Toxic Industrial Chemical	% Decontaminated		
	1 minute	15 minutes	60 minutes
Malathion (liquid)	89	95	Below Detection
Hydrogen Cyanide (gas)	>99	>99	>99
Sodium Cyanide (solid)	93	98	>99
Butyl Isocyanate (liquid)	99	Below Detection	Below Detection
Carbon Disulfide (liquid)	>99	>99	Below Detection
Phosgene (gas)	98	>99	>99
Chlorine (gas)	>99	>99	>99
Anhydrous Ammonia (gas)	>99	>99	>99

Figure 2. Neutralization of toxic industrial chemicals.

Performance Against Biological Warfare Agents and Biological Pathogens

Four biological agent simulants were used in SNL tests of DF200 decontamination performance: *Bacillus atrophaeus* (a simulant for anthrax spores), *Erwinia herbicola* (a simulant for vegetative bacterial cells), and MS-2 and T-4 *bacteriophages* (both simulants for viruses). Highly effective simulant test results of a 7-log kill within 15 minutes were confirmed by a facility licensed to perform live agent testing of two different strains of a live anthrax agent and the plague bacterium. In a solution test (i.e., the spores were added to the formulation), a 7-log kill of both live anthrax and plague bacterium was achieved during a 15-minute exposure period to DF200 (Figure 3).

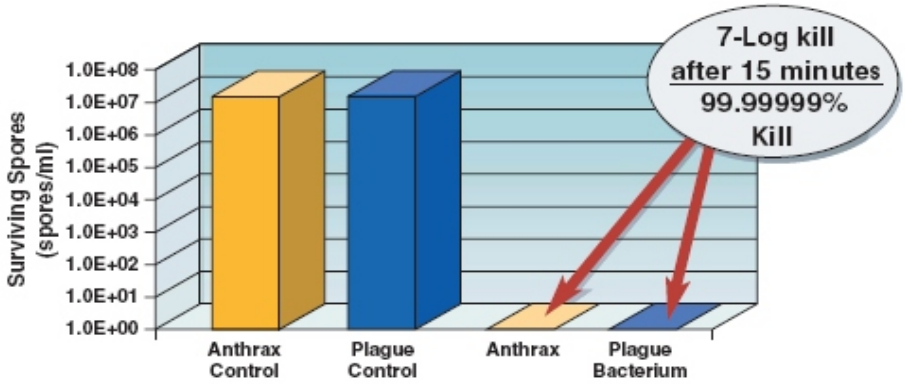

Figure 3. Anthrax and plague bacterium spore kill.

A SNL-based formulation has also been shown to completely inactivate Bovine Corona Virus (BCV), the internationally recognized surrogate for Severe Acute Respiratory Syndrome (SARS). After 1-minute exposure to a reduced 10% concentration of the standard DF200 formulation, BCV was successfully inactivated. Viral inactivation was determined indirectly by assessing hemagglutinin (a second co-receptor on the surface of the BCV) activity. Inactivation of the hemagglutinin indicates loss of BCV infectivity. Testing was completed with and without the presence of 10% by weight solutions of various organic loads (Figure 4).

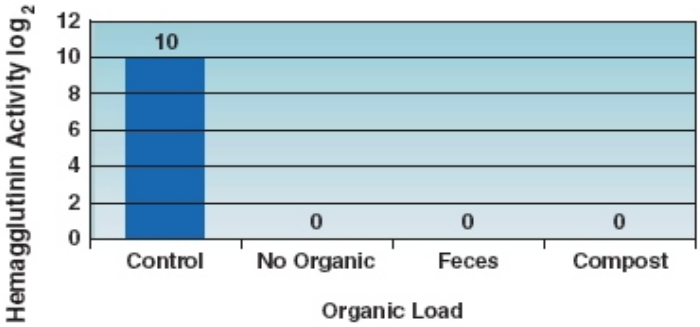

Figure 4. SARS surrogate after 1 minute exposure to DF200D.

Additional tests performed by approved military facilities confirm efficacious neutralization of live warfare agents at various challenge ratios and on select applicable surfaces. Additionally, the formulation has been shown to be efficacious on a wide variety of material surfaces including those with organic loads and biofilms.