



Energy dosage of
Ultraviolet
radiation in
 $\mu\text{Ws}/\text{cm}^2$ needed
for kill factor

Seconds per mm (0.6 Tube)

Minutes per mm

25	25	50	75	100	125	250	500	1000	1500	2000	2500	3000	2500	3000
----	----	----	----	-----	-----	-----	-----	------	------	------	------	------	------	------

Bacteria	90%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Micrococcus sphaeroides	1,000	15,400	0	0	2	4	7	11	43	172	688	1,548	2,752	4,301	6,193	72	103
Bacillus magaterium sp. (veg.)	1,300	2,500	0	0	0	1	1	2	7	28	112	251	447	698	1,005	12	17
Shigella paradysenteriae	1,680	3,400	0	0	0	1	2	2	9	38	152	342	608	950	1,367	16	23
Shigella flexneri - Dysentery	1,700	3,400	0	0	0	1	2	2	9	38	152	342	608	950	1,367	16	23
Staphylococcus albus	1,840	5,720	0	0	1	1	3	4	16	64	256	575	1,022	1,597	2,300	27	38
Streptococcus viridans	2,000	3,800	0	0	0	1	2	3	11	42	170	382	679	1,061	1,528	18	25
Ebertelia typhosa	2,140	4,100	0	0	0	1	2	3	11	46	183	412	733	1,145	1,649	19	27
Salmonella typhosa - Typhoid fever	2,150	4,100	0	0	0	1	2	3	11	46	183	412	733	1,145	1,649	19	27
Staphylococcus hemolyticus	2,160	5,500	0	0	1	1	2	4	15	61	246	553	983	1,536	2,212	26	37
Shigella dysenteriae - Dysentery	2,200	4,200	0	0	0	1	2	3	12	47	188	422	751	1,173	1,689	20	28
Serratia marcescens	2,420	6,160	0	0	1	2	3	4	17	69	275	619	1,101	1,720	2,477	29	41
Staphylococcus aerius	2,600	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Bacillus magaterium sp. (spores)	2,730	5,200	0	0	1	1	2	4	15	58	232	523	929	1,452	2,091	24	35
Escherichia coli	3,000	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Proteus vulgaris	3,000	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Leptospira canicola - infectious Jaundice	3,150	6,000	0	0	1	2	3	4	17	67	268	603	1,072	1,676	2,413	28	40
Bacillus paratyphus	3,200	6,100	0	0	1	2	3	4	17	68	273	613	1,090	1,704	2,453	28	41
Salmonella paratyphi - Enteric fever	3,200	6,100	0	0	1	2	3	4	17	68	273	613	1,090	1,704	2,453	28	41
Corynebacterium diphtheriae	3,370	6,510	0	0	1	2	3	5	18	73	291	654	1,164	1,818	2,618	30	44
Vibrio comma - Cholera	3,375	6,500	0	0	1	2	3	5	18	73	290	653	1,162	1,815	2,614	30	44
Pseudomonas fluorescens	3,500	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Salmonella enteritidis	4,000	7,600	0	0	1	2	3	5	21	85	340	764	1,358	2,122	3,056	35	51
Neisseria catarrhalis	4,400	8,500	0	0	1	2	4	6	24	95	380	855	1,519	2,374	3,418	40	57
Phytomonas tumefaciens	4,400	8,000	0	0	1	2	4	6	22	89	357	804	1,430	2,234	3,217	37	54
Spirillum rubrum	4,400	6,160	0	0	1	2	3	4	17	69	275	619	1,101	1,720	2,477	29	41
Bacillus anthracis - Anthrax	4,520	8,700	0	0	1	2	4	6	24	97	389	875	1,555	2,430	3,499	40	58
Pseudomonas aeruginosa	5,500	10,500	0	0	1	3	5	7	29	117	469	1,056	1,877	2,932	4,223	49	70
Bacillus subtilis	5,800	11,000	0	0	1	3	5	8	31	123	492	1,106	1,966	3,072	4,424	51	74
Micrococcus candidus	6,050	12,300	0	0	1	3	5	9	34	137	550	1,237	2,198	3,435	4,946	57	82
Staphylococcus lactis	6,150	8,800	0	0	1	2	4	6	25	98	393	885	1,573	2,458	3,539	41	59
Mycobacterium tuberculosis	6,200	10,000	0	0	1	3	4	7	28	112	447	1,005	1,787	2,793	4,021	47	67
Salmonella typhimurium	8,000	15,200	0	0	2	4	7	11	42	170	679	1,528	2,717	4,245	6,113	71	102
Bacillus subtilis spores	11,600	22,000	0	1	2	6	10	15	61	246	983	2,212	3,932	6,144	8,847	102	147
Clostridium tetani	13,000	22,000	0	1	2	6	10	15	61	246	983	2,212	3,932	6,144	8,847	102	147
Sarcina lutea	19,700	26,400	1	1	3	7	12	18	74	295	1,180	2,654	4,718	7,373	10,617	123	177
Bacillus anthracis spores - Anthrax spores	24,320	46,200	1	1	5	12	21	32	129	516	2,064	4,645	8,257	12,902	18,579	215	310
Molds	90%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oospora lactis	5,000	11,000	0	0	1	3	5	8	31	123	492	1,106	1,966	3,072	4,424	51	74
Penicillium expansum	13,000	22,000	0	1	2	6	10	15	61	246	983	2,212	3,932	6,144	8,847	102	147



