

Microbial - **Contact Kill Rates** of Live Virus

| Description | Test | Laboratory Study # | Results | Comments |
|--|-----------|------------------------|--|---|
| Virus | | | | |
| <i>Influenza A, H3N2 (A/Hong Kong /8/68)</i> | AATCC 100 | Microbiotest # 639-119 | 99.96% ($3.50 \pm 0.45 \log_{10}$) @ 1 min 99.98% ($3.81 \pm 0.49 \log_{10}$) @ 5 min | Representative of the currently circulating influenza A subtype H3N2. An enveloped virus that binds to sialic acid receptors. |
| <i>Influenza A, H5N1 (NIBRG-14)</i> | AATCC 100 | Microbiotest #639-136 | 99.99% ($3.95 \pm 0.43 \log_{10}$) @ 5 min | Avian influenza. High pandemic risk respiratory pathogen. An enveloped virus that binds to sialic acid receptors |
| <i>Influenza A, H1N1 (A/PR8/34)</i> | AATCC 100 | Microbiotest #639-132 | 99.0% ($2.00 \pm 0.40 \log_{10}$) @ 1min 99.68% ($2.50 \pm 0.28 \log_{10}$) @ 5 min | Representative of the currently circulating influenza A subtype H1N1. An enveloped virus that binds to sialic acid receptors. |
| <i>Herpes Simplex Virus</i> | AATCC 100 | Microbiotest # 639-108 | 99.35% ($2.19 \pm 0.32 \log_{10}$) @ 30 sec $\geq 99.41\%$ ($\geq 2.23 \pm 0.19 \log_{10}$) @ 1 min * | An enveloped virus surrogate for all sialic acid receptor binding viruses. |
| <i>Rhinovirus</i> | AATCC 100 | Microbiotest # 639-105 | 96.61% ($1.47 \pm 0.29 \log_{10}$) @ 1 min 97.76% ($1.65 \pm 0.23 \log_{10}$) @ 5 min | A cause of the common cold. Binds to ICAM-1 receptor and is representative of non-enveloped viruses. |
| <i>Coronavirus (229E)</i> | AATCC 100 | Microbiotest # 639-106 | $\geq 99.99\%$ ($\geq 4.86 \pm 0.14 \log_{10}$) @ 1 min * $\geq 99.99\%$ ($\geq 4.86 \pm 0.20 \log_{10}$) @ 5 min * | Internationally used by researchers as a surrogate for the SARS causing <i>Coronavirus</i> . |
| <i>Measles</i> | AATCC100 | Microbiotest # 639-107 | $\geq 99.999\%$ ($\geq 5.00 \pm 0.27 \log_{10}$) @ 1 min * $\geq 99.999\%$ ($\geq 4.95 \pm 0.26 \log_{10}$) @ 5 min * | Measles, a respiratory pathogen, also representative of enveloped viruses. |

* No virus detected. Amount of Pathogens Killed™ calculated relative to the amount of microbes in the liquid control. Presented with 95% confidence interval. All of the above validation tests were conducted in compliance with Good Laboratory Practice (GLP) regulations and pursuant to International Standards by certified independent laboratories in the USA. All tests were conducted on the FM-200 BioMask. See Appendix for a description of Test Standards used.

