

SECTION 4

CONCRETE COATING & SUBSTRATE TESTING STANDARDS



THERE ARE VARIOUS METHODS AND PERFORMANCE STANDARDS TESTS that can be a deciding factor when demonstrating why a Sherwin-Williams concrete coating may be a better choice than a competitor's coating.



TEST FOR CONCRETE SUBSTRATES & COATINGS

Knowing more about how and why concrete substrates and coatings are tested will provide guidance when choosing the right coating for the desired performance.

These are the organizations that produce industry standards to determine the performance attributes of many concrete and masonry coatings in the market:

ASTM International Standards: American Society for Testing and Materials

ICRI: International Concrete Repair Institute

NACE®: National Association of Corrosion Engineers

SSPC: Society for Protective Coatings

When it comes to concrete and masonry coatings, ASTM standards are the most common.

There are some ASTM Test Methods you may have heard of for verifying properties, such as:

- Wind-Drive Rain Test — ASTM D6904-03
- Water Vapor Permeance — ASTM D1653
- Elongation — ASTM D2370
- Tensile Strength — ASTM D2370
- Flexibility — ASTM D522
- Alkali Resistance — ASTM D1308
- Mildew Resistance — ASTM D3273/D3274

Terms Of The Trade

ELONGATION: A method of measuring coating flexibility; the increase in specimen length from the point of initial load application to the point of film rupture in a tension test.

TENSILE STRENGTH: Tensile strength relates to the ability of the material to withstand tension without fracturing. If concrete is too weak in tensile strength, the top layer of it can delaminate, taking the coating with it.

ALKALINITY: High pH. Concrete is inherently alkaline.

MYTH #4

Concrete block fillers are unnecessary, heavy and difficult to apply.

FACT: New, lightweight concrete block surfacers are available today that backroll faster and with less effort.

Some fillers/surfacers provide a stable, uniform foundation and can help reduce pH burn, even over freshly cured mortar.

There are multiple standards Paint and Coatings manufacturers can use for testing their products. Therefore, you may see different outcomes or ratings for product performance. Sherwin-Williams generally follows those ASTM tests that pertain to Paints and Organic Coatings, not necessarily thermoplastic testing.

What does this mean to you? As you are working with specifications and bidding work, or even determining which coating to recommend, make sure you understand the correct ASTM standards that should be used. Not all ASTM Test Methods equate or correlate to one another. Results can vary significantly and may not reflect the true product attributes needed for the job.

EXAMPLE SCENARIO

COATING MANUFACTURER A uses ASTM 412 and has a 600 rating
SHERWIN-WILLIAMS uses ASTM 2370 and has a 350 rating

The General Contractor on your project wishes to use Coating Manufacturer A since it has a higher rating for elongation.

Since these are different test numbers, does that mean Sherwin-Williams' coating is inferior? No. Here's the real story on our elongation rating:

- Coating Manufacturer A is using the ASTM 412 Standard Test Method for Vulcanized Rubber and Thermoplastic Elastomers — Tension.
- Sherwin-Williams uses the ASTM 2370 Standard Test Method for Tensile Properties of Organic Coatings
- **Because concrete coatings are organic coatings, not vulcanized rubber and thermoplastic elastomers, the Sherwin-Williams coating is using the proper test and is the correct choice.**

Be sure to utilize your resources to work through ASTM testing and conflicting claims:

- Sherwin-Williams lists all applicable ASTM testing for coatings on our data pages
- Consult with your Sherwin-Williams Sales Representative or Store Associate to walk through your coating needs

