Press Release

Research and Development

Shiseido develops “Water Sensing Technology,” an innovative technology to achieve color lasting and secondary adhesion-less effects

- Lipstick that realizes both smooth and light wearing feel and long-lasting color -

Shiseido has developed “Water Sensing Technology” that collects coloring materials when lipstick is applied to the lips and forms a network of coloring materials by sensing water evaporating on the lips. The coloring materials form a loop-like network, making it difficult for individual coloring materials to separate from each other, and they adhere closely to the lips to produce a long-lasting color. In addition, unlike conventional lipsticks, which use a highly adhesive oil or film-forming agent to maintain the coloring materials, lipsticks using the Water Sensing Technology prevent coating film from solidifying, and Shiseido has succeeded in achieving lipstick formulation with both smooth and light wearing feel and long-lasting color. This technology will be used in “MAQuillAGE Dramatic Essence Rouge,” which will be released on November 21, 2023.

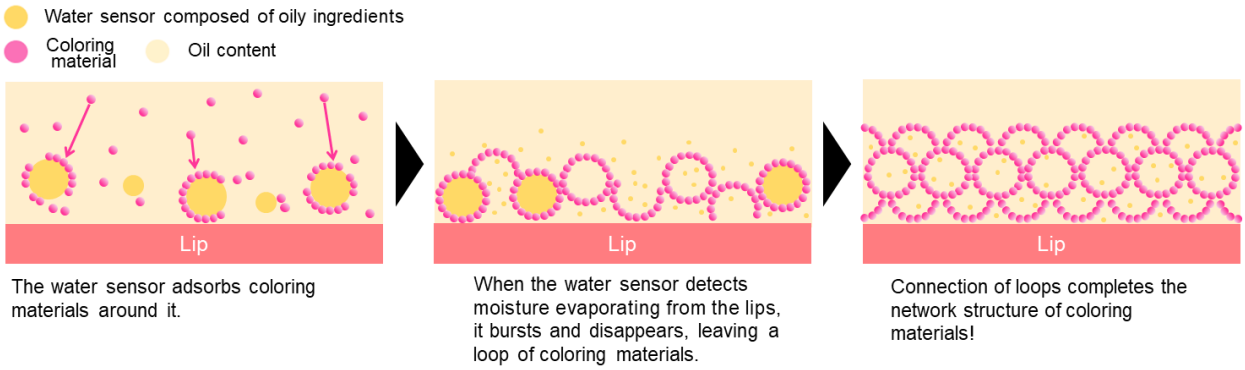

Figure 1: Images of lipstick application with Water Sensing Technology

Research background

When we survey our customers about their ideal lipstick conditions, items such as “moist,” “glossy,” and “hard-to-come-off/secondary adhesion-less” tend to rank higher. In recent years, what is required as a basic function of lipstick is a “hard-to-come-off/secondary adhesion-less” effect that prevents the color from adhering to cups and face masks and that keeps the color after eating or drinking, or even after a long period of time. We have been developing lipsticks with both glossy and clear finish and a color lasting and secondary adhesion-less effect by utilizing our unique oil control technology[*1,2]. This time, in order to realize a lipstick that with an even higher color lasting and secondary adhesion-less effect, we focused on the fact that with our conventional technology, when the oil content that holds color materials is removed due to rubbing of the lips on a face mask, the coloring materials is removed together with the oil content. This problem can be solved by using a film-forming agent that solidifies the coating film to eliminate its fluidity, but this solution makes a lipstick less comfortable to wear. Therefore, we sought a new approach to achieve a higher level of color lasting and secondary adhesion-less effect while maintaining the fluidity of the coating film.

*1 Shiseido finally launches the “ideal lipstick” that women have long been waiting for! https://corp.shiseido.com/jp/rd/ifscc/17.html
*2 Shiseido develops lipstick with new value adopting the world’s first hybrid formulation (2021)
https://corp.shiseido.com/jp/news/detail.html?n=00000000003196

Application of Water Sensing Technology to lipstick

This time, we attempted to improve a color lasting and secondary adhesion-less effect with a new approach, focusing on oily ingredients that are compatible with water on the lips. The “Water Sensing Technology” that we have developed collects coloring materials when lipstick is applied to the lips and when it senses water evaporating on the lips, the coloring materials form loops. Since the coloring material loops are compatible with water, the coloring material loops gather on a hydrophilic interface like lips and connect to each other to complete a strong network structure of coloring materials (Figures 1

and 2), which achieves a good color lasting effect. Furthermore, the study of the film properties of lipstick that uses this technology showed that it exhibited smooth and liquid-like fluidity when being applied, and that when it reacted with water to form a network after application, the fluidity weakened and the coating film changed to a gel-like property (elasticity) to the extent the film felt comfortable (Figure 3).

