

HOFLER Biotech

Treated to protect against viruses and bacteria



Hofler Biotech Gloves

Hofler Biotech gloves eliminate minimum 99% of harmful viruses and bacteria – both outside and inside the gloves.

Reusable gloves significantly reduce the consumption of disposable gloves and hand disinfectants.

Thin and shape fitted seamless gloves also have touch screen feature.



Hofler Biotech Gloves

Patented Finnish innovation

Wood-based Finnish treatment is non-toxic and does not contain any heavy metals or harmful chemicals.

Build-in-fiber touchscreen technology

Treatment is applied by the Finnish company Värissävy Oy under controlled circumstances.



Hofler Biotech UT Gloves



- Lightweight and thin Hofler UT material – perfect for both indoor and outdoor use
- Seamless construction makes the glove comfortable to wear all day unlike disposable rubber gloves.
- Hofler Touchscreen function to enable to use any touchscreen devices with the gloves on.
- The gloves can be machine washed while keeping their antimicrobial properties up to 30 washes. They only need to be washed if stained.
- Ladies' sizes: 6-7-8 (black, powder, cherry)
- Men's sizes: 8-9-10 (black, dark grey, dark blue)





Say no to disposable rubber gloves

Disposable gloves can be a magnet for bacteria & viruses:

- You can see many personnel touching their face, opening doors and serving you food and still using the same gloves
- Many use disposable gloves for long periods and don't take the necessary precautions when used
- Those are not breathable and are uncomfortable to wear when used for longer periods
- The ecological impact: millions nitrile gloves end up in the landfills every year



Reduces the consumption of hand disinfectants

- Various kinds of hand disinfectants cause different kind of skin irritation and leave annoying smell on hands
- No need to use the public bottles of hand disinfectants
- Reduces the consumption of chemicals and plastic waste

TESTED AND PATENTED TECHNOLOGY

Finnish treatment technology is patented and verified by Nordic BioTech Group. It is a result of more than 10 years of research and verification.

Wood-based technology is sustainably produced and safe for the environment. It's free of any harmful chemicals and heavy metals such as silver and copper.

Test reports on the following page:

- Hofler Report: Antimicrobial efficacy of NordShield BioLayr Hofler UT Gloves treated in 1h short contact time tests
- The virucidal activity of NordShield BioLayr against SARSCoV2
- Performance of NordShield BioLayr on textiles; Reduction of micro organisms and viruses



TESTED AND VERIFIED



APPLICATION DEVELOPMENT REPORT
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Hofler Report: Antimicrobial efficacy of NordShield BioLayr® treated Hofler UT Gloves treated in 1h short contact time tests

Overview

NordShield BioLayr® (Batch Nr 15092020-1) was diluted with clean tap water to produce working solutions to treat the Hofler UT Glove (black) fabric. Fabric samples were treated by dipping in the working solution (complete wetting) and flat dried. Determination of antibacterial activity of the treated glove fabric was carried out through screening tests (non-accredited) using a modification of the standard EVS-EN ISO 20743:2013. The modification was a change to the contact time: from 24h to that of a **1 hour contact time**. Screening tests were performed by Nordic BioTech Group (Espoo, Finland) and test report **SA20210319** is kept on record by Nordic BioTech Group. Antibacterial activity against *Staphylococcus aureus* is reported as % reduction compared to the untreated control fabric: 100% cotton standard control fabric.

Antimicrobial efficacy

| Working solution concentration (wt%) | Microorganism | Standard | Contact time (h) | Reduction (%) |
|--------------------------------------|--|-------------------------|------------------|---------------|
| 1,5 wt% NordShield BioLayr® | <i>Staphylococcus aureus</i> ATCC 6538 | Modified ISO 20743:2013 | 1 | >99,9 % |

Discussion and conclusion

The Hofler UT Glove fabric treated with NordShield BioLayr® is shown to have **Strong antibacterial effect** against *Staphylococcus Aureus* over 1h of contact.

Customer Notice

All results represented in this report are indicative of final product behaviour. All analytical procedures are conducted using GLP, but the results must be considered as R&D screening tests and not certified/accredited test results.

For additional information visit www.nordshield.com or, please contact: +358 10 200 5130



VRS Project #5501

On behalf of Nordic Biotech Group Ltd (Keilaranta 15 B, FI-02150 Espoo, Finland), Virology Research Services Limited (Company Number, 11718460) has tested the virucidal activity of NordShield BioLayr against SARS-CoV2.

