

# What does “good” look like?

## A look backstage to show you how a conventional interior paint earns MPI approval

*Each year, paint manufacturers send MPI hundreds of products to be tested to one of our 240+ different paint standards. For those products, MPI's test laboratory performs a detailed series of tests ranging from gloss to accelerated weathering and more before reviewing the data against the criteria. Those products that pass are then published under the corresponding MPI Category on the Approved Products List (APL), ensuring that a specifier may be confident that the listed product will perform to the expectations aligned with that standard.*

Architects and specifiers need know only this to effectively use MPI's Specification Manuals and *Approved Products Lists* to choose products for their projects.

*But those who wish to elevate their knowledge and understanding of paints and coatings (or perhaps the cynics among you) might ask: why does one product meet a given standard (like MPI #138 Latex, Interior, High Performance Architectural, Gloss Level 2, perhaps?) but another product that some have used with great success in the past does not? And how does the performance for a paint that passes high-performance MPI #138 differ from that of a conventional latex like MPI #44?*

*This article series takes you backstage to explain how we test a paint before we list it on the APL, starting with performance requirements for conventional interior latex paints. We will explain what tests we run, what aspect of performance that particular test validates, and the required results to get that coveted “pass.”*

### “Why isn't this paint on an MPI Approved Products List?”

*Listed Products versus Non-listed Products*

*If you do not see a particular paint product on an MPI Approved Products List, there are three possible reasons:*

- The manufacturer hasn't submitted that product to MPI for testing:
  - *MPI testing and approval is a voluntary process for paint suppliers – and not all paint manufacturers choose to send products to MPI for approval. Furthermore, even paint suppliers who work with MPI regularly do not always send every product in their line for approval.*
- *The product is approved by MPI, but under a different MPI standard (aka Category):*
  - *This is especially common with latex paints: depending on its VOC and durability, a low-sheen (MPI Gloss Level 2) interior latex paint could be listed under either MPI #44; MPI #138; or MPI #144. A paint could also be listed under multiple standards if it meets the requirements of each of those standards. Further, MPI has different categories and requirements for different gloss level, so be sure the product you are looking for aligns with the category's gloss level.*
- *The product was submitted for approval but did not pass:*
  - *However, that knowledge is not made public. MPI maintains a staunch standard of privacy around test results as part of our agreement with the paint manufacturers we work with.*

So, what does “good” look like for an approved product?

### *Requirements for Conventional Interior Paints*

*While MPI standards for conventional interior latex paints have some requirements around expected paint material characteristics –consistency, dry time, appearance and applicability – most tests are centered around performance requirements like flexibility, hiding power, alkali resistance, gloss, and scrubability.*

#### **Flexibility**

*Most MPI standards require this test that measures how well the coating remains adhered to the surface after being bent or deformed. We apply a sample to a tin-plated panel, cure the coating, and then bend the panel over a ¼ inch mandrel, and examine the film for any evidence of loss of adhesion, cracking, peeling. Any exhibition of those effects would result in a failure.*

#### **Hiding Power**

*Hiding power -- also referred to as opacity or contrast ratio -- measures the product's ability to obscure a background of contrasting color. To measure hiding power, we apply a stripe of the sample to a standard black-and-white opacity chart. After curing, we then use a spectrophotometer to measure the white and black section and compare the ratio.*

*As you might expect, the hiding power required for a primer is less than that required for a topcoat; products that pass MPI #50 Primer Sealer, Latex, Interior must have a contrast ratio of 95 or higher; a topcoat like MPI #54 requires 98 or higher.*

### **Alkali Resistance**

*Since latex paints are frequently specified for masonry – and masonry can be a high-alkali surface -- MPI latex paint standards call for application of a 2% sodium hydroxide solution to the coated panel to verify no signs of breakdown or deterioration.*

### **Gloss**

*In addition to helping define the appearance of the finish, gloss also influences performance characteristics like how well the surface hides imperfections (lower gloss), and cleansability and durability (typical higher with the increased resin content of higher gloss products). But specifiers should not solely rely on how the manufacturer names their product to know what they are getting. The terms “eggshell” “velvet” or “satin” are purely subjective and loosely refer to a paint with a fairly low gloss but are not necessarily consistent across all manufacturers.*

*To offset this, MPI has quantitative standards that define seven different gloss levels, ranging from Gloss Level 1 (Flat) up to Gloss Level 7 (High Gloss). Every MPI standard that is defined by a gloss level requires that the sample be tested to validate that it fits within the range of the standard, regardless of how the manufacturer chooses to name it.*

*Gloss is measured by bouncing light off the cured paint at an angle and measuring the light reflected from the surface. For most products we measure gloss at 60 degrees. For lower gloss standards, we also measure sheen, which is tested in the same manner as gloss, but with an 85-degree angle of incidence (similar to looking down a long wall at an oblique angle).*

*So for a product to be classified as an MPI Gloss Level 5 (Semi-Gloss), the product’s gloss measured at 60 degrees must fall between 35 and 70. For MPI Gloss Level 2, the product’s gloss measured at 60 degrees must be a maximum of 10 and its sheen at 85 degrees must fall between 10 and 35.*

*It is noteworthy that gloss is less a performance measure and more a tool to standardize the specifier’s expectation of what the finished surface will look like. When a product “fails” because it fell out of range for MPI’s gloss requirement for a particular standard, it is less an indication of performance and more generally a sign that the product belongs in a different MPI category with a different MPI gloss level, though exceptions exist.*

### **Scrubbability**

*This is a signature test of durability for interior paints. The goal is to test how well the coating withstands abrasion either from incidental contact or repeated scuff. The test is performed by placing the coated test panel in a “scrubbability tester,” where a nylon brush in a set track runs back and forth across the panel while being continuously wetted with a detergent solution. The sample passes if after the required number of cycles (usually in the thousands) there is no breakthrough along the entire length of the panel or significant loss in gloss. The number of cycles (or “scrubs”) required to pass goes up based on these factors:*

- *the gloss requirement of the standard. Higher gloss products should have greater scrub resistance, so while MPI #44 Interior Latex Conventional Gloss Level 2 calls for 1500 scrub cycles, MPI #54 Interior Latex Conventional, Gloss Level 5 (Semi-Gloss) requires 2000 scrub cycles*
- *the performance expected from the standard. MPI High Performance Interior Latex standard #138 Gloss Level 2 requires 4000 scrub cycles, versus MPI #44 Gloss Level 2’s requirement for 1500.*

### **Burnish Resistance**

*For lower gloss level products, the burnish test validates the coating’s resistance to changed gloss after rubbing – sometimes compared to the grinding of a chair against a wall, or repeated touching as people round a corner. For burnish resistance, a tester similar to that used for scrubbability is employed, but with a chamois cloth instead of a nylon brush, and the test is performed dry with no liquid detergent. The test is evaluated by measuring the sheen before and after testing. Any change in the value that exceeds the limit of the standard would be counted as a failure. In MPI 44, for example, that would be any change greater 5 units; for a high-performance standard like MPI 144, the threshold is reduced to 3 units.*