



PAINT CONFORMANCE TESTS: HOW MANY ARE REQUIRED?

Mark Panosky, Electric Boat

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Freeport, Maine



Background

- **During a recent investigation of a paint problem at Northrop Grumman Newport News , it was determined that most paint companies that supply mil spec paints to naval shipyards and private shipyards working on Navy ships have not been performing all of the mil spec conformance tests on each batch prior to shipment.**
- **NAVSEA asked Electric Boat and Northrop Grumman to perform all the conformance tests on random samples of mil spec paints and report the results.**
- **Results to date have found minor non-conformances, primarily for viscosity and sag resistance.**



Some of the Mil Specs Involved

- MIL-DTL-24441
- MIL-PRF-23236
- MIL-E-1115
- TT-P-28
- TT-P-645
- MIL-E-24635
- MIL-DTL-24631
- MIL-DTL-15090
- TT-E-527
- MIL-DTL-700
- MIL-PRF-24596
- DOD-E-24607



Typical Mil Spec Conformance Test Requirements

MIL-DTL-24441	
Conformance Test Requirement	ASTM or Fed-Std Method
Alternate pigments and additives	40 CFR Part 261, Appendix 11, Method 1311
Brushing properties	Method 4321.2 in FED-STD-141
Coarse particles	ASTM D185
Color (dry film)	ASTM D1729
Color (wetted film)	ASTM D2244
Condition in container	Method 3011.2 in FED-STD-141
Consistency	ASTM D562
Contrast ratio	ASTM D2805
Dry-hard time	ASTM D1640
Dust-free drying time	ASTM D1640
Fineness of grind	ASTM D1210
Flash point	ASTM D3278
Gloss	ASTM D523
Nonvolatile vehicle content	Method 4053.1 in FED-STD-141
Odor	ASTM D1296
Pigment content	Method 4021.1 in FED-STD-141
Pot life	Mil-DTL-24441 para
Sag	Method 4494.1 in FED-STD-141
Spraying properties	Method 4331.1 in FED-STD-141
Volatile percent	ASTM D2369
Weight per liter ([pounds/gallon [lb/gal]])	ASTM D1475



Typical Mil Spec Conformance Test Requirements

MIL-E-1115D Formula 30	
Conformance Test Requirement	ASTM or Fed-Std Method
Pigment content	Fed-Std-142 Method 4021
Volatiles	ASTM D2369
Nonvolatile vehicle content	Fed-Std-141 Method 4053
Phthalic anhydride	ASTM D563
Water	Fed-Std-141 Method 4081
Coarse particles and skins	ASTM D185
Consistency	ASTM D562
Mass per gallon	ASTM D 1475
Drying time	Fed-Std-141, Method 4061
Fineness of grind	ASTM D1210
Flash point	ASTM D3278
Gloss	ASTM D523
Brushing properties	Fed-Std-141, Method 4321
Spraying properties	Fed-Std-141, Method 4331
Flexibility	Fed-Std-141, Method 6221
Color	ASTM D1729
Condition in container	Fed-Std-141, Method 3011
Stability in partially full container	Fed-Std-141, Method 3021
Dilution stability	Fed-Std-141, Method 4203
Rosin and rosin derivatives	ASTM D1542
Phenolic resin	Fed-Std-141, Method 5141
Odor	ASTM D1296
Dry opacity	ASTM D2805
Sag	ASTM D4400



**NAVSEA issued a message to
naval and private shipyards
regarding the status of paint on hand
and future orders of paint.**



The Community's Dilemma

- Which tests can be deleted without affecting the quality of the paint?
- Which tests should be deleted because they are out of date?
- Which tests should be deleted because they are unnecessary?
- Are there new test methods that should be specified?



Resolution?

- **Paint companies should provide technical justification for which tests should be modified or deleted (by mil spec)**
- **Selections should consider reduction of paint costs or ROM cost avoidance**
- **Standardization of tests should be considered to the maximum extent possible.**



Side Issue

- **Ship contracts have specification effectivity rules.**
- **Not all contracts invoke the latest revision of a given mil spec.**
- **It costs money to upgrade the contract from one revision to another.**
- **How will the new conformance test requirements be invoked?**



Questions or Comments

Contact

Mark Panosky

860-433-8337

mpanosky@gdeb.com