**SSDX-12® Relevant Reports and Information for Dry Decon Technology Call for Patient/Casualty Decontamination**

General Skin Decontamination References:

- "New step for better chemical decontamination" Chemical & Engineering News, Monday, April 15, 2019, pages from 22 to 23

- Primary Response Incident Scene Management (PRISM) Guidance for Chemical Incidents

- ECBC Guidelines for Mass Casualty Decontamination During HAZMAT/Weapon of Mass Destruction Incident: Volumes I and II

SSDX-12® Specific

- Safety Data Sheet File: SSDX-12 with revision data 7 24 18

- Technical Data Sheet File SSDX-12 Technical Data Sheet TDA Research Dec 2018

- Strat-M Skin Membrane VX Decontamination Summary Report
  File: SSDX-12 for skin decon data report.pdf
  Summary: 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.

- 50 SUBJECT HUMAN REPEAT INSULT PATCH TEST FOR SKIN IRRITATION AND SKIN SENSITATION EVALUATION
  File: TDA SSDX-12 human skin irritation and sensitization evaluation.pdf
  Summary: No adverse reaction of any kind were reported during the course of this evaluation

- SSDX-12 Decontamination Performance Hazard Mitigation, Material, and Equipment Restoration (HaMMER) Advanced Technology Demonstration (ATD) Decontamination Process and Large Panel Efficacy Technical Demonstration
  File: HaMMER ATD large panel SSDX-12 summary with Battelle Sanitized Report.pdf
  Summary: In addition to the materials compatibility, no-VOC, biodegradability and pH neutral nature of SSDX-12, this report shows the decontamination benefits based on large scale 'real world' conditions.
  • Low or high pressure SSDX-12 prewash provides improved decontamination compared to no prewash
  o Low pressure prewash was used in the contact hazard testing but could have additional safety benefits to the decontamination operator by preventing backsplash.
  • Scrubbing during decontamination is not required if SSDX-12 prewash is performed
  • SSDX-12 prewash removes 99.95% of a VX contact hazard.
  • SSDX-12 used prior to a reactive decon during VX decon allows for decontamination to below 0.75 mg/m2 requirements
  • SSDX-12 prewash removed 6 times more VX than a water prewash

• A 30-minute SSDX-12 prewash can reduce the HD contact hazard from 10g/m2 to below the 15 mg/m2 requirement without the need for expensive reactive decontaminants.
• SSDX-12 prewash prevents migration of HD to non-contaminated substrates better than water alone.

- Test Report for SSDX-12® Decontamination of Opioids – Including Wipe Decon
  File: Draft TDA Opioid Test Report 6Jan21.pdf
  Summary: Testing was conducted at Battelle HMRC on Powder opioids, Fentanyl Citrate, Carfentanil HCl, and Remifentanil HCl
    - SSDX-12® significantly improves solubility of these opioids lifting them into solution without the inclusion of alcohols (Alcohol can promote dermal transmission of opioids) Section 2.4 of report
    - Powder opioid decon using SSDX-12® followed by wipe removal was tested on glass, stainless steel and laminate
    - Powder opioid was applied for 30 min, SSDX-12® was pipetted on for 12 minutes and then surface was wiped with rayon/polyester gauze (22-037-921, Fisher Scientific) (basically a medical gauze)
    - >97.6% fentanyl citrate was removed (section 5.4.2), >97.5% carfentanil HCL was removed (section 5.4.3) and >97.7% remifentanil HCl was removed (section 5.4.4)

- SSDX-12® does not contain Volatile Organic Compounds (VOC)
  File: NEX022515-01 Lab Analysis Report.pdf
  Summary: According to EPA Method 24 test, SSDX-12® consists of water and nonvolatile components (surfactants)

- U.S. Air Force MIL-PRF-87937 Approval
  File: Official Notif of Approval SSDX-12 (26Aprl2019)s.pdf
  Summary: Complete data reports are available but the list of tests passed for this conformance is provided below.
  Toxicity, Biodegradability, compositional assurance, insoluble matter, flash point, wet adhesion tape test, percent cleaning efficiency, terpene hydrocarbons, heat stability, cold stability, hydrogen embrittlement, total immersion corrosion, low-embrittling cadmium plate corrosion, effects on unpainted metal surfaces, sandwich corrosion, wet adhesion tape test, effect on painted surfaces, stress crazing of acrylic plastics, stress crazing of polycarbonate plastics, long-term storage stability, hot dip galvanizing corrosion, effect on polysulfide sealants, rubber compatibility, effect on polyimide insulated wire.

- Commercial aircraft approvals
  Files are not provided but report approvals can be provided if needed
  • AMS 1626C Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type
  • British Aerospace AIRBUS AIM09-00-002 External and General Cleaners
  • Boeing D6-17487 Revision T Exterior and General Cleaners and Liquid Waxes, Polishes and Polishing Compounds
  • Douglas Aircraft Company Customer Service Document CSD No.1 Type 1: Materials and Procedures for General Exterior Cleaning of Painted and Unpainted Surfaces

- USDA BioPreferred® Certified "SSDX-12® contains 65% USDA certified biobased content"
  File: BioPreferred Offical Letter.pdf BioPreferredLabel
  Summary: SSDX-12® consists of 65% biobased, renewable, carbon content. Biobased materials are derived from renewable sources and are not derived from petroleum
  SSDX-12 is a qualified Biobased Product and meets the requirements for Mandatory Federal Purchasing Initiative (this may become more important as we move into the new administration)

Relevant SSDX-12® Physical Properties and Details:

**Physical Properties:**

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|---|---|
| pH (undiluted) | 7.8 |
| pH (10%) | 7.0 |
| Insoluble Matter | <0.01% |
| Biodegradable | 95% in 28 days |
| Nonvolatile Matter | 25.2% |
| Flash Point | Not observed to water boiling point, 212ºF |
| Volatile Organic Compounds (VOC) | 0 (per EPA Method 24) |
| Non-Precursor Organic Compounds (NPOC) | None |
| Non-reactive | |
| Non-corrosive | |
| No special applicators required | |
| Non-hazardous, no DOT shipping restrictions | |

- SSDX-12® does not separate upon freezing, compliant with MIL-PRF-87937 cold stability

- Long-term storage stability verified by MIL-PRF-87937 testing

**Application:** SSDX-12® can be applied by spraying, brushing or foaming.

- For Routine Cleaning of Aircraft use 30:1 water to SSDX-12® or as needed (3.25% soap solution).
- For Facilities cleaning use 65:1 water to SSDX-12® (1.5% soap solution).
- For Chemical and Biological Decontamination use 4:1 to 15:1 water to SSDX-12® (20% to 6.25% soap solution).

- U.S. Patent 9,044,796