



Prepainted Metal Coatings: Aesthetic and Functional Properties

Prepainted metal not only offers an impeccable finish and endless color and design options, it also offers an abundance of functional properties. Coil coated metal can be made weatherproof, corrosion resistant, UV resistant, anti-bacterial and even smog-eating. It's more than just steel or aluminum coated with paint. It's the result of multiple layers, state-of-the-art coatings chemistry, and processes that provide durability and unique properties not possible with traditional coating methods.

Coil coated metal is first thoroughly cleaned and chemically pretreated, after which two to four coats of high-tech paint coatings are applied. Because prepainted metal is cleaned, pretreated, and coated when flat—before it is formed—an extremely high level of control is possible, which results in superior uniformity across the strip and throughout the coil. The separate layers within the prepainted metal system have been specifically designed and approved to work in concert to create a highly durable and robust product to meet virtually any requirement. For example, prepainted solar panels include a synergy of precisely layered high-tech coatings that absorb and reflect heat to maximize the efficiencies in energy applications.

Prepainted metal provides a highly flexible coating, capable of severe bends, while retaining an excellent degree of hardness and resistance to marking. In many applications, the demands on prepainted metal are extremely rigorous. The finish must maintain its appearance for the life of the product (50 years, or more, in some cases) by being able to resist color fade, corrosion, chemical attack, dirt retention, high temperatures, various extreme weather conditions, and daily wear and tear. No matter what the needs are, there is no comparison between the technical capabilities and durability of prepainted metal as compared with traditional painting methods. Prepainted metal can extend the life of a product, provide cost efficiencies, and even make certain high-tech products achievable.

Color

Color can add excitement and increase consumer demand for products from computers to appliances to building products. Remember the rush for avocado and harvest gold kitchen appliances in the 1970s, and red appliances more recently? You need to take advantage of trends, but changing colors as consumer tastes change can come at a huge expense for manufacturers. Adding paint lines or changing colors for short product runs can be a costly gamble. Prepainted metal offers a broader range of color without the cost.

Any color you (or your customers) can dream up is possible with prepainted steel and aluminum coils. If pink is the new black this year, you can follow the trend economically by outsourcing your painting to a coil coater. Coil coaters can even provide stylish options such as the look of brushed steel, polished copper, wood grain, fingerprint proof surfaces, and more...all to enhance consumer appeal.

Not only is the manufacturer able to introduce new, chic colors quickly, the metal often has a better quality coating. Paint and pretreatment processes used by coil coaters can be a much higher quality than most in-house operations. That's because the coil coating process paints the uncoiled steel or aluminum edge to edge, and often on both sides, with a consistent coat thickness.

Texture

In the 1980s, a new trend in architectural design blossomed in European countries such as Germany and Poland and the trend has now taken hold in the U.S. As more color and pattern options become available to the market, architects across the U.S. have been incorporating textured products into their design considerations.

While textured paint is often found in roofing applications, the visual and textural innovations of recent years have opened up textured products to a number of different residential, OEM, and commercial applications. Churches, firehouses, barns, and many other types of buildings are using textured paints to recreate the rustic feel of wood, stucco, brick, single skin metal panels, stone, or asphalt. Textured paint works well in a wainscoting, garage door, or a side wall application, where the textures can be viewed and felt up close.

Textured paint can be made to resemble the textures of countless materials, including asphalt, stone, concrete, barn siding, and other materials. With the growing number of textures and finishes available, architects can meet client demands for visual depth and eye-catching designs that differentiate them in the market and give their buildings a unique look.

Most designers find that textured products are just as durable and perform as well as any other painted metal system. Contrary to popular belief, dirt and debris becoming trapped within the paint's texture is not an issue for concern. As technology advances, the manufacturing processes for textured products have become as seamless as any other paint system.

Textured paint is designed to be scratch-resistant and reduces the appearance of oil canning, dents, and other imperfections that may occasionally be found on long panels. And for high traffic areas, textured products have the benefit of repelling fingerprints which can sometimes be highly visible on flat painted metal products.

Antimicrobial

Bacteria, mold, mildew and other fungi are growing concerns in places like medical facilities, food service, office buildings and more. Building owners and managers must protect occupants from the health threats posed by these environmental contaminants. Antimicrobial coatings are the solution.

