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# EFFECTIVE – BUT SUSTAINABLE?

**Eye patches** | Among the solution to fight tired eye contour, hydrogel eyepatch has been favoured by consumers for years. From an ecological point of view, however, they have so far been able to score only few points. Alix Bellanné knows the latest advances here.



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Hydrogel eyepatches have been favoured by consumers for years. They have a lot of benefits for them: First, they are very easy and convenient to apply: take, apply, wait, job is done. They have a good adhesion to skin, so they can be used anytime without having to make time for a spa moment. Then, they are super-efficient. The natural cooling effect helps decongest, and the active ingredients are released when the gel starts melting with skin heat contact, enhanced by the occlusion effect of the patch. Finally, highly instagramable, it is a star of social media, even more with the youngest generations when it comes in a gold colour or sparkling finish! Easy to sell, easy to buy, they have however strong environmental concerns.

## Dosage form

The specificity of a hydrogel under-eye patch is that **the patch itself is the formula**. The solid gel texture is obtained with reticulation of polymer that traps water and active ingredients. To be as natural as possible, the cosmetic industry is mostly using carrageenans, mixed with agar-agar, cellulose gum, or carob gum. Carrageenans are polysaccharides that constitute the cell walls of red seaweeds. The matrix composed with this biopolymer and water creates a fresh clear gel that spreads the incorporated active ingredients.

## Limits on naturality

The tricky thing about hydrogel is the formula. It is a subtle balance between all ingredients (gelling agent, actives, preservatives...) that can easily be broken with minor recipe change. It means that **customisation possibilities are limited**, especially for active ingredients. For example, maximum hyaluronic acid amount will be between 0.05% and 1%, depending on the formula base.

Beyond this percentage, the bulk will solidify before it can even be moulded in patch shape.

For the same stability reasons, most of the hydrogel formula don't go over **96% of natural ingredients**. It is a big challenge for manufacturers to find natural preservatives, pH correctors, stability agents and so on that are compatible with the gel structure of these patches.

Hydrogel is also a fragile **single use product**. It is usually packed on a plastic tray, in a sachet made of plastic and aluminium complex. This non-recyclable packaging, using petrochemical resources, is the opposite of market expectations about sustainability.

## Improving packaging

Aware that consumers are more and more preoccupied by packaging waste, the beauty industry is now offering more sustainable packaging options to brands:

- Switching the complex unit sachet for a **mono-material sachet**, ready for recycling. In fact, only a few



countries already have a recycling channel able to process flexible packaging in PE or PP, but at least it is a first step through eco-design.

- Giving up single use and opting for a **multipack** option: with 15 to 30 pairs of eyepatches in a jar.

### New alternatives

Less known by consumers and brands, but just as relevant to treat eye contour, **impregnated eyepatches** can be a smart and more affordable alternative to hydrogel.

Unlike hydrogel, there is a support (non-woven patch) that is pre-soaked with a formula. This formula can be a lotion or an emulsion. It is a simple formulation that allows for 100% natural ingredients, and an easy match to standards like Cosmos or others. It also permits more flexibility in choice and quantity of active ingredients. The essence is applied to a tissue patch, that also provides an occlusive effect: It reduces the evaporation of the formula and

improves the delivery of the active ingredients to the skin.

From a sustainability point of view, the industry can now offer natural and biodegradable or compostable fabrics: mainly organic cotton for comfort or lyocell for second-skin effect.

The new emerging trend is upcycling: it is now possible to valorise food industry waste like banana peel to produce qualitative non-woven patches.

If a non-woven patch doesn't need plastic trays, it faces the same problem for sachet waste as hydrogel. Multipack options start to emerge as well:

- **Multipatch sachet:** up to 30 eyepatch pairs are directly impregnated into one resealable sachet with a zip, to reduce unit packaging waste.
- **Flowpack:** same idea, eyepatches are soaked in a flowpack and pulled out of sachets one by one like wipes.

- **Multipatch jar:** one recyclable and recycled jar avoids using 30 non-recyclable unit sachets with 2.5 times less total pack weight and six times less use of non-recycled material. It also reduces formula waste: with a same amount applied on the skin, two times less formula is needed in a jar of 30 pairs.

### Asia or Europe?

As the competition between hydrogel and non-woven eyepatches seems tight, brands and consumers choice will perhaps come down to geographical production. Hydrogel know-how is in Asia (mainly in South Korea), whereas non-woven eyepatch provides a local solution for European brands, with renowned productions sites in France or Switzerland for example. At the time of high considerations of carbon footprint, it is possible that this will tilt the balance. □

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