

# Product Technical Documentation

Active self-disinfecting mask

Osmotex Active Sterilising Face Mask®

And Non-Electronic version

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## Product Description

The Osmotex Active Sterilising Face Mask® is a protective facemask certified EN14683 IIR and incorporates a FFP2/N95 grade filter. The mask brings the fight against pathogens to another level: unlike standard protective masks, the Osmotex Active Sterilising Face Mask® continuously disinfects itself through its active membrane technology.

Osmotex Steriliser is a quick, effective, safe, and environmentally friendly technology. Through a controlled interaction of moisture and electric pulses it creates an anti-viral and anti-bacterial effect inside and on the surface of a textile, proven by the Zürich University of Applied Sciences<sup>1</sup> (ZHAW).

The development is supported by the Swiss government through Innosuisse.



Figure 1: Osmotex Active Sterilising Face Mask®, with Battery unit plugged onto it.

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<sup>1</sup> Source: <https://www.zhaw.ch/en/about-us/news/news-releases/news-detail/event-news/self-disinfecting-mask-gives-active-virus-protection-at-the-touch-of-a-button/>

## Filtering

The mask contains filtering fabrics similar to those used in the military to protect wearers against nuclear, biological, and chemical agents. This cloth is lightweight, breathable, and antimicrobial.

An FFP2/N95 grade filter is incorporated inside the mask, providing high filtering protection against microbes and viruses, and pollen (the mask itself has been tested and certified as a Medical Face Mask).

## Technology advantages

- Provides *active electronic* destruction of virus and bacteria: 99% killing in realistic, short-term tests where passive competitors showed only 50-85% reduction
- Also removes odours, allergens, and toxins from the air
- Is certified as a Medical Face Mask (EN14683 IIR)
- Contains a PPE - FFP2 (N95) type filter
- Contains Swiss craftsmanship, high-quality materials and is washable
- Will last for a year or more in normal use – active function tested for 3700 hours and counting
- Works also when wet or when exposed to large concentrations of virus and bacteria
- Buffers moisture and can be wetted additionally, thereby preventing both dryness and dampness, leading to increased comfort and avoidance of skin problems
- Environmentally friendly, no toxic compounds, reusable

## Disinfection and active effect

ZHAW uses a very tough virus test regime with Osmotex technology: concentrations up to billions of viruses per ml (applying typically 0.5ml), robust MS2 virus, shorter time 15min. These are strongly enhanced tests compared to the standard antiviral textile test regime.

Even with these tough tests, Osmotex Steriliser provides non-electronic disinfection of 99%, and active electronic disinfection reaching 99.9% or more. Results from benchmarking tests by ZHAW against standard antiviral textiles can be seen in the table below.

The Osmotex Steriliser face mask technology cleans the air also of other particles and chemicals, it works even when wet or dirty and it removes unpleasant odours including from smoke.

Table 1: Comparison of Osmotex Active Sterilising Face Mask® with other passive antiviral technology masks. Test done at ZHAW with MS bacteriophage.

Textile	Percentage reduction 15min	Percentage reduction 2h
Steriliser mask textile	98 %	99 %
Passive Mask A	< 85 %	< 85%
Passive Mask B	< 85 %	< 85%



Figure 2: layering of the Osmotex Active Sterilising Face Mask®

## Non-electronic version

Osmotex also offers a version of the technology without the active electronic function. This simpler version shares the safety, comfort, and general advantages of the Osmotex Active Sterilising Face Mask, but with less extreme efficacy in destroying viruses and microbes (still reaching 99% in ZHAW's enhanced tests).

## Colours

Colour of the outer fabric: Black, or Golden

Colour of the inner lining: Black

Additional colours are available for customized version.



*Figure 3: Osmotex Active Sterilising Face Mask® different colours*

## Care and cleaning of the mask



Always remove the electronic unit before washing the mask! Do not iron the mask!

The mask may be washed gently by hand (without soap) at approximately 30°C. Please do not kink or twist the mask material. Please use only gentle mild detergents for hand washing. The electronic unit and charging cable can be wiped with a damp cloth.

After washing, the masks should be allowed to dry until comfortable to wear. It can be used when still moist/damp.



## Technical data

CE regulation	Medical Device Class I: CE Medical Facemask Type IIR (EN 14683)
Mask Life duration	1 year
Sizes	M, L
Colours	Gold, Black (see Figure 3)
Washability	Hand wash  
Electronic Unit	Electronic unit SC-10, EN 60335-1:2020-08 IP-classification: IP3X
End-of-Life Disposal Options	The face mask can be disposed by normal waste. The SC-10 electronic unit should be disposed as electronic equipment.

See also IFU (instructions for use) document.

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