

Performance of the APR UV Air Disinfection System

Disinfection Rates of Airborne Nosocomial Pathogens (HAI)

Dr. Wladyslaw Kowalski July 15, 2016

Microbe	Type	Size µm	UV k m ² /J	UV D90 J/m ²	UV Rate %	Filter %	Total %
Acinetobacter	Bacteria	1.225	0.16	14	100.00000	20.89	100
Adenovirus	Virus	0.079	0.054	43	100.00000	8.53	100
Aspergillus spores	Fungi	3.354	0.00894	258	98.69099	44.76	99.2769
Blastomyces dermatitidis spores	Bacteria	12.649	0.01645	140	99.96572	50	99.98286
Bordetella pertussis*	Bacteria	0.245	0.0364	63	100.00000	4.31	100
Clostridium difficile spores	Bacteria	5	0.0385	60	100.00000	48.83	100
Clostridium perfringens spores	Bacteria	5	0.0385	60	100.00000	48.83	100
Coronavirus (SARS)	Virus	0.11	0.377	6	100.00000	6.43	100
Corynebacterium diphtheriae	Bacteria	0.698	0.0701	33	100.00000	10.4	100
Coxsackievirus	Virus	0.027	0.111	21	100.00000	18.86	100
Cryptococcus neoformans spores	Fungi	4.899	0.0167	138	99.96963	48.72	99.98443
Ebola virus	Virus	0.08	0.04	58	100.00000	8.44	100
Enterobacter cloacae	Bacteria	1.414	0.03598	64	100.00000	24.42	100
Enterococcus*	Bacteria	1.414	0.0822	28	100.00000	24.42	100
Fusarium spores	Fungi	11.225	0.00855	269	98.41843	50	99.20921
Haemophilus influenzae	Bacteria	0.285	0.11845	19	100.00000	4.43	100
Haemophilus parainfluenzae*	Bacteria	0.02	0.03	77	99.99995	22.02	99.99996
Influenza A virus	Virus	0.098	0.119	19	100.00000	7.09	100
Klebsiella pneumoniae	Bacteria	0.671	0.04435	52	100.00000	9.88	100
Legionella pneumophila	Bacteria	0.52	0.2024	11	100.00000	7.21	100
Measles virus	Virus	0.158	0.1051	22	100.00000	4.93	100
MERS Virus	Virus	0.11	0.00725	318	97.02894	6.43	97.21998
Mucor spores	Fungi	7.071	0.01012	228	99.26142	49.83	99.62946
Mumps virus*	Virus	0.164	0.0766	30	100.00000	4.83	100
Mycobacterium avium	Bacteria	1.118	0.04387	52	100.00000	18.79	100
Mycobacterium tuberculosis	Bacteria	0.637	0.4721	5	100.00000	9.25	100
Mycoplasma pneumoniae	Bacteria	0.177	0.2791	8	100.00000	4.64	100
Neisseria meningitidis*	Bacteria	0.775	0.1057	22	100.00000	11.9	100
Nocardia asteroides	Bacteria	1.118	0.0822	28	100.00000	18.79	100
Norwalk virus*	Virus	0.029	0.0116	198	99.63970	18.09	99.70488
Parainfluenza virus*	Virus	0.194	0.1086	21	100.00000	4.47	100
Parvovirus B19	Virus	0.022	0.092	25	100.00000	21.04	100
Penicillium spores	Fungi	3.262	0.00307	750	77.43906	44.31	87.43581
Proteus mirabilis	Bacteria	0.494	0.289	8	100.00000	6.8	100
Pseudomonas aeruginosa	Bacteria	0.494	0.5721	4	100.00000	6.8	100
Reovirus	Virus	0.075	0.01459	158	99.91550	8.92	99.92304
RSV*	Virus	0.19	0.0917	25	100.00000	4.5	100
Rhinovirus*	Virus	0.023	0.0142	162	99.89790	20.57	99.9189
Rhizopus spores	Fungi	6.928	0.00861	267	98.46379	49.81	99.22897
Rotavirus	Virus	0.073	0.02342	98	99.99883	9.13	99.99894
Rubella virus*	Virus	0.061	0.0037	622	83.37895	10.62	85.1441
Serratia marcescens	Bacteria	0.632	0.221	10	100.00000	9.16	100
Staphylococcus aureus	Bacteria	0.866	0.5957	4	100.00000	13.72	100
Staphylococcus epidermis	Bacteria	0.866	0.09703	24	100.00000	13.72	100
Streptococcus pneumoniae	Bacteria	0.707	0.00492	468	90.80215	10.57	91.77436
Streptococcus pyogenes	Bacteria	0.894	0.8113	3	100.00000	14.28	100
VZV (Varicella surrogate k)	Virus	0.173	0.1305	18	100.00000	4.69	100

First pass results—rates will move towards 14 log reductions on the second pass.