



"The Chlorine Dioxide People"

Application Note #46

Decontamination of Used Equipment

ClorDiSys provides decontamination services for routine or single-time events and specializes in contamination prevention and emergency response. Our gaseous systems provide the ability to achieve complete distribution and a thorough penetration to each and every surface, including microscopic cracks and crevices, to deliver an extremely high level of decontamination. Our chlorine dioxide gas is registered with the US EPA as a sterilant, capable of eliminating all viruses, bacteria, fungi, and spores. With a molecule size of 0.124nm, chlorine dioxide gas can get inside machinery or equipment that would be difficult or impossible with liquids or vapors. Because of the sporicidal level kill chlorine dioxide gas provides, and its molecule being smaller than the smallest virus, a common application for such services is used equipment decontamination.

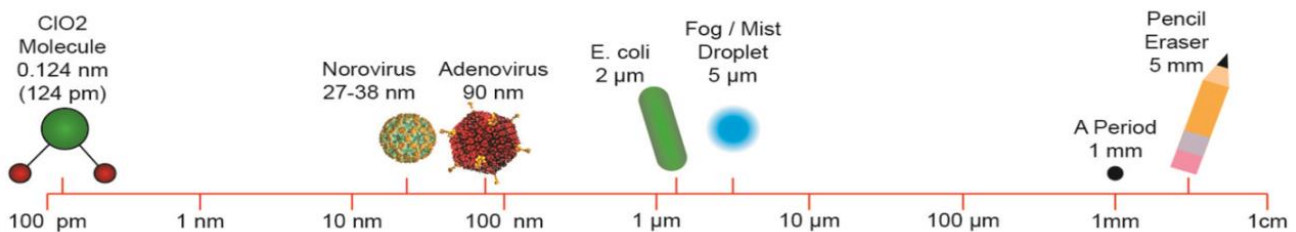


Figure 1: Size Comparison of Chlorine Dioxide Molecule to Common Microorganisms

Case Study: Used Bacon Slicer Decontamination

In 2018, our service team completed a decontamination of a used bacon slicing line for a food company. Because it was a used piece of equipment, the company did not want to bring it into the facility without being decontaminated first. This was not only to preserve the current sterility of their production area, but also to ensure safe food production once the line was in use. The slicing line was placed within a trailer which provided a sealed chamber for safe decontamination. 10 biological indicators were placed within the trailer and equipment in order to show that a 6-log reduction had been achieved. Once the trailer was sealed, the decontamination started. The entire setup and decontamination took 4 hours from start to finish, when it was safe to open the trailer and bring the equipment into the production area. All biological indicators came back negative for growth verifying that the decontamination was successful. Production was able to start on the bacon slicing line shortly after being installed, and the company has been safely producing food ever since.



Case Study: Decontaminating a Large Amount of Used Lab Equipment

Sometimes, a facility will purchase a large amount of used equipment due to a move or an expansion of their current facility. One life science company dealt with this scenario back in 2006, as they moved into a larger facility. They supplemented their existing equipment with a mix of new and used equipment to go into the new facility. Rather than sterilize equipment using a bulk autoclave, the facility opted to bring the equipment into the facility prior to sterilizing it. Once in place, the entire facility was decontaminated using chlorine dioxide gas to provide a sterilization level kill of all equipment all at once. This saved a considerable amount of time compared to autoclaving equipment and allowed for the decontamination of electronics, HEPA filters, and other moisture sensitive items that could not be autoclaved. Over 60 biological indicators were placed within the facility and the equipment to provide evidence that a 6-log sporicidal reduction had been achieved.



Contract Sterilization of Used Equipment

To decontaminate used equipment, supplies, and products off-site, ClorDiSys also offers Contract Sterilization Services where we treat your items at our facility and then ship them back to you or onward to 3rd party facility. In some cases, turnaround time can be hours, with the items arriving, being treated, and shipped on the same day. Because chlorine dioxide gas is effective against viruses, bacteria, fungi and spores as well as pinworms eggs and beta-lactams, we have received an array of used items over the years including biological safety cabinets, incubators, medical devices, and animal racks.



Case Study: Contract Sterilization of Used Lab Equipment

ClorDiSys routinely decontaminates PCR readers for the equipment manufacturers prior to the devices being returned for servicing. The PCR readers are sent to our facility and decontaminated to kill any microorganisms as well as inactivate any amplicons left on the equipment. These devices can be received, treated, and shipped within 24 hours to provide a quick turnaround. Items can be wrapped in Tyvek to preserve sterility after decontamination, and biological indicators can be placed within the Tyvek to illustrate a 6-log sporicidal reduction.