Energy dosage of
Ultraviolet
radiation in
 $\mu\text{Ws}/\text{cm}^2$ needed
for kill factor

Seconds per mm (0.6 Tube)

Minutes per mm

25	25	50	75	100	125	250	500	1000	1500	2000	2500	3000	2500	3000
----	----	----	----	-----	-----	-----	-----	------	------	------	------	------	------	------

Penicillium roqueforti	13,000	26,400	0	1	3	7	12	18	74	295	1,180	2,654	4,718	7,373	10,617	123	177
Mucor racemosus A	17,000	35,200	0	1	4	9	16	25	98	393	1,573	3,539	6,291	9,830	14,155	164	236
Mucor racemosus B	17,000	35,200	0	1	4	9	16	25	98	393	1,573	3,539	6,291	9,830	14,155	164	236
Aspergillus glaucus	44,000	88,000	1	2	10	22	39	61	246	983	3,932	8,847	15,728	24,576	35,389	410	590
Penicillium digitatum	44,000	88,000	1	2	10	22	39	61	246	983	3,932	8,847	15,728	24,576	35,389	410	590
Aspergillus flavus	60,000	99,000	2	3	11	25	44	69	276	1,106	4,424	9,953	17,694	27,647	39,812	461	664
Rhizopus nigricans	111,000	220,000	3	6	25	55	98	154	614	2,458	9,830	22,118	39,321	61,439	88,472	1,024	1,475
Aspergillus niger	132,000	330,000	4	9	37	83	147	230	922	3,686	14,745	33,177	58,981	92,158	132,708	1,536	2,212
Protozoa	90%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Paramecium	11,000	20,000	0	1	2	5	9	14	56	223	894	2,011	3,575	5,585	8,043	93	134
Chlorella Vulgaris	13,000	22,000	0	1	2	6	10	15	61	246	983	2,212	3,932	6,144	8,847	102	147
Nematode Eggs	45,000	92,000	1	3	10	23	41	64	257	1,028	4,111	9,249	16,443	25,693	36,997	428	617
Virus	90%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bacteriophage - E. Coli	2,600	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Poliovirus - Poliomyelitis	3,150	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Influenza (Common Cold, MERS, SARS & COVID 19)	3,400	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Infectious Hepatitis	5,800	8,000	0	0	1	2	4	6	22	89	357	804	1,430	2,234	3,217	37	54
Tobacco mosaic	240,000	440,000	7	12	49	111	197	307	1,229	4,915	19,660	44,236	78,642	122,878	176,944	2,048	2,949
Yeast	90%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Brewers yeast	3,300	6,600	0	0	1	2	3	5	18	74	295	664	1,180	1,843	2,654	31	44
Common yeast cake	6,000	13,200	0	0	1	3	6	9	37	147	590	1,327	2,359	3,686	5,308	61	88
Saccharomyces carevisiae	6,000	13,200	0	0	1	3	6	9	37	147	590	1,327	2,359	3,686	5,308	61	88
Saccharomyces ellipsoideus	6,000	13,200	0	0	1	3	6	9	37	147	590	1,327	2,359	3,686	5,308	61	88
Saccharomyces spores	8,000	17,600	0	0	2	4	8	12	49	197	786	1,769	3,146	4,915	7,078	82	118