

SPECTRUM OF ACTIVITY

Table 1: Bactericidal activity in the VAH List of Disinfectants: Test organisms for bactericidal efficacy testing of disinfectants and examples for bacteria which are covered by these test organisms in alphabetical order.

Spectrum of bactericidal activity

Test organisms

Staphylococcus aureus ATCC 6538
Enterococcus faecium ATCC 6057 (only for chemothermal processes)
Enterococcus hirae ATCC 10541
Escherichia coli K12 NCTC 10538
Proteus mirabilis ATCC 14153
Pseudomonas aeruginosa ATCC 15442

<p>A</p> <p><i>Actinomyces israeli</i> <i>Acinetobacter baumannii</i> <i>Acinetobacter lwoffii</i> <i>Acinetobacter spp.</i> <i>Aeromonas spp.</i> <i>Alcaligenes faecalis</i> <i>Alcaligenes spp. / Achromobacter spp.</i> <i>Alcaligenes xylosoxidans (inkl. ESBL/MRGN)</i></p> <p>B</p> <p><i>Bacteroides fragilis</i> <i>Bartonella quintana</i> <i>Bordetella pertussis</i> <i>Borrelia burgdorferi</i> <i>Brucella spp.</i> <i>Burkholderia cepacia (inkl. MDR)</i> <i>Burkholderia mallei</i> <i>Burkholderia pseudomallei</i></p> <p>C</p> <p><i>Campylobacter jejuni / coli</i> <i>Chlamydia pneumoniae</i> <i>Chlamydia psittaci</i> <i>Chlamydia trachomatis</i> <i>Citrobacter spp.</i> <i>Corynebacterium diphtheriae</i> <i>Corynebacterium pseudotuberculosis</i> <i>Corynebacterium spp.</i> <i>Corynebacterium ulcerans</i> <i>Coxiella burnetii</i></p> <p>E</p> <p><i>Enterobacter aerogenes</i> <i>Enterobacter cloacae (inkl. ESBL/MDRO)</i> <i>Enterococcus faecalis (inkl. VRE)</i> <i>Enterococcus faecium (inkl. VRE)</i> <i>Enterococcus hirae</i> <i>Escherichia coli</i> <i>(inkl. EHEC, EPEC, ETEC, EIEC, EAEC, ESBL/MDRO, DAEC)</i></p>	<p>F</p> <p><i>Francisella tularensis</i></p> <p>H</p> <p><i>Haemophilus influenzae</i> <i>Helicobacter pylori</i></p> <p>K</p> <p><i>Klebsiella granulomatis</i> <i>Klebsiella oxytoca (inkl. ESBL/MDRO)</i> <i>Klebsiella pneumoniae (MDR inkl. ESBL/MRGN)</i></p> <p>L</p> <p><i>Leclercia adecarboxylata</i> <i>Legionella pneumophila</i> <i>Leptospira interrogans</i> <i>Leuconostoc pseudomesenteroides</i> <i>Listeria monocytogenes</i></p> <p>M</p> <p><i>Micrococcus luteus</i> <i>Morganella spp.</i> <i>Mycoplasma pneumoniae</i></p> <p>N</p> <p><i>Neisseria meningitidis</i> <i>Neisseria gonorrhoeae</i> <i>Nocardia asteroides</i></p> <p>P</p> <p><i>Pantoea agglomerans</i> <i>Proteus mirabilis (inkl. ESBL/MRGN)</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Pseudomonas spp.</i></p> <p>R</p> <p><i>Ralstonia spp.</i> <i>Rickettsia prowazekii</i> <i>Rickettsia typhi</i></p>	<p>S</p> <p><i>Salmonella enteritidis</i> <i>Salmonella paratyphi</i> <i>Salmonella spp.</i> <i>Salmonella typhimurium</i> <i>Serratia marcescens (inkl. ESBL/MDRO)</i> <i>Shigella sonnei</i> <i>Staphylococcus aureus (inkl. MRSA, VRSA)</i> <i>Staphylococcus capitis</i> <i>Staphylococcus epidermidis (inkl. MRSE)</i> <i>Staphylococcus haemolyticus</i> <i>Staphylococcus hominis</i> <i>Staphylococcus lugdunensis</i> <i>Staphylococcus saprophyticus</i> <i>Stenotrophomonas maltophilia</i> <i>Streptococcus pneumoniae (inkl. PRSP)</i> <i>Streptococcus pyogenes</i> <i>Streptococcus spp.</i></p> <p>T</p> <p><i>Treponema pallidum</i></p> <p>V</p> <p><i>Vibrio cholerae</i></p> <p>Y</p> <p><i>Yersinia enterocolitica</i> <i>Yersinia pestis</i> <i>Yersinia pseudotuberculosis</i></p>
--	---	---