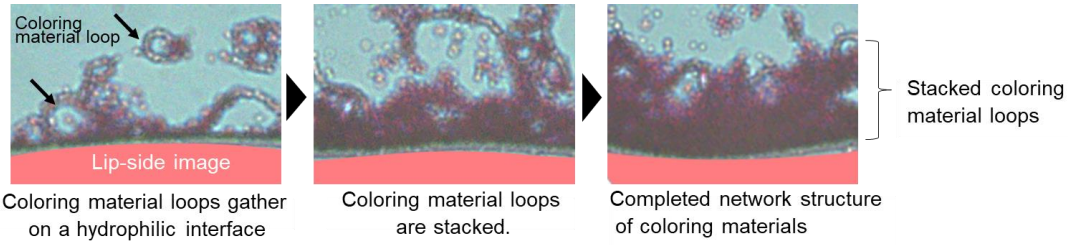

Figure 2: Formation of color material network structure by Water Sensing Technology

Figure 3: Change in coating film properties (flexibility and elasticity ratio) through the addition of water

Smooth usability and excellent color lasting effect

When the frictional force of lipsticks was measured with a dedicated instrument, it was found that the lipstick with the new technology had less frictional force, less load on the lips, and a smoother application feel (Figure 4). Observation of the finish when this base was used showed that both color and gloss were maintained, with no special attention or actions given to maintenance, even four hours after application, resulting in a lasting beautiful finish (Figure 5). Although the lipstick formulation with Water Sensing Technology changes to a state in which the coating film tends to stay easily (an elastic state), it is not hardened and the soft agglomeration of the coloring materials maintains the color lasting effect, which enabled us to realize a lipstick that is less likely to feel dry and can keep the color.

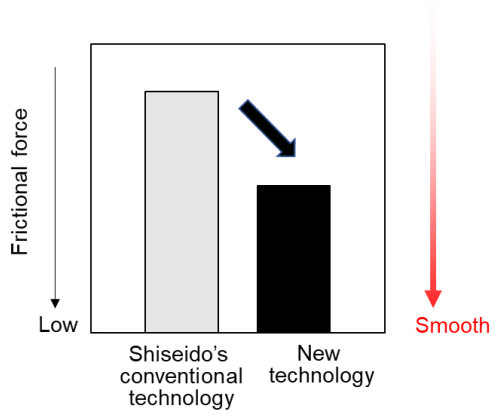

Figure 4: Lipstick formulation with Water Sensing Technology has low frictional force and smooth usability

Figure 5: The finish is clear and smooth, and the beautiful finish lasts without losing the color and gloss over time

Future prospects

With the lipstick with Water Sensing Technology that we have newly developed, the coating film did not harden and formed with a gel-like property (elasticity), which made it possible to achieve both a smooth and light feel when worn and long-lasting color, which had been difficult to achieve. As more and more people take off their face masks and enjoy lip makeup, Shiseido will energetically

advance technological development in the field of materials science, which is one of our strengths and continue to create products that exceed consumers' expectations so that each and every consumer can lead their daily lives feeling confident and happy.

About our R&D strategy:
Under "Skin Beauty INNOVATION," one of the three pillars of Shiseido's R&D strategy, this study has been conducted in the "cosmetic formulation technology" field in which we use the materials science, which is one of our strengths, to pursue and realize the values of cosmetics sought by our customers.
- Integrated Report 2022 (Beauty Innovation Part)
https://corp.shiseido.com/report/en/2022/value_creation/innovation/
- Keywords
Skin Beauty INNOVATION, point makeup, lipstick

<Reference>
Researchers' challenges
■ R&D Philosophy "DYNAMIC HARMONY" Approach
The present study has been conducted under the Science/Creativity approach of "DYNAMIC HARMONY," Shiseido's unique R&D philosophy. We aimed to fuse the functional value of secondary adhesion-less with the emotional value of coloring and application/comfort to wear through the use of coloring material dispersion technology.


Keisuke Hayashida, Researcher

■Aiming to achieve both improved color lasting and secondary adhesion-less effects and comfortable usability
It has been difficult to realize lipsticks that have both long-lasting color and are comfortable to wear because they have conflicting functions, but this time, we came up with a mechanism to collect coloring materials on the lips by focusing on the water that comes in contact with lipstick on the lips after application. Together with an analysis team that has the technology to visualize the state of raw materials on the lips, we repeated experiments and considerations to develop the new technology. When we first attempted to apply this technology to lipstick in order to make the most of it, we encountered quality issues such as uneven color of lipstick, but we found solutions by focusing on the characteristics of the raw materials. With our strong desire "to bring this lipstick to many people to make them feel brighter!", we were able to overcome many difficulties without giving up. We will continue to develop cosmetic technologies to provide our customers with a prosperous life.

Shiseido's R&D Philosophy "DYNAMIC HARMONY"
Shiseido Formulates Its Unique R&D Philosophy "DYNAMIC HARMONY" (2021)
https://corp.shiseido.com/en/news/detail.html?n=00000000003252
DYNAMIC HARMONY website:
https://corp.shiseido.com/en/rd/dynamicharmony/