

What does log reduction mean?

The most common disinfectant claim relates to kill rates called log reductions. Different products will have different claims on the packaging like 90% effective and 99.99% effective. In terms of infection prevention and control, log reductions show how effective a product is at reducing the number of microorganisms on a surface. The higher the log reduction, the better it is at killing microorganisms, that's why choosing products with greater efficacy claims is important for assurance of efficacy and reduction of microorganisms.

What does log reductions stand for?

'log' is short for the mathematical term logarithm, which is the 'power' to which a number is raised. For example, If the base number being used is 10, a log 3 reduction is shown as 10^3 or $10 \times 10 \times 10 = 1,000$. However, log reduction is in the opposite direction, moving down one decimal place each time. So, 99.99% reduction is better than 99.9% reduction.

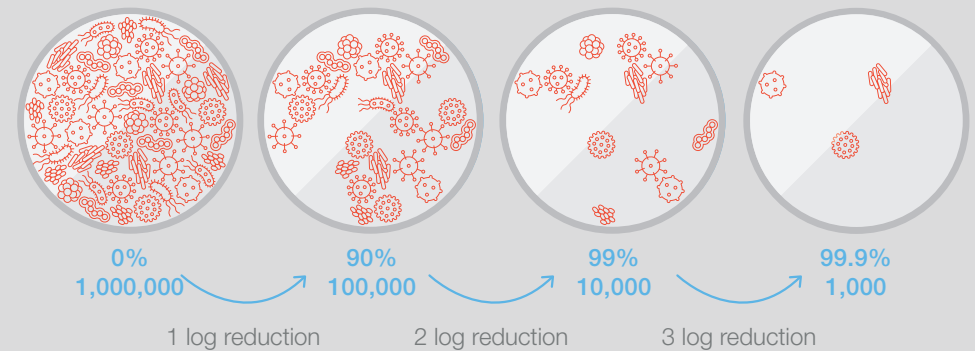
Do log reductions matter?

The number of viruses, bacteria and other microorganisms present on a surface can be huge! If there are a million microorganisms on a dirty surface or hands, and the disinfectant being used has a log reduction of 99.9% then there would still be 1,000 microorganisms left on the surface after disinfection. But a disinfectant with a 99.9999% reduction would only leave 1 microorganism. Using a disinfectant with log 3 reduction will leave fewer microorganisms on a surface compared to a product with a log 0 reduction.

How is log reduction tested?

During product efficacy testing, accredited laboratories count colony forming units (CFU's), where bacteria grow in a group or colony that can be seen with the naked eye as individual bacteria are far too small to see. They count how many colonies of microorganisms are present at the start of the test. Next, they apply the disinfectant being tested against a control product and wait the required test time before recounting the CFU's.

If the number of CFU's in the control was 1,000,000 (10^6) and the result of the tests was only 1,000 (10^3) CFU's, the log reduction would be 99.9%.



Examples of Log reductions

Log reduction	Number of CFUs remaining	Percentage reduction
0	1,000,000	0%
1	100,000	90%
2	10,000	99%
3	1,000	99.9%
4	100	99.99%
5	10	99.999%
6	1	99.9999%