MITIGATION - SCIENCE AND TECHNOLOGY ADVANCES FOR CHEMICAL AND BIOLOGICAL CONTAMINATION MITIGATION

Dew Point Modeling The Inactivation Of Bacillus Anthracis And B. Thuringiensis Spores, And An Enveloped Ribonucleic Acid (rna) Virus Surrogate For Sars-cov-2 Is A New Tool For Hot, Humid Air Decontamination

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Aims: To develop models of hot, humid air decontamination that characterize the dew point and temperature profiles for inactivation of Bacillus anthracis and B. thuringiensis spores, and Φ6, an enveloped ribonucleic acid (RNA) virus surrogate for SARS-CoV-2 using published data for spore and virus inactivation.

Methods and Results: Published data on hot, humid air decontamination showed temperature and humidity combinations needed for inactivation of spores and enveloped virus that were dried on wiring insulation, aircraft performance coating (APC), polypropylene, anti-skid and nylon at ≥7 log10 colony forming units (CFU) test coupon-1 or ≥8 log10 plaque-forming units (PFU) test coupon−1 (Buhr et al. 2012, 2015, 2020). The lab data was confirmed through field testing (Buhr et al. 2016, 2020). Here, the spore and virus decontamination data was converted to dew point models. Dew point models have been used for aircraft decontamination of virus.

Conclusions: Dew point models provide temperature and dew point profiles for end users that are easier to maintain for field decontamination compared to temperature and relative humidity profiles.

Significance and Impact of the Study: Dew point models are a useful tool for end users of hot, humid air decontamination.

Funding support from Defense Threat Reduction Agency Joint Science and Technology Office, Protection and Hazard Mitigation Capability Area (CB10141) and Joint Biological Agent Decontamination System Program