LOXON® Acrylic Coating A24W300 Series

102.30

LOXON®
Acrylic Coating
A24W300 Series

| CHARACTERISTICS | SPECIFICATIONS | SPECIFICATIONS |
|---|--|--|
| Loxon® Acrylic Coating is specifically formulated for exterior, above-grade masonry surfaces requiring high performance protection. This primer and Loxon Concrete and Masonry Primer is a highly elastic and adhesion resistant. The system provides a highly durable and weather resistant finish to concrete, masonry, and other substrates. It is suitable for use on vertical, horizontal, and curved surfaces. This combination is recommended for use on all surfaces with a pH of 8 or less. | Color: Black Coverage: 20 sq ft/gal @ 8 mils wet, 37 sq ft/gal dry Application: 1/4" brush, roller, or spray Drying Time @ 77°F, 50% RH: To touch 4 hours To recoat 24 hours Finish: Smooth Flash Point: 0-10 units @ 50° F Storage: 12 months Shelf Life: 12 months | For extremely porous block a coat of Loxon Block Surfacer may be required to achieve a suitable free surface. Concrete, Concrete Block, CMU, Split Face Block 1 ct. Loxon Concrete & Masonry Primer 2 ct. Loxon Acrylic Coating Block 1 ct. Loxon Block Surfacer or Heavy Duty Block Filler 2 ct. Loxon Acrylic Coating |
| Wind-Driven Rain Test Passes ASTM D6904-03 1 ct Loxon Primer at 3.2 mils dft 2 cts Loxon Coating at 3.7 mils dft/ct Water Vapor Permeance Passes Based on ASTM D1653 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Elongation Passes ASTM D2370 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Tensile Strength Passes ASTM D2370 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Flexibility Passes ASTM D522 - Method B, 180° bend, 1/8" mandrel Alkali Resistance Passes Based on ASTM D1308 Mildew Resistance Passes ASTM D3273/D3274 | Physical Properties Wind-Driven Rain Test Passes ASTM D6904-03 1 ct Loxon Primer at 3.2 mils dft 2 cts Loxon Coating at 3.7 mils dft/ct Water Vapor Permeance Passes Based on ASTM D1653 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Elongation 180% ASTM D2370 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Tensile Strength 340 psi ASTM D2370 1 ct Loxon Coating at 9.4 mils dft, 14 day cure @ 77°F & 50% RH Flexibility Passes ASTM D522 - Method B, 180° bend, 1/8" mandrel Alkali Resistance Passes Based on ASTM D1308 Mildew Resistance Passes ASTM D3273/D3274 | Color: Black Coverage: 20 sq ft/gal @ 8 mils wet, 37 sq ft/gal dry Application: 1/4" brush, roller, or spray Drying Time @ 77°F, 50% RH: To touch 4 hours To recoat 24 hours Finish: Smooth Flash Point: 0-10 units @ 50° F Storage: 12 months Shelf Life: 12 months Strength Tensile Strength 340 psi Elongation 180% Adhesion 1 ct. Loxon Concrete & Masonry Primer 2 ct. Loxon Acrylic Coating Space 1 ct. Loxon Block Surfacer or Heavy Duty Block Filler 2 ct. Loxon Acrylic Coating Weight 11.9 lbs Weight per Gallon: 11.9 lbs Mildew Resistant This coating contains agents which inhibit the growth of mildew on the surface of the coating film. |

PHYSICAL PROPERTIES

| | |
|--|------------|
| Wind-Driven Rain Test | Passes |
| ASTM D6904-03 | |
| 1 ct Loxon Primer at 3.2 mils dft | |
| 2 cts Loxon Coating at 3.7 mils dft/ct | |
| Water Vapor Permeance | 11.9 perms |
| Based on ASTM D1653 | |
| 1 ct Loxon Coating at 9.4 mils dft, | |
| 14 day cure @ 77°F & 50% RH | |
| Elongation | 180% |
| ASTM D2370 | |
| 1 ct Loxon Coating at 9.4 mils dft, | |
| 14 day cure @ 77°F & 50% RH | |
| Tensile Strength | 340 psi |
| ASTM D2370 | |
| 1 ct Loxon Coating at 9.4 mils dft, | |
| 14 day cure @ 77°F & 50% RH | |
| Flexibility | Passes |
| ASTM D522 - Method B, 180° bend, | |
| 1/8" mandrel | |
| Alkali Resistance | Passes |
| Based on ASTM D1308 | |
| Mildew Resistance | Passes |
| ASTM D3273/D3274 | |

CONCRETE SUBSTRATE & SURFACE STANDARDS

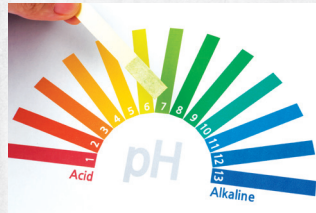
Compared to other building materials, concrete tends to have high levels of both moisture and alkalinity. The concrete substrate must therefore be tested to determine if it is stable enough to be coated.

pH LEVELS

Many factors can affect the pH levels of the concrete surface, including:

- Content of the Portland cement mix.
- Moisture levels: Higher moisture levels tend to have a higher surface pH.
- Area tested. The pH across different areas of cured concrete can vary.
- Age of concrete. pH is highest on the concrete surface shortly after it has been placed and decreases over time as the surface carbonates.

Testing Methods: You can use pH pens, pencils or strips to test for pH levels. Refer to the technical data page of the product you will be using to determine if the product is acceptable for the pH level of the concrete.



MOISTURE LEVELS

Too much moisture in new concrete can cause paints and coatings to blister or peel. A dry, sound surface is required for paints and coatings to properly adhere to a concrete substrate.

Testing Method: A moisture meter can help determine the moisture content within concrete. Too much moisture will yield a reading of 15-20% and will need time or assisted drying before coating.



These are just two methods of ensuring your concrete surface is adequately prepared for coating. The next section goes into further detail about the repair and preparation of this substrate.

pH SCALE

