

# Quick Guide to Log Reduction

*Not all hand sanitizers are created equal.*

Number of CFUs

1,000,000  
800,000  
600,000  
400,000  
200,000  
100,000  
10,000  
1,000  
100  
10  
1

The following graph shows the results log reductions have on a test area with 1,000,000 CFUs (colony forming units).

A 4-Log Reduction on a surface with 1,000,000 CFUs would leave 100 CFUs, which is written as a 99.99% reduction in potentially harmful microorganisms.

“Log” is short for logarithm, which is a power to which a base, such as 10, can be raised to produce a given number. As an example, Log 4 represents  $10^4$  10x10x10x10 or 10,000. Log reduction means a 10 fold (one decimal place) or 90% reduction in CFUs.

To look at in terms of reduction of the CFUs, a reduction of 1 Log (90%) reduces CFUs on a test area from 1,000,000 CFUs to 100,000, 2 Log (99%) reduces 1,000,000 to 10,000, 3 Log (99.9%) from 1,000,000 to 1,000 with 6 Log reducing 1,000,000 down to 1 CFU.

CFUs (colony forming units)

1-Log 90%    2-Log 99%    3-Log 99.9%    4-Log 99.99%    5-Log 99.999%    6-Log 99.9999%

- 1-Log Reduction ( $\text{Log}_1$ ): Number of CFUs is 10 times smaller
- 2-Log Reduction ( $\text{Log}_2$ ): Number of CFUs is 100 times smaller
- 3-Log Reduction ( $\text{Log}_3$ ): Number of CFUs is 1,000 times smaller
- 4-Log Reduction ( $\text{Log}_4$ ): Number of CFUs is 10,000 times smaller
- 5-Log Reduction ( $\text{Log}_5$ ): Number of CFUs is 100,000 times smaller
- 6-Log Reduction ( $\text{Log}_6$ ): Number of CFUs is 1,000,000 times smaller



Smart-San Hand Sanitizer Spray and Alpet E3+ kill 99.9999% of tested pathogens.