

	Test norm	Test type	Organism	Log reduction required	Log reduction achieved	Laboratory	Clean or dirty	Contact time
Sporicidal	EN 13704	Suspension	<i>Bacillus subtilis</i>	≥ 3 log	> 3.40 log	MGS	Clean 1	30 sec.
			<i>Bacillus cereus</i>	≥ 3 log	> 3 log	MGS	Clean 1	
			<i>Bacillus cereus</i>	≥ 3 log	> 3.29 log	MGS	Dirty 1	
			<i>Clostridium difficile</i>	≥ 3 log	> 5.19 log	HIRL	Clean 1	
			<i>Clostridium difficile</i>	≥ 3 log	> 5.19 log	HIRL	Dirty 1	
	Babb JR, Bradely CR & Ayliffe GAJ (J. of Hosp. Inf. 1980 1:63-75)	Suspension	<i>Bacillus subtilis var niger</i>	≥ 3 log	> 6.72 log	HIRL	Clean 1	
			<i>Bacillus subtilis var niger</i>	≥ 3 log	> 6.66 log	HIRL	Dirty 1	
	EN 14347	Suspension	<i>Bacillus subtilis</i>	≥ 4 log	> 4.58 log	IRM	N/A	
			<i>Bacillus cereus</i>	≥ 4 log	> 4.65 log	IRM	N/A	
			<i>Bacillus subtilis</i>	≥ 4 log	> 4.18 log	MGS	N/A	
<i>Bacillus cereus</i>			≥ 4 log	> 4.68 log	MGS	N/A		
EN 17126	Suspension	<i>Bacillus cereus</i>	≥ 4 log	> 4.15 log	Melbec	Clean 1		
Mycobactericidal	EN 14563	Carrier	<i>Mycobacterium avium</i>	≥ 4 log	> 5.2 log	Biotech Germande	Clean 1	30 sec.
			<i>Mycobacterium terrae</i>	≥ 4 log	> 4.9 log	Biotech Germande	Clean 1	
			<i>Mycobacterium avium</i>	≥ 4 log	> 6.65 log	MGS	Dirty 3	
			<i>Mycobacterium terrae</i>	≥ 4 log	> 6.57 log	MGS	Dirty 3	
	EN 14348	Suspension	<i>Mycobacterium terrae</i>	≥ 4 log	> 6.04 log	Hygiene Nord GMBH	Clean 1	
			<i>Mycobacterium avium</i>	≥ 4 log	> 6.63 log	MGS	Clean 1	
	DGHM Methodology	Carrier	<i>Mycobacterium avium</i>	≥ 4 log	> 7.76 log	Hygiene Nord GMBH	Dirty 1	
			<i>Mycobacterium terrae</i>	≥ 4 log	> 7.23 log	Hygiene Nord GMBH	Dirty 1	
Griffiths et al. Journal of Hospital Infection (1998)	Suspension	<i>Mycobacterium terrae</i>	≥ 5 log	> 5.82 log	HIRL	Clean 1		
			≥ 5 log	> 5.69 log	HIRL	Dirty 1		
Virucidal	EN 14476	Suspension	Poliovirus Type 1	≥ 4 log	> 5.38 log	Dr Brill & Dr Steinmann	Clean 1	30 sec.
			Adenovirus Type 5	≥ 4 log	> 5.25 log	Dr Brill & Dr Steinmann	Clean 1	
			Norovirus (using murine norovirus surrogate)	≥ 4 log	> 5.25 log	Dr Brill & Dr Steinmann	Clean 1	
			Influenza (H1N1)	≥ 4 log	4.50 log	Eurofins	Dirty 1	
	ASTM E-1053	Surface	Poliovirus Type 1	≥ 4 log	> 5.75 log	Accuratus Laboratories	Dirty 3	
			Adenovirus Type 5	≥ 4 log	> 7.25 log	Accuratus Laboratories	Dirty 3	
			Feline calicivirus	≥ 4 log	> 5.00 log	Accuratus Laboratories	Dirty 3	
			Hepatitis B Virus (HBV)	≥ 4 log	> 4.76 log	Accuratus Laboratories	Dirty 3	
			Herpes Simplex Virus Type 1	≥ 4 log	> 4.25 log	Accuratus Laboratories	Dirty 3	
			Human Immunodeficiency Virus (HIV)	≥ 4 log	> 4.00 log	Accuratus Laboratories	Dirty 3	
			Influenza A Virus (H1N1)	≥ 4 log	> 5.00 log	Accuratus Laboratories	Dirty 3	
	DVV and RKI	Suspension	Poliovirus Type 1	≥ 4 log	> 4.75 log	Mikrolab GMBH	Clean 3	
				≥ 4 log	> 4.75 log	Mikrolab GMBH	Dirty 2	
			Adenovirus Type 5	≥ 4 log	> 6.25 log	Mikrolab GMBH	Clean 3	
				≥ 4 log	> 6.19 log	Mikrolab GMBH	Dirty 2	
			Human Papillomavirus (using polyoma virus SV40 surrogate)	≥ 4 log	> 5.50 log	Mikrolab GMBH	Clean 3	
				≥ 4 log	> 5.32 log	Mikrolab GMBH	Dirty 2	
Vaccinia Virus	≥ 4 log	> 5.00 log	Mikrolab GMBH	Clean 3				
	≥ 4 log	> 5.38 log	Mikrolab GMBH	Dirty 2				
EN 16615	Surface with mechanical action	Norovirus (using murine norovirus surrogate)	≥ 4 log* and < 50 CFU/25cm²	4.26 and no detectable viruses on squares 2-4	MSL	Clean 1		

