



Efficacy Data for

**Afia Alcohol-Free Foaming Hand Sanitizer
(#0445)**

Time Kill Assay Results

This study demonstrates that NCL Afia Alcohol-Free Instant Foaming Hand Sanitizer is an effective Topical Antimicrobial effective against both Gram-Positive and Gram-negative bacterial pathogens. Data listed below is from an Exposure time of 15 Seconds:

Organism	Test Population Control (CFU/ml)	Number of Survivors (CFU/ml)	% Reduction	Log Reduction
<i>Acinetobacter baumannii</i> ATCC 19606	2.25 X 10 ⁶	<5	>99.999	>5.65 Log ₁₀
<i>Enterococcus faecalis</i> Vancomycin Resistant (VRE) ATCC 51575	1.45 X 10 ⁶	<5	99.999	>5.46 Log ₁₀
<i>Escherichia coli</i> ATCC 11229	3.4 X 10 ⁶	2 x 10 ¹	99.999	5.23 Log ₁₀
<i>Escherichia coli</i> O157:H7 ATCC 35150	3.3 X 10 ⁶	2 x 10 ¹	99.999	5.22 Log ₁₀
<i>Klebsiella pneumoniae</i> ATCC 4352	2.19 X 10 ⁶	7.9 x 10 ³	99.6	2.44 Log ₁₀
<i>Klebsiella pneumoniae</i> NDM -1 positive CDC 1000527 ("New Dehli" superstrain)	2.21 x 10 ⁶	<5	>99.9999	>5.64 Log ₁₀
<i>Listeria monocytogenes</i> ATCC 19117	1.90 X 10 ⁶	<5	>99.999	>5.58 Log ₁₀
<i>Pseudomonas aeruginosa</i> ATCC 15442	1.64 X 10 ⁶	<5	>99.999	>5.51 Log ₁₀
<i>Salmonella enteritidis</i> ATCC 4931	2.48 X 10 ⁶	<5	>99.999	>5.69 Log ₁₀
<i>Salmonella enterica</i> serotype paratyphi B ATCC 8759	2.42 X 10 ⁶	1 x 10 ¹	>99.999	5.38 Log ₁₀
<i>Salmonella enterica</i> serotype pullorum ATCC 19945	1.31 X 10 ⁶	1 x 10 ¹	99.999	5.12 Log ₁₀
<i>Salmonella enterica</i> serotype typhimurium ATCC 23564	5.3 X 10 ⁶	<5	>99.9999	>6.02 Log ₁₀
<i>Salmonella typhi</i> ATCC 6539	1.72 X 10 ⁶	<5	>99.999	>5.54 Log ₁₀
<i>Shigella dysenteriae</i> ATCC 13313	1.52 X 10 ⁶	<5	>99.999	>5.48 Log ₁₀
<i>Shigella flexneri</i> ATCC 12022	1.41 X 10 ⁶	5 X 10 ¹	>99.99	4.45 Log ₁₀
<i>Shigella sonnei</i> ATCC 25931	5.9 X 10 ⁵	<5	>99.999	>5.07 Log ₁₀
<i>Staphylococcus aureus</i> ATCC 6538	1.82 X 10 ⁶	2.7 X 10 ²	>99.9	3.83 Log ₁₀



<i>Staphylococcus aureus</i> Community Associated Methicillin Resistant (MRSA) NARSA NRS 123, Genotype USA400	1.25 X 10 ⁶	<5	>99.999	>5.40 Log ₁₀
<i>Staphylococcus epidermidis</i> ATCC 12228	9.0 X 10 ⁵	<5	>99.999	>5.25 Log ₁₀
<i>Streptococcus equi ssp. Equi</i> ATCC 33398	1.27 X 10 ⁷	<5	>99.9999	>6.40
<i>Vibrio cholera</i> ATCC 11623	1.49 X 10 ⁵	<5	>99.99	>4.47 Log ₁₀
<i>Yersinia enterocolitica</i> ATCC 23715	5.5 X 10 ⁶	1 X 10 ¹	>99.999	5.74 Log ₁₀