

**UV DOSE REQUIRED FOR INACTIVATION OF MICROBIOLOGICAL ISSUES**

(to achieve a 4-log reduction unless otherwise stated)

Pathogen	UV Dose (mJ/cm <sup>2</sup> )	Reference
<b>Bacteria</b>		
<i>Aeromonas hydrophilia</i> ATCC 7966	5	Wilson et al. 1992
<i>Aeromonas salmonicida</i>	5.9	Liltved & Landfald 1996
<i>Campylobacter jejuni</i> ATCC 43429	4.6	Wilson et al. 1992
<i>Citrobacter diversus</i>	11.5	Giese & Darby 2000
<i>Citrobacter freundii</i>	13	Giese & Darby 2000 (3-log)
<i>Escherichia coli</i> ATCC 11229	5	Harris et al. 1987
<i>Escherichia coli</i> ATCC 11303	10	Wu et al. 2005
<i>Escherichia coli</i> ATCC 25922	8	Sommer et al. 1998
<i>Escherichia coli</i> O157:H7	6	Tosa & Hirata 1999
<i>Halobacterium elongata</i> ATCC 33173	1	Martin et al. 2000 (3-log)
<i>Halobacterium salinarum</i> ATCC 43214	20	Martin et al. 2000
<i>Klebsiella pneumonia</i>	20	Giese & Darby 2000
<i>Klebsiella terrigena</i> ATCC 33257	11	Wilson et al. 1992
<i>Legionella pneumophila</i> ATCC 43660	9.4	Wilson et al. 1992
<i>Salmonella</i> spp.	7	Yuan et al. 2003
<i>Salmonella enteritidis</i>	10	Tosa & Hirata 1998
<i>Salmonella infantis</i>	6	Tosa & Hirata 1998 (3-log)
<i>Salmonella typhi</i> ATCC 19430	8.2	Wilson et al. 1992
<i>Salmonella typhimurium</i>	50	Maya et al. 2003
<i>Shigella dysenteriae</i> ATCC 29027	3	Wilson et al. 1992
<i>Shigella sonnei</i> ATCC 9290	8.2	Chang et al. 1985
<i>Staphylococcus aureus</i> ATCC 25923	10.4	Chang et al. 1985
<i>Streptococcus faecalis</i> ATCC 29212	11.2	Chang et al. 1985
<i>Vibrio anguillarum</i>	2	Liltved & Landfald 1996
<i>Vibrio cholerae</i> ATCC 25872	2.9	Wilson et al. 1992
<i>Yersinia enterocolitica</i> ATCC 27729	4.6	Wilson et al. 1992
<i>Yersinia ruckeri</i>	5	Liltved & Landfald 1996
<b>Viruses</b>		
PRD-1 (Phage)	30.1	Meng & Gerba 1996
B40-8 (Phage)	28	Sommer et al. 2001
MS2 (Phage)	83	Nieuwstad & Havelarr 1994
Calicivirus canine	30	Husma et al. 2004
Calicivirus feline	25	Tree et al. 2005
Adenovirus type 2	100	Ballester & Malley 2004
Adenovirus type 15	165	Thompson et al. 2003
Adenovirus type 40	155	Thurston-Enriquez et al. 2004
Adenovirus type 41	111.8	Meng & Gerba 1996
Poliovirus 1	27	Tree et al. 1987
Coxsackievirus B3	32.5	Gerba et al. 2002
Coxsackievirus B5	36	Gerba et al. 2002
Reovirus-3	22.4	Rauth 1965

Rotavirus SA-11	36	Wilson et al. 1992
Hepatitis A HM175	16.4	Battigelli et al. 1992
Echovirus I	33	Gerba et al. 2002
Echovirus II	28	Gerba et al. 2002
<b>Protozoa</b>		
<i>Cryptosporidium parvum</i>	4	Clancy et al. 2004
<i>Encephalitozoon cuniculi</i> , microsporidia	13	Marshall et al. 2003 (3-log)
<i>Encephalitozoon intestinalis</i> , microsporidia	6	Huffmanl et al. 2002
<i>Giardia lamblia</i>	<1	Linden et al. 2002
<i>Giardia muris</i>	2.3	Belosevic et al. 2001
<b>Spore</b>		
<i>Bacillus subtilis</i> ATCC 6633	81	Sommer et al. 1999