Chlorine Dioxide for BW Decontamination of Buildings

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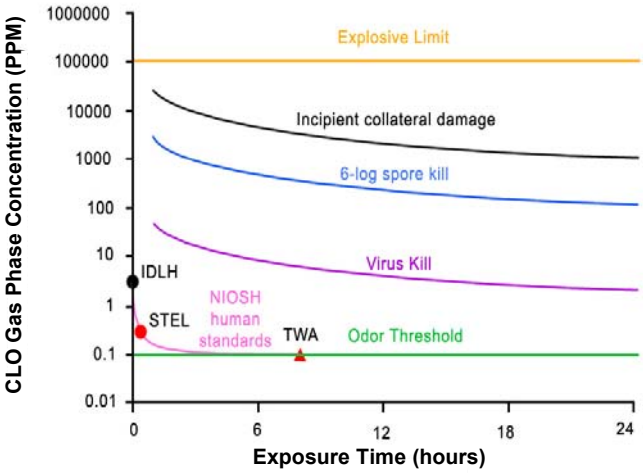

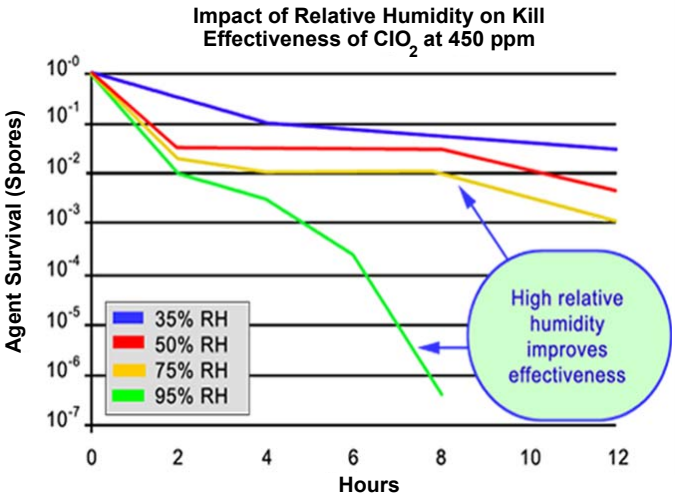

Collateral damage is minimal for dosages required to kill agents

	Pre-exposure	Low exposure (1,000 PPM Over 20 Hrs)	High exposure (10,000 PPM Over 20 Hrs)
Carbon steel			
Plastic			Not tested
Vinyl			Not tested
Computer paper			Not tested
Carpet			Not tested
Unbleached paper			
Polycarbonate			
Polyurethane foam			
Silk			
Hard drive	Normal functionality	Still functional	Not tested

Chlorine Dioxide (ClO_2) is an effective gaseous biocide that disinfects by oxidation rather than chlorination. Traditionally used as a disinfectant in water purification and food processing facilities, ClO_2 has proven to be an effective decontaminant for buildings exposed to biological agents. The gaseous state of ClO_2 allows it to follow the same flow patterns as the biological agent—this allows ClO_2 to effectively decontaminate not only surfaces, but also hard-to-reach areas such as air ducts, which are often inaccessible to conventional cleaning technologies. In addition, ClO_2 levels required for microbial inactivation are considerably lower than levels that lead to major damage of office equipment, building material, and computer components.

The first use of ClO_2 for this application was in the Hart Senate Office Building, to sterilize anthrax spores that had been released from a letter. This remediation effort was successful, and the Hart Building has been reopened.

DARPA continues to invest in this technology, to resolve some remaining technical questions, including: kill rate dependence on agent, gas concentration, humidity, temperature; ClO_2 dissociation rate in buildings; ClO_2 impact on sensitive equipment and furnishings; efficient means of delivering ClO_2 to – and then removing it from – all contaminated areas.