

USARPAC Transoceanic Test

Why Use a VCI Fitted Cover?

Advanced protective covers with Vapor Corrosion Inhibitor (VCI) are tested in some of the harshest environments, and a typical test was conducted in 2015 at the request of USARPAC and the 25th Infantry Division. Transshield XT and Transshield ArmorDillo[®] advanced protective covers were placed over a MEP-1040 Generator and an M997 HMMWV Ambulance respectively. These protected assets were then shipped from Hawaii to Australia (Phase I) and later from Malaysia to Hawaii (Phase II) onboard the U.S. Army Logistic Support Vessel-2, CW3 Harold A. Clinger.



U.S. Army MEP-1040, 10kW 50/60Hz Generator with an ArmorDillo cover



U.S. Army M997 Ambulance HMMWV with a Transshield XT cover



U.S. Army vessel CW3 Harold C. Clinger Logistics Support Vessel (LSV-2)

Paired coupons were employed inside and outside the cover to assess the level of protection provided to the asset. Stand-alone coupons were also employed.

At the conclusion of the 35-day Phase II voyage, U.S. Army personnel witnessed the removal of Transshield's covers. Photographs of the coupons were taken immediately. The protection provided by a cover after exposure is quantified by calculating the area of the coupon not corroded and expressing that as a percent of the total coupon area. Typical paired coupon results after this voyage are shown.



ArmorDillo 98.4% Protection



Outside Cover 0.0% Protection
MEP-1040 Generator



XT Cover 99.9% Protection



Outside Cover 0.2% Protection
HMMWV

Transshield's ArmorDillo advanced protective cover with VCI provided an average 87% protection for all coupons. A logical conclusion is that similar protection is provided to unpainted metals of the MEP-1040 Generator and HMMWV.

Equipment protected by a Transshield cover with VCI require less corrosion induced maintenance and fewer repair parts. This results in a high degree of equipment readiness.

Independent Approval: In 2013, NAVSEA approved the next generation of advanced protective cover with VCI technology developed by Transshield. Made from ArmorDillo, these second-generation covers provided a lighter, more form-fitted cover. Growing demand for covers to protect an array of different assets throughout the fleet confirms the cover's efficacy. Should the cover be damaged, repair kits are available with accompanying procedures that enable soldiers to repair cuts, tears and other material damage.

Bottom Line: Three fundamental components are required to protect assets:

1. Covers must be made from VCI enhanced fabric.
2. Cover design matters; covers must be formfitting.
3. Covers need to be installed correctly and secured properly to protect equipment.

References

[1] Sharman, D. J., Milot, M., Ozol, S., The Wide-Ranging Benefits of Corrosion Inhibitors, American Society of Naval Engineers, MegaRust 2016: Naval Corrosion, June 2016