



INSIDE PRODUCT DEVELOPMENT: MEGRHYTHM STEAM EYE MASK BY KAO

COMBINING VALUE-CREATION IN PRODUCT DEVELOPMENT WITH R&D



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Kao's MegRhythm brand products are well-known for their ability to gradually relieve tension caused by eye strain and to relieve stiffness in the shoulders and other areas by improving blood circulation. We had an interview with Atsushi Suzuki, who plays a central role in the research and development of these products.

CONFIRMING COMFORT THROUGH SCIENCE

Q. PLEASE TELL US ABOUT THE FEATURES OF KAO'S MEGRHYTHM BRAND PRODUCTS.

A. The MegRhythm health care brand is designed to provide temporary relief to the people of today who navigate stress-filled environments. Our products include heating sheets which can be used to gradually warm up neck, shoulder and back muscles, as well as areas around the eyes, using heat and steam.

MegRhythm products are designed to provide a comfortable heat sensation by sticking them directly onto the body; the thin sheets use iron powder in a static form for heat generation, delivering the heat uniformly through steam. Focusing on the comfortable feeling provided by hot towels which are placed on the face at barber shops and beauty salons, development was started with the aim of creating

a product capable of providing heat to areas around the eyes.

At first, people were not accustomed to warming the eye area. Approximately 70% of people reported a preference for cold treatment, but a doctor from a university hospital helped us discover ophthalmological proof that heat brought about a positive effect.

To verify the product's effectiveness, we conducted a scientific study of dry eye treatment for the Japanese Ophthalmological Society and were able to support the proposition that warming the eyes is an effective treatment for dry eye, eye strain, total body relaxation and sleep. As a result of the research (see sidebar), it was recognized that, last year, 80% of people troubled by eye strain prefer to warm rather than cool the area around the eyes.



Using a prototype of the eye mask, targets of the research were five males and 17 females ages 23 to 71 who experience dry eye. Data regarding the basic effects of the eye mask was acquired and presented. Disposable Eyelid-Warming Device for the Treatment of Meibomian Gland Dysfunction

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ATTENTION TO DETAIL LEADS TO CUSTOMER SATISFACTION

History of Steam Eye Mask

1998: Heating sheet development begins, inspired by hot face towel used at barber shops to aid in relaxation

2005: Launched MegRhythm Steam Heating Sheet (general medical device)

2007: Launched MegRhythm Steam Eye Mask (patented)

2013: 25 million packages (5 sheet and 10 sheet packages) sold

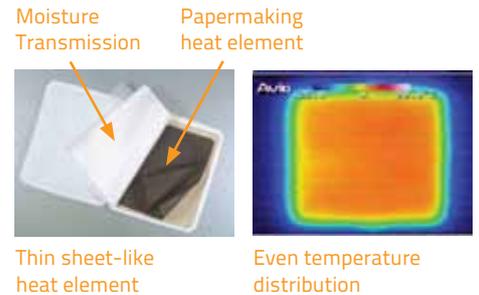
2014: Launched improved version of the MegRhythm Steam Eye Mask, which becomes warm in a shorter amount of time

Q. WHAT DID YOU SPECIFICALLY FOCUS ON DURING PRODUCT DEVELOPMENT?

A. Since the area around the eyes consists of the thinnest skin of the body, and because the corneas are transparent, fragile structures, effectiveness and safety were both top priorities. Although tear film consists of three layers [mucous layer (mucins), aqueous layer and lipid layer] to prevent the eyes from becoming dry, dry eye occurs when blinking is decreased, which has a negative effect on the function of the meibomian glands. Our research indicates that warming the meibomian glands at 40 degrees Celsius (104 degrees Fahrenheit) for 10 minutes smooths meibum flow, reducing evaporation of tear film.

Methods for creating heat and steam were discovered using a repetitive trial-and-error process. The product was designed to reach a temperature of 37 degrees Celsius (98.6 degrees Fahrenheit) after approximately 30 seconds and continue to provide heat at approximately 40 degrees Celsius (104 degrees Fahrenheit) for 10 minutes. In order to provide a feeling of comfort, we designed a technology for warming the area around the eyes

in a uniform manner. Since the heat generator is a very thin pulp, we looked at thermal imaging to ensure that heat was distributed evenly.



