

Livinguard Frequently Asked Questions

1. Choosing a mask and where to buy
2. *Technology*
3. *Chemicals and Safety*
4. *Antiviral/Antimicrobial*
5. *Use*
6. *Care*
7. *Sustainability*
8. *Cautions and Limitations*

1. Choosing a Mask & Where to Buy

1.1. How is Livinguard's mask different from other antiviral masks?

Various masks claim to be antiviral and usually rely on a metal technology using silver, copper, or zinc that is leaching and potentially toxic. Livinguard doesn't use any of these or work in a comparable manner. If considering such other masks, it is worth asking the following 10 questions:

1. Is the mask certified or compliant with any applicable regulatory standard?
2. COVID-19 is caused by a virus – is the mask “antiviral” or “antibacterial”?
3. Does the mask “inactivate” / “destroy” viruses or simply “filter” them?
4. How applicable are the antiviral claims specifically against “coronavirus”, “COVID-19”, or “SARS-CoV-2”?
5. How credible is the testing protocol and independent testing agency / laboratory, and what modifications have been made to the testing protocol? ISO 18184 is the internationally recognized standard to determine the antiviral activity of textile products.
6. What is the antiviral performance in terms of percentage inactivation or “log reduction” relative to regular masks or untreated fabrics?
7. What is the durability of the antiviral performance – how long can it be used for with such performance, how many washes can it sustain, how long does the performance last from date of manufacturing and/or opening the package? The ISO 18184 protocol requires that the mask be washed 10 times before testing – has that been complied with?
8. How safe are the antiviral agents used – if the performance isn't durable, why is that so? Does it claim to not leach chemicals?
9. How comfortable is the mask – beyond the materials used, does the antiviral treatment make it unusually difficult to breathe?

1.2. What's the difference between Livinguard PRO MASK and Livinguard ULTRA MASK?

ALL Livinguard masks are treated with Livinguard antiviral and antimicrobial Technology as standard (Livinguard Technology has been applied to the fabric and proven to destroy >99.9% of Sars-CoV-2).

The PRO MASK provides Bacteria Filtration Efficacy (BFE) of >95%, whereas the ULTRA MASK mask provides BFE >98%. Please refer to the mask comparison table on the “mask” page of the Livinguard website for a more detailed comparison.

1.3. How can I buy a Livinguard face mask?

Click [here](#) to connect with a Livinguard partner.

Further, we are in active dialog with leading retailers, consumer and fashion brands, and medical distributors to increase availability of our masks to healthcare professionals, patients, and general consumers across the world

1.4. How can I sell Livinguard face masks to my customers?

Please get in touch through our contact form if you represent a leading retailer, medical distributor, or consumer brand looking to bring Livinguard face masks to your customers. We can similarly sell directly to governments and essential service employers looking to distribute Livinguard face masks to their employees

2. Technology

2.1. What is the mode of action of Livinguard Technology?

In summary: The treatment of the fabric creates positive charges on the surface of the fibers. Since the surface of microorganisms is negatively charged, the microorganisms bind to the surface. The positive charge of the fabric is disturbing the cell integrity leading to the destruction of the microorganisms.

Livinguard Technology is a non-release (non leaching) technology. It has been tested for dermal toxicity and skin irritation.

2.2. How does the Livinguard face mask protect against coronavirus?

The Livinguard face mask offers multi-barrier protection to both the user as well as those around the user. Please see the “How it works” section of our website as well as the dedicated section on coronavirus.

2.3. How much more effective is the Livinguard mask in protecting against coronavirus relative to a normal mask?

A conventional N95 mask filters droplets and particles that may carry coronavirus. The Livinguard PRO MASK and ULTRA MASK uses such an industry standard filter as well, but offers additional protection by destroying >99.9% of SARS-CoV-2 on each layer enveloping this filter.

2.4. Regarding mask options with and without a valve, is there a risk of contamination if you are sick and are using the mask with an exhalation valve?

