

CONCURRENT SESSION 1 – BIOLOGICAL AGENT DECONTAMINATION

Inactivation of *Bacillus anthracis* Spores on Surfaces with Ultraviolet Light Produced with a Low-Pressure Mercury Lamp or Light Emitting Diode Lamp

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The U.S. Environmental Protection Agency's (EPA's) Homeland Security Strategic Research Action Plan (2019-2022) was developed to advance EPA's capabilities to recover from a wide-area contamination incident, such as from a biological agent release. The study and results summarized in this presentation help to fulfill that objective. Ultraviolet light in the C range, generated from either low-pressure mercury lamps or light emitting diodes, was evaluated for its efficacy in inactivating *Bacillus anthracis* (Ames) spores on several indoor types of materials. The study included *Bacillus atrophaeus* to confirm its use as a surrogate and evaluated two techniques for spore inoculation onto the materials (liquid vs. aerosol). Decontamination efficacy was nominally determined by comparing spore recoveries from the test and control materials. Efficacy varied by material and UVC dosage, and up to 5.7 log reduction was demonstrated. There was no statistical difference in efficacy between the two species or between inoculation methods. Efficacy improved for the LED lamp at lower relative humidity, but this effect was not observed with the mercury vapor lamp.
