Tristel DUO OPH™

MICROBIOLOGICAL EFFICACY SUMMARY

30s

ESSENTIAL TEST DATA

Complies with European Standard EN 14885:2022 and the latest regulatory requirements for biocidal activity of high-level surface disinfectants applied with mechanical action (e.g., wiping).

A ≥5 $\log_{10}$ reduction was achieved for bacteria, and a ≥4 $\log_{10}$ reduction for viruses, fungi, yeasts, mycobacteria, and bacterial spores in the following tests. Additionally, the requirements of the 4-field tests EN 16615 and EN 17846 were met, with F2–F4 contamination levels being <50 CFU/cm².

ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
SPORICIDAL			
Bacillus subtilis	EN 17126 (P2, S1)	Suspension	Clean 1 & Dirty 1
Bacillus cereus			
Clostridioides difficile			
Clostridioides difficile	EN 17846 (P2, S2)	Surface with mechanical action	Clean 1 & Dirty 1
MYCOBACTERICIDAL			
Mycobacterium terrae	EN 14348 (P2, S1)	Suspension	Clean 1 & Dirty 1
Mycobacterium avium			
VIRUCIDAL			
Poliovirus Type 1	EN 14476 (P2, S1)	Suspension	Clean 1 & Dirty 1
Adenovirus Type 5			
Murine norovirus			
FUNGICIDAL/YEASTICIDAL			
Aspergillus brasiliensis	EN 13624 (P2, S1)	Suspension	Clean 1 & Dirty 1
Candida albicans			
Candida albicans	EN 16615 (P2, S2)	Surface with mechanical action	Clean 1 & Dirty 1
BACTERICIDAL			
Pseudomonas aeruginosa	EN 13727 (P2, S1)	Suspension	Clean 1 & Dirty 1
Staphylococcus aureus			

ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
BACTERICIDAL			
Enterococcus hirae	EN 13727 (P2, S1)	Suspension	Clean 1 & Dirty 1
Pseudomonas aeruginosa	EN 16615 (P2, S2)	Surface with mechanical action	Clean 1 & Dirty 1
Staphylococcus aureus			
Enterococcus hirae			

ADDITIONAL TEST DATA

Beyond essential testing, further studies have confirmed the product's effectiveness against key pathogens and demonstrated broader performance characteristics.

MICROORGANISMS

ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
BACTERIAL SPORES			
Bacillus cereus	EN 13704 (P2, S1)	Suspension	Dirty 1
Bacillus subtilis var niger	Babb JR, Bradely CR & Ayliffe GAJ (J. of Hosp. Inf. 1980 1:63-75)	Suspension	Clean 1 & Dirty 3
PROTOZOA			
Acanthamoeba castellanii cysts	Bespoke Test	Suspension	Clean 1
MYCOBACTERIA			
Mycobacterium terrae	EN 14563 (P2, S2)	Carrier	Clean 1 & Dirty 2
Mycobacterium avium			
Mycobacterium terrae	EN 16615 (P2, S2)	Surface with mechanical action	Dirty 1
Mycobacterium avium			
Mycobacterium terrae	Griffiths et al. (J. of Hosp. Inf. 1998 38:183-92)	Suspension	Clean 1 & Dirty 4
VIRUSES			
Adenovirus Type 5	EN 17111 (P2, S2)	Carrier	Clean 1 & Dirty 1

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ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
VIRUSES			
Murine norovirus	EN 17111 (P2, S2)	Carrier	Clean 1 & Dirty 1
Polyomavirus SV40			
Poliovirus Type 1	ASTM E-1053	Surface without mechanical action	Dirty 2
Adenovirus Type 5			
Feline Calicivirus			
Hepatitis B Virus (HBV)			
Herpes Simplex Virus (HSV) Type 1			
Human Immunodeficiency Virus (HIV)			
Influenza A Virus (H1N1)			
Adenovirus Type 5	EN 16615 (P2, S2)	Surface with mechanical action	Dirty 1
Murine norovirus			Clean 1 & Dirty 1
Bovine Coronavirus			Dirty 1
Influenza A Virus (H1N1)	EN 14476 (P2, S1)	Suspension	Dirty 1
Parvovirus (Using Minute Virus of Mice (MVM) surrogate)	DVV/RKI	Suspension	Dirty 3
Poliovirus Type 1			Clean 2 & Dirty 3
Adenovirus Type 5			
Murine norovirus			
Polyomavirus SV40			
Vaccinia Virus			
FUNGI & YEASTS			
Aspergillus brasiliensis	EN 14562 (P2, S2)	Carrier	Clean 1
Candida albicans			
Candidozyma auris (Formerly *Candida auris*)			Dirty 2

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ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
FUNGI & YEASTS			
Aspergillus brasiliensis	EN 16615 (P2, S2)	Surface with mechanical action	Clean 1 & Dirty 1
Candida albicans	AOAC Use-Dilution Method	Carrier	Dirty 2
Candida albicans	EN 13697 (P2, S2)	Surface without mechanical action	Clean 1
Fusarium solani	EN 13624 (P2, S1)	Suspension	Clean 1
Aspergillus sydowii			
BACTERIA			
Pseudomonas aeruginosa	EN 14561 (P2, S2)	Carrier	Clean 1
Staphylococcus aureus			
Enterococcus hirae			
Carbapenem-resistant *Klebsiella pneumoniae* (CRE)			
Vancomycin-resistant *Enterococcus faecium* (VRE)			
Multidrug-resistant *Acinetobacter baumannii* (MDRAB)			Dirty 2
Extended Spectrum Beta-Lactamase (ESBL) producing *Klebsiella pneumoniae*			
Methicillin-resistant *Staphylococcus aureus* (MRSA)			
Pseudomonas aeruginosa	EN 13697 (P2, S2)	Surface without mechanical action	Clean 1
Staphylococcus aureus			
Enterococcus hirae			
Escherichia coli			
Proteus vulgaris	EN 16615 (P2, S2)	Surface with mechanical action	Dirty 1
Methicillin-resistant *Staphylococcus aureus* (MRSA)			
Neisseria gonorrhoeae			Clean 1
Gardnerella vaginalis			

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ORGANISM	TEST METHOD	TEST TYPE	CONDITIONS
BACTERIA			
Streptococcus agalactiae	EN 16615 (P2, S2)	Surface with mechanical action	Clean 1
Methicillin-resistant *Staphylococcus aureus* (MRSA)	EN 13727 (P2, S1)	Suspension	Dirty 1

BIOFILM

ORGANISM	TEST METHOD	BIOFILM TYPE	SURFACE TYPE
Pseudomonas aeruginosa	MBEC assay (ASTM E2799-22)	Grown in moist conditions - aged for 72 hours	Polystyrene
Staphylococcus aureus	CDC Biofilm Reactor (ASTM E2871-22)		Stainless steel & PVC
Staphylococcus aureus	Modified CDC Biofilm Reactor	Dry (semi-hydrated) - aged for 12 days	Stainless steel & PVC

OTHER

CAPABILITY	TEST METHOD
DNA/RNA Degradation	Polyacrylamide gel electrophoresis (PAGE)

KEY

Clean 1	0.3 g/l Bovine albumin	**Dirty 3**	10% Blood Serum
Clean 2	Aqua bidest	**Dirty 4**	1% Blood Serum
Dirty 1	3g/l Bovine albumin + 3ml Blood erythrocytes	**P2, S1**	Phase 2, Step 1
Dirty 2	5% Blood Serum	**P2, S2**	Phase 2, Step 2