Exhalation valves are not required in surgical masks, as the mask is not sealed around the user's face. So all exhaled air is released outside the mask, including any viruses and other pathogens. N95 and other similar masks that are sealed around the user's face often include an exhalation valve in the front, as there is a risk of carbon dioxide buildup as well as heat and humidity, thereby making it uncomfortable for the user. The valve at the front enables the release of this unfiltered air due to an appropriate pressure buildup. Livinguard offers mask options both with and without valve and recommends to follow local guidelines on the use of masks with valves.

2.5. What size of particles will be arrested before entry, along with air for inhalation? (What is PM3?)

PM3 refers to atmospheric particulate matter with a diameter of less than 3 micron. The ULTRA MASK and PRO MASK fulfill the requirements of the European Standard for

Face Masks, EN 14683:2019 (type I and type II respectively). According to this standard, the filtration efficiency needs to be measured with particles of 3 micron diameter.

2.6. Does Livinguard treatment lead to electric shock discharge?

Livinguard textiles have a positive electrostatic charge which is different to static electricity. Our treated textile has no net charge, so the electrostatic behavior is similar to other common textiles.

2.7. Does the "static charge" of these masks eliminate the virus from escaping water droplets? Does it counteract that factor of water getting through?

See question above

2.8. What is the patent number for Livinguard Face Mask Technology?

We have a range of patents and patent applications for our face mask. These apply at a fundamental technology level as well as for the product itself. The most directly relevant patent for our face masks is WO2018/036890, which has been nationalized, and is granted in some countries and pending in most others. This is just one of over >160 patents across 15 patent families that Livinguard has been granted, nationalized, pending, filed, and under filing.

2.9. How long does it take for the virus to be eliminated if I get it on the mask? Good to know if you handle it several times a day.

Each square cm of livinguard mask has 24 billion positive charges to inactivate negatively charged viruses and bacteria. 80% of them are already destroyed within 30 minutes. Don't forget to continue to follow recommended hand hygiene protocol for putting on and removing your mask.

3. Chemicals and Safety

3.1. Are there any chemicals involved in this Technology?

Yes, there are chemicals involved in the process. All chemicals used are compliant with regulations and impose no danger to the user.

3.2. How safe is it to use a Livinguard face mask?

Nelson Labs has reviewed our documentation and has preliminarily concluded it should be safe for use during the crisis, and that Nelson Labs will be conducting additional testing to confirm its conclusions.

Livinguard has passed extensive skin safety testing at Product Safety Labs in USA per US EPA requirements and at Hohenstein Institute in Germany per European standards.

3.3. Which PHMB molecule is used? Which CAS number and what chemical name?

The PHMB used in Livinguard Technology applied to Livinguard masks has been approved by the Biocidal Product Committee for P2 "Used to be incorporated in **textiles**, tissues, **masks**, paints and other articles or materials with the purpose of producing treated articles **with disinfecting properties**."

3.5. Is there a safety assessment regarding inhaled dose and effects of PHMB?

In the treatment process, PHMB is bound to the textile, thus preventing release during use or inhalation

3.6. Have masks also been considered in the ECHA approval for PHMB as a biocide for textiles?

The ULTRA MASK and PRO MASK are under submission as a medical device. These do not fall under the ECHA approval for biocides, but under the medical regulation EN14683. Biocides are regulated by Biocide Regulation BPR. The Biocidal Product Committee (BPC) evaluates and approves biocidal products and active substances. The BPC prepares the opinions of ECHA related to biocidal products and active substances. The final decisions are taken by the European Commission and published on the ECHA website. BPR approves if ECHA approves.

3.7. GLP safety studies were carried out for Livinguard Technology and study showed no safety issues with regards to skin irritation and toxicity etc., but what about genotoxicity studies?

Genotoxicity describes the property of chemicals that damage the genetic information (DNA) within a mammal cell causing mutations, which may lead to cancer. In order to cause damage to the DNA the biocide needs to enter the mammal cell. Since the biocides are bound to the fabric it is not possible for them to get in contact with the mammal DNA.

