Performance Requirements for Navy Ships Exterior Topside Coatings

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Foreword

This standard is intended for use by naval corrosion control personnel, coating applicators, and coating manufacturers. The purpose is to facilitate more effective corrosion protection of Navy ships, inter-operability requirement by presenting reliable information and providing guidelines for coating manufacturers and shipyards to develop more durable specifications.

Higher durability coatings provide the corrosion protection and durability required to meet these goals; however, proper application of the coatings is critical to achieve the maximum life expectancy of these coating products.

Scope

This standard provides guidelines for establishing minimum requirements for the protective coatings of ships exterior topsides and related structures exposed to the marine atmosphere. It covers coating materials, coating test protocol and acceptance criteria, surface preparation, coating application, quality assurance and control, and repair method.

Rationale

In the late nineties, the North Atlantic Treaty Organization (NATO)[(1)] navies were considering approaches to improve the durability and maintainability of major assets. The importance of surface preparation, application processes and qualified coatings was clear. There was also a confluence of enhanced operational capabilities (health, safety, security, etc.), environmental regulation compliance and increasing cost during ship life cycle (acquisition and maintenance). It was resolved that there was a need for internationally recognized performance standards and interest in standard documents such as NATO Allied Engineering Publications (AEP) to suit the unique requirements of military ships.

Navy ships represent large capital investments and are present worldwide. Moreover, control of corrosion on Navy ships is necessary to sustain operational availability and inter-operability, provide safe working and living areas, and limit total ownership cost during a ship's life cycle.

NATO established a working group comprised of experts from eleven countries to create international performance standards. Through contacts with various navies, shared objectives were established; in particular:

- Increasing the length of time between dry-dockings (up to 10 years),
- Reduction of maintenance, including reducing crew labor.

The working group used the period from 2002-2008 to complete four AEPs. In 2010, participating NATO member nations accepted the AEPs via an overarching Standardization Agreement (STANAG 4698).[1] The four AEPs developed under STANAG 4698 are:

- AEP 59: Application process for optimum paint and coatings system's performance
- AEP 60: Performance requirements for exterior topsides coatings
- AEP 61: Performance requirements for underwater hull paint systems
- AEP 63: Performance requirements for non-skid coating systems

In 2012, it was realized that the community of experts within NATO had diminished, and this limited NATO's ability to manage and update the AEPs. A plan was developed to transfer the documents to a Joint NATO/NACE International (NACE)/European Federation of Corrosion (EFC)[(2)] working party. Under this plan, NATO maintains control of the STANAG and oversees the maintenance of the AEPs by the NACE/EFC working party. In 2021, NACE International became the Association for Materials Protection and Performance (AMPP).

This standard was prepared in 2023 by the joint working party of AMPP, EFC, and NATO representatives and referred to by NATO under STANAG 4698.

This standard replaces AEP 60.

[(1)] North Atlantic Treaty Organization (NATO), Boulevard Leopold III, Brussels, Belgium, www.nato.int.
[(2)] European Federation of Corrosion (EFC), 1 Carlton House Terrace, London SW1Y 5DB, U.K, https://efcweb.org.