



AFCPCO NEWS

US Air Force Corrosion Prevention and Control Office Newsletter

November 2022

Metal Wire Arc Spray (MWAS)

Metal Wire Arc Spray (MWAS) is a thermally sprayed, sacrificial metalized coating for effective protection of structural iron and steel in corrosive environments and provide effective service life greater than 20 years.

In the MWAS process, two electrically isolated wires of the selected coating material are given opposite Direct Current (DC) polarity using an arc-welder power supply. The wires are simultaneously fed to an application gun where they are brought into close proximity to initiate an electric arc. The arc between the two impinging wires results in a local region of high temperature plasma and molten metal. A jet of compressed air, directed through the arc region from behind, disperses and projects the molten metal to the surface being coated. The metal droplets impinge on the substrate; solidify and bond to form a continuous barrier/sacrificial metal coating for cathodic protection of the metal structure.

AFCPCO has been working with Offutt AFB, 55th MXG since Aug 2021 to improve corrosion resistance of unit ground support equipment (GSE), located in severe corrosion environments. CFCO recommended a holistic approach, utilizing a combination of MWAS and applying corrosion preventative compounds (CPC's) prior to GSEV delivery to severe operating locations.



MWAS Operator Training

AFCPCO worked with 55th MXG to arrange MWAS delivery, facility modification, installation and initial operator training. CFCO and 55th MXG personnel identified key CPC application locations once MWAS was applied. 55th MXG plans to begin "hardening" priority non-powered GSE Jan 23. CFCO will continue to work with 55th MXG to monitor MWAS performance on equipment located at the "severe" operating locations.

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Representative shapes with MWAS applied



F-16 aircraft observed by AFCPCO team after a wash at Kunsan AB during the PACAF survey

TO 35-1-3 Rewrite

Technical Order 35-1-3, Corrosion Prevention and Control, Cleaning, Painting, and Marking of USAF Support Equipment (SE), is currently undergoing a full revision by the AFCPCO.

On Aug 2022, a request for change inputs from the Field Wing Corrosion Managers/AGE Section Chiefs and MAJCOM Fabrication/AGE FMs was sent by Mr. Rob Madsen.

Any questions or concerns regarding the rewrite should be addressed to afcorr@us.af.mil.

2022/2023 Corrosion Surveys Status

The AFCPCO Team were able to coordinated and complete two MAJCOM Surveys this year beginning late March after our yearly CTIM. The Command to be surveyed first was Air Force Global Strike Command (AFGSC), visiting all seven installations only missing one Missile Wing location. The team completed AFGSC in the middle of July while coordinating efforts for Pacific Air Force Command (PACAF). Your Air Force Corrosion Manager, MSgt Horstman is currently coordinating an out-brief time for AFGSC.

AFCPCO then turned our focus to PACAF. With another small, but very important Command, we coordinated our visits for all eight locations. Our kickoff location was Andersen AFB, visiting one of the most severe locations in our Air Force. We then split into two separate teams visiting the other locations. We will be visiting our last location, Hickam AFB in the beginning of November with an out-brief to PACAF A4 the following week.

We are also in the planning stages now to coordinate visits with United States Air Forces in Europe (USAFE). More to come on USAFE as it further develops the planning efforts kicking off 2Q of 2023.

As we finalize all out-briefs, MAJCOM reports will be drafted, revised, and finalized to be sent to the A4 downward to each location within their respective command.

Lastly, on the cusp are a few SPO requested visits to include the mighty A-10 and RPA's. As with USAFE, we are in a planning process for these Mission Design Series (MDS) aircraft.



Mark your calendar! 2023 Air Force CTIM

The 2023 Corrosion Technical Interchange Meeting (CTIM) is currently scheduled 7-9 March 2023 at the Museum of Aviation in Warner Robins, GA. AFCPCO will open the website for registration and send an official invitation with the agenda as soon as all the details get worked out.

This will be a great opportunity to network with Depot, MAJCOM, Engineers, Field maintainers, Corrosion Managers, and OEMs.

Contribute to resolving Air Force-wide corrosion issues!
Learn about innovative corrosion techniques!

“We look forward to seeing everyone in person again in Warner Robins for next year’s CTIM.”

The 2022 Corrosion Technical Interchange Meeting (CTIM) took place virtually 8-10 March 2022. It was an opportunity for maintainers all over the globe to discuss everything corrosion.

All briefings are still available through the AFCPCO SharePoint site, with recordings of each presentation also made available upon request.

For any questions, please email afcorr@us.af.mil.

Contact Us

Send us an email with any questions, concerns, or suggestions.

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Prevent, Mitigate, Destroy Corrosion

Statement on the Preliminary Analysis on the Environmental Severity Re-Assessment and Corrosion Wash Investigation

Austen K. Scruggs, Ph.D.

The Air Force Corrosion Prevention and Control Office (AFCPCO) has historically utilized various environmental severity field investigations to assess the corrosivity of the environments corresponding to most Air Force relevant locations. In the most recent reassessment of Air Force environmental severity assignments, AFCPCO has leveraged a geographical corrosion prediction system (GEOCORP) and the ISO Corrosivity Category Estimation Tool. The GEOCORP system jointly developed by AFRL RXSS and Adirondack Analytics is just one of several powerful modeling efforts conducted by AFRL RXSS and Adirondack Analytics. AFCPCO is also leveraging AFRL RXSS’s Condition Based Maintenance + (CBM+) Hierarchical Environment Exposure Rating System (CHEERS), a digital prediction tool capable of predicting aircraft wash schedules utilizing readily available environmental metrics as input parameters.

AFRL RXSS’s digital tools are resultant from years of collaborative measurement and modeling endeavors with AFCPCO. These digital tools are helping to lay the groundwork for CBM+, reduce costs associated large scale field investigations, and provide a means for tracking and explaining changes environmental severity assignments. Preliminary analysis suggests the majority of severity assignments given in AFCPCO’s Technical Order (TO) 1-1-691 are still applicable to the modern day. Further follow-on investigations and analyses have been deemed necessary by AFCPCO personnel in order to determine the modern-day applicability of the current aircraft wash schedule. Though much work has been done, much is left to do. AFCPCO ultimately recommends that Air Force personnel continue to adhere to TO 1-1-691 as it is written. Any potential changes would be several years away from full evaluation, corrosion program planning, approval, publication, and subsequent implementation.