4. Antiviral/Antimicrobial

4.1. Why do face masks need antimicrobial treatment?

Bacteria and viruses, including coronavirus, are present in droplets and in some cases on airborne suspended particulate matter. Surgical masks and particulate matter filters, even those that meet N95 and N99 standards, are designed to filter particulate matter. However, when they filter bacteria and viruses, these trapped microorganisms are still alive on the mask. Through natural breathing and handling (removing, storing, wearing), this poses a great infection risk, as the microorganisms can pass through, transfer to your hand, or some other surface. Recent studies have shown that SARS-CoV-2, the virus that caused the COVID-19 infection, can survive on surgical masks for days. The greater the exposure to the virus, whether in critical environments like hospitals or when used for extended periods of time and/or reused, the greater the risk of infection. Livinguard masks are able to destroy the virus and other pathogens upon contact, thereby mitigating such risks.

4.2. Does Livinguard kill all bacteria?

We have shown efficacy of the technology with many different organisms like *Escherichia coli*, *Staphylococcus aureus*, *Candida albicans*, *Multidrug-resistant Enterococcus faecium* (VRE - ATCC 51559), *Methicillin-resistant Staphylococcus aureus* (MRSA - ATCC 33591), *Mycobacterium tuberculosis* (ATCC 25177), *Klebsiella pneumoniae*, *Clostridium difficile* (*C. diff*), *Mycobacterium terrae*, *Mycobacterium avium*, *Salmonella Typhi*, *Pseudomonas aeruginosa*

4.3. Can Livinguard treatment lead to antibiotic resistance?

Livinguard Technology is based on polycationic surfaces. Such surface inactivation has a different mode of action than cationic biocides. In order to become resistant towards polycationic surfaces the microorganisms would need to completely change their structure or their metabolism. Both strategies would need many substantial changes in the way a microorganism is structured or of its metabolism. This is unlikely to happen and has not been shown so far.

5. Use

5.1. How to wear the Livinguard Face Mask?

The following instructions must be followed each time the face mask is worn. Protection improves by following instructions closely.

1. Open the box and unfold the face mask.
2. Cup the respirator in your hand to maintain the position on your face.
3. Adjust the ear loops to fit the face mask comfortably.
4. Adjust the nose bridge bar tightly around your nose.
5. To check the respirator-to-face seal, place both hands completely over the respirator and exhale sharply. If air leaks around the nose, readjust the nose bridge bar as described in step 4. The mask should cover the wearer's mouth, nose, and chin.

5.2. How long can I use a Livinguard face mask for?

Where the mask for as long as you feel comfortable.

5.3. We wear these masks 8-12 hours per day. Should we be washing just once per week? Or possibly wash more frequently due to our high use?

It is recommended to rinse the mask with water one time per week depending on use or dust conditions. If you feel that you'd like to wash more frequently to keep the mask clean, this is fine. In this case, the lifetime of the mask is limited by 30 washes (and not 210 daily uses).

5.4. Is there a saturation level of microbial concentration, at which the fabric efficacy doesn't work anymore?

As a charged based technology, the inactivation of bacteria and viruses depends on a close contact between microorganism and surface. If the entire surface of the mask was covered with killed microbes, the technology would not be able to make contact with the microorganisms. However, such a load is not achieved during normal use.

5.5. How many Livinguard face masks do I need?

One mask is adequate in most cases. We would recommend two masks if you cannot wait for the mask to dry after washing it.

5.6. Is the Livinguard face mask available in any other colors or designs?

Livinguard Face Masks are available in Vantablack, Bombay Blue, Forest Green and Cosmic Red. We will be launching more designs in the coming weeks. Our partners Fine Hygienic have launched a designer line Fine Guard by Caroline, which is available in Dubai. *We are actively seeking designers who can make and sell more fashionable designs.*