Microbial - **Contact Kill Rates** of Live Bacteria and Fungi/Yeast

| Description | Test | Laboratory Study # | Results | Comments |
|-----------------------------------|-----------|------------------------|--|--|
| Bacteria | | | | |
| <i>Streptococcus pneumonia</i> | AATCC 100 | Microbiotest # 639-111 | 63.17% ± 15.1% @ 10 min 81.25% ± 1.90% @ 60 min | <i>Streptococcus pneumonia</i> , a respiratory pathogen, is representative of 'Gram positive' bacteria. |
| <i>Haemophilus influenzae</i> | AATCC 100 | Microbiotest # 639-112 | 65.9% ± 5.57% @ 10 min 86.47% ± 2.21% @ 60 min | <i>Haemophilus influenzae</i> , a respiratory pathogen, is representative of 'Gram negative' bacteria. |
| MRSA | AATCC 100 | Microbiotest # 639-113 | 99.9% ± 0.18% @ 30 min 99.94% ± 0.02% @ 60 min | MRSA, a 'Gram positive' bacteria, is an important nosocomial pathogen. |
| <i>Mycobacterium terrae</i> | AATCC 100 | Microbiotest # 639-114 | 88.97% ± 7.60% @ 10 min 85% ± 1.44% @ 60 min | Internationally used by researchers as a surrogate for <i>Mycobacterium tuberculosis</i> (TB). |
| <i>Staphylococcus epidermidis</i> | AATCC 100 | Microbiotest # 639-126 | 99.84% ± 0.05 @ 4 hours 99.99% ± 0.01 @ 8 hours 99.93% ± 0.04 @ 24 hours | Kills and suppresses the growth of the odour causing 'gram-positive' bacterium <i>Staphylococcus epidermidis</i> . |
| Yeast & Fungi | | | | |
| <i>Candida albicans</i> | AATCC 100 | Microbiotest # 639-115 | 79.78% ± 5.03% @ 180 min | Diploid fungus, a form of yeast. Used as a representative yeast in standard tests to evaluate anti-microbial agents. |
| <i>Aspergillus niger</i> | AATCC 100 | Microbiotest #639-116 | 92.63% ± 1.04% @ 60 min 84.42% ± 1.31% @ 180 min | A fungus. Used as a representative fungus in standard tests to evaluate anti-microbial agents. |
| <i>Trichophyton rubrum</i> | AATCC 100 | Microbiotest # 639-127 | 94.58% ± 3.34 @ 4 hours 99.96% ± 0.04 @ 8 hours .99.99% ± 0.00% @ 24 hours | Kill and suppresses the growth of the fungus <i>Trichophyton rubrum</i> , a common cause of superficial fungal infections. |

"Amount of Pathogens Killed" calculated relative to the amount of microbes in the liquid control. Presented with 95% confidence interval. All of the above validation tests were conducted in compliance with Good Laboratory Practice (GLP) regulations and pursuant to International Standards by certified independent laboratories in the USA. All tests were conducted on the FM-200 BioMask. See Appendix for a description of Test Standards used.

Appendix – Description of Test Methods

Microbial Contact Kill -- Antimicrobial Activity Testing

Tested pursuant to *AATCC Test Method 100-2004 Assessment of Antibacterial Finishes on Textile Materials*. This quantitative test evaluates the effectiveness of the BioFriend™ antimicrobial textile to inactivate microorganisms on direct contact. The procedure involves challenging pieces of textile with a mist of the test microorganism and holding for specified contact times. After completion of the holding periods, surviving microorganisms are extracted, assayed for, and reduction of microorganism relative to the titer of the challenge calculated.

Appendix – Independent Laboratories

Microbiotest

<http://www.microbiotest.com/>

Microbiotest is one of the leading airborne microorganism research facilities in the world, with the most technologically advanced aerobiology laboratory in the private sector. A combination of their staff's expertise in regulatory compliance and their proficiency in performing GLP antimicrobial efficacy studies comprise the foundation of Microbiotest's outstanding testing services that has earned client trust and respect for over 20 years. Microbiotest is recognised by the FDA as an independent contract laboratory for performing Agency-required testing, and is experienced in testing to regulatory requirements set by the US EPA, FDA, and agencies within the European Community, Canada and Australia. Microbiotest is based in Washington, DC, USA.

Important Information – BioMask Summary of Independent Test Results

Please contact us directly for copies of the studies described herein. For more information on the BioMask and its intended use in your jurisdiction, please see packaging details or visit the Filligent website at www.filligent.com. Nothing in this document should be construed as expanding the intended use of the BioMask beyond that permitted by the regulatory certifications and / or approvals that apply to the BioMask in your jurisdiction.

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