Test norm	Test type	Organism	Log reduction required	Log reduction achieved	Laboratory	Clean or dirty	Contact time
EN 13697	Surface	<i>Candida albicans</i>	≥ 4 log	> 4.22 log	MGs	Clean 1	30 sec.
EN 14562	Carrier	<i>Candida albicans</i>	≥ 4 log	> 4.4 log	Biotech Germande	Clean 1	
		<i>Aspergillus brasiliensis</i>	≥ 4 log	> 4.36 log	Hygiene Nord GMBH	Clean 1	
		<i>Candida albicans</i>	≥ 4 log	> 4.08 log	Hygiene Nord GMBH	Clean 1	
		<i>Candida auris</i>	≥ 4 log	> 4.06 log	MGs	Clean 1	
EN 13624	Suspension	<i>Candida albicans</i>	≥ 4 log	> 4.45 log	MGs	Clean 1	
			≥ 4 log	> 4.51 log	Hygiene Nord GMBH	Clean 1	
		<i>Aspergillus brasiliensis</i>	≥ 4 log	> 4.23 log	Hygiene Nord GMBH	Clean 1	
			≥ 4 log	> 4.33 log	MGs	Clean 1	
		<i>Fusarium solani</i>	≥ 4 log	> 4.0 log	Huddersfield	Clean 1	
		<i>Aspergillus flavus</i>	≥ 4 log	> 4.0 log	Huddersfield	Clean 1	
DGHM Methodology	Carrier	<i>Candida albicans</i>	≥ 4 log	> 6.47 log	Hygiene Nord GMBH	Dirty 1	
EN 16615	Surface with mechanical action	<i>Candida albicans</i>	≥ 4 log and < 50 CFU/25cm <sup>2</sup>	> 4.16 log and < 5 CFUs	MGs	Clean 1	
		<i>Aspergillus brasiliensis</i>		> 4.10 log and < 5 CFUs			

