

ASTM International, originally known as the American Society of Testing and Materials, develops voluntary standards for use in testing materials, products, systems and services.

Taber Abrasion

The Taber abrasion test measures a products resistance to abrasive contact such as wind blown sand. The lower the number the better the abrasive resistance.

Envision taking a piece of sandpaper and scrubbing until you break through the surface.

Note: The color of the coating can affect the number.

Clear product will have a lower number because of the resin to tint load.

ASTM # D4060 CS17 Wheel/1kg weight 1000 cycles



Impact Testing



A test panel is coated with a uniform thickness of paint and allowed to cure. A standard weight is dropped onto the surface from varying heights, to test the impact resistance of the coating. The test can be performed with the paint side facing up (direct impact) or with the paint side facing down (reverse impact).

ASTM # D2794

Direct Impact



This test measures the products ability to 'absorb' punishment from flying debris, such as a dropped wrench. The higher the number, the better the flexibility.

A polyester based urethane like Endura will provide greater flexibility at lower temperatures.. Envision hitting the film with a hammer at 30° below zero. Endura EX-2C Polyurethane coating will typically provide a good balance between abrasion and impact resistance.

Reverse Impact

This demonstrates again the flexible characteristics of the paint film and its ability to stretch. Typically, the reverse impact test results are significantly lower then those of a direct impact test.



Mandrel Bend



A steel panel is coated with a uniform thickness of the coating and is allowed to cure. The panel is then bent with a mandrel into a conical shape. The mandrel bend test measures the flexibility of the attached coating and its resistance to cracking when elongated. The test is measured at the point where there is no loss of adhesion or cracking.

ASTM # D522

ENDURA PAINT

Solvent Resistance

Solvent tests measure a coatings ability to resist damage due to various chemicals and solvents. The test panels are painted, allowed to cure and tested to determine their resistance to various chemicals. Testing can be done by chemical immersion, chemical rub or spot testing. A highly cross linked polyurethane - Endura EX-2C is extremely chemical and solvent resistant.

ASTM # D5402



UV



This test creates an artificial environment which tests for loss of gloss. In real terms5 years in operation with chemical washing, spillage and sunlight exposure will give you some quantitative results.

4 hours UV at 60° C
4 hours condensation at 60° C
This test simulates 504 hours of exposure

Salt Spray/Prohesion

A salt spray test is conducted to determine or evaluate the quality of the resins and corrosion inhibitors that are present in the paint film. A minimum time frame of 1500 hours in a salt spray cabinet will give an indication of the primers resistance to 'creep' which can be explained as: Cut through the paint film to the metal and visually it looks like a scratch. If you have limited or no corrosion inhibitors in the product the 'rust' will creep under the primer and paint film causing it to separate from the surface.

If you have corrosion resistant resins along with sufficient inhibitors you will see less 'creep' at these intervals and would require 2000+ hours before you begin to see blistering and degradation of the paint film.

A zinc based product will provide superior protection against coating failure and will naturally take longer to breakdown.

Zincs are usually tested @ 3000 hours and beyond to find out the point that the corrosion begins to become a factor.



Note: An important thing to remember about this type of test is that performance is also tied to the initial surface preparation' as well as the total coating system and how it was applied.

The total package is required in order to meet and exceed the test criteria consistently and effectively.

Paint and Coating technology is defined by what we give up to get what we want.

Too flexible and we might give up chemical resistance and abrasion resistance.

We are always trying to strike a balance to meet the 'specific needs' of our customers within a reasonable cost scenario.