POLA CHEMICAL INDUSTRIES, INC. presented two papers at the 12th Conference of the Asian Societies of Cosmetic Scientists

An academic conference showcasing the results of top cosmetics research by future market leaders from across Asia

POLA CHEMICAL INDUSTRIES, INC. (Headquarters: Yokohama, Kanagawa, JAPAN; President: Takao Miura) of the POLA ORBIS Group presented two papers at the 12th Conference of Asian Societies of Cosmetic Scientists (ASCS), which was held in Cairns, Australia, from April 28–30, 2015.

The ASCS is a scientific conference on cosmetics. First held in 1993 in response to Japanese calls for proposals and participation, the goal of the ASCS is to deepen communication between cosmetic manufacturers, to raise the standard of cosmetic technology, and to further develop the cosmetic industry in Asia.

The research findings covered in the two presentations are destined for application in future POLA ORBIS Group product developments.

Outline of presentation topics

1. ‘An industry first: using silicone for complete makeup removal’
   We demonstrated that using silicone effectively removes waterproof and other hard-to-remove makeup without any feeling of unpleasant stickiness and sliminess during rinsing, providing the foundation for a new cleansing technology.

   Title: Novel Reversed Micellar Cleansing Preparations Containing Silicone Oils, Providing a Solution to Combine High Makeup Removability and Skincare Effect
   Presented by: Ippei Fujiyama (Skin Care Products R&D, Products R&D Department, POLA CHEMICAL INDUSTRIES, INC.)

2. ‘A high-SPF natural sunscreen without creaky texture nor a white, powdery finish’
   Liquid crystal emulsification was applied to develop a new high-SPF sunscreen preparation that is free of petroleum surfactants and goes on smoothly without leaving a white, powdery finish.

   Title: Developing High Performance Sunscreen Products without PEG-based Surfactants
   Presented by: Sachiko Dairaku (Makeup Products R&D, Products R&D Department, POLA CHEMICAL INDUSTRIES, INC.)

The ASCS
Held every two years in one of the major cities around Asia (past hosts include Seoul, Taipei, Bali, Bangkok, Manila, Singapore, and Yokohama), the 12th Conference of the ASCS was held in Cairns, Australia, from April 28–30, 2015.

The slogan of this year’s conference was ‘Natural Wonders, Re-inspiring Beauty’. Researchers from around Asia were invited to submit abstracts; of these, 104 have been selected to present the results of their research into cosmetic technology.

For related inquiries, contact: rm-webmaster@pola.co.jp (POLA CHEMICAL INDUSTRIES, INC.)
【Our research in detail】

1. ‘An industry first: using silicone for complete makeup removal’
   ● The background for developing a new cleansing technology using silicone as an oil solution

   Hard-to-remove makeup contains large amounts of different kinds of silicone. These include high- and low-molecular weight silicones, which facilitate film formation and pigment dispersion, respectively. Taking advantage of the characteristics that a material can be more easily dissolved by itself, we investigated whether makeup could be better removed by a cleansing preparation containing silicone.

   ● Demonstrating efficient makeup removal

   We tested the new silicone-based cleansing preparation and a conventional preparation containing polar oil, which is known to be effective for makeup removal, regarding their ability to remove waterproof foundation. The results showed better makeup removal with the new preparation when compared to the conventional product (Fig.1).

   ● Demonstrating the absence of stickiness and sliminess by silicone application

   An initial problem with the cleansing preparation was an unpleasant sticky and slimy feeling when water was added during rinsing. We found that this was caused by the cleansing preparation entering a special state called a lamellar liquid crystal (Lα) phase. To minimize this Lα phase, we adapted and incorporated a silicone that is rarely used in conventional cleansing preparations. This largely prevented the occurrence of the Lα phase and the stickiness and sliminess were successfully resolved (Fig.2). When we evaluated how the new formulation performed, it prevented the unpleasant stickiness and sliminess while completely removing makeup.

2. ‘A high-SPF natural sunscreen without creaky texture nor a white, powdery finish’
   ● The background for developing a new sunscreen

   Although the natural cosmetics market has been expanding in recent years, there are still few high-SPF natural sunscreen preparations available. Those that are offered have the drawbacks of being difficult to spread due to its rough, creaky texture and leaving a white, powdery finish when applied to the skin. These problems are caused by the titanium oxide, zinc oxide, and other particulate powders used instead of ultraviolet (UV) absorbers in natural sunscreens to protect the skin against UV rays. UV absorbers are usually highly polar oil solutions that do not mix easily with the surfactants that are favored for natural products (i.e., not petroleum origin), making it difficult to obtain stable preparations that do not separate when mechanically mixed. *Cosmetic products that promote the use of plant based ingredients and limit the inclusion of chemical synthetics.

   ● Sunscreen manufacturing

   Using a new emulsification method, we successfully created a stable, high-SPF sunscreen preparation containing large amounts of ultraviolet absorber, even with the surfactants favored in natural cosmetics. This manufacturing method can be applied to produce various types of high-SPF natural sunscreen preparations, including creams, sprays and gels.

   ● Prototype evaluation

   Compared to conventional sunscreens, prototypes manufactured using this emulsification method have a high SPF and extremely high transparency and do not leave a white, powdery finish (Fig.1). Meanwhile, comparison of the mean friction coefficient (MIU) revealed less friction resistance, less creaky texture, and a smooth, easy-to-spread layer with the prototypes when compared to conventional sunscreens A and B (Fig.2).