

# 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  $10^4$   $10 \times 10 \times 10 \times 10$  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

BEST SANITIZERS INC.  
**ALPET**  
Hand  
Sanitizer  
Spray **E3+**

*Alpet E3+ kills 99.9999%  
of tested pathogens.*