ClorDiSys' Chlorine Dioxide Gas Comparison

Chlorine dioxide (CD) gas offers the most effective decontamination possible, reaching all surfaces and penetrating into all cracks and crevices. This paper will compare chlorine dioxide gas from ClorDiSys Solutions, Inc with chlorine dioxide gas produced by other manufacturing methods.

Efficacy:

ClorDiSys' CD gas is registered with the US EPA as a sterilant under EPA registration number 80802-1. It is proven capable of providing a 6-log (99.9999% reduction) of all viruses, bacteria, fungi, molds and spores. All antimicrobial pesticide products must be registered with the US EPA in order to be used within the USA, and any product not registered is not allowed to legally claim efficacy against microorganisms. Our chlorine dioxide gas is the only one registered at this highest antimicrobial level. Our principals were a part of the team who developed and refined this method of decontamination at Johnson and Johnson™. We've built upon that knowledge by conducting research and performing testing on many topics and applications since our inception in 2001.

Purity and Material Compatibility:

Chlorine dioxide gas generated by ClorDiSys' proprietary method has been proven to be 100% pure. The ClorDiSys method of generating chlorine dioxide converts 2% chlorine (98% nitrogen) gas into a pure 4% chlorine dioxide (96% nitrogen) by passing it through a proprietary mixture of sodium chlorite and other ingredients. This purity has been validated by the US Army / US EPA and is in contrast to other manufacturer's chlorine dioxide products. Other methods of generating chlorine dioxide involve the mixing of sodium chlorite and acids to form chlorine dioxide in solution and then off gassing to fumigate. These methods produce acidic byproducts. For those familiar with liquid, foam, and other chlorine dioxide gas products, keep in mind better ingredients result in a better product. Depending on what type of generation method is used to produce chlorine dioxide, the end product can vary greatly in terms of its efficacy and its material compatibility.

CD gas containing acidic byproducts is going to be more corrosive than pure chlorine dioxide. Our pure CD gas has been used to safely decontaminate sensitive electronics for many years all around the world. Our process has been integrated into decontaminating multi-million dollar Transmission Electron Microscopes from multiple manufacturers. Many chlorine dioxide products which contain an acid component require a post-decontamination rinse or wash down in order to prevent or limit corrosion and eliminate any residue. This cleaning adds to treatment times and labor costs. ClorDiSys' CD gas does not leave a residue. One of the first commercial uses for ClorDiSys' CD gas was the sterilization of implantable contact lenses and artificial hip joints. As such, it has to be proven to the FDA that there were no measurable residues after sterilization.

Concentration Monitoring:

ClorDiSys utilizes a proprietary uv-vis spectrophotometer (photometer) to measure the concentration of CD gas within a space. Measurements are taken at multiple locations throughout the facility to ensure that the proper dosage has been met at all critical locations. This method of measuring gas concentration is vastly more accurate and repeatable than chemical sensing. It has been validated by the US Army / US EPA for its accuracy. Photometric measurement does not become saturated like chemical-based sensors do. A chemical sensor which reads a high concentration becomes saturated and will still display a high value of CD gas for a period of time even if it is removed from contact with the gas. A photometer will instantly read zero if it is removed from contact with the gas, allowing it to give the most accurate representation of the decontamination process.

Other chlorine dioxide methods do not have the ability to add more gas to a space where the concentration has dropped, which can cause an incomplete decontamination as the proper dosage might not be reached. ClorDiSys CD Gas Generators utilize accurate and reliable concentration monitors in order to provide a highly controlled decontamination process. If the concentration within the room drops for some reason, the generator will know and add more gas to regulate the decontamination cycle. This enables us to provide the most effective method of decontamination in the most reliable, repeatable, and controlled way possible.