



# **D-FENZ™ Surface Protectant – Testing Summary**

D-FENZ™ products have been tested against a variety of different microorganisms in order to understand their effectiveness and ability to inhibit enveloped viruses, bacteria, fungi, and non-enveloped viruses. The table below lists a variety of microorganisms that have been tested with the D-FENZ™ surface protectant, the class of microorganism they are, what diseases they can manifest, and the overall efficacy of the product tested.

Test Microorganism	Class	Manifestation	Efficacy
Campylobacter jejuni (ATCC® 46349)	Bacteria	Food Poisoning	>99%
Enterococcus hirae (ATCC® 8043)	Bacteria	Sepsis	>99%
E. Coli (Escherichia Coli 10798)	Bacteria	Food Poisoning	>99%
Klebsiella Pneumonia (ATCC® 4352)	Bacteria	Pneumonia, Wound Infection	>99%
Pseudomonas aeruginosa (ATCC® 15442)	Bacteria	Hospital Acquired Infections	>99%
Staphylococcus aureus (ATCC® 6538P)	Bacteria	Infections	>99%
Aspergillus niger (ATCC® 6275)	Fungus	Black Mold	>99%
Adenovirus	Virus	Common Cold	>99%
Influenza A H1N1 (CDC #2009712047)	Virus	2009 Swine Flu, 1918 Pandemic	>99%
Norovirus	Virus	Diarrhea, Vomiting, Headache	>99%
Poliovirus	Virus	Polio	>99%
Rotavirus	Virus	Diarrhea in Children	>99%
SARS-CoV-2	Virus	COVID 19	>99%

The testing listed above was completed at a variety of universities and third-party testing labs in order to ensure its overall accuracy and the use of accepted testing methodologies. Specific reports for the testing completed with different microorganisms are available upon request if the appropriate non-disclosure agreements are executed.

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D-FENZ® ANTI-MICROBIAL

Additional testing has been completed and is ongoing at Oklahoma Baptist University focused on the products effectiveness against harmful bacteria. Below are some images and details on the different sets of testing completed so far with *Staphylococcus Aureus* (Staph).



Average Zone of Inhibition

The image above shows the average zone of inhibition of the D-FENZ™ Surface Protectant on Staph using the Kirby-Bauer method. The disc was treated with 25 µL and created a 21 mm barrier of protection against the bacteria.



The image above shows an agar plate inoculated with Staph, followed by one half treated with the D-FENZ™ Surface Protectant. As shown, the bacterial growth is prevented with the use of the product.

## Untreated



30 Day Protection

## Treated with Product



The pictures above show the results of long-term bacterial inhibition testing comparing an untreated blank after 1 day of growth versus a plate treated with D-FENZ™ Surface Protectant that has been inoculated with Staph over 20 times over the course of 30 days. As shown, growth of Staph has been prevented over the course of 30 days of testing.

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