

**TwinOxide** is registered with the United States Environmental Protection Agency (EPA) as a disinfectant-sanitizer. **Chlorine Dioxide** is the active ingredient in TwinOxide. To date, no organism tested against Chlorine Dioxide has proven to be resistant.

### Bacteria

Bacillus anthracis Ames 30  
 Blakeslea trispora 28  
 Bordetella bronchiseptica 8  
 Brucella suis 30  
 Burkholderia mallei 36  
 Burkholderia pseudomallei 36  
 Campylobacter jejuni 39  
 Clostridium botulinum (Botulism) 32  
 Clostridium difficile 44  
 Clostridium perfringens (Epsilon Toxin) 59  
 Corynebacterium bovis 8  
 Coxiella burnetii (Q-fever) 35  
 E. coli ATCC 11229 3  
 E. coli ATCC 51739 1  
 E. coli K12 1  
 E. coli O157:H7 13B88 1  
 E. coli O157:H7 204P 1  
 E. coli O157:H7 ATCC 43895 1  
 E. coli O157:H7 EDL933 13  
 E. coli O157:H7 G5303 1  
 E. coli O157:H7 C7927 1  
 Erwinia carotovora (soft rot) 21  
 Franscicella tularensis 30  
 Fusarium sambucinum (dry rot) 21  
 Fusarium solani var. coeruleum (dry rot) 21  
 Helminthosporium solani (silver scuff) 21  
 Klebsiella pneumonia 3  
 Lactobacillus acidophilus NRRL B1910 1  
 Lactobacillus brevis 1  
 Lactobacillus buchneri 1  
 Lactobacillus plantarum 5  
 Legionella 38  
 Legionella pneumophila 42  
 Leuconostoc citreum TPB85 1  
 Leuconostoc mesenteroides 5  
 Listeria innocua ATCC 33090 1  
 Listeria monocytogenes F4248 1  
 Listeria monocytogenes F5069 19  
 Listeria monocytogenes LCDC-81-861 1  
 Listeria monocytogenes LCDC-81-886 19  
 Listeria monocytogenes Scott A 1  
 Methicillin-resistant Staphylococcus aureus (MRSA) 3  
 Multiple Drug Resistant Salmonella typhimurium (MDRS) 3  
 Mycobacterium bovis 8  
 Mycobacterium fortuitum 42  
 Pediococcus acidilactici PH3 1  
 Pediococcus pentosaceus 45  
 Pseudomonas aeruginosa 3  
 Psittacosis (Chlamydia psittaci) 58

Salmonella 1  
 Salmonella agora 1  
 Salmonella anatum Group E1  
 Salmonella choleraesuis ATCC 13076 1  
 Salmonella choleraesuis 8  
 Salmonella enterica (PT30) BAA-1045  
 Salmonella enterica S Enteritidis 13  
 Salmonella enterica S. Javiana 13  
 Salmonella enterica S. Montevideo 13  
 Salmonella javiana 1  
 Salmonella Newport 4  
 Salmonella paratyphoid (typhoid fever)  
 Salmonella typhimurium c1331171  
 Shigella 38  
 Staphylococcal enterotoxin B 56  
 Staphylococcus aureus 23  
 Staphylococcus aureus ATCC 25923 1  
 Staphylococcus epidermidis 45  
 Staphylococcus faecalis ATCC 344 1  
 Staphylococcus gallinarum 45  
 Staphylococcus hominis 45  
 Staphylococcus xylosum 45  
 Streptococcus mutans 45  
 Tuberculosis 3  
 Tsukamurella incheonensis 45  
 Vancomycin-resistant faecalis (VRE) 3  
 Vibrio cholera 53  
 Vibrio strain Da-2 37  
 Vibrio strain Sr-3 37  
 Yersinia enterocolitica  
 Yersinia pestis 30  
 Yersinia ruckerii ATCC

### Viruses:

Adenovirus Type 40 6  
 Adenovirus Human 62  
 Adenovirus Canine 62  
 Arenaviridae (Arenavirus) including Gbagroube, Ippy, Kodoko, Lassa, Lujo, Luna, Lunk, Lymphocytic Choriomeningitis, Merino Walk, Menekre, Mobala, Mopeia, Tacaribe, Amapari, Chapare, Flexal, Guanarito, Junin, Latino, Machupo, Oliveros, Parana, Pichinde, Pirital, Sabia, Tamiami, Whitewater Arroyo 54  
 Calicivirus 42  
 Canine Distemper Virus 62  
 Canine Parvovirus 8, 62  
 Coronavirus 3  
 Ebola Virus 61  
 Enterovirus including D68, D71 60  
 Feline Calici Virus 3  
 Filoviridae (Filovirus) Marburg 54  
 Foot and Mouth Disease 8  
 Hantavirus 8  
 Hepatitis A Virus 3  
 Hepatitis B Virus 8  
 Hepatitis C Virus 8