Fingerprint Resistant

Consumers are demanding home appliances in a full magnitude of color and finishes. As a result, fingerprint resistant coatings and embossing have also grown in popularity. Fortunately, the coil coating industry kept its finger on the pulse of product design and has developed numerous fingerprint resistant coatings. Never again will your customers have to wipe away fingerprints on refrigerators or other appliances.

Solar Reflective

With reflective coatings your products can help reduce your customer's energy costs and increase their comfort. Using solar reflective coatings cuts down on heat buildup on metal roofs, trailers, campers, shipping containers and more. These cool coatings reflect infrared radiation, which is the "heat" that we sense on a sunny day. Prepainted metal roofs are energy efficient, durable and such as asphalt shingles, cedar shake, tile or even slate. Advancements in coil coating technology now make it possible for prepainted metal roofs to feature many different linear and multi-dimensional looks to complement other homes in the neighborhood. Homeowners like metal roofs because they are attractive, lightweight, durable and fire-resistant.

A variety of environmental benefits are also attributed to the rise in prepainted metal roofs. "Cool" infrared-reflecting pigment technology is specifically designed to reflect heat, helping to reduce energy needs and mitigate environmental problems like Urban Heat islands and smog.

Anti-Graffiti

Graffiti is an eye sore and a maintenance headache for commercial and industrial facilities, transportation companies, city leaders and more. In the past, preventing or eliminating graffiti was almost impossible. But now, coil coaters can provide steel and aluminum with anti-graffiti coatings that make tagging structures much more difficult and clean up much easier. Sometimes clean up requires nothing more than a garden hose.

Anti-Static

In today's high-tech manufacturing facilities, where advanced computer technology is being developed, clean rooms are required. That's because seemingly innocent particles such as lint and dust can produce product failures. A coil coater can alleviate these problems with anti-static coatings that help keep particle build up to a minimum on HVAC surfaces, manufacturing equipment and more.

Insulated Metal Panels

Prepainted IMPs provide architects the ability to create unique designs free of restriction with multiple profiles, colors, reveals and custom modular widths, resulting in aesthetically pleasing design options for horizontal and vertical applications. The coil coating process offers engineered paint systems for a wide variety of applications that also provide excellent flexibility and hardness that can be formed into a prepainted finished product with performance characteristics superior to post-painted metal.

IMPs are considered the ultimate solution for the architectural, commercial, industrial, cold storage and residential markets due to their excellent insulating and weatherproofing characteristics. IMPs have a continuous insulating foam core that is formed together between two sheets of coated metal to provide resistance to air, moisture and thermal transfer conditions for increased building envelope performance.

Interior Applications for Coil Coatings

1) Interior Walls. Prepainted interior wall panels are available in a large number of differing profiles including ribbed, insulated (foamed), composite, and architectural shallow flat styles. These panels are lightweight and are installed more quickly than traditional walls. They can also take on dramatic shapes with colors or laminates that create striking design elements.

2) Ceilings. Suspended ceiling tile systems in offices, airports, official buildings, and exhibition halls are often made with prepainted metal. These ceilings are chosen for their light weight, high heat and sound insulation qualities, durability and decorative appearance.

3) Surfacing. Back splashes, decorative wainscoting, and column surrounds are often made of prepainted metal. The durable prepainted metal with good abrasion resistant coatings hold up under heavy commercial use, providing protection and good looks for many years.

4) Interior Doors. Most all-metal door manufacturers today choose prepainted metal for its durability, ease of manufacturing and color and texture options (such as wood grain). The prepainted metal can outlast other materials such as wood, and the coating process provides many environmental benefits for manufacturers.

5) Windows. Window frames and casings can be made with prepainted metal. Prepainted metal makes it more economical for manufacturers to provide color variety and eliminates environmental compliance issues related to painting. The coating is bonded so tightly, the metal can endure the sharp bends required to make window parts. Plus, metal frames often outlast wood frames.

6) Lighting Fixtures. Manufacturers use this prepainted metal to fabricate lighting fixtures such as recessed lighting, housing and trim and fluorescent ceiling fixtures. Highly reflective coatings are applied to light gauge metal with the coil coating process.

7) Cabinetry. Manufacturers of industrial and residential cabinets use metal that has been painted by a coil coater because of the combination of great looks and hassle-free maintenance. Decorative coatings (such as bold colors, the look of stainless steel, wood patterns, faux patinas, and more) are applied to the metal to provide attractive appearance. Coatings also provide functional advantages, including corrosion resistance, conductivity, and functionality.

As you can see, prepainted metal covers the needs of countless applications where appearance and functionality are critical.