Test norm	Test type	Organism	Log reduction required	Log reduction achieved	Laboratory	Clean or dirty	Contact time
EN 14561	Carrier	<i>Staphylococcus aureus</i>	≥ 5 log	> 5.8 log	Biotech Germande	Clean 1	30 sec.
		<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 5.5 log	Biotech Germande	Clean 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 5.6 log	Biotech Germande	Clean 1	
		Carbapenemase-resistant Enterobacteriaceae (CRE) <i>Klebsiella pneumoniae</i>	≥ 5 log	> 5.57 log	MGs	Clean 1	
		Vancomycin-resistant Enterococci (VRE) <i>Enterococcus faecium</i>	≥ 5 log	> 5.65 log	MGs	Clean 1	
EN 13697	Surface	<i>Escherichia coli</i>	≥ 4 log	> 5.36 log	MGs	Clean 1	
		<i>Staphylococcus aureus</i>	≥ 4 log	> 5.90 log	MGs	Clean 1	
		<i>Pseudomonas aeruginosa</i>	≥ 4 log	> 5.52 log	MGs	Clean 1	
		<i>Enterococcus hirae</i>	≥ 4 log	> 5.62 log	MGs	Clean 1	
EN 13727	Suspension	<i>Staphylococcus aureus</i>	≥ 5 log	> 6.49 log	HIRL	Clean 1	
			≥ 5 log	> 6.49 log	HIRL	Dirty 1	
		<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 6.65 log	HIRL	Clean 1	
			≥ 5 log	> 6.65 log	HIRL	Dirty 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 6.59 log	HIRL	Clean 1	
			≥ 5 log	> 6.59 log	HIRL	Dirty 1	
		<i>Staphylococcus aureus</i>	≥ 5 log	> 5.36 log	MGs	Clean 1	
		<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 5.33 log	MGs	Clean 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 5.36 log	MGs	Clean 1	
		<i>Staphylococcus aureus</i>	≥ 5 log	> 5.34 log	MGs	Clean 1	
			≥ 5 log	> 5.34 log	MGs	Dirty 1	
		<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 5.47 log	MGs	Clean 1	
			≥ 5 log	> 5.47 log	MGs	Dirty 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 5.43 log	MGs	Clean 1	
			≥ 5 log	> 5.43 log	MGs	Dirty 1	
		<i>Staphylococcus aureus</i>	≥ 5 log	> 5.18 log	Hygiene Nord GMBH	Clean 1	
		<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 5.54 log	Hygiene Nord GMBH	Clean 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 5.27 log	Hygiene Nord GMBH	Clean 1	
		Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	≥ 5 log	> 5.34 log	MGs	Clean 1	
			≥ 5 log	> 5.34 log	MGs	Dirty 1	
<i>Neisseria gonorrhoeae</i>	≥ 5 log	> 5.37 log	Huddersfield	Clean 1			
<i>Gardnerella vaginalis</i>	≥ 5 log	> 5.39 log	Huddersfield	Clean 1			
<i>Streptococcus agalactiae</i>	≥ 5 log	> 5.43 log	Huddersfield	Clean 1			
DGHM Methodology	Carrier	<i>Pseudomonas aeruginosa</i>	≥ 5 log	> 7.23 log	Hygiene Nord GMBH	Dirty 1	
		<i>Staphylococcus aureus</i>	≥ 5 log	> 7.30 log	Hygiene Nord GMBH	Dirty 1	
		<i>Enterococcus hirae</i>	≥ 5 log	> 7.52 log	Hygiene Nord GMBH	Dirty 1	
EN 16615	Surface with mechanical action	<i>Staphylococcus aureus</i>	≥ 5 log and < 50 CFU/25cm <sup>2</sup>	> 5.80 log and < 5 CFUs	MGs	Clean 1	
		<i>Enterococcus hirae</i>		> 5.03 log and < 5 CFUs			
		<i>Pseudomonas aeruginosa</i>		> 5.31 log and 2.50 CFUs			

### Clean/Dirty Conditions Key

**Clean 1:** 0.3 g/L bovine albumin

**Clean 2:** 0.6 g/L foetal bovine serum + 0.03% bovine serum albumin

**Clean 3:** Aqua bidest

**Dirty 1:** 3.0 g/L bovine albumin + 3 ml/l sheep erythrocytes

**Dirty 2:** 10% Fetal Calf Serum

**Dirty 3:** 5% Blood Serum

**Dirty 4:** 5% Fetal Bovine Serum + 100% Duck Serum

\*based on requirements of EN 14476