

# COIL AND EXTRUSION COATINGS 101

High-quality coating applications allow your projects to stand out. At Sherwin-Williams Coil Coatings, we not only deliver effective solutions but we also offer you access to continuous education on the world of coil and extrusion coatings.

## WHAT IS A COATING?

Coatings are comprised of four principal ingredients: resins, pigments, solvents, and additives. The percentage of each item can change depending on the coatings' final application and color. Below is an example of one of the many combinations.

**15%** **PIGMENTS** provide color, hiding, and chemical resistance

**35%** **RESINS** bind pigments to the substrate and provide weather resistance properties

**50%** **SOLVENTS** are the vehicle by which the solids are transported to the substrate

**ADDITIVES** are any number of chemicals supplementing the coating - usually in small amounts to produce special effects



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Coil Coatings

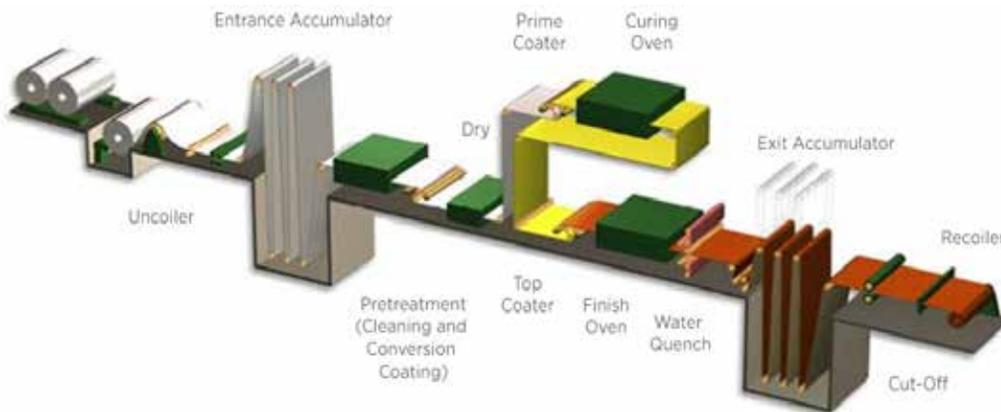
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## COATING PROCESSES

As a leader in the industry, Sherwin-Williams develops protective coil and extrusion coatings, which are applied during automated processes.

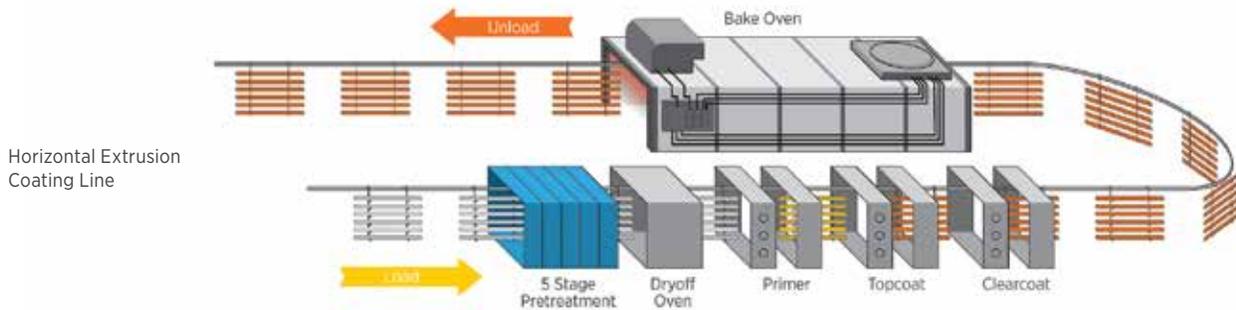
### COIL: CONTINUOUS COIL

Coil coatings are applied to coil formed metal sheets by a continuous, automated process that can happen at up to 700 feet per minute. Coil is unwound, cleaned, treated, primed, painted, and baked before being recoiled for shipment.



### EXTRUSION: HORIZONTAL OR VERTICAL LINES

Extrusion coatings are applied in a manufacturing process that consists of cleaning and pretreating aluminum preformed extrusions, going through a spray process, and then thermally curing the metal coating system for it to set.



