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Title
Mobile On-Demand Hydrogen Peroxide Generation System

SBIR Topic Number
CBD203-002

Summary Report Type
Phase I Final Report

Description and Anticipated Benefits (700 words)
Vaporous hydrogen peroxide (VHP) has been explored by the military as a methodology for decontamination of sensitive, mission critical equipment and enclosed areas including aircraft, tanks, and buildings that have been contaminated by chemical and biological pathogens. VHP has significant advantages over other decontamination technologies based on its efficacy for the neutralization of chemical and biological pathogens, relative safety, and ability to avoid harming sensitive equipment. VHP technologies requires a supply of liquid solutions of hydrogen peroxide at high concentrations (35 percent), which is hazardous, unstable, with a short-life, and limited to ground transportation, creating a logistic challenge. A mobile system capable of providing hydrogen peroxide on demand would significantly increase the feasibility of VHP-based decontamination systems. Lynntech is developing a mobile on-demand hydrogen peroxide generation system (MOHyPerGen) by leveraging Lynntech's On-Demand Hypoxia Trainer (ODHT) to advance Lynntech's previously developed HyPerGen system that uses only air, water, and electricity. During the Phase I project Lynntech has optimized or developed various key components, demonstrate the feasibility of the system to produce hydrogen peroxide at high concentrations, and designed a preliminary, full scale on-demand H_2O_2 generator system that can meet the Army's SWaP (Size, Weight and Power) requirements.

This proposed technology can provide a portable on-demand hydrogen peroxide generation which would enable greater utilization of this versatile green oxidant in applications ranging from environmental remediation to portable sanitation to decontamination. This technology will be useful to civilian and military first responders, and may also be applied to sterilize medical equipment, and facilitate water treatment in remote locations.

Additional Comments (500 words)

Photograph Caption (200 characters)
Lynntech's mobile on-demand H_2O_2 generation (MOHyPerGen) technology will provide required concentrated H_2O_2 for on-site decontamination of sensitive, mission critical equipment and enclosed areas