Table 2: Virucidal activity in the VAH List of Disinfectants: Test viruses for virucidal efficacy testing of disinfectants and examples for viruses covered by these test viruses in alphabetical order.

Spectrum of virucidal activity		
Test viruses		
Activity against enveloped viruses <i>BVDV (Bovine Viral Diarrhea Virus)</i> <i>Vaccinia virus (Strain Elstree and/or MVA)</i>	Virucidal (enveloped <u>and</u> non-enveloped viruses) <i>Adenovirus (Type 5, strain Adenoid 75)</i> <i>Murine Parvovirus strain Haden or Minute Virus of Mice (MVM)</i> <i>Poliovirus (Type I, strain LSc-2ab)</i> <i>Polyomavirus SV40 (Simianvirus 40, strain 777)</i> <i>Murine Norovirus (MNV – strain S99 Berlin)</i>	
Activity against enveloped viruses:		Virucidal activity:
A <i>Arbovirus</i>	M <i>Marburg virus</i> <i>Measles virus</i> <i>MERS-CoV</i> <i>Molluscipox virus</i> <i>Mumps virus</i>	A <i>Adenovirus</i> <i>Astrovirus</i>
C <i>Chikungunyavirus (CHIKV)</i> <i>Coronavirus (incl. SARS- and MERS-CoV)</i> <i>Cytomegalievirus (CMV)</i>	P <i>Parainfluenzavirus</i>	B <i>Bocavirus</i>
D <i>Dengue virus</i>	R <i>Rabies virus</i> <i>Respiratory Syncytial Virus (RSV)</i> <i>Rubella virus</i>	C <i>Coxsackievirus</i>
E <i>Ebola virus</i> <i>Epstein-Barr virus (EBV)</i>	S <i>Sandfly Fever Virus (e.g. Toscana Virus)</i> <i>SARS-CoV</i>	E <i>ECHO-Virus 22 and 23</i> <i>Enterovirus-D68</i>
F <i>FSME virus</i>	V <i>Vaccinia virus</i> <i>Variolavirus</i> <i>Varizella Zoster-Virus (VZV)</i>	H <i>Hepatitis A Virus</i> <i>Hepatitis E Virus</i> <i>Human Enterovirus 71</i> <i>Human Papillomavirus (HPV)</i> <i>Human Rhinovirus</i>
H <i>Hantaanvirus</i> <i>Hepatitis B virus (HBV)</i> <i>Hepatitis C virus (HCV)</i> <i>Hepatitis D virus</i> <i>Herpes-simplex-viruses (HSV)</i> <i>Human Immunodeficiency Virus (HIV)</i> <i>Human Herpesvirus 6 (HHV-6)</i> <i>Human Herpesvirus 7 (HHV-7)</i> <i>Human Herpesvirus 8 (HHV-8)</i> <i>Human Metapneumovirus</i>	W <i>West Nile virus</i>	N <i>Norovirus</i>
I <i>Influenza virus A (e.g. H1N1, H3N2) and B</i>	Y <i>Yellow Fever Virus</i>	P <i>Papillomaviruses</i> <i>Parechoviruses: Echovirus</i> <i>Parvovirus</i> <i>Poliovirus</i> <i>Polyomavirus</i>
K <i>Krim-Kongo haemorrhagic fever virus (CCHFV)</i>	Z <i>Zika virus</i>	R <i>Rhinovirus (Human Rhinovirus)</i> <i>Rotavirus</i>
L <i>Lassa virus</i>		S <i>Sapovirus</i>

Table 3: Yeastocidal, fungicidal, tuberculocidal, mycobactericidal, sporicidal (*in process*) spectrum of activity.

