

It follows that for 90% kill equation 2 becomes

$$2.303 = kH_{\text{eff}}$$

Some k value indications are given in table 2, where they can be seen to vary from 0.2 m²/J

for viruses and bacteria, to 2.10⁻³ for mould spores and 8.10⁻⁴ for algae. Using the equations above, Fig. 14 showing survivals or kill % versus dose, can be generated.

Bacteria	Dose	k	Yeasts	Dose	k
Bacillus anthracis	45.2	0.051	Bakers' yeast	39	0.060
B. megatherium sp. (spores)	27.3	0.084	Brewers' yeast	33	0.070
B. megatherium sp. (veg.)	13.0	0.178	Common yeast cake	60	0.038
B. paratyphosus	32.0	0.072	Saccharomyces cerevisiae	60	0.038
B. subtilis	71.0	0.032	Saccharomyces ellipsoideus	60	0.038
B. subtilis spores	120.0	0.019	Saccharomyces sp.	80	0.029
Campylobacter jejuni	11.0	0.209			
Clostridium tetani	120.0	0.019	Mould spores		
Corynebacterium diptheriae	33.7	0.069	Aspergillus flavus	600	0.003
Dysentery bacilli	22.0	0.105	Aspergillus glaucus	440	0.004
Eberthella typhosa	21.4	0.108	Aspergillus niger	1320	0.0014
Escherichia coli	30.0	0.077	Mucor racemosus A	170	0.013
Klebsiella terrifani	26.0	0.089	Mucor racemosus B	170	0.013
Legionella pneumophila	9.0	0.256	Oospora lactis	50	0.046
Micrococcus candidus	60.5	0.038	Penicillium digitatum	440	0.004
Micrococcus sphaeroides	100.0	0.023	Penicillium expansum	130	0.018
Mycobacterium tuberculosis	60.0	0.038	Penicillium roqueforti	130	0.018
Neisseria catarrhalis	44.0	0.053	Rhizopus nigricans	1110	0.002
Phytomonas tumefaciens	44.0	0.053			
Pseudomonas aeruginosa	55.0	0.042	Virus		
Pseudomonas fluorescens	35.0	0.065	Hepatitis A	73	0.032
Proteus vulgaris	26.4	0.086	Influenza virus	36	0.064
Salmonella enteritidis	40.0	0.058	MS-2 Coliphase	186	0.012
Salmonella paratyphi	32.0	0.072	Polio virus	58	0.040
Salmonella typhimurium	80.0	0.029	Rotavirus	81	0.028
Sarcina lutea	197.0	0.012			
Serratia marcescens	24.2	0.095	Protozoa		
Shigella paradysenteriae	16.3	0.141	Cryptosporidium parvum	25	0.092
Shigella sonnei	30.0	0.077	Giardia lamblia	11	0.209
Spirillum rubrum	44.0	0.053			
Staphylococcus albus	18.4	0.126	Algae		
Staphylococcus aureus	26.0	0.086	Blue Green	3000	0.0008
Streptococcus faecalis	44.0	0.052	Chlorella vulgaris	120	0.019
Streptococcus hemolyticus	21.6	0.106			
Streptococcus lactus	61.5	0.037			
Streptococcus viridans	20.0	0.115			
S.entertidis	40.0	0.057			
Vibrio cholerae (V.comma)	35.0	0.066			
Yersinia enterocolitica	11.0	0.209			

■ Table 2. Doses for 10% survival under 254 nm radiation (J/m²) and rate constant k (m²/J), Ref 2, 3, 4, 5, 6 and 7