

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

Description	Test	Laboratory Study #	Results	Comments
<i>Virus</i>				
<i>Influenza A</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	Highest pandemic risk respiratory pathogen. An enveloped virus that binds to sialic acid receptors. H3N2 is used as a surrogate for all influenza A viruses, including H5N1 (Bird Flu).
<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.

“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> .
<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.
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.

"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 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.

Although every effort has been made to ensure their accuracy and completeness, these test results may contain technical inaccuracies or typographical errors, and Filligent or its Representatives may revise them without notice. Filligent or its Representatives may make improvements and/or changes to the BioMask at any time without notice.

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