Careful attention was also given to the part of the eye mask that goes around the ears. We tested over 100 different prototypes. The ear pieces were ultimately designed with elastic so it can be used for any face size.



We also focused on different scents. Since use of the eye mask is a reward for oneself, we increased the level of user satisfaction through the use of natural fragrances, like Bulgarian rose aroma oil. The Kao Corporation has a corporate culture which asks the question whether or not products are really useful for customers and society. We always thoroughly question the usefulness of a product before we begin.



At that time, the laboratory chief said, "What you are demanding is as difficult as going to the moon!"

WANT TO GO TO THE MOON? CHOOSE THE MATRIX

Q. WHAT KIND OF SYSTEM WAS USED FOR THE COMMERCIALIZATION OF THE PRODUCT?

A. The research division of our company adopts a product research and development system referred to as matrix management. This type of management promotes cross functionality with research and development laboratories, which create value and commercialize products, comprising the vertical part of the matrix, and laboratories, which are involved in fundamental and technical research, comprising the horizontal part of the matrix. The horizontal part of the matrix for this product was split into two main teams: the fundamental research laboratory responsible for the development of the technology used to create the product's heat engine, and the fundamental research laboratory responsible for the development of the sheet material. There are close to 100 people involved in this work.

Although the current eye mask is quite thin, when the fundamental research laboratory responsible for the technology was asked to make this type of product, they initially started work using a sheet as thick as cardboard. We needed it to be much thinner. At that time, the laboratory chief said, "What you are demanding is as difficult as going to the moon!"

The sheet uses the same breathable sheet technology used for the back sheet of Merries diapers, which prevents babies' bottoms from getting hot. By applying this technology for use in a steam generating sheet of an eye mask, we could develop a sheet that does not allow water inside to pass through but allows generated steam and oxygen to pass through.

Q. HOW WAS INFORMATION AND DATA NECESSARY FOR RESEARCH AND DEVELOPMENT OBTAINED?

A. We developed a design database to measure differences between people's faces since the distance between the eyes, the distance from the eyes to the ears, facial size and similar characteristics vary according to race. We acquired data using Western subjects and confirmed fit using a camera, collecting data from a total of 2,000 subjects.

In addition to product sales in 4 Asian countries and Russia, we are currently designing the product with the idea that Westerners will purchase the product to bring back home with them. Japanese have wide faces with a short distance between eye and ear, and Westerners have narrow faces with a long distance between eye and ear. This means that there is actually no difference in ear to ear distance for both face types. A universal mask design was created as a result of verifying this data.



After presenting our research results at an academic conference, we became acquainted with leading professors in the field and received a variety of new data. For example, we just recently became aware of the **Scopus** research database. If we had access to that database during research, I think it would have been useful for carrying out research in a more logical and effective manner. When performing keyword searches with **Scopus**, one can see worldwide information indicating which universities and professors are involved in the same line of research. Since users can perform searches using names of professors, it is possible to quickly obtain contact information. It is an outstanding database that is updated on a daily basis.

THE DAILY PATH TO OPTIMAL HEALTH

Although products are normally taken off the market if they do not sell six months after their release, we didn't give up on this product.



Q. HAVE YOU HIT ANY OBSTACLES OR EXPERIENCED ANY OTHER TROUBLES?

A. Since we were attempting to create something that did not exist in the world, it was already expected that things might go badly. With that in mind, I feel that I experienced hardly any trouble at all!

It took time, however, for the product to become recognized by the market after it was released, remaining unnoticed for a four-year period. Although products are normally taken off the market if they do not sell six months after their release, we didn't give up on this product.

Our advertising people steadily assisted us through efforts such as product sample distribution. People who used the samples became aware of the product's value and information spread by word of mouth.

Q. WHAT IS THE REAL THRILL BEHIND RESEARCH AND DEVELOPMENT THAT MAKES IT WORTH DOING?

A. Michitaka Sawada, who was in charge of MegRhythm product research and was appointed as President and CEO, continues to say that the uniqueness of the Kao Corporation and persistence in undertaking challenges are the reasons. Rather than doing the same thing as others, it is very important to persist in undertaking challenges starting with the customer in mind. I think that the real thrill behind research and development that makes it worth doing is the transmission of our feelings to customers through our products.



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