Spectrum of yeastocidal activity
Test organism
<i>Candida albicans</i> ATCC 10231
<i>Candida albicans</i> <i>Candida krusei</i> <i>Candida parapsilosis</i> <i>Cryptococcus neoformans</i>

Spectrum of fungicidal activity
Test organism
<i>Aspergillus brasiliensis</i> ATC
<i>Aspergillus</i> spp. <i>Epidermophyton</i> spp. <i>Histoplasma capsulatum</i> <i>Microsporum</i> spp. <i>Pneumocystis jiroveci</i> <i>Trichophyton</i> spp. <i>Trichosporon</i> spp.

Spectrum of tuberculocidal activity
Test organism
<i>Mycobacterium terrae</i> ATCC 15755
<i>Mycobacterium tuberculosis</i> (inkl. MDR)

Spectrum of mycobactericidal activity (all mycobacteria)
Test organisms
<i>Mycobacterium terrae</i> ATCC 15755 <i>Mycobacterium avium</i> ATCC 15769
<i>Mycobacterium chimaera</i> <i>Mycobacterium leprae</i> [<i>Mycobacterium tuberculosis</i> (incl. MDR)]

Spectrum of sporicidal activity (test methods not yet)

Test organisms

Aerobic spore forming organisms

- *Bacillus subtilis* ATCC 6633 spores
- *Bacillus cereus* CIP 105151 spores

Anaerobic spore forming organisms

- *Clostridium difficile* R027 NCTC 13366 spores

Bacillus anthracis

Bacillus cereus

Clostridium difficile

Clostridium botulinum

Table 4: Spectrum of activity covered by the VAH List of Disinfectants.

