

**Research and Development****Shiseido Develops Next-generation Mascara Technology  
“WASHABLE LOCK TECHNOLOGY™”**

**New Film Development Leads to Combine Two Functions,  
Excellent Curl Retention and Easily Washable**

Shiseido has developed WASHABLE LOCK TECHNOLOGY™, an innovative technology that delivers both excellent curl retention and easily washable with warm water, overcoming a long-standing technical challenge in mascara technology (Figure 1). With this technology, which focuses on the film (film formers). This film also features a formula that has been optimized for fulfilling the film's capability to allow mascara to be washable with warm water, despite being an oil-based formulation. The result is a technological innovation that challenges the conventional idea of mascara: water-resistant but easily removed with warm water.

MAJOLICA MAJORCA Lash Expander Neo Lash and Ettusais Mascara Extra Long, set to be launched in February 2026, are planned to feature this technology.

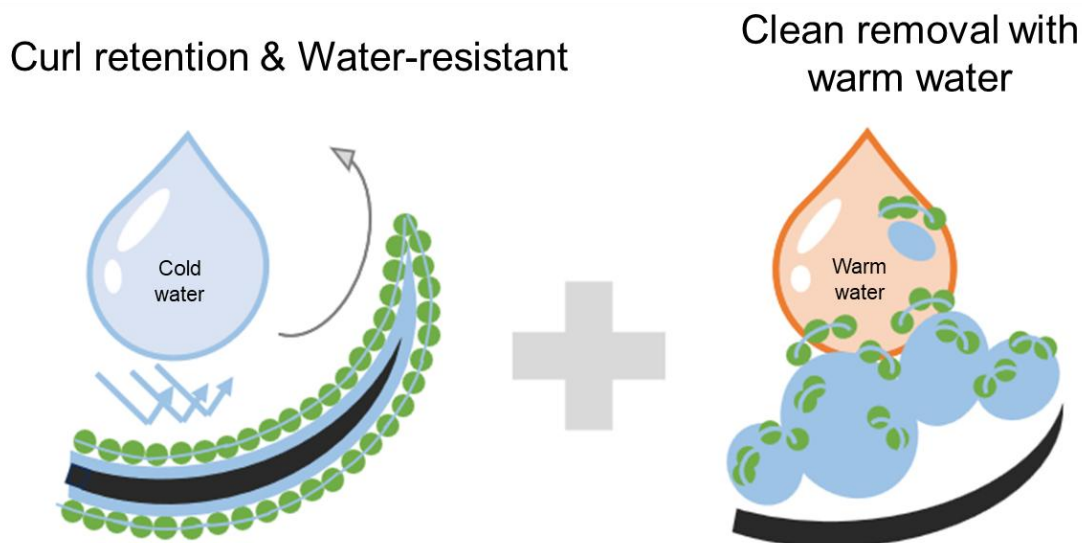


Figure 1. Achieving both curl retention and easily washable

**Research Background**

A mascara that beautifully retains eyelash curl for long and can also be easily washable with warm water—the realization of this seemingly simple need has been a tough challenge in cosmetic technology.

While conventional water-resistant mascara offers excellent curl retention thanks to its robust oil-based film, it requires cleansing-oil or special eye-makeup remover to wash it off. In contrast, the previous type (warm water removal) can be easily washed off due to its water solubility. Still, this very hydrophilic feature makes it a must for the formula to be formulated with a water base, which limits the curl retention. To advance mascara technology in the future, Shiseido approached this based on the idea that developing a new film that combines the two functions, which are at opposite ends of the spectrum, will be essential.

Aiming to create a new film that combines dispersibility in oil-based and washability with warm water, a curl film was developed that simultaneously delivers excellent curl retention, water-resistant, and easy mascara removal with warm water. This film was uniquely composed a polymer that based on the different functions of the monomers. Moreover, developing the ideal mascara formulation was enhanced by combining this curl film with a water-resistant type and creating a formula that enhanced its function.

