

Understanding the Powder Coating Process



What is Powder Coating?

Powder coating is a dry finishing process where finely ground particles of pigment and resin are electrostatically charged and sprayed onto a grounded part. The part is then baked in a curing oven, at which time, the powder melts, bonds, and cures, leaving an attractive, uniform, high quality, and durable finish. Prior to coating, parts are pre-treated to ensure optimal surface preparation and paint adhesion.

Why Powder Coat?

Powder coating is the fastest-growing finishing technology in North America. Its growth can largely be attributed to the following features:

Excellence of Finish

Today's consumers expect more. They want products that are durable, attractive and long-lasting. When they learn that powder coating protects and preserves like no other, it's the finish they want from manufacturers.

Powder coatings offer a range of both extreme and decorative performance properties. Compared to other finishes, powder coated surfaces provide greater resistance against chipping, scratching, fading, and corrosion. Colour selections are virtually unlimited. High and low gloss, metallic and clear finishes are readily available. Textures can also include various options, such as smooth surfaces, wrinkled or matte finishes and rougher textures designed to hide surface imperfections.

Environmental Protection

Powder coatings are much more environmentally friendly. While liquid finishes contain solvents that have pollutants, known as volatile organic compounds (VOCs), powder coatings have no solvents and therefore release negligible amounts, if any, VOCs into the atmosphere. Costly waste containment and disposal are not required. Plus, overspray or unused powder is reclaimed and re-used, virtually eliminating the waste commonly found in liquid finishing processes.

Efficiency

With powder coating, there are none of the runs, drips or sags found with liquid finishes. Drying or flash-off time is not required, so the powder coating production lines move more efficiently than standard paint lines. Parts can also be coated using automatic processes that



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ultimately deliver significantly lower reject rates. With the use of appropriate application equipment, materials and recovery methods, a 95% - 98% powder utilization efficiency is readily achievable.

Economies of Scale

In addition to its efficiency, cost savings are possible because of the simplified line process that powder coating offers. Parts can be racked closer together on the conveyor and pass more quickly through the production line, allowing for lower per unit costs. These production efficiencies are economically beneficial to both the painter and the customer.

Energy Savings

The exhaust required in powder coating ovens is lower and therefore helps reduce energy consumption. While ovens that cure solvent-based coatings must heat and exhaust huge volumes of air to protect against potentially explosive fumes, the exhaust volume of a powder coating oven is lower and more manageable. The air can even be recycled back into the plant.

8-Stage Pre-Treatment Wash

While three-stage and five-stage wash systems are most common among custom coaters, Warner Custom Coating has gone the extra mile and equipped its facilities with a robust eight-stage pre-treatment, stainless steel wash system to enhance the long-term performance of your product.

This superior eight stage system was designed to ensure that our customers' products are properly cleaned and free of oils, lubricants and other impurities prior to painting. Topped with a re-circulating reverse osmosis rinse, our customers can be confident that their product has been properly cleaned for a superior finish.

Energy efficient plate and frame heat exchangers, automatic sludge removal, misting fresh water halos, as well as a final blow-off unit further enhance our wash process to ensure premium product preparation.

Our entire wash system is PLC controlled. Temperatures, tank levels, pressures, motors, pH levels and conductivity are monitored closely, at all times, to ensure the performance of all eight stages is optimized - giving your product the ultimate cleansing experience.