A	<i>Cryptococcus neoformans</i> (yeasticidal)	<i>Humanes Herpesvirus 6 (HHV-6)</i> (virucidal/enveloped)
<i>Actinomyces israeli</i> (bactericidal)	<i>Cytomegalie-Virus (CMV)</i> (virucidal/enveloped)	<i>Humanes Herpesvirus 7 (HHV-7)</i> (virucidal/enveloped)
<i>Acinetobacter baumannii</i> (bactericidal)		<i>Human Herpesvirus 8 (HHV-8)</i> (limited virucidal)
<i>Acinetobacter lwoffii</i> (bactericidal)	D	<i>Human Metapneumovirus</i> (virucidal/enveloped)
<i>Acinetobacter spp.</i> (bactericidal)	<i>Dengue virus</i> (limited virucidal)	<i>Human Papillomavirus (HPV)</i> (virucidal)
<i>Adenovirus</i> (virucidal/enveloped)		
<i>Aeromonas spp.</i> (bactericidal)	E	
<i>Alcaligenes faecalis</i> (bactericidal)	<i>Ebolavirus</i> (limited virucidal)	
<i>Alcaligenes spp. / Achromobacter spp.</i> (bactericidal)	<i>ECHO-Virus 22 und 23</i> (virucidal)	
<i>Alcaligenes xylosoxidans</i> (inkl. ESBL/MRGN) (bactericidal)	<i>Enterobacter aerogenes</i> (bactericidal)	
<i>Arbovirus</i> (virucidal/enveloped)	<i>Enterobacter cloacae</i> (inkl. ESBL/MRGN) (bactericidal)	I
<i>Aspergillus spp.</i> (fungicidal)	<i>Enterococcus faecalis</i> (inkl. VRE) (bactericidal)	<i>Influenza virus A</i> (e.g. H1N1, H3N2) and B (virucidal/enveloped)
<i>Astrovirus</i> (virucidal)	<i>Enterococcus faecium</i> (inkl. VRE) (bactericidal)	
	<i>Enterococcus hirae</i> (bactericidal)	K
B	<i>Enterovirus-D68</i> (virucidal)	<i>Klebsiella granulomatis</i> (bactericidal)
<i>Bacteroides fragilis</i> (bactericidal)	<i>Enterovirus 71, Human</i> (virucidal)	<i>Klebsiella oxytoca</i> (inkl. ESBL/MRGN) (bactericidal)
<i>Bartonella quintana</i> (bactericidal)	<i>Epidermophyton spp.</i> (fungicidal)	<i>Klebsiella pneumoniae</i> (MDR inkl. ESBL/MRGN) (bactericidal)
<i>Bocaviren</i> (virucidal)	<i>Eppstein-Barr-Virus (EBV)</i> (virucidal/enveloped)	<i>Krim-Kongo haemorrhagic fever virus (CCHFV)</i> (virucidal/enveloped)
<i>Bordetella pertussis</i> (bactericidal)	<i>Escherichia coli</i> (bactericidal)	
<i>Borrelia burgdorferi</i> (bactericidal)	(inkl. EHEC, EPEC, ETEC, EIEC, EAEC, ESBL/MDRO, DAEC)	L
<i>Brucella spp.</i> (bactericidal)		<i>Lassavirus</i> (virucidal/enveloped)
<i>Burkholderia cepacia</i> (inkl. MDR) (bactericidal)	F	<i>Leclercia adecarboxylata</i> (bactericidal)
<i>Burkholderia mallei</i> (bactericidal)	<i>Francisella tularensis</i> (bactericidal)	<i>Legionella pneumophila</i> (bactericidal)
<i>Burkholderia pseudomallei</i> (bactericidal)	<i>FSME virus</i> (virucidal/enveloped)	<i>Leptospira interrogans</i> (bactericidal)
		<i>Leuconostoc pseudomesenteroides</i> (bactericidal)
C	H	<i>Listeria monocytogenes</i> (bactericidal)
<i>Campylobacter jejuni / coli</i> (bactericidal)	<i>Haemophilus influenzae</i> (bactericidal)	M
<i>Candida albicans</i> (yeasticidal)	<i>Hantavirus</i> (virucidal/enveloped)	<i>Marburgvirus</i> (virucidal/enveloped)
<i>Candida krusei</i> (yeasticidal)	<i>Helicobacter pylori</i> (bactericidal)	<i>Measles virus</i> (virucidal/enveloped)
<i>Candida parapsilosis</i> (yeasticidal)	<i>Hepatitis A Virus</i> (virucidal)	<i>MERS-CoV</i> (virucidal/enveloped)
<i>Chikungunyavirus (CHIKV)</i> (virucidal/enveloped)	<i>Hepatitis B Virus (HBV)</i> (virucidal/enveloped)	<i>Metapneumovirus, Human</i> (virucidal/enveloped)
<i>Chlamydia pneumoniae</i> (bactericidal)	<i>Hepatitis C Virus (HCV)</i> (virucidal/enveloped)	<i>Micrococcus luteus</i> (bactericidal)
<i>Chlamydia psittaci</i> (bactericidal)	<i>Hepatitis D Virus</i> (virucidal/enveloped)	<i>Microsporium spp.</i> (fungicidal)
<i>Chlamydia trachomatis</i> (bactericidal)	<i>Hepatitis E Virus</i> (virucidal)	<i>Molluscipoxvirus</i> (virucidal/enveloped)
<i>Citrobacter spp.</i> (bactericidal)	<i>Herpes-simplex-Virus (HSV)</i> (virucidal/enveloped)	<i>Morganella spp.</i> (bactericidal)
<i>Coronavirus</i> (inkl. SARS- und MERS-CoV) (virucidal/enveloped)	<i>Histoplasma capsulatum</i> (fungicidal)	<i>Mumpsvirus</i> (limited virucidal)
<i>Corynebacterium diphtheriae</i> (bactericidal)	<i>Human Enterovirus 71</i> (virucidal)	<i>Mycoplasma pneumoniae</i> (bactericidal)
<i>Corynebacterium pseudotuberculosis</i> (bactericidal)	<i>Human Immunodeficiency Viruses (HIV)</i> (virucidal/enveloped)	<i>Mycobacterium avium</i> (mycobactericidal)
<i>Corynebacterium spp.</i> (bactericidal)		<i>Mycobacterium chimaera</i> (mycobactericidal)
<i>Corynebacterium ulcerans</i> (bactericidal)		
<i>Coxiella burnetii</i> (bactericidal)		
<i>Coxsackievirus</i> (virucidal)		

