASTIC HANDLES FOR MAKEUP TOOLS

If wooden handles are a great natural option for makeup brush and applicator, they are suitable for simple cylindrical shapes only. Injected plastic stays the best answer for complex shape such as retractable brush. To reduce petrochemicals, plastic suppliers can now offer bio-resins that upcycle industrial waste of rice, coffee, or tea for example. A wide range of biomaterials is thus available, allowing more naturalness for brush or even packaging that are not achievable in wood.

100% NATURAL ORIGIN BEAUTY TOOLS?

Customers are waiting for similar quality and performance than standard applicators. Till today, technology hasn't allowed for a fully plant-based alternative to makeup sponges or synthetic brushes that meets user expectations. If it is not yet possible to completely free ourselves from petrochemistry, it stays a major challenge for industry, and suppliers are committed to continue exploring and developing new production process.



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