



Multifunctional LED mask combines respiratory protection and skincare benefits

Case study: Cellreturn relies on DuPont™ Liveo™ medical-grade high-consistency silicone rubber to meet key performance and regulatory requirements

Challenging opportunity



Cellreturn's CX9 portable LED mask provides respiratory protection and skincare benefits in a single device that utilizes Liveo™ medical-grade silicone rubber from DuPont

With a management philosophy of "We create results," Korea-based Cellreturn is striving for global leadership in developing innovative beauty and healthcare technology solutions. The future-focused company pursues performance and quality perfection in personal care products that are designed to restore and maintain healthier skin with the beneficial effects of LED light exposure.

The various LED-based innovations introduced by Cellreturn include several designs of facial masks, scalp care helmets and neck care collars. Other products range from ultrasonic cleansers and massage technologies to specialized devices for personal hygiene or skin health analysis.

One of the company's newest innovations is the CX9, a portable LED mask that offers respiratory protection and beauty benefits. The stylish product is a breakthrough design that combines fashion and multiple functions in a single mask. It has the ability to filter out fine dust and other contaminants at a level of protection equivalent to KF94; to clean and sterilize its filter system with ultraviolet light (UVC); and to promote healthier skin, reduced mask irritation and multiple beauty benefits with LED light-exposure technology.

Dedicated to innovative silicone solutions for medical devices and healthcare products, Liveo™ assisted with the selection of effective medical-grade silicone elastomers according to Cellreturn's specifications, enabling Cellreturn to optimize the CX9 mask's performance, register the device, and gain entry and acceptance in global medical device markets. DuPont is providing Cellreturn with support for regulatory compliance, as well as proven, effective medical-grade silicone elastomers to optimize the mask's performance.



Mask cover strip utilizing Liveo™ High-Consistency Silicone Rubber

CX9 portable LED mask: Respiratory protection and skincare benefits

For design-enabled medical devices, the opportunities are endless. Cellreturn is best known for its innovations in LED masks for at-home light therapy for skincare. The company is now introducing an advanced mask solution that offers both respiratory protection and beauty benefits in a portable, attractive design that can reduce skin irritation caused by daily mask-wearing. Cellreturn's multifunctional CX9 portable LED mask is a breakthrough medical device innovation designed for widespread global appeal.

The revolutionary CX9 mask features an ergonomically comfortable and sleek design. The mask has a replaceable four-ply filter system that is sterilized with UVC light. For various beauty benefits and reduced skin irritation, arrays of red and blue LED lights are provided. An inner skin of silicone provides an airtight interface, while special cover valves ensure easy breathing. A control button on the mask activates two beauty modes.

DuPont™ Liveo™ helped Cellreturn with application-matched, medical-grade silicone elastomer; expertise to improve process efficiency; and critical regulatory support, including product registration assistance and risk management documentation. The selected silicone high-consistency rubber (HCR) for molding the mask's skin interface met biocompatibility testing requirements for cytotoxicity and skin sensitization, irritation and intracutaneous reactivity.

DuPont replaced a previously used industrial-grade silicone from another supplier – which was causing skin irritation – with a more application-suitable, medical-grade HCR. The Liveo™ Silicone HCR offered process optimization; performance advantages; and, most importantly, the documented, comprehensive toxicity and clinical information needed to satisfy medical device regulatory requirements in key global markets.

Learn more about the mask at cxnine.com.

Key components of the Cellreturn CX9 LED mask

LED emission plate utilizing Liveo™
High-Consistency Silicone Rubber



Liveo™ collaborated on
Cellreturn's CX9 LED mask

Enabling a global expansion strategy

Cellreturn is competing successfully with LED beauty masks and other personal care products in its home market, as well as with exports to approximately 10 other countries.

Key markets include the U.S., Japan, China and the Southeast Asia region. The newly developed CX9 portable mask featuring DuPont™ Liveo™ Silicone HCR opens new, major opportunities as the use of masks – which are classified as medical devices – continues to grow.

Liveo™ is supporting Cellreturn in realizing its potential opportunities in the world's fastest-growing healthcare markets, such as the U.S., Great Britain, Germany, Singapore, Hong Kong and Malaysia.

Liveo™ welcomes the opportunity to provide critical regulatory support, medical-grade materials, process and application expertise, and potential business networking to help facilitate Cellreturn's global expansion strategy in the healthcare market. With its rich heritage, global brand reputation, regulatory support and medical-grade materials, Liveo™ is enabling Cellreturn to build credibility and penetrate and grow new markets.



A collaborative partnership

Cellreturn, based in Incheon, Republic of Korea, has a primary goal to become a global player in the beauty and healthcare device market. With innovation in technology development and proven competitive strengths in growing its regional market, the company is now collaborating with Liveo™.

With its combination of respiratory protection and beauty benefits, Cellreturn's CX9 portable LED mask represents a new direction for significantly improved patient comfort and safety. DuPont's wide range of medical-grade engineering materials, and especially its Liveo™ brand medical-grade silicones, can help expand Cellreturn's innovation capabilities.



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DuPont™ Liveo™ High-Consistency Silicone Rubber

Liveo™ medical-grade silicone HCRs are one-part, uncatalyzed silicone elastomers that are easily compounded, catalyzed and processed in standard molding equipment. These heat-cured elastomers offer a range of performance advantages and are proven effective and safe for use in medical devices and personal care products involving skin contact. In addition to this product range, Liveo™ also offers a range of platinum-catalyzed HCR. Consistent product quality is ensured by manufacturing at DuPont's FDA-registered and ISO9001:2015 certified Healthcare Industries Materials Site (HIMS) in the U.S.



Skin-friendly, biocompatible Liveo™ Silicone HCR, which is used in two components of Cellreturn's CX9 mask, enables patient comfort and compliance; Liveo™ Silicone HCR also offers easy, cost-efficient processing

Selected features, advantages and user benefits of Liveo™ silicone HCRs include:

- Nontacky, soft feel
- Solventless; pigmentable
- Easy, cost-efficient processing
- Highly reproducible, stable materials
- Contain no peroxides, peroxide by-products, chlorophenyls or PCBs
- No organic plasticizers, phthalates or latex additives
- Fast cure and batch-to-batch consistency
- Manufactured in a dedicated healthcare facility
- Qualified to meet or exceed test requirements of:
 - U.S. Pharmacopoeia (USP) Class VI
 - European Pharmacopoeia Silicone Elastomers – 3.1.9 select test
 - ISO 10993 Surface devices – cytotoxicity, sensitization and irritation/intracutaneous reactivity

Typical product properties, as well as processing details and handling precautions, are provided in technical data sheets for Liveo™ medical-grade silicone elastomers.



To learn more about DuPont's healthcare solutions, visit: healthcare.dupont.com



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