



TEST RESULTS

X - SPRAY A3

TEST CERTIFICATE TRANSLATION

Following a Test Certificate Translation from the Original Certificate.

Sample type: **Hand Sanitizer Solution**
Commercial Name: **X-Spray A3**
Company: **Xegate**
Test Date: **June 13th, 2020**

Sample	Micro Organism Type	Control Sample	Log Reduction						Unit	Reference Method
			30 sec	1 min	5 min	15 min	30 min	60 min		
Hand Sanitizer solution	<i>Escherichia coli</i>	3×10^8	2.1×10^2	1.8×10^2	1.3×10^2	70	< 10	< 10	cfu/ml	ISIRI 10504
	<i>Staphylococcus aureus</i>	1.7×10^8	1.7×10^2	1.1×10^2	1.1×10^2	< 10	< 10	< 10	cfu/ml	ISIRI 10504
	<i>Pseudomonas Aeruginosa</i>	2.6×10^8	4×10^3	8×10^2	5×10^2	80	< 10	< 10	cfu/ml	ISIRI 10504
	<i>Enterococcus Hirae</i>	2.5×10^8	9×10^2	5×10^2	2×10^2	90	< 10	< 10	cfu/ml	ISIRI 10504
	<i>Candida Albicans</i>	2.4×10^7	1.6×10^2	1.2×10^2	1.1×10^2	< 10	< 10	< 10	cfu/ml	ISIRI 19851

The following Micro Organism has been used in the above test:

P.aeruginosa (ATCC: 15442), *E.coli* (ATCC: 10538), *S. aureus* (ATCC: 6538), *Enterococcus hirae* (ATCC: 10541) and *C. albicans* (ATCC: 10231)

- o Test temperature: 20 ± 1 °C
- o Administrative material: 0.3 gr/lit cow albumins
- o Neutralizing material: 30 gr/lit Polysorbate, 30gr/lit Saponins, 3 gr/lit Lecithin
- o The test sample is approved on the Microorganism mentioned in the time of 30 seconds, 1, 5, 15, 30 and 60 minutes.

HOW TO READ THESE DATA

In terms of infection control, ‘Log Reductions’ convey how effective a product is at reducing pathogens. The greater the log reduction the more effective the product is at killing bacteria and other pathogens that can cause infections.

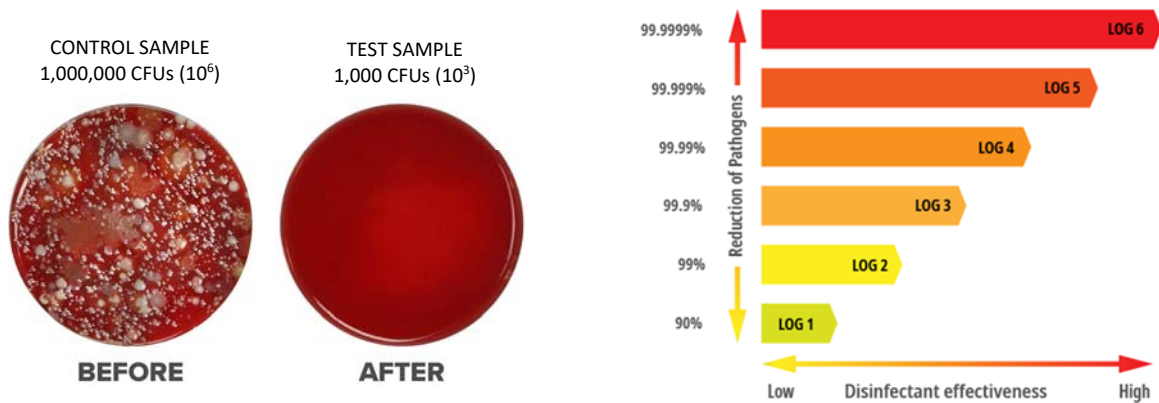
‘Log’ is short for logarithm, a mathematical term for a power to which a number can be raised. For example, if using 10 as a given number, a Log 3 increase can be shown as 10^3 or $10 \times 10 \times 10 = 1,000$.

A log reduction takes the power in the opposite direction. For example, a log reduction of 1 is equivalent to a 10-fold reduction or, to put it another way, moving down one decimal place or a 90% reduction.

During product efficacy testing, the microbiology laboratories count the number of colony forming units (CFUs) of the given pathogen present at the start of the test. They then apply the disinfection product being tested, alongside a control product and wait the required test time before recounting the number of CFUs present.

The result of the difference between the control and the test product is then expressed as a Log reduction. For example, if the number of CFUs in the control was found to be 1,000,000 (or 10^6) and the end result using the product was only 1,000 (10^3), that would be a Log reduction of 3 or a reduction of 99.9%.

For example:



As a basic rule of thumb, for every additional Log reduction number you add a 9 to the percentage reduction – so a log reduction of 3, as illustrated above, is a 99.9% reduction compared with a log reduction of 6 which is equivalent to a 99.9999% reduction.



A summary of log reduction values using a starting point of 1,000,000 CFUs is outlined below, as an example:

Log reduction	Number of CFUs	Percentage reduction	Times smaller
0 log (Log0)	1 000 000	0	N/A
1 log (Log1)	100 000	9%	x 10
2 log (Log2)	10 000	99%	x 100
3 log (Log3)	1 000	99.9%	x 1 000
4 log (Log4)	100	99.99%	x 10 000
5 log (Log5)	10	99.999%	x 100 000
6 log (Log6)	1	99.9999%	x 1 000 000

Using one of our test results as a working example, Xegate Sanitiser was tested against *Escherichia coli* using a contact test time of 30 seconds:

- The control of bacteria was given as 3×10^8 (300,000,000 CFUs)
- The number of CFUs remaining after 30 seconds using Xegate Hand Sanitiser X-Spray A3 was 2.1×10^2
- The log reduction given of Log > 6.0, that means > 99.9999% reduction, just after 30 seconds