

SuperSoap' SSDX-12 for Skin Decontamination, Summary of Available Data

Prepared by:

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Decontamination products for human skin that has come in contact with toxic agents such as the nerve agent VX are needed. Skin decontaminants must be safe to use. Strong oxidizers or reactive substances are not ideal as they can cause additional harm to the person being decontaminated. Physical removal of the agent through lifting and removal may be preferential.

The ability of commonly used skin decontaminants to remove live nerve agent VX from a contaminated surrogate skin (Strat-M[™] membrane) was evaluated. Testing was performed by Avarint (Springville, New York). The products evaluated include Dawn Ultra® (Procter and Gamble, Cincinnati, OH), SSDX-12® (TDA Research, Wheat Ridge, CO) and Reactive Skin Decontamination Lotion (RSDL®) (Emergent BioSolutions, Gaithersburg, MD). VX is a highly potent nerve agent with an LD₅₀ of 7ug/Kg.

For each test, a Strat-M membrane was contaminated with 2 uL nerve agent VX and allowed to age, covered, for 30 min. Following the aging period, 20mL of Dawn Ultra or SSDX-12 solution was added to submerged the contaminated membrane for 10-minutes. For the RSDL sample, the lotion contents of one towelette packet, approximately 5 grams of RSDL lotion was added for 10-minutes. After the 10-minute residence time, each sample was submerged into 20 mL of deionized water for an additional 10 minutes followed by an extraction in 10 mL of Acetone. To ensure complete extraction of all residual agent, all samples were sonicated for 10 minutes prior to being sampled for analysis.

Results:

SSDX	STRAT M (ug)	% Recovered
Rep 1	50.0	2%
Rep 1	49.9	2%
Rep 1	50.6	3%
Average:	50.2	2%
Dawn		
Rep 1	68.4	3%
Rep 1	71.7	4%
Rep 1	79.1	4%
Average:	73.1	4%
RSDL		
Rep 1	118.7	6%
Rep 1	127.4	6%
Rep 1	117.2	6%
Average:	121.1	6%

10-min Wash and Rinse Test

Dose Control Recovery

DCR	Mass Recovered (ug)	% Recovered
Rep 1	2100	104%
Rep 2	1930	95%
Rep 3	1780	88%
Average:	1937	96%

The average untreated control recovery of VX was 1937ug or 96% of the applied mass. The sample treated with SSDX-12 recovered an average of 50.2ug or 2% of the applied mass. The sample treated with Dawn Ultra recovered an average of 73.1ug or 4% of the applied mass. The sample treated with RSDL recovered an average of 121.1ug or 6% of the applied mass. These results are plotted below.



The residual VX after treatment with SSDX-12 was statically less VX compared to RSDL (t-stat = 2.41e-5) and less than Dawn Ultra (t-stat = 0.00195).

Evaluated Solutions:

RSDL – Neat, undiluted, as extracted from RSDL packet Dawn Ultra – 1% solution SSDX-12 – 15 parts water: 1-part SSDX-12 – 6.25% SSDX-12

Testing results received: 07 May 2018 Testing report prepared: 17 September 2018