### One-of-a-kind Curl Film—WASHABLE LOCK TECHNOLOGY™

With this approach, a one-of-a-kind “curl film” was developed. This innovative film combines the two opposing functions that were previously considered impossible to integrate.

The first function is a protector to maintain shape, which demonstrates excellent resistance to external factors such as sebum and moisture and maintains the curl shape for a long time. The second is a warm water sensor, which enables mascara removal with warm water by allowing the film to swell when it comes in contact with warm water, thereby effectively softening the film structure (Figure 2).

Monomers having different functions were selected for the new film. Also, exhaustive examination of their composition ratios and other factors finally led to the development of a specific polymer component (polyacrylate-51). In addition, for this polymer component, a system was employed in which the polymer is dispersed in a formulation using non-aqueous dispersion (NAD) technology. Through these findings, physical properties that have traditionally been difficult to balance were realized within the same polymer molecule, achieving the moderate film hardness when the film former is dry, which leads to curl retention and the affinity to warm water, leading to easy removal.

Furthermore, with an optimal formulation identified through a precise adjustment of the blending balance with other ingredients, WASHABLE LOCK TECHNOLOGY™ was born.

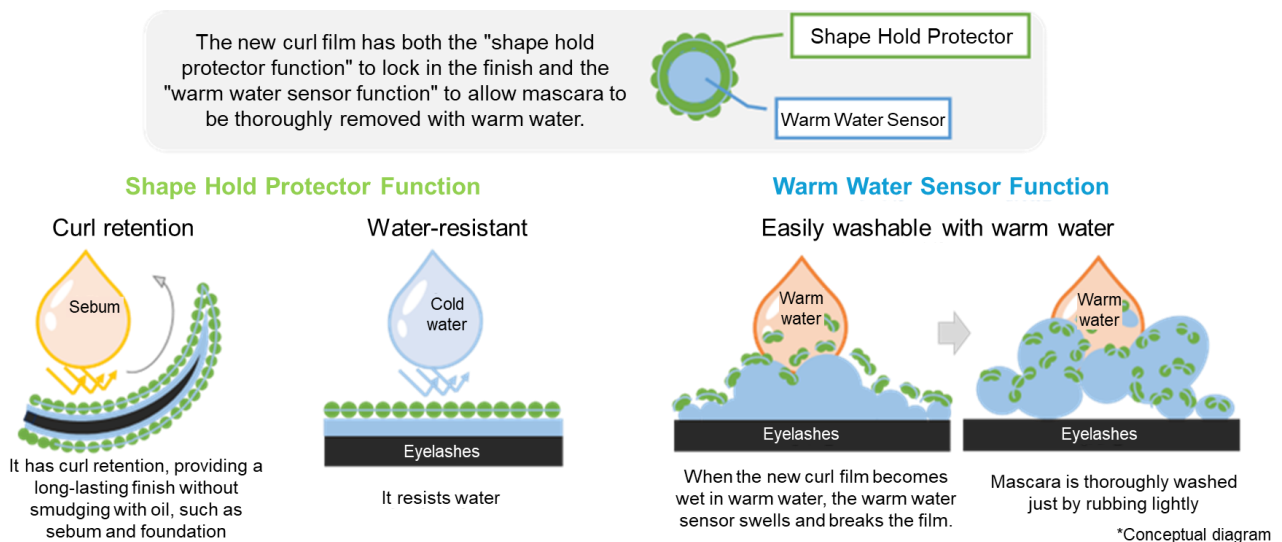


Figure 2. Functions of WASHABLE LOCK TECHNOLOGY™

## Effects of Superior Curl Retention and Warm Water Removal

An experiment was conducted in which a mascara formulation equipped with this technology was applied to a curled hair model used for evaluation. The result confirmed that excellent curl retention equivalent to that of the conventional water-resistant (oily type) mascara was maintained for a long time (Figure 3).