The research was conducted strictly following the protocol for ISO18184:2019. This work was performed in the VRS London labs in March 2021.

Under the conditions tested, the NordShield BioLayr has a virucidal activity against SARS-CoV2 at a contact time of 2 h. The experimental protocol and its findings are described in detail in the attached report.

At 2 h, the average recovered titre for the NordShield BioLayr was 1.40E+02 TCID50/cm² compared to 2.78E+04 TCID50/cm² for the non-treated reference control. R (antiviral activity) = 3.10 at 2 h.

The above data indicate that the NordShield BioLayr inactivates > 99.9% of virus after 2 h of contact relative to a non-treated reference control.

Authorized VRS signatory



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Performance and efficacy

Performance of NordShield® BioLayr on textiles is shown below.

Reduction of microorganisms and viruses

| Microorganism/ virus | Standard | Contact time (h) | Fabric | Working Solution Conc. (wt%) | Reduction |
|---|------------------------------------|-------------------|-----------------------|--|-----------------------|
| <i>Staphylococcus aureus</i> ATCC 6538 | EVS-EN ISO 20743:2013 | 23 ± 0.5 | Woven (PES/CO/EL) | 1 | lg 3.91 |
| | | | | 2 | lg 5.64 |
| | FZ/T 73023-2006, washed 50x | 18 | Knit (PES) | 2 | 99%** |
| | | | | 4 | 99% |
| | | | | 2 | 99% |
| | | | | 4 | 99% |
| | ASTM E 2149-13 | 24 | Woven (CV/ aramid/EL) | 2 | 99.90% |
| | | | | 2 | 98.00% |
| 2 | | | | 99.99% | |
| AATCC 100, washed 30x | | | | 2 | 99.99% |
| <i>Escherichia coli</i> ATCC 10536 | EVS-EN ISO 20743:2013 | 23 ± 0.5 | Woven (PES/CO/EL) | 0.5 | lg 2.05 |
| | | | | 1 | lg 2.07 |
| | FZ/T 73023-2006, washed 50x | 18 | Knit (PES) | 2 | 94% |
| | | | | 4 | 95% |
| | | | | 2 | 95% |
| | | | | 4 | 97% |
| <i>Escherichia coli</i> ATCC 25922 | FZ/T 73023-2006, washed 50x | 18 | Knit (CO) | 2 | 95% |
| | | | | 4 | 97% |
| <i>Klebsiella pneumoniae</i> ATCC 4351 | EVS-EN ISO 20743:2013 | 23 ± 0.5 | Woven (PES/CO/EL) | 1 | lg 2.71 |
| | | | | 0.5 | lg 2.40 |
| <i>Candida albicans</i> ATCC 10231 | FZ/T 73023-2006, washed 50x | 18 | Knit (PES) | 2 | 96% |
| | | | | 4 | 98% |
| | | | Knit (CO) | 2 | 90% |
| | | | | 4 | 94% |
| <i>Modified vaccinia virus Ankara (MVA) ATCC VR-1508*</i> | JIS 2801:2006 | 24 | Woven (PES/CO/EL) | 2 | lg 2.27±0.32 or ≥ 99% |
| | | | | H3N2 Influenza virus (Host cell: MDCK) | ISO 18184:2014 |
| Knit (CO) | 4 | lg 3.34 or 99.94% | | | |

*MVA represents the enveloped viruses, including but not limited to, Human coronavirus, influenza virus (e.g. H1N1), SARS, MERS, HIV, HBV, HCV
**The requirements of FZ/T 73023-2006 require that the % reduction to attain the highest AAA-level after 50 washing cycles is: *Staphylococcus aureus* >80%, *Escherichia coli* >70% and *Candida albicans* >60%



HOFLER OY

Hofler Oy is a third-generation family business in the glove industry.

The current market areas are Northern Europe and Russia.

There are about 200 different models of gloves in the collections under Hofler® and Forhands® brands.

In addition, Hofler Oy manufactures gloves for the customers' own brands.

Hofler Biotech countries

5/2021

- Finland
- Sweden
- Norway
- Russia
- Baltic countries
- Austria
- France
- Belgium
- Luxemburg
- Montenegro
- Azerbaidžan
- Turkey
- Bahrain
- Kuwait
- Oman
- Saudi Arabia
- United Arab Emirates