Herpes Virus 62  
 Human coronavirus 8  
 Human Immunodeficiency Virus 3  
 Human Rotavirus Type 2 (HRV) 15  
 Influenza A 22  
 Influenza H1N1, H5N1 49  
 Influenza H1N1, H1N2, H2N2, H3N1, H3N2, H3N8, H5N1, H5N2, H5N3, H5N8, H5N9, H7N1, H7N2, H7N3, H7N4, H7N7, H9N2, and H10N7 50  
 Influenza H7N9 51  
 Measles Virus 62  
 Minute Virus of Mouse (Parvovirus, MVM-i) 8  
 Minute Virus of Mouse (Parvovirus, MVM-p) 8  
 Mouse Hepatitis Virus (MHV-A59) 8  
 Mouse Hepatitis Virus (MHV-JHM) 8  
 Mouse Parvovirus type 1 (MPV-1) 8  
 Murine Parainfluenza Virus Type 1 (Sendai) 8  
 Newcastle Disease Virus 8  
 Norwalk Virus 8  
 Poliovirus 20  
 Rotavirus 3  
 Severe Acute Respiratory Syndrome (SARS) Coronavirus 43  
 Sialodacryoadenitis Virus (SDAV) 8  
 Simian rotavirus SA-11 15  
 Theiler's Mouse Encephalomyelitis Virus (TMEV) 8  
 Vaccinia Virus 10  
 Variola vera (Smallpox) 57

### Algae/Fungi/Mold/Yeast:

Alternaria alternate 26  
 Aspergillus aeneus 28  
 Aspergillus aurulatus 28  
 Aspergillus brunneo-uniseriatus 28  
 Aspergillus caespitosus 28  
 Aspergillus cervinus 28  
 Aspergillus clavatonanicus 28  
 Aspergillus egyptiacus 28  
 Aspergillus elongates 28  
 Aspergillus fischeri 28  
 Aspergillus fumigatus 28  
 Aspergillus giganteus 28  
 Aspergillus longivesica 28  
 Aspergillus niger 12  
 Aspergillus ochraceus 28  
 Aspergillus parvathecicus 28  
 Aspergillus sydowii 28  
 Aspergillus uniguis 28  
 Aspergillus ustus 28  
 Aspergillus versicolor 28  
 Botrytis spp. 3

Botrytis cinerea 47  
 Candida spp. 5  
 Candida albicans 28  
 Candida dubliniensis 28  
 Candida edax 45  
 Candida maltose 28  
 Candida parapsilosis 28  
 Candida sake 28  
 Candida tropicalis 28  
 Candida viswanathii 28  
 Chaetomium globosum 7  
 Cladosporium cladosporioides 7  
 Cryptococcus curvatus A 45  
 Cryptosporidium parvum 47  
 Debaryomyces hansenii 28  
 Eurotium spp. 5  
 Fusarium solani 3  
 Lodderomyces elongisporus 28  
 Mucor circinelloides 28  
 Mucor flavus 28  
 Mucor indicus 28  
 Mucor piriformis 47  
 Mucor rademosus 28  
 Mucor ramosissimus 28  
 Mucor saturnus 28  
 Penicillium chrysogenum 7  
 Penicillium digitatum 3  
 Penicillium expansum 47  
 Penicillium spp. 5  
 Penicillium herquei 28  
 Phormidium boneri 3  
 Pichia pastoris 3

Poitrasia circinans 28  
 Rhizopus oryzae 28  
 Roridin A 33  
 Saccharomyces cerevisiae 3  
 Stachybotrys bisbyi 45  
 Stachybotrys chartarum 7  
 T-mentag (athlete's foot fungus) 3  
 Verrucaridin A 33

#### Bacterial Spores:

Alicyclobacillus acidoterrestris 17  
 Bacillus coagulans 12  
 Bacillus anthracis 10  
 Bacillus anthracis Ames 30  
 Bacillus atrophaeus 14  
 Bacillus atrophaeus ATCC 49337 31  
 Bacillus megaterium 12  
 Bacillus polymyxa 12  
 Bacillus pumilus ATCC 27142 12  
 Bacillus pumilus ATCC 27147 11  
 Bacillus subtilis (globigii) ATCC 9372  
 Bacillus subtilis ATCC 19659 31  
 Bacillus subtilis 5230 12  
 Bacillus thuringiensis 18  
 Clostridium sporogenes ATCC 19404  
 Geobacillus stearothermophilus ATCC 12980 11  
 Geobacillus stearothermophilus ATCC 7953 31  
 Geobacillus stearothermophilus VPHP 11

#### Beta Lactams:

Amoxicillin 29  
 Ampicillin 29  
 Cefadroxil 29  
 Cefazolin 29  
 Cephalexin 29  
 Imipenem 29  
 Penicillin G 29  
 Penicillin V 29

#### Protozoa:

Chironomid larvae 27  
 Cryptosporidium 34  
 Cryptosporidium parvum Oocysts 9  
 Cyclospora cayentanensis oocysts 41  
 Giardia 34

#### Microsporidia:

Encephalitozoon intestinalis 41

#### Chemical Decontamination:

Cylindrospermopsin (CYN) 25  
 Dihydropyridinamide adenine dinucleotide 24  
 Microcystin-LR (MC-LR) 25  
 Mustard Gas 46  
 Ricin Toxin 10  
 Sarin 46  
 Soman (GD) 46  
 VX 46

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