Figure 3. Investigation of the curl hold effect of different mascara bases (hair model use)

Additionally, during verification\* of the removal of the curl film with warm water, it was demonstrated that when the film comes in contact with warm water, as in the previous type, the entire coating film swells and softens, allowing it to peel off easily upon light rubbing (Figure 4).

\*A colored film former was applied to the glass surface and dried, forming a film. It was then immersed in warm or cold water for a specific period and rubbed with a spatula.

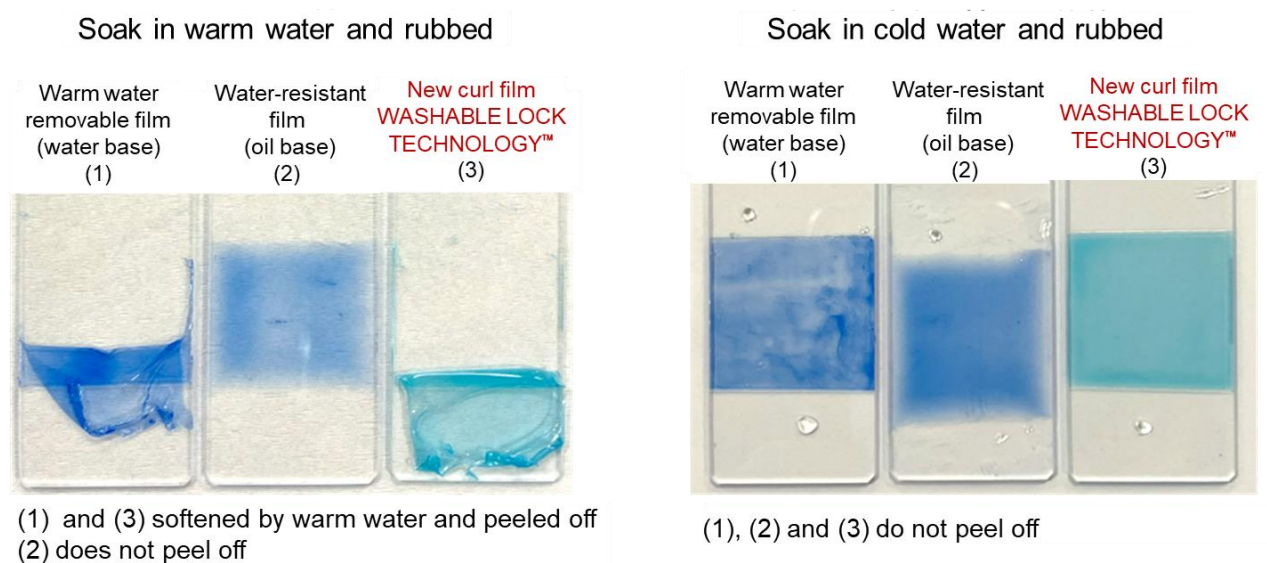


Figure 4. Evaluation of the warm water-removal effect of the coating agent

## Future Prospects

The design concept of realizing both long-lasting property and removability established by this technology has potential applications beyond mascara. This concept is expected to help solve similar technical challenges across general eye makeup products, including base makeup categories.

## Researcher



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## R&D Strategy

Shiseido has established three pillars under its R&D philosophy "DYNAMIC HARMONY" to accelerate innovation: "Skin Beauty Innovation: Equity enhancement of brands," "Sustainability Innovation: Circular value creation," and "Future Beauty Innovation: Challenges in new areas." Additionally, Shiseido promotes open innovation and advances new value creation through research alliances with various external organizations. The innovative research outcomes generated from the fusion of Shiseido's advanced science and the knowledge and technology of world-class research institutions are highly regarded academically on a global scale, including at the IFSCC Congress, the world's largest and most prestigious research conference on cosmetic technology.

About R&D Philosophy "DYNAMIC HARMONY"

<https://corp.shiseido.com/en/rd/dynamicharmony/>