Mycobacterium intracellulare
(mycobactericidal)
Mycobacterium leprae **(mycobactericidal)**
Mycobacterium tuberculosis (inkl. MDR)
(tuberculocidal)
Mycobacterium ulcerans **(mycobactericidal)**

N

Neisseria gonorrhoeae **(bactericidal)**
Neisseria meningitidis **(bactericidal)**
Nocardia asteroides **(bactericidal)**
Norovirus **(virucidal)**

P

Pantoea agglomerans **(bactericidal)**
Papillomaviruses **(virucidal)**
Parainfluenzavirus **(virucidal/enveloped)**
Parvoviren: Echovirus **(virucidal)**
Pneumocystis jiroveci **(fungicidal)**
Poliovirus **(virucidal)**
Polyomavirus **(virucidal)**
Proteus mirabilis (inkl. ESBL/MRGN)
(bactericidal)
Proteus vulgaris **(bactericidal)**
Pseudomonas aeruginosa **(bactericidal)**
Pseudomonas spp. **(bactericidal)**

R

Rabies virus **(virucidal/enveloped)**
Ralstonia spp. **(bactericidal)**

Respiratory Syncytial Virus (RSV)
(virucidal/enveloped)
Rhinovirus **(virucidal)**
Rickettsia prowazekii **(bactericidal)**
Rickettsia typhi **(bactericidal)**
Rotavirus **(virucidal)**
Rubella virus **(virucidal/enveloped)**

S

Salmonella enteritidis **(bactericidal)**
Salmonella paratyphi **(bactericidal)**
Salmonella spp. **(bactericidal)**
Salmonella typhimurium **(bactericidal)**
Sandfly fever virus **(virucidal/enveloped)**
Sapovirus **(virucidal)**
SARS-CoV **(virucidal/enveloped)**
Serratia marcescens (inkl. ESBL/MRGN)
(bactericidal)
Shigella sonnei **(bactericidal)**
Staphylococcus aureus (inkl. MRSA, VRSA)
(bactericidal)
Staphylococcus capitis **(bactericidal)**
Staphylococcus epidermidis (inkl. MRSE)
(bactericidal)
Staphylococcus haemolyticus **(bactericidal)**
Staphylococcus hominis **(bactericidal)**
Staphylococcus lugdunensis **(bactericidal)**
Staphylococcus saprophyticus **(bactericidal)**
Stenotrophomonas maltophilia
(bactericidal)

Streptococcus pneumoniae (inkl. PRSP)
(bactericidal)
Streptococcus pyogenes **(bactericidal)**
Streptococcus spp. **(bactericidal)**

T

Toskana virus **(virucidal/enveloped)**
Treponema pallidum **(bactericidal)**
Trichophyton spp. **(fungicidal)**
Trichosporon spp. **(fungicidal)**

V

Vacciniavirus **(virucidal/enveloped)**
Variolavirus **(virucidal/enveloped)**
Varizella-Zoster-Virus (VZV) **(virucidal/enveloped)**
Vibrio cholerae **(bactericidal)**

Y

Yellow fever virus **(virucidal/enveloped)**
Yersinia enterocolitica **(bactericidal)**
Yersinia pestis **(bactericidal)**
Yersinia pseudotuberculosis **(bactericidal)**

Z

Zika virus **(virucidal/enveloped)**

(Reprint only with permission by mhp-Verlag)