

Weapon Systems & Platforms



UPDATES

Welcome to our quarterly Weapon Systems & Platforms newsletter, where we provide periodic updates about new information and products available from the Weapon Systems & Platforms Program Area.

Advanced Surface Engineering Technologies for a Sustainable Defense (ASETSDefense) Workshop 2018

Engineers throughout the aerospace and defense industry are under constant and increasing pressure to improve the performance of materials, reduce corrosion and wear, and reduce the cost of acquisition and lifecycle sustainment. Simultaneously, occupational and environmental safety and health regulations are driving the replacement of common surface treatments to combat wear and corrosion. U.S. and European private companies and defense sectors are striving to mitigate risk through compliance with the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), or Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulations (2016). Worldwide, there remain increasing pressures to eliminate cadmium (Cd) and hexavalent chromium (Cr⁺⁶) from aerospace and industrial supply chains. Selling and maintaining U.S. weapon systems in Europe means that REACH also affects U.S. Department of Defense (DoD) and U.S. original equipment manufacturers (OEM); however, Cd and Cr⁺⁶ can still be used today in the U.S. with appropriate precautions.



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Advanced Surface Engineering Technologies for a Sustainable Defense (ASETSDefense) is [SERDP and ESTCP's](#) initiative to provide engineering resources and information to the defense industry along with a database to meet the needs of testing, qualification, and implementation. In addition, SERDP and ESTCP support workshops that provide an opportunity for design and sustainment engineers, industrial hygienists, program managers, and government officials to share recent developments and information on testing and implementation of sustainable chemical and process alternatives. An ASETSDefense Workshop includes presentations and technical posters, with an emphasis on stakeholder dialog, including side meetings for detailed examination of particularly significant issues and alternatives that are moving rapidly into production.

The ASETSDefense Workshop for 2018 was concluded on Thursday August-23, with great success. A total of 221 representatives of over 130 different organizations, including both public (78 participants) and private sector (143 participants), made their way to Denver CO, along the foothills of the Rocky Mountains for 3-days to share developments on testing and implementation of sustainable chemical and process alternatives.

ASETSDefense provides primary research and engineering resources to the defense industry in support of reducing both costs and associated risks to DoD from corrosion. Risks associated with corrosion that were highlighted during the meeting include: (1) DoD estimates approximately \$20.6 billion annually to costs that are directly attributable to corrosion of weapon systems and platforms, support equipment, and

facilities[1], and (2) up to 1/3 of non-availability-days are attributable to DoD assets under repair for corrosion, and therefore unavailable for use.

The workshop included [49 presentations and 26 technical posters](#) across a wide-range of topics that included:

- Current needs and new approaches to address environmental issues
- The use of alternatives at Depots and OEMs
- Accelerated corrosion testing
- Coatings for corrosion and wear
- Corrosion modeling and prediction
- Methods of repair
- Applying and repainting chrome-free systems
- Changing regulatory frameworks

Please refer to the final agenda for more information, including session descriptions and specific titles. Throughout the meeting, the importance of dialog between stakeholders was emphasized by including room for both impromptu side-meetings and pre-scheduled working groups for more detailed examination of significant issues.

Visit www.serdp-estcp.org/asetsdefense for more information about this and previous meetings, including links to presentations and access to engineering data.

*A full list of workshop attendees has been made available to all registrants.

[1] “Estimated Impact of Corrosion on Cost and Availability of DoD Weapon Systems, FY18 Update.” USD(AT&L). March-2018.

Recently Released Documents, Available for Download

- WP-1673 - “Accelerated Dynamic Corrosion Test Method Development” - [Final Report](#)
- WP-1674 - “Dynamic Multivariate Accelerated Corrosion Test Protocol” - [Final Reports](#)
- WP-200936 - “Electrodeposited Nanocrystalline Co-P Alloy Coatings as a Hard Chrome Alternative” - [Final Report](#)
- WP-201520 - “Demonstration of High Shear Rotary Membrane System (HSRMS) for Shipboard Bilgewater Treatment” - [C&P Report](#)
- WP-2151 - “Development of Demonstrably Predictive Models for Emissions from Alternative Fuels Based Aircraft Engines” - [Final Report](#)
- WP-2213 - “Novel Whisker Mitigating Composite Conformal Coat Assessment” - [Final Report](#)
- WP-2526 - “Improved Degreasing Solvents Based on Ionic Liquids” - [Final Report](#)
- WP-2610 - “Novel Laser Diagnostic Approaches for Evaluating Emissions from Metal-Based Energetic Formulations” - [Final Report](#)
- WP-2611 - “Development of Methodologies for Evaluating Emissions from Metal-Containing Explosives and Propellants” - [Final Report](#)
- WP-2748 - “Mechanochemical Preparation of Organic Nitro Compounds” - [Final Report](#)

Key Events and Meetings

November 27-29, 2018 - SERDP-ESTCP 2018 Symposium

The SERDP and ESTCP Symposium is a nationally-recognized conference focusing on the DoD's priority environmental and installation energy issues. The 2018 Symposium will be held from November 27-29, 2018, at the Washington Hilton Hotel in Washington, D.C. Planning has begun, and this year's meeting is shaping up to be an excellent event. As in years' past, the 2018 Symposium will be centered on technical sessions that span the wide spectrum of SERDP and ESTCP investments. The technical sessions will be complemented by two poster sessions that highlight SERDP- and ESTCP-funded efforts along with the relevant work of others in the community. As in previous years, a number of short courses will be offered that provide attendees the opportunity to dive deeper into different topics and earn continuing education credits.



The Symposium attracts members of the end-user and research communities along with DoD leadership and regulators. There will be a variety of networking opportunities for the more than 1,000 attendees from the military services; academic and research institutions; private sector technology and environmental firms; and Federal, state, and local regulatory and policy-making organizations. Additional details will be added to the [Symposium website](#) as the technical program is developed.
