solve engineering
a Variosystems company

Solutions with added value.
Competent in electronics- and mechanics-development.

Hightech Sterilizing solutions

Founded in 2008 as a start-up, the Swiss company Osmotex AG, domiciled in Thalwil, is financed by a group of Norwegian and Swiss investors and banks. Osmotex is a research and development company engaged in electro-osmotic vapour and liquid transport. It developed and produces a special technology for electronics-controlled moisture transport in membranes and textiles.

Osmotex AG, Switzerland

Self-disinfecting mask

Together with Osmotex, Solve developed the electronics, including the housing, for a self-disinfecting face mask. This revolutionary technology works without chemicals and the battery of the electronic unit can be recharged by a USB connection.

Face masks for more sustainability

Together with a research team from the ZHAW (Zürcher Hochschule für Angewandte Wissenschaften), Osmotex developed a reusable mask that renders viruses harmless at a touch of a button. Using a combination of specific materials and applied current, the Osmotex steriliser technology is able to form the highly disinfecting reactive oxygen compounds inside textiles and additionally control their migration to the textile surface. With this unique electrochemical process, the virus load can be nearly 100 per cent eliminated.

Sterilisation device: simple and functional

The Osmotex face mask virus filter consists of sterilizing textiles, electrical connectors and a control unit with a rechargeable battery. The textile is reusable and can be used several times with a lifetime of thousands of hours, while the control unit with battery has a lifetime of more than two years. The sterilizer control unit supplies the mask with electric current to create the sterilizing effect. It contains a rechargeable battery that allows the user at least one day's autonomy of active use. As the control unit for the masks is to be produced in high quantities, it is very price-sensitive.

Providing ideas for better solutions

As an engineering service provider for complete solutions, Solve imposed itself with its offering. Solve has expertise in the development of electronics as well as in mechanical design and presented a concept without cables for the sterilisation process. This change simplifies the application for the mask and makes it even more user-friendly.

Mechanik und Elektronik aus einem Guss

In order to ensure a high market acceptance for the Osmotex face masks, the handling of the control unit is easy and safe. For example, this unit can be connected directly to the mask via a clip connector without any risk of confusion. The sterilization process starts at the push of a button. Reactive oxygen molecules are generated that reliably destroy viruses and bacteria, meaning the surface of the mask can be sterilized within a few minutes - even while the mask is being worn. A green LED indicates that sterilization is active. The red LED signals an empty battery and goes out again when it is fully charged. The safety cut-off prevents the battery from being „overcharged".

The two-part housing is made from ABS (acrylonitrile butadiene styrene) plastic, which is extremely robust and easily recyclable. With external dimensions of 42 * 17 * 13.7 mm, the unit is extremely compact and can be connected directly to the filter via two snap connections for the sterilization process. Since both the electronics and the mechanics are very compact, the unit is also comfortably light, which increases the wearing convenience of the mask.

Solve once again proved itself to be a competent engineering partner for complete solutions in this project. The team developed a functional, customer-friendly overall concept for the electronics and mechanics..

Trond Heldal,
Chief Executive Officer

"The Osmotex Active Sterilizing Face Mask® offers maximum safety and comfort for the user. Solve rapidly transformed the control unit for our novel mask into an industrialized product. Both the mechanics and the electronics fulfil or exceed the requirements."

Speed and quality

In the interest of sustainability, the masks from Osmotex, combined with the sterilization unit from Solve, are extremely durable. In terms of quality, the development time is a real highlight. From the time of placing the order to the first prototypes, which worked right away, just six weeks passed. In addition, the cost target for the control unit was met. In summary, all customer requirements regarding quality, deadline and price were met.