

## Tristel Duo ULT Microbiological Efficacy Summary

Testing performed in accordance with European Standard EN 14885:2018 and the latest efficacy requirements for disinfectants used in the medical area.

	ORGANISM	TEST NORM	TEST TYPE	CONDITIONS	
SPORICIDAL	<i>Bacillus subtilis</i>	EN 17126	Suspension	Clean 1	
	<i>Bacillus cereus</i>				
	<i>Clostridioides difficile</i> (formerly <i>Clostridium difficile</i> )				
MYCOBACTERICIDAL	<i>Mycobacterium terrae</i>	EN 14563	Carrier	Clean 1 and Dirty 1	
	<i>Mycobacterium avium</i>				
	<i>Mycobacterium terrae</i>	EN 14348	Suspension	Clean 1	
	<i>Mycobacterium avium</i>				
VIRUCIDAL	Poliovirus Type 1	EN 14476	Suspension	Clean 1	
	Adenovirus Type 5				
	Murine Norovirus				
FUNGICIDAL/ YEASTICIDAL	<i>Candida albicans</i>	EN 16615	Surface with mechanical action	Clean 1	
	<i>Aspergillus brasiliensis</i>	EN 14562	Carrier		
	<i>Candida albicans</i>				
	<i>Aspergillus brasiliensis</i>	EN 13624	Suspension		
	<i>Candida albicans</i>				
BACTERICIDAL	<i>Staphylococcus aureus</i>	EN 16615	Surface with mechanical action	Clean 1	
	<i>Enterococcus hirae</i>				
	<i>Pseudomonas aeruginosa</i>				
	<i>Staphylococcus aureus</i>	EN 14561	Carrier		
	<i>Enterococcus hirae</i>				
	<i>Pseudomonas aeruginosa</i>				
	<i>Staphylococcus aureus</i>	EN 13727	Suspension		Clean 1 and Dirty 2
	<i>Enterococcus hirae</i>				
<i>Pseudomonas aeruginosa</i>					

## Additional Testing

TEST METHOD				
DNA/ RNA	Polyacrylamide Gel Electrophoresis (PAGE)			
PROTOZOA	ORGANISM	TEST NORM	TEST TYPE	CONDITIONS
	<i>Acanthamoeba castellanii</i> cysts	Bespoke Testing	Suspension	Clean 1
SPORES	<i>Bacillus cereus</i>	EN 13704	Suspension	Dirty 2
	<i>Bacillus subtilis var niger</i>	Babb JR, Bradely CR & Ayliffe GAJ (J. of Hosp. Inf. 1980 1:63-75)		Clean 1 and Dirty 2
MYCOBACTERIA	<i>Mycobacterium terrae</i>	DGHM	Carrier	Dirty 2
	<i>Mycobacterium avium</i>			
	<i>Mycobacterium terrae</i>	Griffiths et al. Journal of hospital Infection (1998)	Suspension	Clean 1 and Dirty 2
VIRUSES	SARS-CoV-2*	EN 14476	Suspension	Dirty 1
	Influenza A Virus (H1N1)		Suspension	Dirty 2
	Murine Norovirus	EN 16615	Surface with mechanical action	Clean 1
	Feline Calicivirus	ASTM E-1053	Surface	Dirty 1
	Poliovirus Type 1			
	Adenovirus Type 5			
	Hepatitis B Virus (HBV)			
	Herpes Simplex Virus (HSV) Type 1			
	Human Immunodeficiency Virus (HIV)			
	Influenza A Virus (H1N1)	DVV/RKI	Suspension	Clean 2 and Dirty 3
	Poliovirus Type 1			
	Adenovirus Type 5			
	Murine Norovirus			
	Polyoma virus SV40			
	Vaccinia virus			
	Parvovirus (using Minute Virus of Mice (MVM) surrogate)			Dirty 3
	Human Papillomavirus Type 16	Bespoke Testing	Simulated In-use Test on Devices	Dirty 3
	Human Papillomavirus Type 18			

FUNGI/ YEAST	<i>Aspergillus brasiliensis</i>	EN 16615	Surface with mechanical action	Clean 1
	<i>Candida auris</i>	EN 14562	Carrier	Dirty 1
	<i>Candida albicans</i>	EN 13697	Surface	Clean 1
	<i>Fusarium solani</i>	EN 13624	Suspension	
	<i>Aspergillus flavus</i>			
	<i>Candida albicans</i>	AOAC Use Dilution Test	Carrier	Dirty 1
DGHM		Dirty 2		

BACTERIA	<i>Proteus vulgaris</i>	EN 16615	Surface with mechanical action	Dirty 2
	<i>Neisseria gonorrhoeae</i>			Clean 1
	<i>Gardnerella vaginalis</i>			
	<i>Streptococcus agalactiae</i>	EN 13697	Surface	Clean 1
	<i>Staphylococcus aureus</i>			
	<i>Enterococcus hirae</i>			
	<i>Pseudomonas aeruginosa</i>			
	<i>Escherichia coli</i>			
	<i>Staphylococcus aureus</i>	DGHM	Carrier	Dirty 2
	<i>Enterococcus hirae</i>			
	<i>Pseudomonas aeruginosa</i>			
	Carbapenem Resistant Enterobacteriaceae (CRE) <i>Klebsiella pneumoniae</i>	EN 14561	Carrier	Clean 1
	Vancomycin Resistant Enterococci (VRE) <i>Enterococcus faecium</i>			
	Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)			Dirty 1
	Multidrug-resistant <i>Acinetobacter baumannii</i> (MDRAB)			
Extended Spectrum Beta-Lactamase (ESBL) <i>Klebsiella pneumoniae</i>	EN 13727	Suspension	Clean 1 and Dirty 2	
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)				

#### Clean/Dirty Conditions Key:

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

**Clean 2:** Aqua bidest

**Dirty 1:** 5% blood serum

**Dirty 2:** 3 g/l bovine albumin + 3 g/l blood erythrocytes

**Dirty 3:** 10% fetal calf serum

\* A representative sample of Tristel chlorine dioxide chemistry has been tested in accordance with EN 14476:2013+A2:2019, at a concentration of 20 parts per million (ppm). Tristel Duo ULT has a chlorine dioxide concentration greater than 20ppm at the point of use.