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## COATED PRODUCT APPLICATIONS

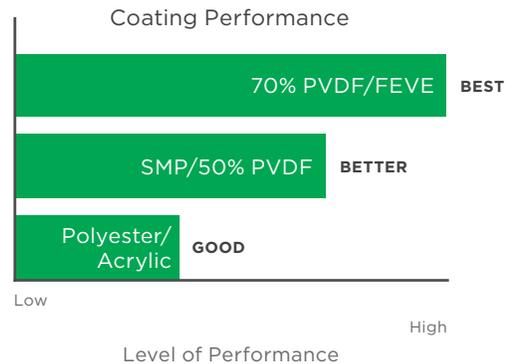
	AAMA 2603 Commercial/Industrial/ Condominium	AAMA 2604 High-Rise Commercial/ Condominium	AAMA 2605 High-Rise Monumental/ High-End Residential
Roofing Panels - Coil	•	•	•
Window, Door Frames - Extrusion	•	•	•
Store Fronts - Extrusion		•	•
Curtain Wall - Extrusion		•	•
Wall Panels - Coil and Extrusion	•	•	•
Interior Extrusions and Panels	•		

### NO LIMIT TO THE NUMBER OF APPLICATIONS:

Without coating services, metal products would have a very different look. Metal Building Components is just one industry segment for coated metal coils or extrusions; Appliance, HVAC, Lighting & Furniture, Transportation, Door: Entry & Garage, and Interior Applications are additional segments that have coated metal products.

## RESIN TYPES

The primary function of resin is to act as the binder in a paint formulation by binding all of the components together. It is the source for a coatings' durability and physical properties. It increases the physical strength and chemical resistance of the coating film, and allows for the curing process to occur while paint is drying.



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## PIGMENTS

Pigments are a key ingredient that can make or break a coating, because it provides the coating's color and function. The pigment component in any formulation can either enhance or degrade the overall performance of the protective color coating. Pigments are added to paint to provide color and can be blended to create a desired color to suit the aesthetics of an application.

### ORGANIC PIGMENTS:

Natural, very bright appearance, but have a low resistance to fade. Poor weathering

### INORGANIC (CERAMIC) PIGMENT:

Made of metal oxides and mixed metal oxides that have high resistance to fade. Excellent weathering



## COATING PERFORMANCE

Exposure to the sun (ultraviolet light), moisture and humidity, high temperatures, and temperature fluctuations can lead to color changes, chalking, blistering, corrosion, and many other physical alterations on the protective metal coating.

### WEATHER TESTING

There are two key approaches to weather testing: long-term natural exterior weather exposure and laboratory accelerated weathering. Each of these testing approaches verifies performance, application, weathering, and appearance of our sample panels. Tests and evaluations are performed to appropriate industry association standards by Sherwin-Williams technical experts.

### ACCELERATED TESTING

Special environmental cabinets and instruments are used to speed up the weathering process and measure its effects under extreme conditions.



### NATURAL EXPOSURE

Exterior weather exposure (natural weathering) involves placing sample panels on inclined open racks, orientated towards the sun at a 45-degree angle and in a southerly direction. This angle ensures full UV exposure.

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## TESTING STANDARDS

### WHAT IS ASTM?

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards. ASTM standards help level the playing field so that businesses of all sizes can better compete in the global economy. For more information, visit [www.astm.org](http://www.astm.org).

### WHAT IS AAMA?

American Architectural Manufacturers Association (AAMA) stands as a strong advocate for manufacturers and professionals in the fenestration industry and is dedicated to the promotion of quality window, door, curtain wall, storefront, and skylight products. They work to improve product, material, and component performance standards. For more information, visit [www.aamanet.org](http://www.aamanet.org).

### OTHER ASSOCIATIONS

Sherwin-Williams prioritizes sustainable practices. We are a proud member of the following organizations: ENERGY STAR®, U.S. Green Building Council, LEED, ILFI (International Living Future Institute) and Cool Roof Rating Council.

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## COATING CHALLENGES

### CHALKING

Chalking is caused by degradation of the resin system at the surface of the finish, due to exposure to ultraviolet (UV) rays. As the resin system breaks down, resin particles take on a white appearance and imbedded pigment particles lose their adhesion to the film.



### FADING

Fading is caused by UV and hydrolytic degradation of the resin system. Organic pigments may also deteriorate if they are present in the color. This is calculated using Delta E values - a single number that represents the distance between two colors.



### GLOSS RETENTION

Gloss refers to a coating's ability to reflect light without it scattering. Direct UV exposure can degrade the luster of the top coat.

