Biological Efficacy List
Chlorine dioxide gas
Biological Efficacy of Chlorine Dioxide

Spaulding Classification:
- Bacterial Endospores
  - (Clostridium, Bacillus)
- Mycobacteria
  - (Mycobacterium)
- Non-enveloped, non-lipid viruses
  - (Parvoviruses)
- Fungi
  - (Aspergillus, Stachybotrys)
- Gram negative vegetative bacteria
  - (Escherichia, Pseudomonas)
- Gram positive bacteria
  - (Enterococcus, Staphylococcus)
- Enveloped, lipid viruses
  - (Influenza)

Chlorine dioxide gas is highly effective against fungi, viruses, bacteria, and spores both in the laboratory and in real-world settings. Extensive testing has been done using chlorine dioxide on a multitude of specific organisms, and that information can be found in each of the listed tables below. It is not a complete list of organisms in which chlorine dioxide gas is effective against, only a sample of organisms in which chlorine dioxide has been successfully tested against. To date, no organism tested against chlorine dioxide gas has proved resistant. The Spaulding classification listed on the left lists organisms in order of decreasing resistance to sterilizing agents.

As testing is continually being performed on other organisms, updated data will be added to this list as the results come in. If an organism is not listed here, it does not necessarily mean that chlorine dioxide gas is ineffective against it. Please contact us to see if there is any data or information regarding your specific organism, or to arrange for specific organism testing.

<table>
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<tr>
<th>Bacteria</th>
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<td>Coxiella burnetii (Q-fever)</td>
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<td>Multiple Drug Resistant Salmonella typhimurium (MDRS)</td>
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TEL +32 51 31 93 43 www.deconologic.com
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References:

1. Selecting Surrogate Microorganism for Evaluation of Pathogens on Chlorine Dioxide Gas Treatment, Jeongmok Kim, Somi Koh, Arpan Bhagat, Arun K Bhunia and Richard H. Linton. Purdue University Center for Food Safety 2007 Annual Meeting October 30 - 31, 2007 at Forestry Center, West Lafayette, IN.
2. Decontamination of produce using chlorine dioxide gas treatment, Richard Linton, Philip Nelson, Bruce Applegate, David Gerrard, Yingchang Han and Travis Selby.
8. BASF Aseptrol Label
Information obtained from CSI internal testing with Pharmaceutical customer.


The Use of Chlorine Dioxide in potato storage, NORA OLSEN, GALE KLEINKOPF, GARY SECOR, LYNN WOODLEG, AND PHIL NOLTE, University of Idaho, BUL 825.


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Information obtained from CSI beta-lactam inactivation at Pharmaceutical facility.

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