5.7. How do I determine which size to buy?

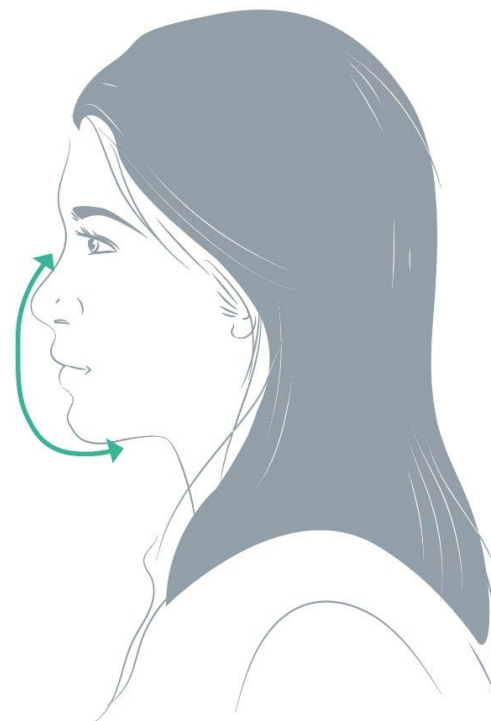


face mask

size guide

Measure from the bridge of nose under eyes, until just below the chin.

Mask Size	S	M	L
cm	< 12cm	12 - 15cm	> 15cm



6. Care

6.1. How should I store the Livinguard Face Mask?

Store in a clean bag/box, away from sunlight and extreme temperatures

6.2. If the mask is reusable & washable, how can one assure that just rinsing with water can render the mask fit for use again?

Disinfection is taking place by contact on the outer surfaces of the mask. Only contact is required for disinfection, no elevated temperatures or disinfection agents. Watch recommendation on how to wash here:

https://youtu.be/_1j7GWbV9rM

6.3. If doctors want to use the dilute solution of chemicals like hydrogen peroxide for disinfecting the mask. Can they do it?

Do not use detergent, bleach or any other disinfecting product since this may compromise the efficacy of Livinguard Technology. Follow care instructions carefully as follows:

1. Do not use if seal is broken
2. Hand wash once a week or as needed in cold water for about 2 minutes
3. Line dry in shade for 6 – 8 hours depending on humidity
4. Do not use detergent or bleach
5. If stained, use a mild soap to rinse
6. Do not wring
7. Do not dry clean
8. Wash up to 30 times

6.4. Would it be safe to disinfect the mask by means of a UVC device?

Yes, the UVC will cause no damage to the face mask

6.5. After washing once, I noticed that water passes through the fabric very easily, while surgical masks cup the water with 0% escaping. Is this factor a problem when fighting water droplets from coming in/out as we talk or breathe?

Small water droplets in the air are called aerosols. The filtration of aerosols and the permeation of water through a mask are ruled by different physical principles. Thus, the permeation of water is not representative for the filtration of aerosols.

7. Sustainability

7.1. Does Livinguard treatment influence biodegradability of fabrics?

Since our masks are made from cotton, we are referring to long-term degradation processes (such as those that take place in a composting facility). Livinguard Technology does not prohibit the biodegradability of the textile.

9. Cautions and Limitations

9.1. What are the cautions and limitations of the Livinguard Face Mask?

1. This face mask does not eliminate illness, disease or infection and is intended for general public use.
2. This face mask does not supply oxygen. Do not use in atmospheres containing less than 19.5% oxygen.
3. Do not use the Livinguard face mask for chemicals, gases, vapors, oil aerosols, oil-based particles or extremely high particulate concentration.
4. Never substitute, modify, add, or omit parts
5. Follow fitting instructions carefully, filtering efficiency depends on proper fitting. Use your own mask.
6. Individuals with a compromised respiratory system, such as asthma or emphysema, should consult a physician and complete a medical evaluation prior to use.
7. Not recommended for children below the age of 7.

9.2. Does the use of the Livinguard face mask prevent COVID-19?

Livinguard face mask does not guarantee that the wearer will avoid infection. All safety instructions supplied by the manufacturer must be read, understood, and observed at all times. The mask is intended to be worn by individuals to reduce the risk of spread of infections, particularly in epidemic or pandemic situations. It is not intended to be worn in operating rooms or in other medical settings with similar requirements. If the mask becomes damaged, soiled, or breathing becomes difficult, please stop using it, leave the contaminated area immediately, discard and replace the mask. It is important to choose the correct mask size to ensure a close fit. The textiles treated with Livinguard technology that are incorporated into Livinguard face masks have been scientifically tested by FU Berlin, showing an inactivation of 99.9% for SARS-CoV-2, the virus responsible for the COVID-19 pandemic. However, as is the case for any protection measure there is always a remaining risk, and therefore other measures need to be regarded, for example personal hygiene.