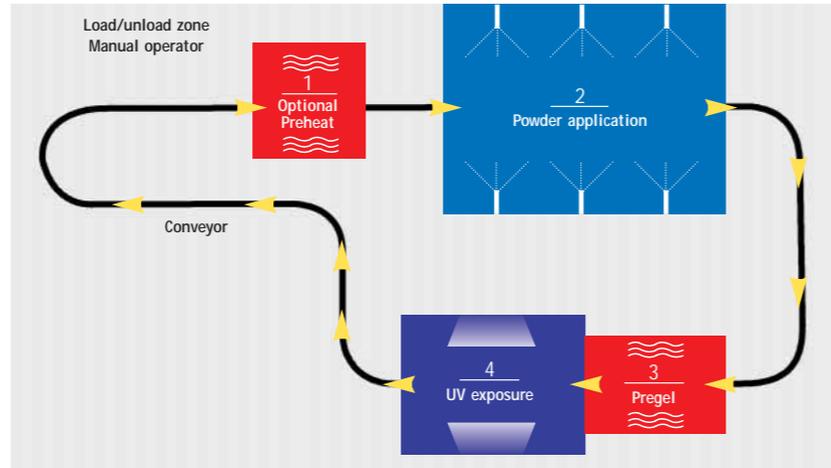


The process for applying UV curable powder coatings is similar to that of conventional thermoset cure. Substrates are pre-treated in a traditional manner, although some substrates (wood, MDF) may only need a quick surface warm-up prior to the powder application. This can be accomplished with a combined convection/infrared oven. Once the substrates are pre-conditioned, they are then moved through a spray booth, where the powder coatings are applied. After this application, the line moves through a fusion booth, where the coatings are melted until the desired flow is reached. While still molten, the pieces are then moved into the adjacent booth, where they are exposed to waves of UV. After the cure is complete, the line moves out of the UV booth, where the parts can be immediately removed as there is virtually no cooling down time necessary with UV curable powder coatings.

**UV CURE POWDER COATINGS PROCESS.**



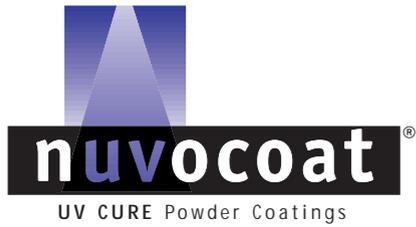
*UV curable powder coatings for heat sensitive substrates*



**Protech's unique testing facility**

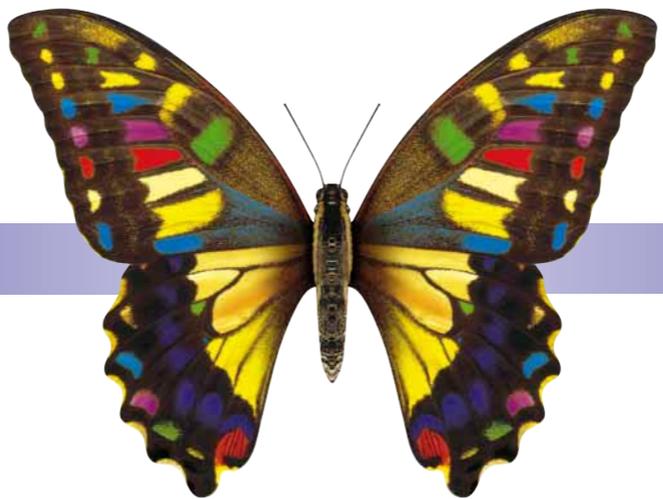
*Protech operates the only 3-D vertical powder coating line in North America exclusively dedicated to the development of UV curable powder coatings. This line, installed in our Toronto facility, is for demonstration purposes only, and is available to existing and potential customers. The emphasis here is on UV cure for MDF, but other substrates may also be tested. Protech provides technical and application support, and supplies the customers with a full display and explanation of the workings and benefits of UV curable powder coatings. This new state-of-the-art lab facility will reproduce the most challenging UV curable application, including engineered wood surfaces (MDF). A tour of this installation is a must for anyone involved in applying powder coatings.*

*Protech is one of the world's leading producers of powder coatings. While a long list of powders for general consumption is kept in stock, much of Protech's production is geared toward custom formulations, each developed and tailored for a particular customer or application. Batch-to-batch reproducibility assures Protech's customers of consistent appearance, properties and application. Protech's success in the marketplace is the result of a quality product, innovation, and unsurpassed dedication to customer service.*



One of the most important recent developments in the field of powder coatings is the introduction of powders that are UV (ultra-violet) curable. This process combines the advantages of powder coating with the benefits of UV technology, opening the door to a whole new range of application opportunities.

These powder coatings are of the highest quality and can be fashioned in different colors and textures. They show excellent chemical, stain and scratch resistance, and are produced with an extremely durable finish. Due to short curing cycles and low temperature requirements, UV curable powder coatings offer time, energy and space savings, resulting in much higher productivity and lower costs. UV cure also realizes the ability to coat heat sensitive substrates such as plastic, sensitive metal alloys, wood, and engineered wood products like MDF. Temperatures during the UV cure process can be maintained as low as 80°C (175° F). These lower temperatures allow substrates that previously could not be cured with traditional thermoset cure to now be powder coated.



## UV cure opens a whole new range of possibilities for powder coatings

### APPLICATIONS

UV curable powder coatings flow out at low temperatures and can be cured at a very fast rate. These characteristics make UV curable powder coatings an ideal application for heat-sensitive substrates. Some examples are given below.

**Plastics:** Several types of plastic, such as PVC, SMC and polycarbonate, may be coated with UV cured powder coatings. Vinyl flooring would be an excellent candidate for UV powder coatings.

**Pre-assembled Parts:** A current commercial application for UV curable powder coatings is in the coating of pre-assembled products. These products are primarily made of metal that can withstand high heat but they may also contain components such as heat-sensitive plastic.

UV cure allows the entire piece to be coated at once without the risk of internal damage.

**Large Mass Parts:** The coating of large, heavy metal parts requires long cure times at high temperatures, and an equally long cooling down period. With UV curable powder coatings, the cure time is very short and the cooling stage is virtually eliminated, providing great energy and time savings.

**Wood:** Wood, wood compounds and engineered wood products such as MDF represent the most significant applications for UV curable powder coatings. The low cure temperature of UV opens a whole new range of possibilities for powder coatings, including cabinetry, office furniture, shelving, and wood flooring. UV powder coatings provide excellent edge coverage, high durability, and the ability to coat on a three-dimensional basis.

### ADVANTAGES

- Environmentally friendly  
-no solvent emissions
- Energy savings  
-lower oven temperatures  
-significantly faster curing times
- Time savings  
-shorter oven dwell period  
-no cooling down stage required  
-less sanding needed for MDF products  
-only single layer of application required
- Space savings  
-less floor space required

### CHARACTERISTICS

- ability to coat heat sensitive substrates and temperature-sensitive pre-assembled products
- adaptable to three-dimensional objects
- superb edge coverage (MDF)
- produces very durable finish
- excellent chemical, stain and scratch resistance
- available in a wide range of colors and textures

For coating process please see back.

