



## Amphenol RoHS Compliant Platings

### APPLICATIONS

Interest for non-hazardous alternative finishes are gaining momentum & many customers are currently using Durmalon for a broad number of applications. Durmalon combines the unique lubrication and anti-wetting properties of PTFE with corrosion resistance, high conductivity, and EU RoHS compliance in a non-reflective finish. Durmalon can be used as a drop-in replacement for Cadmium and is compatible with other platings.

### TESTING

Amphenol Aerospace has performed extensive testing on numerous alternative platings including Durmalon. For specific applications please contact Amphenol Aerospace.

### DURMALON™

#### Amphenol's Answer to EU RoHS/ELV/Cadmium Free Restrictions

Commercial, industrial & military markets are rapidly moving away from restricted materials such as Cadmium (Cd) & Hexavalent Chromium (Cr(VI)). Both of these restricted materials are toxic and are known carcinogens. Amphenol is offering an alternative finish that complies with all customer requirements tied to these specifications.

MIL-DTL-38999, Rev L has established new service classes for alternative finishes addressing these requirements for Cadmium replacement. Amphenol is using this and European Union Directive 2002/95/EC RoHS (Regulation of Hazardous Substances) as a guide to qualification for all domestic, global, commercial, industrial, & military specifications requiring the reduction or elimination of these restricted materials.

Amphenol has qualified Durmalon, with internal part number coding "DT" finish, which meets or exceeds the 38999 designated class "T" finish, Nickel Fluorocarbon Polymer. Durmalon is also EU RoHS compliant and is Cadmium free, Lead free, and Hexavalent Chromium free.

We also offer additional platings such as "DX", (Durmalon, heavy duty final plate) to support JSF, F-35 program. The DX plating is intended to meet higher corrosion Sulfur Dioxide (SO<sub>2</sub>)/salt fog requirements of JSF.

Cadmium has been applied to numerous components of land, sea and air weapon systems and NASA systems for many years as it provides sacrificial corrosion protection and excellent lubricity for threaded applications.

The Defense Logistics Agency (DLA) has added the following cadmium alternative finishes to MIL-DTL-38999, Rev L (and other connector specs):

- + Nickel Fluorocarbon Polymer
- + Zinc-Nickel

### AMPHENOL'S DURMALON™

Durmalon, like Olive-Drab Cadmium plating (Class W), meets 500 hours of dynamic salt spray, combined with 500 mating cycles and meets specified millivolt drop shell-to-shell conductivity. Durmalon also meets a 200° C temperature rating. Durmalon has been proven to meet this requirement as well as Potassium Formate-Deicer fluid testing performed by Boeing.



### CONTACT US:

Kyle Brown

E-mail: [kbrown@amphenol-aao.com](mailto:kbrown@amphenol-aao.com)

Phone: 607-563-5335

## APPLICATIONS

Interest for non-hazardous alternative finishes are gaining momentum & many customers are currently using Black Zinc Nickel for a broad number of applications. Black Zinc Nickel is typically used on applications for commercial aerospace and military defense, who are now moving away from toxic Cadmium to more environmentally friendly options.

## TESTING

Amphenol Aerospace has performed extensive testing on numerous alternative platings including Black Zinc Nickel. For specific applications please contact Amphenol Aerospace.



## BLACK ZINC NICKEL

### Black Zinc Nickel is Amphenol's 2nd RoHS Compliant Plating Alternative to Cadmium

Amphenol is now offering a new RoHS compliant alternative to Cadmium. Black Zinc Nickel is a non-reflective and conductive black finish approved for 500 hrs salt spray making it an excellent choice for harsh environments. Black Zinc Nickel has been qualified by the DLA, with internal part number coding "DZ" finish, which meets or exceeds the 38999 designated class "Z" finish. Black Zinc Nickel is compatible with other platings and available on a wide variety of connectors and accessories including all MIL-DTL-38999 Series III connectors.

Requirements	Cadmium	Durmalon™	Black Zinc Nickel
<b>Coupling Torque</b> Post 500 hr. salt	■	■	■
<b>Shell to Shell Conductivity</b> <2.5 millivolts	■	■	■
<b>Cycles of Durability</b> 500 mates	■	■	■
<b>Salt Spray</b> Dynamic 500 hours	■	■	■
<b>Temperature Rating</b> 175° C	■	■	■
<b>Non-Reflective</b>	■	■	■
<b>EU RoHS/ELV Compliant*</b>		■	■
<b>Non-Magnetic</b>	■	■	■
<b>Available in Composite</b>	■	■	■
<b>De-icing Fluid**</b>		■	■

\*Meets EU RoHS/ELV maximum concentration values (MCV) of 1000 ppm (0.1% w/w) or (0.01% w/w) per homogenous material.

\*\* Potassium Formate/Acetate based de-icing fluids.

Note: Specifications are subject to change without notice.

## ADDITIONAL REQUIREMENTS

- + Corrosion Resistant (Salt Spray Referenced)
- + EMI Shielding - 50 db @ 10 GHz spec Min
- + Backwards compatible with Cadmium

## CONTACT US:

Kyle Brown

E-mail: [kbrown@amphenol-aa.com](mailto:kbrown@amphenol-aa.com)

Phone: 607-563-5335

Notice: Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should assume that all safety measures are indicated or that other measures may not be required. Specifications are typical and may not apply to all connectors.

AMPHENOL is a registered trademark of Amphenol Corporation. ©2015 Amphenol Corporation REV:3/26/2015