

CONCURRENT SESSION 4 – COVID-19 DECONTAMINATION RESEARCH EFFORTS

Disinfection Efficacy Studies with HuCoV-229E, a Surrogate for SARS-CoV-2

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SARS-CoV-2, a novel coronavirus responsible for the ongoing COVID-19 pandemic, was first detected in Wuhan City, Hubei Province, China. The novel virus is a betacoronavirus, like MERS (Middle East respiratory syndrome) and SARS (severe acute respiratory syndrome), all of which originated in bats prior to becoming transmissible in humans. Human coronavirus strain 229E (HuCoV-229E) is an alphacoronavirus that has been used as the regulatory strain for emerging pathogen claims in EPA List N development. The enveloped virion is 80-120 nm in diameter, with club-like projections of the spike protein and contains positive-sense RNA genome of this surrogate is 27.6 kb. In this study, HuCoV-229E was used as a surrogate for SARS-CoV-2 in evaluating virucidal efficacy of List N disinfectants, Calla 1452 (EPA Reg # 1839-168) and Lysol (EPA Reg # 777-89), as well as a few other experimental test substances, such as Bioxy-S, DiChlor, and OxiClean. Human lung fibroblasts, MRC-5 cell line, were used for propagating this virus, and for quantifying the number of infectious virions. A quantitative test method, based on draft MLB SOP MB-29-01, was used for this study to determine efficacy based on log reduction in the number of infectious virions. Three surfaces relevant to DOD operations- aluminum, nylon webbing and keyboard plastic- were included in this study. Efficacy results will be presented for the surrogate virus in the presence or absence of a complex bioburden.
